Evaporation and Evapotranspiration in Alberta

April 2013

Alberta Government

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FOREWORD

Alberta Environment and Sustainable Resource Development (ESRD) is responsible for evaluating water supplies and trends, as well as administering the policies, regulations and legislation for the use of water in Alberta. Evaporation from streams and lakes, and evapotranspiration from vegetation and soils, are important hydrologic components to quantify in order to characterize local and regional water supplies and demands for water use. For example, evapotranspiration is generally the second largest water balance component in Alberta watersheds, and evaporation is one of the largest water losses from most Alberta lakes. As well, water use projects that have reservoirs, ponds or canals to store and move surface water will have evaporative losses from those surfaces that need to be considered in determining the overall project water demand for licensing and management purposes.

In 1999, ESRD produced a report that summarized estimates of evaporation and evapotranspiration using a mathematical model (set of equations) that was considered most generally applicable for Alberta. This report, "Evaporation and Evapotranspiration in Alberta" by R. Bothe and C. Abraham, 1999, uses the Morton Method and contains a description of the methodology used. It also contains example analyses for which evaporation and evapotranspiration data can be used and an appendix containing tables of the monthly evaporation (potential and shallow lake) and evapotranspiration (potential and aerial) data from 1912 to 1996 for 20 locations across Alberta. Subsequently, a short addendum was included to update five stations with available data to 2001.

ESRD committed resources to update both the 1999 report, as well as software and processes used so that in the future this dataset can be updated more easily. In January 2011, ESRD commissioned Golder Associates Ltd. to complete the work necessary for the update. ESRD required the update to use the same model as the 1999 report in order to maintain a continuous dataset with a consistent method.

Once the report was received, ESRD compiled the original data and both updates into one continuous dataset, including reconciling the values to be used where overlap of the computational periods occurred. ESRD considers this dataset to be our official dataset of evaporation and evapotranspiration in Alberta. The final combined dataset for 20 locations in Alberta, from 1912 to 2009 is presented as a Data Table Compendium. The Compendium will be available as a separate extracted document for ease of distribution and routine data updates. Data is available as an electronic file by contacting the Ministry.

Following the Data Table Compendium are two reports by Golder Associates that summarize the work undertaken and accepted by the Ministry: 1) the main report describing the update, and 2) a review of evapotranspiration methods.

Data Table Compendium:

Evaporation and Evapotranspiration in Alberta 1912-2009

April 2013

Alberta Government

FOREWORD

This Data Table Compendium is taken from a more extensive report titled "Evaporation and Evapotranspiration in Alberta" published by Alberta Environment and Sustainable Resource Development in April 2013. For more detailed information on the Morton Method, how data is computed and how it should be applied, please consult the full report. This Compendium provides only a summary of the computed evaporation and evapotranspiration data in tabular format for the convenience of water resource practitioners.

CONTENTS

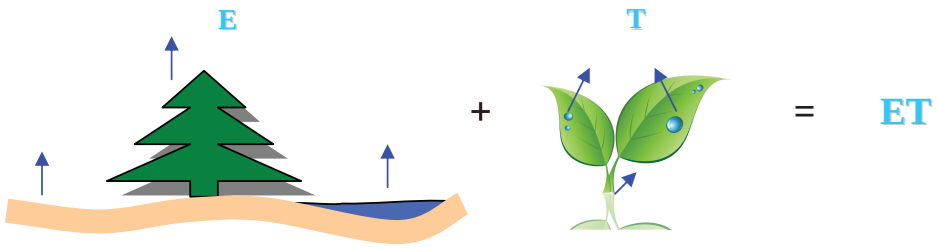
Evaporation and Evapotranspiration in Alberta – The Morton Method

FACTS AT YOUR FINGERTIPS

Evaporation (E), Transpiration (T) and Evapotranspiration (ET)

ET= E+T

Evaporation is the process whereby liquid water is converted to water vapor and removed from the evaporating surface, such as lakes, rivers, pavements, soils and wet vegetation. *Transpiration* is the process of water loss from plants. *Evapotranspiration* is the loss of water from the earth's surface through the combined processes of evaporation and transpiration.



Terminologies

Provincially averaged annual evaporative loss in Alberta

PE: 929 mm
PET: 902 mm
SLE: 677 mm
AET: 364 mm

- ***Potential Evaporation (PE):*** the rate of evaporation, under existing atmospheric conditions, from a surface of water that is chemically pure and has the temperature of the lowest layer of the atmosphere.
- ***Shallow Lake Evaporation (SLE)***: the evaporation from a water surface sufficiently large that the effects of the upwind shoreline transition zone can be ignored and the seasonal sub-surface heat storage is insignificant.
- ***Potential Evapotranspiration (PET):*** the amount of water evaporated (both as transpiration and evaporation from the soil) from an area of continuous, uniform vegetation that covers the whole ground surface and that is well supplied with water.
- ***Actual or Areal Evapotranspiration (AET):*** the amount of water lost to evapotranspiration from the soil– plant continuum by an actively growing plant or crop.

Average Provincial Water Balance & Evaporation in Alberta (1980-2009)

P=Precipitation, R= Runoff, G=Groundwater Recharge, Estimated actual evapotranspiration from water balance =P-R-G

The actual evapotranspiration in Alberta is about 74% of its total precipitation

	PE*	PET*	SLE	AET	P	R	G	P-R	P-R-G
Min (mm)	794	769	598	298	300	0	0	52	19
Max(mm)	1245	1196	840	446	1407	531	125	854	835
Mean (mm)	929	902	677	364	502	98	41	416	373
Std.Dev. (mm)	94	89	59	27	121	110	22	58	57
Volume (billion m^3)	616	598	449	241	333	65	27	275	247

**Note that, the PET or PE is an indication of the environmental demand for evapotranspiration or evaporation. A value of PET or PE greater than the actual precipitation will dry out the soil, unless more precipitation occurs.*

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Evaporation and Evapotranspiration in Alberta – The Morton Method

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Spatial Distribution of Evaporative Losses in Alberta

PE, PET and SLE show highest evaporative amounts at the south-east corner of Alberta. In contrast, as south-east Alberta is mostly dry, it shows lower AET

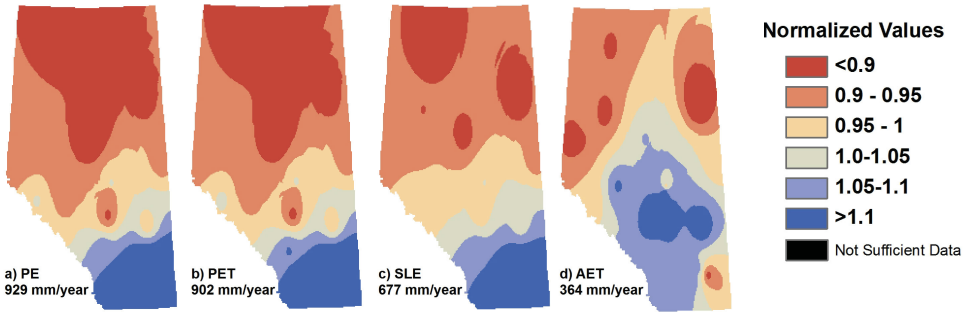


Figure: Spatial distribution of mean annual evaporative losses over Alberta for 1980-2009 (normalized by corresponding mean values for Alberta).

Factors Affecting Evaporation (E) and Evapotranspiration (ET)

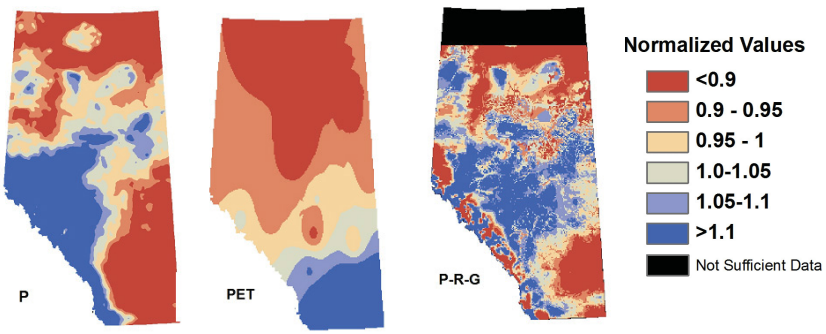
Moisture supply in a soil-plant surface is usually constrained. Thus actual ET is less than potential ET

- More Solar Energy → More Evaporation & Evapotranspiration
- Higher Altitude (Cooler Temperatures) → Less Evaporation & Evapotranspiration
- More Humidity → Less Evaporation & Evapotranspiration
- More Wind Velocity → More Evaporation & Evapotranspiration
- More Supply of Moisture to the Soil-Plant Surface → More Evapotranspiration

Estimation of E and ET by Morton's Model

As a surface undergoes drying from initially moist conditions, the potential evapotranspiration (PET) increases while actual evapotranspiration (AET) decreases. Morton's Complementary Relationship Areal Evapotranspiration (CRAE) Model uses this relationship between PET and AET to estimate the evaporation from a water surface or the evapotranspiration from terrestrial surfaces. The complementary relationship of PET and AET is also evident from the spatial distribution of Precipitation (P), PET and estimated AET derived from a water balance of [AET=P-R-G] over Alberta. As south-east Alberta is comparably dry the PET is relatively higher while the AET is relatively lower. In contrast, as west-central Alberta is comparably wetter, the PET is relatively lower while the AET is relatively higher.

ESRD used Morton's CRAE Model to estimate monthly PE, SLE, PET and AET at 20 stations across Alberta from 1912 to 2009



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Data Requirement for Morton's Model

ESRD's monthly estimation of evaporation and evapotranspiration for Alberta (1912-2009) by Morton's model are based on the following data:

- Station Fixed Data:
  - Latitude (degree)
  - Elevation (meter)
  - 30 years (1970-2000) annual average precipitation (mm)
- Monthly Time Series:
  - Monthly mean air temperature (°C) and dew point temperature (°C)
  - Solar radiation measured, or estimated by: $R_s = K_t * R_a * \sqrt{(T_{max} - T_{min})}$ $MJm^{-2}day^{-1}$

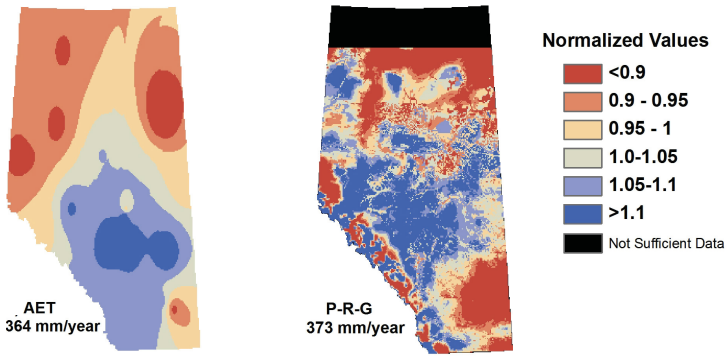
    R_a → Extra-Terrestrial Radiation ($MJm^{-2}day^{-1}$)
    K_t → Adjustment Coefficient (0.16)
    T_{max} → Daily Maximum Temperature (°C)
    T_{min} → Daily Minimum Temperature (°C)

Morton's CRAE model neither uses nor requires data input about the soil –vegetation system

How Accurate are Estimates of ET by Morton's Model?

Considering all of Alberta, the mean annual actual evapotranspiration estimated by Morton's model (364 mm) and its spatial distribution are quite compatible with that estimated from the simple water balance model (373 mm) for Alberta.

When compared to FAO Penman-Monteith (Standard-Grass) model, Morton's model provides lower PET in fall-winter and slightly higher PET in summer



Limitations of Morton's Model

The shortest recommended interval for estimation of E or ET by Morton's model is 5 days

- Requires very accurate humidity data.
- Daily estimates of evapotranspiration require adjustments from weekly/monthly estimates.
- Can not be used near sharp environmental discontinuities (e.g. abrupt land cover changes).
- The model inputs require data from a weather station whose surroundings are representative of the area of interest.
- Cannot be used for predicting impact of natural or man-made changes to land cover or vegetation.

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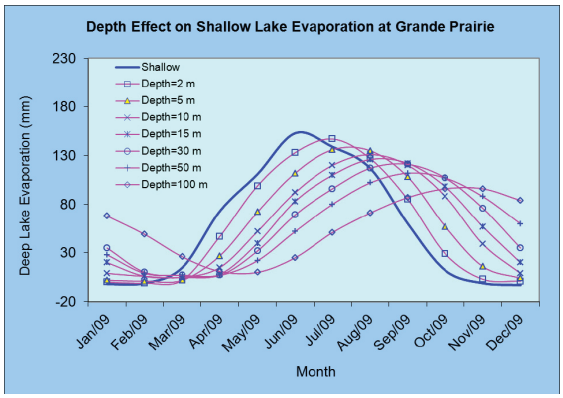
Evaporation and Evapotranspiration in Alberta – The Morton Method

FACTS AT YOUR FINGERTIPS

Depth Effects on Morton's Shallow Lake Evaporation (SLE)

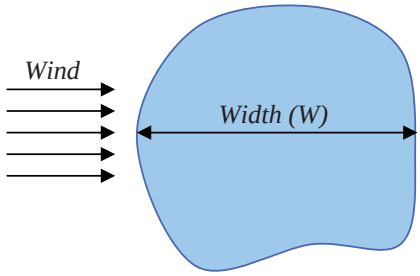
The plot on the right shows how monthly distribution of SLE can be altered with lake depth, considering a hypothetical lake at Grande Prairie having total dissolved solids (TDS) concentration of 100 ppm



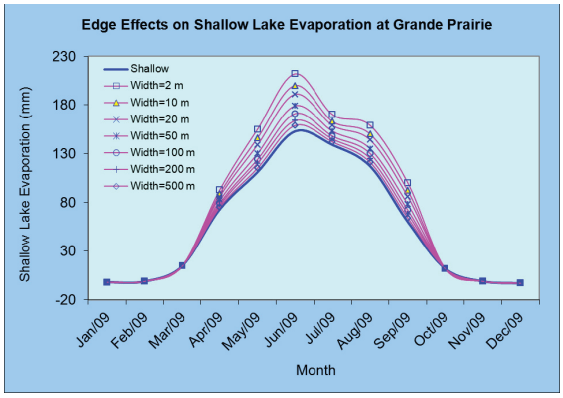
Morton's SLE does not consider the seasonal changes in subsurface heat storage within water bodies. Even though annual gross evaporation totals remain the same, monthly distribution of evaporation is significantly altered with increasing lake water depth because of subsurface heat storage effects. To apply Morton's SLE for deep lakes, an approximating method of heat storage routing has to be applied to compute Deep Lake Evaporation (DLE). SLE to DLE conversion is complex and iterative. A detailed procedure can be found in Morton's Paper*.

Morton's SLE for Ponds/Dugouts: Edge Effects

SLE is comparatively higher at the upwind edge of a lake (transition zone of land and water body) as the hot dry air from land surface approaches a water body. For a large lake this effect can be ignored as the increased SLE at upwind edge diminishes quickly in the downwind direction and become constant. However, for small ponds or dugouts this higher rate of SLE becomes increasingly significant.



The plot on the right shows how SLE can be altered with lake width along the windward direction, considering a hypothetical lake at Grande Prairie



For a small pond or dugout having width of W meters in the direction of prevailing wind, shallow/deep lake evaporation of E_L mm and potential evaporation (PE) of E_P mm, the adjusted lake evaporation would be*:

$$E_{Pond} = E_L + (E_P - E_L)\frac{\ln(1+W/13)}{W/13} \text{ mm}$$

*Morton, F.I., 1983. "Operational Estimates of Lake Evaporation". *Journal of Hydrology*, 66, 77-100.

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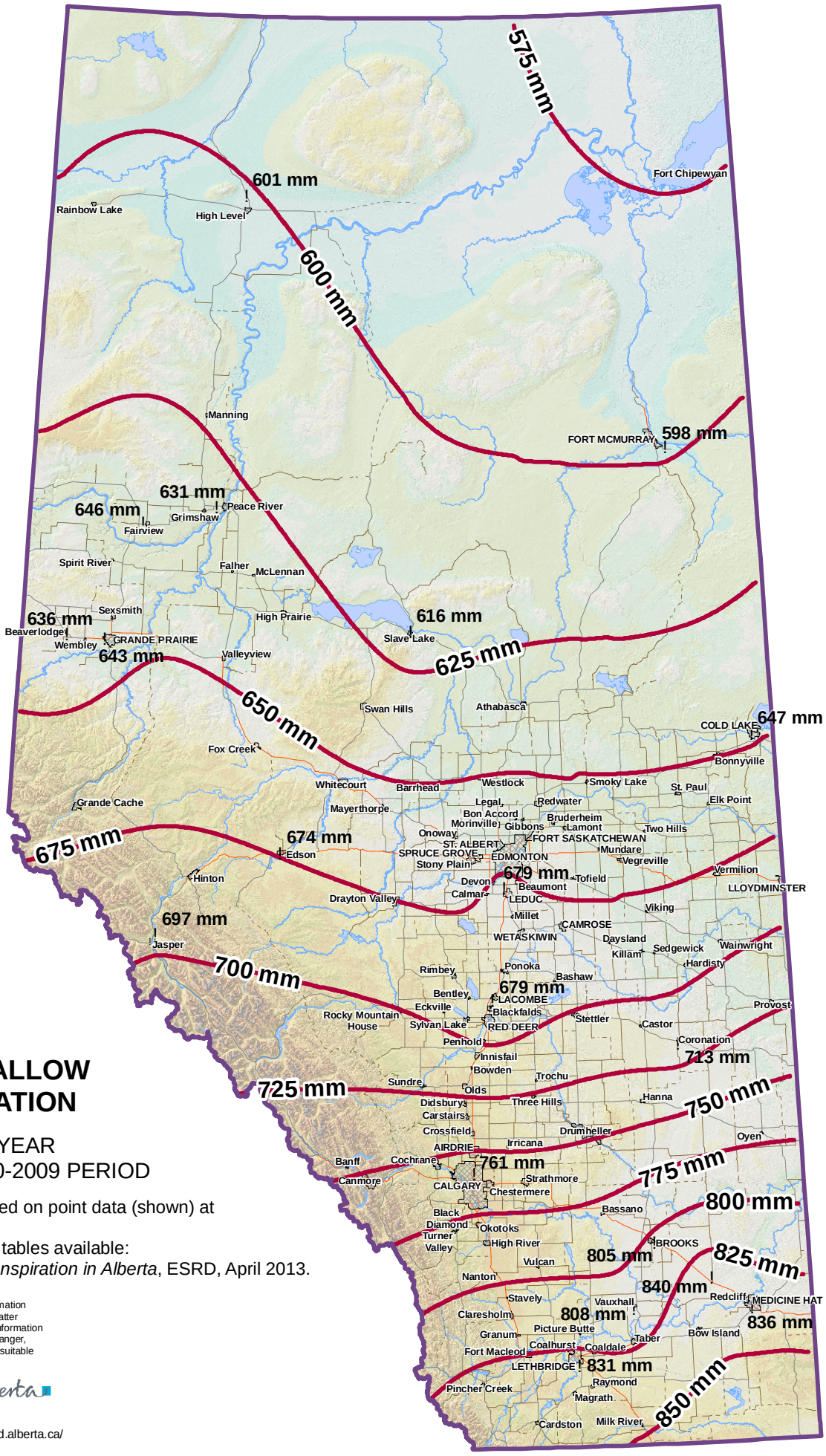

MORTON'S SHALLOW LAKE EVAPORATION

MILLIMETRES PER YEAR
AVERAGE FOR 1980-2009 PERIOD

Contours interpolated based on point data (shown) at climate measuring sites.
Complete report and data tables available:
Evaporation and Evapotranspiration in Alberta, ESRD, April 2013.

Alberta

Date April 2013

http://esrd.alberta.ca/

Beaverlodge

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
1922													
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1925													
1926													
1927													
1928													
1929													
1930													
1931													
1932													
1933													
1934													
1935													
1936	-1	-1	21	54	111	125	140	108	41	17	5	-1	619
1937	-1	1	22	55	110	138	148	98	55	18	1	0	645
1938	-3	-1	28	60	112	124	153	98	68	17	2	-1	657
1939	0	1	24	68	103	124	135	124	47				
1940	8	11			95	79	131	92	63	19			
1941					102	122	145	89	36	21			
1942					107	128	132	107	54				
1943					92	116	137	102	62				
1944			23	71	112		147	105	50	22	-8		
1945		-3		51			141	116		19	-6	-9	
1946	-4	-2	26	65	114	116	138	117	53	19	-5	-7	630
1947	-5	-5	4		115	112	129	83	46	19	-3	-5	
1948	-4	-6	1	7	123	162	128	92	55	20	-2	-7	569
1949	-6	-5	2	69	92	118	130	98	55	14	3	-7	563
1950		-7	-2	32	107	157	137	94	67	21	-7		
1951		-5	-4	58	94	112	119	88	49	5			
1952				61	118	108	136	87	54	21	0		
1953					110	103	116	111	50	20			
1954		0	6	42	98	118	138	81	48	19	3	0	
1955	1	0	7	55	103	150	126	117	54	20	-2	-1	630
1956	-1	1	21	39	70	112	149	108	47	18	7	-1	570
1957	-2	4	29	64	103	120	117	99	59	17	4	2	616
1958	2	0	10	55	127	137	166	118	44	19	5	-1	682
1959	-1	4	28	62	113	118	153	85	41	17	1	2	623
1960	-2	2	9	70	92	107	159	107	58	17	0	-2	617
1961	1	1	21	68	102	139	142	123	43	17	0	-1	656
1962	5	-1	22	62	94	135	134	90	49	19	3	-2	610
1963	-2	3	14	58	113	140	125	117	50	20	-2	0	636
1964	-1	8	5	61	84	120	127	93	41	20	-1	-1	556
1965	-1	1	32	51	106	135	142	110	36	20	-3	-1	628

Beaverlodge

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	3	27	54	109	123	120	96	54	19	-1	-1	601
1967	-1	2	0	63	102	136	142	120	55	16	2	-1	636
1968	-1	7	25	60	109	123	131	97	41	16	4	-2	610
1969	-1	0	26	61	115	131	140	103	43	20	4	-1	641
1970	-2	4	21	59	99	136	145	123	50	22	-3	-1	653
1971	-2	9	20	65							0	-3	
1972	-1	-1	15	59	131	118	128	113	38	18	-2	-1	615
1973	-1	2	29	60	112	124	141	109	53	16	-2	0	643
1974	-1	2	3	65	83	153	129	102	47	20	5	0	608
1975	-3	0	6	63	116		146	90	62	16	-1	-2	
1976	2	2	23	80	106	98	130	85	58	19	5	1	609
1977	0	10	25	77	98	138	117	97	45	20	0	0	627
1978	-1	0	26	46	105	140	140	98	40	21	3	-1	617
1979	-4	-1	31	53	92	126	137	117	53	19	5	-3	625
1980	-2	-1	23	81	106	124	137	96	40	22	5	-1	630
1981	-7	-1	32	50	107	132	146	137	56	16	3	-3	668
1982	-1	0	8	63	103	157	130	81	51	20	0	-1	611
1983	0	1	19	65	110	107	130	128	47	19	-4	-2	620
1984	1	9	29	65	90	117	150	103	37	15	-1	-1	614
1985	1	1	24	65	116	122	155	99	36	15	-1	3	636
1986	1	-3	25	51	98	134	118	123	38	18	-1	-7	595
1987	-4	-2	6	73	115	137	123	87	59	21	2	0	617
1988	-2	2	29	72	107	112	128	102	54	21	-3	-3	619
1989	-2	-1	5	78	107	142	145	86	48	17	1	-3	623
1990	-2	0	35	61	98	133	156	110	64	15	-1	-3	666
1991	-4	4	25	74	124	119		108	55	16	-4	-2	
1992	-4	-1	36	60	100	135	138	115	34	17	-1	-2	627
1993	-4	-2	32	64	110	121	106	98	57	21	3	-3	603
1994	-3	-1	35	68	113	127	145	110	49	18	-3	-4	654
1995	-3	1	29	60	133	141	130	100	69	20	-1	-4	675
1996	-3	4	17	65	99	131	138	111	46	19	2	-1	628
1997	1	11	25	64	103	130	134	106	53	17	0	-2	642
1998	-4	-2	37	80	130	132	142	122	57	16	-4	-5	701
1999	-5	1	38	73	93	125	128	108	53	21	2	1	638
2000	-3	6	32	71	86	115	132	79	47	18	5	-4	584
2001	2	3	33	63	105	113	127	108	58	19	-1	-5	625
2002	-4	7	4	48	102	145	135	104	49	17	4	-5	606
2003	-4	-1	21	57	107	132	148	103	52	20	-1	-5	629
2004	-3	8	32	56	100	130	134	98	43	18	4	-4	616
2005	-5	10	28	72	120	120	130	99	54	20	4	-8	644
2006	-7	8	22	82	114	148	143	116	54	19	-3	-4	692
2007	1	-4	30	71	104	136	146	84	52	19	2	-6	635
2008	-4	3	37	63	106	138	144	103	56	21	1	-3	665
2009	0	4	28	73	110	151	137	117	61	14	3	-3	695
MEAN	-2	2	21	62	106	128	136	103	51	18	0	-2	628
MIN	-7	-7	-4	7	70	79	106	79	34	5	-8	-9	556
MAX	8	11	38	82	133	162	166	137	69	22	7	3	701
COUNT	*64*	*68*	*67*	*68*	*72*	*70*	*72*	*73*	*72*	*70*	*67*	*64*	*58*

Brooks

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
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1950													
1951													
1952													
1953						131	128	143	64	40	12	3	
1954	-2	14	17	51	112	117	173	114	60	37	11	5	709
1955	-3	-1	17	62	102	168	156	153	64	31	1	0	750
1956	-2	-2	20	71	124	144	163	135	67	30	11	3	764
1957	-2	-1	35	82	141	132	144	119	67	24	9	6	756
1958	7	-1	8	66	147	141	158	141	68	34	7	0	776
1959	-1	-2	36	75	111	144	175	127	55	24	6	5	755
1960	0	1	29	73	108	143	183	127	76	29	6	-1	774
1961	4	10	34	68	111	177	159	141	63	28	9	-1	803
1962	-1	-1	13	79	114	143	156	120	69	31	11	4	738
1963	-2	10	35	70	114	116	170	139	76	36	9	1	774
1964	-1	15	27	63	106	125	178	126	47	36	8	-2	728
1965	-2	-1	10	66	105	132	176	128	42	34	2	7	699

Brooks

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	-3	41	71	128								
1967		-1	4	56	102	146		148	93	29	8	-1	
1968	0	13	42	72	119	136	164	105	65	27	7	-4	746
1969	-2	-2	1	76	130	134	172	158	68	24	11	-1	769
1970	-3	-1	10	60	123	148	170	149	67	28	-2	-3	746
1971	-3	-2	6	73	138	146	170	154	63	29	6	-3	777
1972	-2	-2	23	83	126	155	142	143	54	19	2	-3	740
1973	-3	-3	41	61	133	143	179	130	67	28	-4	-4	768
1974	-3	-3	6	70	102	168	171	102	67	37	9	-1	725
1975	-3	-2	4	46	102	158	154	123	57	25	9	-4	669
1976	-3	11	31	79	135	124	152	131	80	29	9	-1	777
1977	-4	16	38	92	112	159	149	109	48	33	7	-3	756
1978	-3	-3	9	56	112	155	147	121	62	33	0	-3	686
1979	-2	0	36	50	107	151	167	134	80	30	-6	4	751
1980	-2	1	31	87	134	147	166	113	66	32	9	2	786
1981	4	11	41	86	108	135	150	148	78	25	11	-3	794
1982	0	1	21	73	110	143	157	131	66	30	3	1	736
1983	1	8	27	77	124	125	148	144	66	31	8	-1	758
1984	0	17	28	77	110	142	171	138	51	24	0	-1	757
1985	-3	0	23	69	130	163	168	114	45	25	-2	-1	731
1986	5	2	36	73	114	146	144	132	43	32	3	2	732
1987	6	14	25	88	131	154	149	112	79	33	10	3	804
1988	2	13	35	96	136	159	164	130	69	35	8	5	852
1989	1	1	31	79	114	153	166	107	76	33	7	0	768
1990	2	12	44	75	115	147	161	132	95	28	8	0	819
1991	-2	15	36	81	116	133	181	140	72	28	6	4	810
1992	6	14	39	77	121	140	136	131	62	27	5	0	758
1993	-1	4	36	77	125	142	126	124	67	31	10	7	748
1994	3	1	42	77	126	151	177	135	83	28	9	0	832
1995	-2	13	35	67	121	150	148	133	76	26	9	-1	775
1996	1	14	29	70	92	151	174	144	56	29	1	-1	760
1997	-2	0	33	82	122	147	169	135	82	25	8	5	806
1998	-4	17	38	93	154	138	176	152	82	34	5	-3	882
1999	-6	16	46	87	124	149	155	133	77	36	11	3	831
2000	-7	-6	43	89	137	155	182	136	73	34	-4	-8	824
2001	-5	-4	46	89	146	154	176	160	85	34	11	-9	883
2002	-7	17	-1	79	132	150	181	122	70	26	7	-8	768
2003	-8	-5	38	80	123	147	184	148	72	36	-7	-10	798
2004	-6	-6	44	98	124	150	168	122	71	32	11	-8	800
2005	-7	19	48	92	140	128	168	124	72	33	8	2	827
2006	4	16	28	94	134	156	191	147	81	29	7	5	892
2007	7	4	52	75	134	165	196	137	76	36	11	-4	889
2008	-1	1	48	84	134	154	172	142	79	37	11	-4	857
2009	-2	-2	38	90	146	165	164	130	96	27	12	-5	859
MEAN	-1	5	29	76	122	146	164	132	69	30	6	0	779
MIN	-8	-6	-1	46	92	116	126	102	42	19	-7	-10	669
MAX	7	19	52	98	154	177	196	160	96	40	12	7	892
COUNT	*55*	*56*	*56*	*56*	*56*	*56*	*55*	*56*	*56*	*56*	*56*	*56*	*54*

Calgary International Airport

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921										34	7	-2	
1922	1	1	24	48	116	118	103	106	59	29	-11	-4	590
1923	3	11	31	59	95	120	120	109	65	35	2	-6	644
1924	-6	17	14	73	121	110	146	100	64	29	-5	-4	659
1925	-4	-2	29	64	141	137	159	115	49	-2	8	2	696
1926	6	12	38	88	103	129	153	93	49	30	-1	-6	694
1927	-5	-2	23	71	79	119	144	108	58	29	-4	-3	617
1928	-4	1	28	62	143	109	157	112	77	26	11	-9	713
1929	-4	-8	36	55	103	143	193	121	53	31	-3	-3	717
1930	1	0	17	64	97	122	168	120	58	27	5	-7	672
1931	-5									31	1	-3	
1932	-4	0	3	61	105	133	151	120	71	26	-4	-5	657
1933	-5	-2	23	55	106	156	170	129	65	24	10	0	731
1934	6	16	30	91	125	123	163	129	47	27	9	5	771
1935	0	16	32	60	107	114	154	116	69	26	6	4	704
1936	1	0	29	60	126		181	123	56	29	12	5	
1937	2		26	70	125	131	155	123	66	27	7	4	
1938	7	2	34	68	104	130	150	122	89	33	7	2	748
1939			30			95			53	24	10	3	
1940	0	1	23	51	116	145	140	138	61	26	3	0	704
1941	3	14	33		95	142	165	107	49		11		
1942	6	-5	32	60	94	98	138	107	57	25	-9	-2	601
1943	-2	10	11	77	93	95	159	130	75	28	11	4	691
1944	7	2	29	69	109	116	147	119	60	38	7	3	706
1945	-1	5	32	55	98	109	163	132	52	29	0	-4	670
1946	2	10	38	81	109	114	169	122	60	27	2	-2	732
1947	3	-1	20	72	114	105	175	103	56	27	3	2	679
1948	7	-2	4	44	107	130	160	120	69	34	9	-2	680
1949	-5	-1	32	66	106	132	143	134	75	23	12	-4	713
1950	-2	2	6	52	100	126	140	113	69	22	2	0	630
1951	-3	0	6	64	107	93	147		53	22	8	-1	
1952	-4	-1	4	77	117	116	140	117	62	35	10	4	677
1953	-1	5	32	45	86	99	154	127	64	34	10	5	660
1954	-1	13	15	40	92	103	158	94	56	32	10	5	617
1955	5	4	16	57	91	155	126	143	58	28	0	-1	682
1956	-2	1	32	60	127	123	146	122	56	26	11	5	707
1957	-2	4	29	57	117	108	166	98	59	23	8	4	671
1958	6	-1	3	54	135	117	146	131	64	35	9	5	704
1959	-1	3	35	75	101	122	175	109	50	24	7	4	704
1960	1	0	31	74	108	134	176	120	71	29	9	4	757
1961	7	14	31	63	107	176	145	134	57	25	10	-2	767
1962	2	-1	33	77	104	144	149	87	72	30	10	3	710
1963	-1	9	34	66	118	131	161	137	74	37	9	0	775
1964	4	17	27	65	106	124	167	126	49	34	5	-3	721
1965	-1	3	13	64	98	111	161	123	43	35	2	-3	649

Calgary International Airport

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	5	39	59	120	131	151	113	76	27	-1	-4	714
1967	-3	12	7	53	100	145	170	142	86	28	9	0	749
1968	-2	16	37	66	108	114	153	92	62	29	10	-1	684
1969	0	-1	35	72	113	122		149	62	27	12	4	
1970	-1	15	35	78	114	149	167	146	71	32	4	-1	809
1971	1	14	38	77	134	143	171	150	65	32	9	-2	832
1972	0	0	35	78	131	137	117	138	62	26	10	-2	732
1973	7	15	43	63	130	149	177	127	67	32	-2	0	808
1974	0	15	29	78	93	174	164	98	66	35	10	5	767
1975	7	0	29	63	108	137	163	118	83	30	10	4	752
1976	8	15	35	79	137	128	158	128	79	29	12	5	813
1977	1	19	38	98	111	176	150	104	53	35	11	-2	794
1978	-1	-2	33	48	107	156	144	122	60	37	8	2	714
1979	0	-1	41	54	102	148	167	128	79	29	10	5	762
1980	0	12	34	94	128	127	167	106	62	34	12	3	779
1981	7	16	43	83	95	138	135	142	75	27	11	6	778
1982	0	6	32	79	120	133	145	123	65	33	8	5	749
1983	6	13	27	71	119	126	153	138	65	28	9	0	755
1984	7	19	30	74	92	138	174	134	52	23	7	2	752
1985	8	14	46	72	128	154	172	102	44	26	2	3	771
1986	7	13	41	72	113	147	139	136	43	35	-2	5	749
1987	8	16	27	85	137	162	137	109	82	35	11	6	815
1988	7	14	41	93	132	140	153	119	63	33	9	6	810
1989	7	6	33	75	109	144	162	93	75	31	10	5	750
1990	7	15	46	70	85	129	135	128	87	28	8	2	740
1991	6	14	37	81	99	121	167	131	71	30	9	5	771
1992	7	15	47	70	104	127	128	120	56	26	7	1	708
1993	-1	16	32	69	112	126	117	108	70	33	10	4	696
1994	-2	2	49	77	114	139	159	120	79	29	9	3	778
1995	1	15	38	60	108	131	135	119	73	29	9	1	719
1996	2	16	30	60	75	135	163	143	51	30	4	2	711
1997	2	14	33	73	104	132	168	122	79	27	9	6	769
1998	2	16	29	77	132	111	153	143	74	31	8	5	781
1999	5	17	36	66	111	116	135	113	70	32	11	6	718
2000	5	16	36	74	111	133	173	133	69	34	10	1	795
2001	7	7	44	80	128	122	163	147	79	32	11	4	824
2002	7	16	6	66	111	147	167	113	64	27	11	5	740
2003	6	6	36	69	111	137	163	136	67	34	8	5	778
2004	4	17	47	85	110	135	147	111	61	28	12	6	763
2005	2	16	42	85	128	115	152	110	63	31	11	5	760
2006	7	16	21	81	129	133	164	124	73	26	4	5	783
2007	8	2	45	65	120	136	165	111	69	32	10	3	766
2008	6	17	42	70	113	132	143	119	69	32	10	-3	750
2009	8	12	35	73	123	140	143	112	85	22	12	-2	763
MEAN	2	8	30	69	111	130	154	121	65	29	7	1	728
MIN	-6	-8	3	40	75	93	103	87	43	-2	-11	-9	590
MAX	8	19	49	98	143	176	193	150	89	38	12	6	832
COUNT	*87*	*85*	*87*	*85*	*86*	*86*	*85*	*85*	*87*	*88*	*89*	*88*	*81*

Cold lake

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
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1961													
1962													
1963													
1964													
1965													

Cold lake

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973							142	109	52	19	-2	-2	
1974	-1	-1	4	70	88	133	139	103	45	21	2	-4	599
1975	-1	0	7	56	100	120	152	91	57	18	3	-2	601
1976	-3	2	25	69	116	130	136	113	62	18	7	-2	673
1977	-2	8	27	76	112	147	117	96				-1	
1978	-1	0	26	53	100	138	150	103	40	25	-1	-3	630
1979	-3	0	30	46	110	130	155	108	53	18	1	-5	643
1980	-3	-2	12	95	132	119	149	87	39	22	2	-1	651
1981	-5	1	31	64	121	142	131	133	59	17	5	-2	697
1982	-1		13	64	103	138	130	95	53	22	-1	-3	
1983	-5	-2	15	66	96	100	117	128	44	19	-7	-4	567
1984	-1	7	26	73	80	130	141	104	36	17		-2	
1985	-3	-1	29	64	116	122	147	110	35	18	-1	-1	635
1986	0	1	27	64	101	139	99	125	39	21	-1		
1987		1	14	66	114	126		86	58	19	3	-5	
1988		0	24	78	110	122	126	103	49	21	-6	-4	
1989	-2	-2	3	73	100	114	154	103	48	20	-5	-6	600
1990	-5	-3	29	60	118	136	133	107	59	17	-3	-2	646
1991	-3	2	21	70		106	154	136	46	14	-4	-5	
1992	-6	-1	32	59	96	133	119	109	37	18	-5	-3	588
1993	-3	-1	31	52	118	116	117	100	49	20	-1	-5	593
1994	-2	0	32	71	108	121	126	112	65	20	-2	-3	648
1995	-4	0	29	61	129	144	136	91	62	20	-2	-3	663
1996	-2	0	17	62	92	132	135	110	43	18	-1	-3	603
1997	-2	-2	29	62	107	123	146	111	58	17	-2	-4	643
1998	-3	-4	30	78	140	142	144	123	63	18	-3	-4	724
1999	-3	0	28	66	102	136	136	117	59	21	1	-6	657
2000	-3	-1	32	71	109	129	132	101	52	21	-4	-4	635
2001	-7	1	32	72	121	131	142	124	62	19	1	-5	693
2002	-3	5	9	55	116	157	149	109	56	14	-2	-9	656
2003	-2	-1	24	64	118	138	146	113	53	21	-4	-7	663
2004	-3	-4	31	69	103	135	132	97	49	19	5	-4	629
2005	-3	8	30	68	114	128	136	95	53	21	3	-7	646
2006	-6	0	23	85	108	140	148	112	58	19	0	1	688
2007	3	3	30	68	115	127	157	96	54	22	-1	-4	670
2008	-4	0	31	60	120	146	138	106	58	23	5	-3	680
2009	-2	0	20	64	115	134	141	111	68	15	5	-9	662
MEAN	-3	0	24	67	110	131	138	107	52	19	0	-4	644
MIN	-7	-4	3	46	80	100	99	86	35	14	-7	-9	567
MAX	3	8	32	95	140	157	157	136	68	25	7	1	724
COUNT	*34*	*35*	*36*	*36*	*35*	*36*	*36*	*37*	*36*	*36*	*35*	*36*	*29*

Coronation

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
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1958													
1959													
1960													
1961													
1962													
1963													
1964													
1965													

Coronation

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975								107	70	24	8	-3	
1976	-3	-2	4	82	130	124	151	131	77	25	7	-4	722
1977	-3	-4	33	90	108	166	157	110	47	30	1	-2	733
1978	-3	-3	2	55	119	161	151	125	53	31	-2	-5	684
1979	-4	-1	29	54	116	142	159	128	78	25	6	-6	726
1980	-4	-4	3	88	141	133	165	104	55	27	4	-3	709
1981	-6	-2	38	83	109	139	136	144	69	22	4	-6	730
1982	-1	-3	0	72	105	141	153	117	64	28	-4	-5	667
1983		-3	13	73	122				54		-1		
1984	-3			79	94	130	164	129	44	20	-4	-2	
1985	-5	-2	5	73	124	149	169	112	40	21	-3	-3	680
1986	-4	-3	33	70	115	132	116	133	39	28	-3	-6	650
1987	-5	-2	7	86	126	156	143	98	75	29	-2	-8	703
1988	-5	-2	31	84	123	152	160	80	71	30	-6	-10	708
1989	-3	-2	3	74	104	128	162	88	58	28	1	-3	638
1990	-4	-3	39	72	116	135	144	117	79	23	5	-2	721
1991	-3	7	34	76	108	120	161	129	63	21	-4	-5	707
1992	-4	-4	38	64	106	129	124	117	49	23	-6	-4	632
1993	-5	-5	4	58	125	127	128	109	65	27	-1	-7	625
1994	-3	0	33	82	124	136	158	116	74	25	-2	-8	735
1995	-5	-3	22	68	132	152	157	112	73	28	-3	-3	730
1996	-2	-2	3	70	100	129	150	135	55	25	-1	-1	661
1997	0	12	29	70	121	136	159	131	76	25	1	2	762
1998	-3	-4	25	89	152	144	158	138	73	26	-4	-6	788
1999	-5	-3	14	75	106	139	134	118	69	29	4	0	680
2000	-5	-3	31	75	124	142	166	123	63	30	-4	-4	738
2001	-7	-2	35	82	140	139	159	147	78	27	4	-6	796
2002	-5	0	1	63	128	158	175	112	63	21	4	-6	714
2003	-5	-3	13	69	114	138	166	138	63	32	-6	-7	712
2004	-3	-3	39	83	121	144	148	113	63	26	5	-6	730
2005	-5	-2	19	78	132	123	158	110	63	29	2	-8	699
2006	-12	-1	2	86	117	146	175	128	68	24	-4	-5	724
2007	-4	-2	34	68	125	146	185	120	72	32	8	-6	778
2008	-5	-3	39	73	130	145	163	130	72	32	7	-4	779
2009	-2	-2	5	80	137	154	168	116	85	21	9	-3	768
MEAN	-4	-2	20	75	120	140	155	120	65	26	1	-5	713
MIN	-12	-5	0	54	94	120	116	80	39	20	-6	-10	625
MAX	0	12	39	90	152	166	185	147	85	32	9	2	796
COUNT	*33*	*33*	*33*	*34*	*34*	*33*	*33*	*34*	*35*	*34*	*35*	*34*	*32*

Edmonton City Centre Airport

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912	-4	-4	2	59	109	149	100	93	54	21	6	3	588
1913	1	6	24	73	105	113	128	100	59	19	4	0	632
1914	-2	1	26	65	114	107	147	119	46	22	2	-3	644
1915	-3	-5	28	80	95	108	121	133	69	22	3	-2	649
1916	-1	-1	26	68	97	124	122	100	52	19	5	-1	610
1917	0	0	27	56	99	138	158	122	58	18	6	-1	681
1918	0	2	32	81	98	126	143	111	62	23	3	-3	678
1919	-2	0	4	71	111	140	135	114	55	13	-1	-2	638
1920	-2	3	8	38	100	121	168	112	50	22	1	-1	620
1921	0	7	24	73	114	141	144	104	54	24	1	0	686
1922	-1	-1	24	60	109	115	149	107	59	21	5	-1	646
1923	-1	4	21	79	113	122	133	115	70	29	6	-1	690
1924	-2	4	15	64	114	136	142	102	59	23	-1	-3	653
1925	-3	-2	22	70	127	138	149	104	44	18	3	0	670
1926	1	3	34	84	117	126	161	92	43	19	1	-2	679
1927	-1	0	29	68	95	131	141	117	52	20	0	-1	651
1928	-2	8	26	55	140	107	150	111	69	22	4	6	696
1929	-1	0	34	59	104	126	157	116	50	29	6	-1	679
1930	-2	6	38	65	91	86	151	128	52	20	5	-1	639
1931	-3	13	25	76	111		135	115	48	26	8	2	
1932	1	-1	5	58	120	125	139	124	65	19	4	-3	656
1933	0			72	101	115	148	125	52	22	8	-1	
1934	4	13	26	87	125	96	139	118	37	26	6	-2	675
1935	-2	10	14	59	104	115	144	106	61	22	0	-5	628
1936	-1	0	21	62	118	125	164	112	51	22	7	1	682
1937	0	1	29	67	120	135	137	107	23	19	3	0	641
1938	-2	0	30	64	112	129	151	102	74	25	4	-2	687
1939	-2	0	16	77	106	99	155	130	48	17	3		
1940	-1	-1	22	71	114	130	123	122	65	21	-1	-3	662
1941	0	5	32	84		137	162	110	42	22	5	1	
1942	-3	1	32	63	107	114	138	110	48	23	-3	-6	624
1943	-2	-4	7	83	102	105	145	103	70	21	7	0	637
1944	-5	-4	13	80	102	119	133	112	49	29	-3	-7	618
1945	-4	-3	28	52	102	123	146	111	47	24	-5	-6	615
1946	-6	-3	31	75	103	111	148	114	48	23	-4	-6	634
1947	-3	-3	4	55	112	99	160	84	46	22	-4	-5	567
1948	-3	-4	1	24	108	145	137	104	55	26	2	-6	589
1949	-3	-2	28	75	111	126	127	127	63	20	6	-6	672
1950	3	-3	2	60	112	146	146	109	64	17	-5	-7	644
1951	-5	-4	0	62	108	133	127	103	52	17	-5	-6	582
1952	-5	-5	0	81	121	121	139	119	56	28	5	-6	654
1953	-6	0	8	63	104	112	135	111	59	27	7	1	621
1954	-1	8	25	45	90	102	141	83	52	27	7	1	580
1955	-3	1	8	55	117	155	131	132	50	22	-3	-2	663
1956	-2	-3	13	67	139	121	147	119	52	23	8	-1	683
1957	-4	-2	17	70	120	128	151	100	65	23	3	-3	668
1958	-2	-1	10	63	132	132	156	124	56	26	7	-2	701
1959	-1	1	38	78	112	122	163	93	53	17	5	1	682
1960	-4	-2	19	76	102	119	160	105	61	23	4	-6	657
1961	-3	0	30	69	112	154	150	132	55	19	5	-3	720
1962	-2	-3	3	69	110	139	133	105	61	25	4	-2	642
1963	-2	-1	26	73	105	132	145	123	66	27	3	-1	696
1964	-4	9	17	70	102	131	151	107	41	26	0	-2	648
1965	-1	0	16	63	110	126	150	115	41	29	-1	-3	645

Edmonton City Centre Airport

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-2	29	61	130	135	146	101	63	20	0	-3	678
1967	-2	-1	3	61	113	133	147	138	76	22	5	-2	693
1968	-3	4	32	72	132	125	154	107	49	21	5	-3	695
1969	-3	-2	28	71	125	150	151	135	45	23	5	-4	724
1970	-4	7	15	76	115	137	135	130	59	21	-4	-4	683
1971	-3	-2	19	80	131	110	143	132	49	25	4	-2	686
1972	-2	-1	26	70	126	132	125	128	37	22	2	-2	663
1973	-2	1	31	62	127	136	153	114	54	20	-3	-1	692
1974	1	7	14	70	101	145	146	106	51	26	7	3	677
1975	8	3	24	54	106	124	153	100	66	21	7	-1	665
1976	0	7	26	80	117	130	153	119	56	22	7	2	719
1977	1	15	32	88	109	155	131	102	46	28	8	0	715
1978	-2	1	30	57	108	149	149	110	43	27	5	-2	675
1979	-3	0	35	57	112	131	148	121	67	22	6	-3	693
1980	-2	1	29	85	118	120	146	98	46	24	8	0	673
1981	-5	8	37	76	110	141	141	139	61	23	7	-3	735
1982	-1	-2	12	74	127	143	138	105	61	26	0	-2	681
1983	-3	0	5	74	113	117	140	132	49	22	-2	-2	645
1984	2	12	31	81	86	134	157	122	42	20	-3	-2	682
1985	-1	1	33	72	131	148	169	112	42	21	-1	-1	726
1986	1	0	31	64	115	145	113	135	43	25	0	-1	671
1987	-1	7	21	81	132	152	137	90	72	26	7	1	725
1988	0	10	34	89	130	134	147	115	59	28	3	0	749
1989	0	1	23	86	111	135	152	95	63	24	5	0	695
1990	0	4	39	64	120	133	148	111	75	22	4	0	720
1991	1	10	30	77	121	111	166	126	57	20	-2	-1	716
1992	1	3	37	64	102	144	143	120	46	24	3	-2	685
1993	-3	5	30	59	123	126	126	110	61	25	6	2	670
1994	0	1	39	78	115	120	147	106	69	24	4	-5	698
1995	-2	6	33	54	114	127	117	91	73	21	2	-1	635
1996	0	7	26	63	68	110	127	126	44	20	-1	-1	589
1997	-3	6	37	76	108	133	154	118	62	18	4	2	715
1998	-4	-2	33	84	140	128	148	126	64	22	0	-3	736
1999	-5	3	38	77	106	135	135	115	68	24	5	3	704
2000	0	13	36	65	101	126	149	104	55	23	4	-4	672
2001	4	4	38	78	117	118	134	136	69	23	6	-4	723
2002	-2	12	22	61	108	149	152	100	53	18	8	2	683
2003	1	4	31	62	112	123	154	135	56	23	2	2	705
2004	-1	9	34	76	115	141	140	107	52	20	8	0	701
2005	-3	10	32	82	126	117	151	107	54	23	5	-3	701
2006	-5	15	22	87	129	138	179	138	69	24	-3	4	797
2007	5	1	41	67	116	152	187	127	68	34	8	-7	799
2008	-6	6	44	82	107	146	165	135	76	32	8	-5	790
2009	0	4	30	71	122	145	148	122	78	19	8	-4	743
MEAN	-2	2	24	69	113	128	145	114	56	23	3	-2	674
MIN	-6	-5	0	24	68	86	100	83	23	13	-5	-7	567
MAX	8	15	44	89	140	155	187	139	78	34	8	6	799
COUNT	*98*	*97*	*97*	*98*	*97*	*97*	*98*	*98*	*98*	*98*	*98*	*97*	*94*

Edmonton International Airport

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
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1957													
1958													
1959													
1960													
1961	-6	-4	23	74	119	160	150	133	57	19	5	-2	728
1962	-1	-2	-1	70	113	140	135	109	61	25	4	-3	650
1963	-2	-2	27	74	109	135	150	124	67	28	-2	-2	706
1964	-5	3	5	70	100	128	151	107	44	27	-1	-3	626
1965	-3	-2	1	61	106	121	147	111	42	29	-4	-5	604

Edmonton International Airport

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-4	0	60	132	134	142	100	62	20	-3	-5	636
1967	-4	-4	-2	59	110	134	149	134	73	21	-4	-5	661
1968	-4	-3	31	71	125	120	147	102	45	20	3	-5	652
1969	-2	-4	0	67	121	139	149	128	44	22	2	-5	661
1970	-4	-1	2	77	116	143	140	133	56	22	-3	-2	679
1971	-1	-3	3	77	127	110	140	131	49	23	3	-1	658
1972	-1	1	21	68	126	148	126	127	37	22	-4	-6	665
1973	-2	-1	29	17	126	133	152	112	53	20	-3	-2	634
1974	-1	0	3	66	101	148	145	101	50	25	6	-1	643
1975	-1	0	6	53	109	123	148	99	66	21	6	-4	626
1976	-2	0	28	78	121	118	144	116	64	21	7	-2	693
1977	-3	9	31	86	107	151	126	98	43	25	5	-2	676
1978	-2	-1	28	56	106	148	149	107	46	27	1	-2	663
1979	-1	0	38	59	109	132	148	119	67	22	7	-3	697
1980	-3	-1	16	83	118	123	141	93	48	23	5	-1	645
1981	-4	6	34	71	102	135	131	133	59	21	3	-4	687
1982	-1	-1	9	69	123	140	132	104	58	25	0	-2	656
1983	-2	1	1	69	109	111	139	128	48	21	-2	-1	622
1984	1	9	28	77	84	127	150	114	42	19	-2	-1	648
1985	-2	1	32	71	124	141	163	106	38	20	-1	-1	692
1986	1	-1	30	61	112	138	108	129	40	25	-1	-2	640
1987	1	8	21	78	123	146	125	87	72	26	5	-2	690
1988	-1	7	33	88	125	135	144	109	56	28	2	2	728
1989	3	3	17	81	107	135	148	88	62	23	3	-1	669
1990	-2	2	37	67	115	131	149	112	79	23	3	-1	715
1991	2	9	27	73	116	114	163	123	56	20	-2	-1	700
1992	-2	-1	37	64	101	144	138	112	46	24	2	-3	662
1993	-3	2	29	57	122	123	126	108	57	24	-1	-5	639
1994	-3	-1	35	77	113	125	153	107	64	24	0	-4	690
1995	-2	3	31	57	124	132	124	93	70	22	1	-1	654
1996	0	3	20	63	77	114	138	128	44	21	0	0	608
1997	0	6	18	67	96	131	154	122	64	19	2	2	681
1998	0	-1	19	83	137	122	143	130	61	22	4	-1	719
1999	0	2	23	71	101	129	127	112	68	25	4	3	665
2000	0	4	29	62	105	126	148	111	57	25	5	0	672
2001	4	5	36	77	120	122	143	137	64	22	4	-2	732
2002	-4	6	3	60	106	145	147	96	51	18	6	1	635
2003	0	-1	20	60	109	121	149	130	54	22	-3	-2	659
2004	-2	0	33	74	114	136	136	103	50	20	5	-4	665
2005	-5	2	30	79	124	115	145	103	51	22	4	-6	664
2006	-9	11	3	84	127	134	173	133	67	24	-7	-6	734
2007	-4	-4	29	66	114	150	181	123	66	33	7	-6	755
2008	-5	0	42	80	104	142	160	130	73	31	7	-5	759
2009	-3	-3	4	68	119	139	144	117	74	19	6	-3	681
MEAN	-2	1	20	69	113	132	144	115	56	23	2	-2	672
MIN	-9	-4	-2	17	77	110	108	87	37	18	-7	-6	604
MAX	4	11	42	88	137	160	181	137	79	33	7	3	759
COUNT	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*

Edson

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
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1959													
1960													
1961													
1962													
1963													
1964													
1965													

Edson

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973	-4	-2	31	60	114	123	149	104	52	18	-3	-4	638
1974	-3	1	4	64	86	145	139	96	51	23	4	-1	609
1975	-2	-1	6	57	97	115	146	81	64	19	0	-3	579
1976	-1	4	27	77	110	110	136	91	59	21	7	1	642
1977	0	13	30	77	97	138	122	91	42	24	1	-2	633
1978	-3	-2	28	49	100	135	136	101	42	26	2	-1	613
1979		-1	34	50	88	127	132	120	59	20	7	-3	
1980	-2	0	24	84	106	117	136	89	41	25	5	-2	623
1981	-4	9	36	71	92	125	125	130	56	19	2	-5	656
1982	-1	-1	11	63	103	122	118	86	53	24	-2	-3	573
1983	-3	2	13	68	111	102	125	127	45	19	-3	-3	603
1984	2	11	28	61	81	111	148	101	39	16	-2	-2	594
1985				59	117	123	155	97	37	19	-2	0	
1986	1	0	29	52	98	127	92	124	45	23	-1	-4	586
1987	-2	6	23	75	114	128	112	87	68	11	4	0	626
1988	-2	9	31	81	110	120	125	99	53	25	2	-2	651
1989	-2	0	24	73	102	129	135	84	52	21	6	-1	623
1990	-2	5	37	59	82	111	142	102	66	23	-1	-1	623
1991	-2	10	29	63	102	108	142	112	57	17	1	0	639
1992	0	9	37	55	89	119	124	109	43	20	0	-3	602
1993	-2	10	36	76	123	128	122	99	64	22	5	-5	678
1994	-2	0	40	79	108	140	146	108	70	24	1	-7	707
1995	-7	4	36	65	129	144	131	94	72	24	-2	-2	688
1996	0	15	32	75	97	132	137	121	50	24	-1	-3	679
1997	-2	13	34	74	118	133	146	114	62	21	2	2	717
1998	-4	7	32	87	140	129	150	123	65	21	-4	-4	742
1999	-6	5	36	74	119	133	134	114	64	26	2	4	705
2000	-2	3	37	78	105	135	144	101	59	24	7	2	693
2001	6	2	37	73	127	130	134	129	69	25	2	-4	730
2002	-3	13	12	60	112	164	156	114	58	22	6	-8	706
2003	-6	-1	35	67	114	138	158	123	60	26	6	3	723
2004	2	14	36	83	112	145	142	105	53	23	6	0	721
2005	-4	14	37	82	129	126	143	111	57	25	5	-7	718
2006	-7	10	15	89	131	149	157	117	65	22	-2	-2	744
2007	4	-2	37	67	117	139	165	101	61	25	6	-1	719
2008	1	15	40	67	125	138	146	117	66	27	6	-3	745
2009	2	2	34	73	126	148	151	116	73	19	6	-7	743
MEAN	-2	5	29	69	109	129	138	106	57	22	2	-2	665
MIN	-7	-2	4	49	81	102	92	81	37	11	-4	-8	573
MAX	6	15	40	89	140	164	165	130	73	27	7	4	745
COUNT	*35*	*36*	*36*	*37*	*37*	*37*	*37*	*37*	*37*	*37*	*37*	*37*	*35*

Fairview

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
1922													
1923													
1924													
1925													
1926													
1927													
1928													
1929													
1930													
1931										16	-3	-4	
1932	-3	-2	1	47	98	113	110	96	40	14	-4	-4	506
1933	-1	0	5	52	89	79	120	117	34		-1	0	
1934	0	5		68	90	94	110	85	28	16	0	0	
1935		7	6	52	86	78	108	82	44	15	1	-1	
1936	-1	0	20	47	98	91	123	102	38	16	6	-1	539
1937	-1	0	22	46	83	113	127	77	54	15	-1	-1	534
1938	-1	0	25	57	86	85	131	92	58	16	1	-1	549
1939	0	1	16	60	87	86	111	115	45				
1940					99	102	119	99	52	16			
1941					90	108	136	89	33	19			
1942					98	115	127	103	51				
1943					84	105	134	97	55				
1944					98	97	134	99	44	19			
1945					110	110	133	119	40				
1946				62	104	112	121	117	52	17			
1947				47	98		118	81	42	16			
1948					117	154	133	96	50	20			
1949				66	82	96	126	103	53				
1950					100	146	137	86	60				
1951				59	85	120	120	97	49	7			
1952				58	111	99	127	100	48				
1953				60	103	98	123	111	41	16	-6	-11	
1954					91	108	119	78	44	17	1	-6	
1955	-6	-3	-1	39	97	126	119	105		17	-2		
1956		-3			121								
1957		-1	14	60	102	117	121	103	57	17	3	-2	
1958	-3	0	6	56	123	124	148	115	43	18	0	-5	625
1959	-1	-2	28	62	109	115	138	83	44	14	-4	0	586
1960	-3	-1	6	75	101	101	148	108	55	16	-3	-3	600
1961	-3	0	8	70	111	126	138	125	42	15	-3	-2	627
1962	-3	-3	1	54	96	116	135	86	48	18	-3		
1963	-1	0	13	66	110	126	122	116	50	20	-1	-1	620
1964	-3	5	3	62	95	114	115	86	41	18	-2	-1	533
1965	-1	-1	25	52	112	133	143	100	35	20	-3	-3	612

Fairview

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	0	-2	25	52	112	120	111	95	46	17	-1	-3	572
1967	-1	-1	0	60	112	122	139	119	53	16	-2	-3	614
1968	-1	-1	22	59	104	105	124	93	39	15	-4	0	555
1969	-1	-6	11	60	112	115	128	106	43	17	2	-5	582
1970	-1	-1	16	63	95	114	128	108	46	19	-1	0	586
1971	-1	5	21	70							0	-2	
1972	-1	0	15	59	126	119	124	112	34	17	-2	0	603
1973	-1	0	28	65	117	109	125	106	49	16	-2	0	612
1974	-1	0	3	61	98	140	122	101	47	20	4	0	595
1975	-1	1	16	69	107		146	99	64	15	-1	0	
1976	1	2	18	76	105	99	131	95	60	17	4	1	609
1977	0	10	27	77	105	128	118	83	48	18	-1	1	614
1978	0	0		48	93	126	143	96	37	18	1		
1979						130	141	110	52			-3	
1980	-1	-1	16	79	103	132	137	92	37		1	-3	
1981	-5	-3	29	48	115	128	151	128	56	14	2	-2	661
1982	-1	-2	4	60	99	146	134	76	52	19	-1	-4	582
1983	-3	-3	6	68	112	127	126	121	40	16	-5	-2	603
1984	-2	5	26	61	88	132	152	93	40	13	-4	-2	602
1985	-2	0		62	116	128	151	90	40	19	-2	-4	
1986	-3	-3	24	53	105	139	126	118	33	17	-4	-5	600
1987	-4	0	6	72	116	136	134	97	59	19	1	-1	635
1988	-2	1	29	69	99	116	117	97	49	20	-1	0	594
1989	-2	1	6	78	106	140	140	92	49	17	0	0	627
1990	-2	0	32	58	100	136	150	104	60	14	-2	-2	648
1991	-2	1	21	73	118	119	140	110	40	15	-6	-5	624
1992													
1993													
1994	-4	-3	36	74	140	145	148	120	62	20	-2	-5	731
1995	-5	-3	9	67	144	156	143	115	75	21	-3	-5	714
1996	-4	-2	4	68	113	142	140	115	52	19	-3	-5	639
1997	-5	2	17	65	121	140	146	114	61	16	4	-1	680
1998	-4	0	30	80	151	158	154	129	63	17	1	-5	774
1999	-5	-1	31	69	120	142	149	126	63	20	3	-2	715
2000													
2001													
2002	-4	2	25	50	106	146	134	106	49	14	-6	-12	610
2003	-72	-1	7	56	110	134	153	108	52	19	-5	-6	555
2004	-3	-2	29	70	107	148	137	98	42	17	-1	-7	635
2005	-5	3	27	72	124	134	142	101	53	18	3	-9	663
2006	-8	3	7	78	119	143	143	114	59	18	-3	-6	667
2007	-5	-2	12	54	111	138	149	92	54	19	-4	-7	611
2008	-5	-2	29	57	111	145	157	113	54	20	-4	-4	671
2009	-3	0	14	63	107	142	151	117	60	15	4	-4	666
MEAN	-4	0	16	62	106	122	133	102	48	17	-1	-3	617
MIN	-72	-6	-1	39	82	78	108	76	28	7	-6	-12	506
MAX	1	10	36	80	151	158	157	129	75	21	6	1	774
COUNT	*55*	*58*	*54*	*63*	*72*	*70*	*72*	*72*	*71*	*63*	*59*	*57*	*45*

Fort McMurray

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
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Fort McMurray

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971												-3	
1972	-2	-2	9	51	133	125	124	118	31	14	-5	-3	593
1973	-3	-2	24	62	119	111	131	93	44	16	-4	-3	588
1974	-2	-2	0	63	86	128	119	99	41	17	-4	-5	540
1975	-2	1	5	56	91	109	138	81	44	14	-2	-4	531
1976	-3	-2	9	73	109	118	123	94	57	15	2	-3	592
1977	-4	6	23	71	111	129	117	90	38	16	-3	-1	593
1978	-3	-3	23	50	90	116	128	86	34	15	-3	-2	531
1979	-3	-1	7	38	94	127	140	97	43	14	-2	-6	548
1980	-2	-2	10	83	109	127	124	74	35	16	0	-2	572
1981	-5	-2	27	54	124	121		123	51	14	3	-2	
1982	-1	-3	4	56	99	138	128	84	49	18	0	-2	570
1983	-1	1	21	61	95	106	128	116	37	16	-4	-1	575
1984	-2	3	24	63	77	133	137	102	37	12	-2	-2	582
1985	-2	0	26	66	116	131	138	101	35	15	-1	-3	622
1986	-2	0	24	53	103	139		115	44	15	-1	-2	
1987	-4	-1	11	60	104	127	133	91	51	15	0	-6	581
1988	-2	0	20	67	91	106	118	92	47	16	-5	-2	548
1989	-1	2	9	63	97	105	144	101	37	14	-2	-2	567
1990	-2	0	27	54	123	132	137	104	46	10	-2	-2	627
1991	-2	3	25	73	108	102	134	116	39	11	-2	-2	605
1992	-3	0	25	51	92	110	123	101	32	15	-2	-2	542
1993	-2	3	30	45	105	108	104	90	41	14	0	-3	535
1994	-1	0	41	70	105	116	128	111	45	15	0	-3	627
1995	-6	0	23	46	125	120	119	93	64	17	-4	-4	593
1996	-1	0	24	66	79	120	140	118	42	15	-4	-3	596
1997	-1	-1	21	70	100	130	152	112	55	9	-9	-10	628
1998	-4	-8	29	79	130	126	143	119	55	18	-7	-4	676
1999	-2	2	37	72	102	132	133	109	63	20	0	-5	663
2000	-2	4	32	58	94	119	145	95	46	20	-8	-3	600
2001	-8	-1	32	72	110	116	132	141	65	18	0	-6	671
2002	-3	1	11	56	99	143	144	99	47	10	-6	-11	590
2003	-3	-1	29	58	106	118	147	101	50	18	-5	-7	611
2004	-2	-4	29	67	87	138	153	92	42	18	1	-4	617
2005	-1	-4	30	75	119	113	146	102	48	19	-1	-10	636
2006	-4	-1	28	71	92	140	116	97	46	14	0	1	600
2007	-2	0	20	57	102	121	147	82	37	15	-2	-4	573
2008	-2	-1	22	56	114	130	123	88	40	16	-6	-1	579
2009	-1	0	19	61	103	112	125	85	47	12	2	-2	563
MEAN	-3	0	21	62	104	122	132	100	45	15	-2	-4	591
MIN	-8	-8	0	38	77	102	104	74	31	9	-9	-11	531
MAX	-1	6	41	83	133	143	153	141	65	20	3	1	676
COUNT	*38*	*38*	*38*	*38*	*38*	*38*	*36*	*38*	*38*	*38*	*38*	*39*	*36*

Grande Prairie

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
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1963													
1964													
1965													

Grande Prairie

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980	-2	-2	20	83	108	134	141	100	40	22	3	-1	646
1981	-4	-1	31	54	116	136	145	138	52	16	4	-3	684
1982	0	0	6	59	108	157	131	80	49	19	0	-1	608
1983	0	1	16	67	111	112	130	129	45	18	-4	-2	623
1984	0	9	27	64	85	126	151	105	37	15	-1	-1	617
1985	0	0	24	70	123	132	161	99	36	15	-1	2	661
1986	-2	-2	25	53	102	142	124	129	37	19	-2	-7	618
1987	-6	-2	5	76	122	145	128	89	61	22	1	-3	638
1988	-2	1	30	74	114	125	132	105	55	22	-3	-4	649
1989	-2	-1	5	83	112	141	146	87	51	17	1	-3	637
1990	-2	0	35	60	101	137	157	111	65	15	-2	-2	675
1991	-3	2	21	76	126	121	151	110	52	16	-4	-2	666
1992	-4	-1	34	60	104	134	135	115	34	18	-2	-2	625
1993	-3	-2	29	65	112	131	115	100	57	20	3	-3	624
1994	-2	-1	32	69	112	129	144	114	52	18	-2	-3	662
1995	-5	-1	20	60	134	143	132	102	68	19	-3	-4	665
1996	-2	-1	12	65	100	133	140	113	47	18	-1	-2	622
1997	-2	2	25	64	106	130	137	109	54	14	-4	-3	632
1998	-3	-3	37	80	131	136	144	125	58	16	-5	-4	712
1999	-4	-4	36	73	95	128	131	110	54	21	1	0	641
2000	-2	-1	32	71	88	117	137	81	48	18	0	-5	584
2001	-1	0	33	64	107	115	129	110	59	19	0	-4	631
2002	-3	5	5	48	103	147	136	106	49	16	1	-5	608
2003	-3	0	15	57	109	134	150	106	53	20	-1	-3	637
2004	-2	4	32	56	101	130	136	98	44	18	2	-4	615
2005	-3	6	28	72	120	120	132	101	55	20	4	-7	648
2006	-8	1	6	82	116	150	146	119	54	19	-3	-7	675
2007	-4	-3	16	71	106	139	149	87	53	19	0	-5	628
2008	-5	-1	36	63	108	140	148	106	57	20	-1	-2	669
2009	-2	0	16	73	111	153	139	117	60	12	0	-3	676
MEAN	-3	0	23	67	110	134	139	107	51	18	-1	-3	643
MIN	-8	-4	5	48	85	112	115	80	34	12	-5	-7	584
MAX	0	9	37	83	134	157	161	138	68	22	4	2	712
COUNT	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*

High Level

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
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1963													
1964													
1965													

High Level

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972	-1	0	4	47	127	120	133	104	31	11	-4	-1	571
1973	-1	-1	20	59	120	101	124	94	43	9	-2	-2	564
1974	-1	0	2	59	93	130	128	93	38	13	-3	-2	550
1975		0	3	62	91	112	143	85	44	12	-2	-1	
1976	0	0	7	67						12	0	0	
1977	-1	2	23	64	108	135	116	97	39	15	-2	-1	595
1978	-1	-1	19	55	93	131	119	85	36	12	-1	-1	546
1979		0	8	43		124	144	92	35				
1980	-1	-1	19	71	106	139	124	84	30	14	0	0	585
1981	-1	-1	25	41	119	118	137	114	38	9	-3	-4	592
1982	0	0	7	45	92	141	135		42		-1	-1	
1983	-1	-1	2	55	86		127	106		13	-4		
1984	-1	0	21	60	85	123	128	91	33	9	-1	-1	547
1985	-1	0	20	49	104	131	126	77	35	9	0		
1986	-1	-1	19	48	93	128	128	96	41	12	-1	-3	559
1987		-1	3		100	122	129	89	40	12		-5	
1988	-2	-1	8	52	72	102	108	94	42	12	-3	-2	482
1989	-1	0	4	67	109	128	139	91	39	12	-1	-1	586
1990	-1	0	25	56	109		143	100	41	7	-1	-1	
1991	-1	-1		69	106	126	117	93	33	10	-1	-1	
1992	-1	0	24				119	93	30	13	-10		
1993		-1	24	56	99	124	119	85	42	12	-4	-4	
1994	-1	-1	23	66	114	140	134	109	37	12	-4	-2	627
1995	-4	-2	2	59	123	129	135	98	58	4	-5	-5	592
1996	-2	-3	1	58	109	144	141	98	43	4	-4	-4	585
1997	-2	-4	3	60	108	134	134	104	46	7	-8	-8	574
1998	-2	-4	26	76	133	143	153	112	50	13	-5	-5	690
1999	-3	-3	26	64	109	137	129	109	50	14	-4	-2	626
2000	-1	3	28	64	103	131	146	85	41	14	-6	-2	606
2001	-7	-1	24	63	112	140	139	103	49	14	-4	-4	628
2002	-2	1	6	52	109	151	130	101	44	12	-2	-9	593
2003	-3	-1	9	60	117	135	142	108	47	11	-6	-6	613
2004	-2	-4	26	64	100	159	152	97	44	11	-8	-2	637
2005	-1	-2	26	66	117	139	131	99	46	15	-5	-7	624
2006	-4	0	20	72	116	140	132	105	50	13	-3	-8	633
2007	-6	-1	4	63	112	142	138	91	41	13	-6	-4	587
2008	-3	0	25	58	117	146	138	105	46	15	-6	-2	639
2009	-2	0	12	60	108	143	140	103	48	9	-8	-3	610
MEAN	-2	-1	15	59	106	132	132	97	41	11	-4	-3	594
MIN	-7	-4	1	41	72	101	108	77	30	4	-10	-9	482
MAX	0	3	28	76	133	159	153	114	58	15	0	0	690
COUNT	*34*	*38*	*37*	*36*	*35*	*34*	*37*	*36*	*36*	*36*	*36*	*34*	*27*

Jasper

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
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1962													
1963													
1964													
1965													

Jasper

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977	-1	13	30	74	94	122	114	102	46	22	1	-2	615
1978	-2	4	33	70	102	124	129	97	42	26	4	-1	628
1979	-2	-1	36	61	86	123	146	120	57	23	2	-3	648
1980	-3	2	7	78	100	112	127	79	43	26	5	-1	575
1981	-4	7	34	62	94	111	117	123	54	20	8	-3	623
1982	-3	-1	28	65	95	127	113	79	51	21	1	-3	573
1983	0	10	25	65	110	95	113	118	44	20	6	-3	603
1984	-1	10	33	59	78	109	145	102	45	17	1	-2	596
1985				60	117	126	174	112	40	18	-2	-1	
1986	4	0	31	60	103	133	99	131	45	25	2	-2	631
1987	0	9	29	73			122	90	73	27	4	-3	
1988	-2	7	31	71	109	117	118	97	55	25	4	-1	631
1989	-2	-2	33	72	94	120	134	82	59	20	6	-3	613
1990	0	3	34	70	89	111	135	111	73	19	2	-3	644
1991	0	12	35	73	104	98	131	107	59	23	7	4	653
1992	3	11	31	61	99	135	132	109	45	21	1	-4	644
1993	-3	2	34	69	110	108	104	91	67	25	3	-4	606
1994	-2	-1	36	65	98	107	137	106	58	19	3	-3	623
1995	-3	6	34	58	107	111	136	100	74	22	-2	-6	637
1996	-3	15	35	79	109	136	155	134	60	24	-2	-5	737
1997	-8	10	32	80	123	141	149	122	67	22	5	1	744
1998	-3	15	35	88	146	142	164	140	75	25	-1	-4	822
1999	-6	14	41	79	124	140	140	128	71	26	-3	-7	747
2000	-3	17	35	81	114	144	155	119	62	26	-2	-7	741
2001	-6	1	38	73	126	140	146	134	70	23	2	-6	741
2002	-3	12	28	68	118	166	170	122	61	26	7	-5	770
2003	2	14	36	77	117	151	174	140	69	28	8	3	819
2004	4	15	42	89	117	161	160	119	56	23	6	-5	787
2005	-3	15	38	89	143	135	145	121	58	26	3	-7	763
2006	0	13	41	90	132	157	174	128	73	28	-3	-3	830
2007	-5	10	41	76	135	151	183	117	66	26	-2	-8	790
2008	-5	13	40	71	125	149	158	127	70	27	7	-5	777
2009	-4	13	36	78	132	157	165	133	79	22	3	-6	808
MEAN	-2	8	34	72	111	130	141	113	60	23	3	-3	691
MIN	-8	-2	7	58	78	95	99	79	40	17	-3	-8	573
MAX	4	17	42	90	146	166	183	140	79	28	8	4	830
COUNT	*32*	*32*	*32*	*33*	*32*	*32*	*33*	*33*	*33*	*33*	*33*	*33*	*31*

Lacombe

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
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1938													
1939			18	73	111	102	106	137	44	21	4		
1940	-4	-2	14	35		130		132	59	25			
1941	-2	-3	31	84	92	135	160	110	45	23	7	-2	680
1942	-3	-4	29	61	100	111	135	113	53	22	-6	-5	606
1943		-4	25	82	94	105	150	104	68	24	8	-4	
1944	-5	-4	3	74	104	120	134	110	51	31	-2	-5	611
1945	-4	-3		57	103	119	152	112	50	24	-5	-5	
1946	-6	-4	20	75	103	108	155	111	52	25	-4	-5	630
1947		-3		63	113	109	165	93	52	22	-7	-8	
1948			-1	11	101	135	152	113	56	28	5		
1949		-2	29	75	106	128	137	129	68	21	9		
1950		-4	0	59	98	130	142	106	65	19	-5	-6	
1951	-4	-3	-1	63	112	112	133	97	50	21	-3	-5	572
1952	-3	-5	-3	74	122	114	138	110	57	29	5	-5	633
1953	-4	-3	4	51	91	104	138	108	59	29	8	1	586
1954	-1	6	5	45	89	108	148	92	54	28	8	0	582
1955	-3	-1	2	54	104	157	131	128	51	25	-2	-2	644
1956	-2	-2	5	61	130	120	149	114	55	25	9	-1	663
1957	-2	-2	16	64	111	108	156	99	61	24	3	-2	636
1958	-1	-2	1	57	129	133	149	127	60	30	5	-4	684
1959	-1	-1	36	67	103	121	158	85	47	20	2	1	638
1960	-4	-1	10	72	105	113	153	98	60	23	2	-4	627
1961	-2	1	32	59	106	160	137	127	57	20	7	-2	702
1962	-1	-2	14	73	100	128	135	106	67	25	6	-3	648
1963	-2	0	31	64	102	125	144	121	68	30	1	-5	679
1964	-3	8	11	64	95	117	145	103	44	27	2	-1	612
1965	0	0	4	57	96	114	139	105	40	30	-4	-4	577

Lacombe

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-2	24	59	126	124	135	95	63	24	-3	-5	638
1967	-3	-2	2	50	90	131	147	130	77	22	3		
1968	-3	2	30	65	116	108	140	98	50	21	4	-1	630
1969	-1	-2	19	69	114	129	144	127	53	23	6	-5	676
1970	-2	3	17	64	109	143	147	123	61	24	0	-1	688
1971	1	-1	12	71	122	110	104	121	71	23	5	-1	638
1972	0	0	24	71	124	121	121	127	37	22	1	-1	647
1973	-1	-1	27	52	114	117	146	109	56	24	-4	-3	636
1974	-1	0	3	61	87	149	146	95	52	26	8	0	626
1975	-3	-1	6	47	95	113	138	96	67	22	8	-2	586
1976	-1	4	27	73	112	106	136	106	67	22	8	-1	659
1977	-1	10	34	83	97	150	124	91	47	28	9	-2	670
1978	-2	-2	29	51	103	137	135	107	43	27	6	-1	633
1979	-2	0	33	51	93	124	138	113	66		-6	-3	
1980	-2	-2	11	81	114	118	146	99	45	26	6	0	642
1981	-7	6	36	70	96	124	123	133	60	19	4	-3	661
1982	0	1	10	66	107	130	127	97	57	26	0	-2	619
1983	0	4	22	65	112	105	135	126	47	23	3	-2	640
1984	0	8	25	82	79	123	145	126	44	20	-3	-2	647
1985	-5	0	32	76	128	148	155	102	41	21	-3	-2	693
1986	0	-1	32	64	113	135	123	127	45	27	-2	-4	659
1987	-1	4	19	80	125	154	130	95	76	30	2	-1	713
1988	-1	8	37	90	131	145	144	119	56	31	4	-1	763
1989	-2	-2	2	76	113	144	161	89	64	26	3	-1	673
1990	-3	2	37	65	104	127	147	119	77	24	2	-1	700
1991	-6	9	-1	75	108	106	158	120	63	21	-3	-2	648
1992	2	4	39	68	99	130	130	113	49	24	6	-1	663
1993	-5	-2	34	74	132	138	138	116	67	30	2	-2	722
1994	-4	-1	42	86	126	141	152	106	72	26	5	-6	745
1995	-6	0	38	70	128	145	140	103	77	27	-4	-5	713
1996	-1	3	11	55	74	120	143	127	44	23	-1	0	598
1997	-1	3	15	67	94	126	147	103	62	21	5	3	645
1998	0	0	25	70	116	104	136	121	60	21	-1	0	652
1999	-1	4	17	54	83	97	108	89	50	21	2	1	525
2000	0	1	25	52	87	102	133	107	53	25	2	-1	586
2001	1	2	24	51	73	108	137	128	63	22	3	-2	610
2002	-5	4	2	62	125	166	168	116	63	24	5	-6	724
2003	-6	-4	17	68	116	139	172	135	64	31	-4	-5	723
2004	-5	-1	39	85	118	140	147	112	60	25	7	-6	721
2005	-6	4	37	84	134	123	150	112	61	28	4	-6	725
2006	-7	4	4	88	131	139	161	120	66	22	-2	-4	722
2007	-3	-3	37	66	122	140	167	108	65	30	6	-6	729
2008	-5	-1	38	72	130	139	151	125	71	31	6	-6	751
2009	-3	-2	20	79	134	150	157	117	84	20	8	-5	759
MEAN	-2	0	20	66	108	126	142	112	58	25	2	-3	658
MIN	-7	-5	-3	11	73	97	104	85	37	19	-7	-8	525
MAX	2	10	42	90	134	166	172	137	84	31	9	3	763
COUNT	*65*	*69*	*69*	*71*	*70*	*71*	*70*	*71*	*71*	*70*	*70*	*66*	*61*

Lethbridge

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912	-5	-5	8	75	125	162	129	114	56	32	12	6	709
1913	-3	14	7	79	105	147	165	141	87	28		1	
1914	-5	-2	42	70	136	141	182	132	72	27	10	-4	801
1915	3	-2	35	85	106	116	143	147	56	34	10	5	738
1916	0	-2	28	80	102	125	165	134	69	30	-2	-5	724
1917	-4	-2	20	55	102	140	187	139	68	26	6	-3	734
1918	-4	-3	38	86	112	167	158	137	73	32	6	2	804
1919	4	-2	4	82	103	159	167	136	73	25	-4	-5	742
1920	-1	2	36	40	111	145	171	143	81	29	7	-1	763
1921	-2	-1	20	68	111	157	169	139	62	40	7	-3	767
1922	0	-2	5	54	115	141	153	127	72	31	6	-2	700
1923	1	3	36	79	120	128	151	125	72	33	11	3	762
1924	-4	11	34	71	125	118	161	115	75	30	-2	1	735
1925	0	-3	14	72	144	145	157	139	54	26	4	2	754
1926	5	10	42	83	116	145	170	113	51	35	0	-1	769
1927	4	5	39	73	74	144	153	123	61	33	-3	-2	704
1928	-3	5	39	71	151	119	161	130	85	25	12	-3	792
1929	-3	-4	36	69	110	142	175	148	63	37	6	-2	777
1930	-2	13	34	80	100	135	175	139	61	28	11	5	779
1931	8	21	34	84	119	152	166	143	66	39	5	-5	832
1932	-3	4	19	66	118	138	178	139	79	28	9	3	778
1933	5	5	35	67	120	169	188	139	69	28	11	0	836
1934	6	18	32	99	137	134	172	135	50	30	10	1	824
1935	-1	20	34	64	110	135	170	139	78	31	6	2	788
1936	-1	0	29	68	144	154	186	128	71	35	12	4	830
1937	0	3	29	81	128	149	165	139	71	30	8	3	806
1938	5	-2	38	72	101	135	167	134	95	38	8	6	797
1939	7	0	39	77	137	109	178	134	69	30	13	6	799
1940	2	2	32	56	130	161	154	144	76	29	2	4	792
1941	5	16	43	84	112	143	170	119	57	34	12	4	799
1942	8	0	40	77	98	111	159	127	67	31	4	-4	718
1943	-1	17	10	87	116	123	181	145	85	36	12	5	816
1944	8	1	22	89	124	132	169	129	78	43	6	3	804
1945	-5	2	40	59	116	121	175	141	58	34	-4	-5	732
1946	3	11	43	86	108	138	173	128	64	28	0	-4	778
1947	1	-3	3	80	124	123	179	115	61	32	-1	3	717
1948	4	-5	5	62	107	122	164	141	80	40	11	-5	726
1949	-6	-5	16	91	121	147	156	145	78	27	14	-7	777
1950	-4	4	5	66	117	131	158	134	82	31	-2	1	723
1951	-6	-3	4	77	122	120	173	109	65	28	7	-5	691
1952	-6	12	21	81	130	140	157	133	79	42	12	3	804
1953	2	12	38	52	112	130	179	144	79	43	12	3	806
1954	-3	17	15	50	121	127	178	124	71	39	13	6	758
1955	1	3	31	65	99	166	147	157	76	35	0	-3	777
1956	-3	1	40	75	125	147	156	134	69	34	13	6	797
1957	-2	7	41	69	133	130	176	124	82	27	11	5	803
1958	7	2	7	67	152	136	156	149	79	42	9	4	810
1959	-3	3	44	80	111	149	184	135	65	30	8	5	811
1960	-3	6	38	77	108	151	186	129	88	35	10	3	828
1961	7	15	36	69	106	174	157	142	69	35	10	-1	819
1962	5	-1	40	87	115	148	157	127	79	34	12	5	808
1963	-1	11	43	71	120	123	170	141	85	40	11	2	816
1964	4	18	33	69	114	131	176	127	50	40	9	-1	770
1965	-1	8	28	72	107	122	171	132	43	38	4	1	725

Lethbridge

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	7	44	68	126	141	174	135	84	29	7	3	817
1967	-1	12	30	50	108	140	186	153	93	31	12	0	814
1968	-1	17	42	70	118	130	169	105	66	29	11	-2	754
1969	-2	-3	34	79	128	122	176	162	73	25	14	5	813
1970	-2	16	28	60	122	148	173	154	70	32	6	-2	805
1971	-2	13	37	76	133	146	173	154	65	32	8	-1	834
1972	-2	2	34	79	118	160	144	136	56	25	13	-2	763
1973	6	6	43	61	142	141	185	137	69	30	-5	-1	814
1974	-3	13	31	77	102	172	165	108	72	39	13	5	794
1975	0	0	23	44	100	137	175	118	81	26	10	4	718
1976	7	16	37	77	142	133	152	134	87	30	13	5	833
1977	-1	21	38	95	113	162	159	111	59	36	10	-2	801
1978	-4	-2	30	48	104	164	153	131	66	35	7	0	732
1979	-3	0	35	55	106	159	169	131	77	32	11	5	777
1980	2	10	34	90	133	149	171	110	63	34	12	6	814
1981	7	14	42	81	102	147	154	151	80	29	14	5	826
1982	0	2	28	80	110	137	163	137	73	36	7	4	777
1983	7	13	30	72	127	118	150	145	68	34	8	-2	770
1984	7	18	27	74	108	136	179	138	54	27	8	2	778
1985	6	14	39	73	127	156	184	122	43	29	1	3	797
1986	6	4	39	84	115	159	163	141	44	38	8	6	807
1987	9	20	28	99	140	162	155	119	87	40	13	6	878
1988	8	17	41	99	140	163	172	138	74	40	13	6	911
1989	6	1	24	79	120	153	171	108	80	37	11	6	796
1990	7	18	49	76	108	158	159	140	102	32	10	0	859
1991	6	16	41	86	117	137	183	142	77	35	11	8	859
1992	9	19	51	79	131	133	145	136	67	31	10	-1	810
1993	-3	9	39	79	136	135	121	127	72	36	10	5	766
1994	3	0	52	76	130	150	173	131	91	31	10	6	853
1995	1	16	43	68	110	136	150	135	76	32	9	1	777
1996	2	18	31	64	78	141	169	150	58	33	2	2	748
1997	2	16	36	74	109	135	173	128	86	30	10	6	805
1998	2	18	30	80	135	113	159	148	81	34	10	6	816
1999	4	20	40	67	113	120	143	118	75	35	12	7	754
2000	3	18	41	77	116	139	180	139	75	38	11	0	837
2001	8	7	47	82	133	128	169	152	85	37	13	8	869
2002	8	16	5	74	116	156	166	107	61	22	12	6	749
2003	8	5	43	70	121	133	167	149	64	30	7	6	803
2004	6	19	59	106	128	157	178	137	77	37	14	6	924
2005	6	23	52	88	136	123	165	118	62	29	10	6	818
2006	10	20	48	96	143	148	196	153	80	31	11	8	944
2007	9	13	57	78	129	166	207	146	79	42	14	6	946
2008	9	22	56	95	115	156	180	146	86	40	13	-2	916
2009	9	22	55	95	142	162	167	128	101	27	15	-2	921
MEAN	2	8	33	75	119	141	167	134	72	33	8	2	794
MIN	-6	-5	3	40	74	109	121	105	43	22	-5	-7	691
MAX	10	23	59	106	152	174	207	162	102	43	15	8	946
COUNT	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*97*	*98*	*97*

Medicine Hat

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912	-4	0	1	79	119	167	142	107	54	26	9	2	702
1913	2	2	17	80	114	147	160	137	78	25	9	2	773
1914	0	0	40	79	138	140	194	129	48	28	10	-3	803
1915	-2	-3	36	98	113	129	154	154	58	34	8	-2	777
1916	-1	-2	35	77	110	132	166	135	70	27	4	-5	748
1917	-4	-3	3	62	130	147	188	129	69	25	11	-4	753
1918	-4	-3	40	91	121	170	170	140	78	34	5	-7	835
1919	2	-2	2	69	132	168	175	137	72	29	-6	-5	773
1920	-5	-5	3	54	123	156	184	143	78	31	5	-3	764
1921	-7	1	15	79	115	159	177	143	60	40	-1	-7	774
1922	-7	-2	5	64	115	155	160	137	78	32	2	-4	735
1923	-1	1	30	81	131	150	169	142	82	36	10	-5	826
1924	-5	9	12	72	134	137	176	128	72	33	-6	1	763
1925	-2	-4	9	70	151	153	180	137	53	25	-1	-1	770
1926	3	9	43	92	132	160	182	119	50	31	-3	-2	816
1927	1	3	33	77	82	147	173	128	66	32	-5	-1	736
1928	-4	2	35	72	152	119	166	133	77	24	11	-3	784
1929	-3	-3	35	63	114	143	189	157	59	34	7	-2	793
1930	-1	14	33	73	114	137	181				9	3	
1931	7	18	30	71	109	129	112	135	56	37	3	-3	704
1932	-2	2	5	57	104	122	163	130	72	23	8	1	685
1933	2	3	32	54	106	158	175	132	64	26	9	-1	760
1934	5		28	92	134	129	171	138	50	32	10	0	
1935	0	8	29	55	101	122	172	130	73	30	1	-3	718
1936	-2	0	30	62	141	139	191	126	70	30	11	3	801
1937	0	1	31	72	123	141	163	132	66	26	8	2	765
1938	3	2	31	63	96	128	166	132	92	34	8	1	756
1939	1	0	31	75	119	110	172	138	69	27	11	5	758
1940	-3	-1	27	52	127	155	146	147	75	30	-2	-2	751
1941	1	5	32	87	115	139	171	122	54	32	9	2	769
1942	4	-1	37	74	93	104	156	122	61	29	3	-4	678
1943	-5	-6	3	78	106	122	174	135	81	35	11	4	738
1944	2	1	11	87	119	125	168	121	73	40	-2	-4	741
1945	-5	-2	29	60	118	156	170	136	56	31	-2	-5	742
1946	-5	-3	36	80	106			123	57	25	-1	-7	
1947	-4	-4	2	71	119	111	183	121	55	29	-3	-6	674
1948	0	-4	1	59	123	125	165	138	74	38	10	-4	725
1949	-4	-2	32	87	124	153	158	146	71	23	12	-5	795
1950	-4	-5	19	64	112	132	159	125	71	26	4	-3	700
1951	-5	-4	-1	75	130	115	177	108	58	25	7	-4	681
1952	-5	-4	3	89	136	143	157	133	69	37	11	-3	766
1953	-2	10	29	51	111	141	184	147	75		12	4	
1954	-2	16	24	49	116	121	173	116	63	37	12	5	730
1955	-3	-1	21	57	97	160	148	154	63	33	2	-1	730
1956	-4	-2	28	69	117	149	162	133	65	30	12	4	763
1957	-2	0	36	76	139	135	173	119	68	24	11	5	784
1958	6	-1	16	63	149	133	157	143	70	36	8	-1	779
1959	-1	-3	37	79	114	142	177	130	59	25	7	4	770
1960	-3	1	33	69	107	143	187	127	78	32	8	-1	781
1961	5	13	33	70	98	131	164	146	60	32	9	-1	760
1962	-1	-1	17	85	103	153	158	119	74	34	11	5	757
1963	-2	10	36	68	125	126	176	144	78	40	10	1	812
1964	-2	15	28	67	110	126	180	121	49	37	8	-2	737
1965	-2	-1	11	64	109	129	172	133	44	37	3	7	706

Medicine Hat

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	-1	40	61	126	132	174	132	79	26	1	0	769
1967	0	0	20	59	104	150	180	147	85	31	9	-1	784
1968	-2	14	41	69	124	122	168	114	64	29	10	-2	751
1969	-2	-3	11	74	129	134	169	159	72	23	12	1	779
1970	-3	1	28	76	104	145	167	150	67	29	3	-2	765
1971	0	5	34	78	142	128	172	160	66	34	8	-2	825
1972	0	1	39	85	133	154	125	146	71	25	12	0	791
1973	6	11	48	65	141	140	183	136	70	34	-1	2	835
1974	0	13	33	79	115	155	176	121	69	41	12	5	819
1975	1	-2	22	45	113	136	179	124	79	28	10	0	735
1976	3	16	36	85	146	134	166	142	86	34	11	2	861
1977	-1	20	44	97	119	159	158	116	56	37	11	-3	813
1978	-1	-1	34	52	116	168	161	138	70	35	6	-3	775
1979	-2	-1	41	60	115	167	173	139	89			5	
1980	-2	3	1	99	149	150	178	120	71	32	11	3	815
1981	5		46	91	118	151	169	154	83	28	12	-3	
1982	0	0	31	77	114	162	165	141	70	34	6	1	801
1983	0	16	29	81	126	139	161	152	71	36	9	-2	818
1984	-1	19	29	86	122	151	180	146	59	27	-2	-1	815
1985	-3	0	42	81	140	174	187	130	45	30	-2	-3	821
1986	5	1	42	87	122	164	165	144	46	35	5	3	819
1987	7	17	28	93	143	169	164	125	85	37	12	4	884
1988	3	16	38	102	150	171	182	144	71	37	9	5	928
1989	3	1	33	79	117	160	172	121	75	35	7	0	803
1990	4	17	45	77	123	161	169	143	99	32	9	-1	878
1991	-2	14	40	83	117	135	188	146	76	31	9	6	843
1992	6	17	47	79	125	141	140	136	65	30	9	-2	793
1993	-4	4	39	80	129	143	130	127	68	32	8	2	758
1994	-3	0	46	81	129	152	182	140	87	28	10	6	858
1995	-3	15	38	70	124	151	152	138	77	27	6	-4	791
1996	2	17	31	71	93	151	179	149	59	31	1	-1	783
1997	-1	6	35	81	127	148	174	141	87	27	9	6	840
1998	2	15	34	85	151	122	180	158	87	35	10	6	885
1999	2	15	44	79	122	142	161	138	79	32	11	4	829
2000	-1	8	35	79	141	149	184	145	75	38	8	0	861
2001	6	6	43	80	143	151	178	157	87	32	11	-1	893
2002	1	17	2	75	126	142	171	116	71	27	12	6	766
2003	2	3	40	81	120	143	181	150	73	37	2	5	837
2004	-2	7	47	95	120	146	167	123	71	32	12	6	824
2005	2	20	45	88	137	136	173	127	76	36	12	1	853
2006	4	16	38	92	134	148	189	147	80	30	10	5	893
2007	6	0	53	74	130	162	195	140	76	36	11	-4	879
2008	0	-1	45	78	128	151	175	145	77	38	12	-5	843
2009	-2	0	40	88	141	153	159	130	97	26	12	-4	840
MEAN	0	4	29	75	122	143	170	135	70	31	7	0	786
MIN	-7	-6	-1	45	82	104	112	107	44	23	-6	-7	674
MAX	7	20	53	102	152	174	195	160	99	41	12	7	928
COUNT	*98*	*96*	*98*	*98*	*98*	*97*	*97*	*97*	*97*	*95*	*97*	*98*	*92*

Peace River

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
1922													
1923													
1924													
1925													
1926													
1927													
1928													
1929													
1930													
1931													
1932													
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1959	-2	-3	27	60	106	113	136	81	42	14	-4	-2	568
1960	-4	-3	2	72	100	101	146	106	52	15	-4	-5	578
1961	-4	-2	7	68	110	125	137	123	40	14	-3	-3	612
1962	-3	-3	1	53	94	115	132	84	45	17	-4	-5	526
1963	-3	-3	4	64	108	124	121	112	48	18	-4	-4	585
1964	-5	3	0	61	94	113	114	84	39	16	-3	-2	514
1965	-3	-2	6	50	111	132	142	98	33	18	-4	-3	578

Peace River

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-3	-3	15	51	112	119	110	92	44	17	-3	-5	546
1967	-3	-2	0	59	112	120	138	117	51	15	-3	-4	600
1968	-4	-4	22	58	103	104	122	90	38	14	-7	-3	533
1969	-2	-4	9	58	111	114	126	105	42	15	-2	-5	567
1970	-3	-1	5	62	95	114	128	106	45	18	-4	-3	562
1971	-2	-4	6	69							-4	-3	
1972	-2	-2	4	56	125	118	123	110	33	16	-4	-3	574
1973	-3	-1	20	63	117	110	124	103	47	16	-3	-4	589
1974	-1	-1	2	59	97	141	121	98	45	18	1	-4	576
1975	-3	-2	3	67	106		145	98	60	15	-2	-3	
1976	-3	-1	7	74	104	99	130	93	57	16	3	-2	577
1977	-2	5	27	75	104	127	115	80	46	17	-4	-4	586
1978	-3	-3		47	93	123	140	93	41	17	-1	-5	
1979						127	140	107	50	19	4	-3	
1980	-2	-1	9	77	102	131	135	90	36	19	1	-3	594
1981	-4	-3	28	47	115	128	150	126	54	14	2	-4	653
1982	-2	-1	2	60	99	145	132	75	50	18	-1	-4	573
1983	-2			66	109	125	124	119	39	16	-5	-2	
1984	-2	3	25	60	88	131	150	93	39	14	-3	-1	597
1985				62	117	127	149	90	39	17	-2	-4	
1986	-3	-2	24	52	105	138	126	115	32	17	-3	-5	596
1987	-4	-1	5	71	114	135	134	96	57	18	0	-1	624
1988	-2	1	28	68	98	115	116	95	47	19	-2	0	583
1989	-2	1	7	77	104	137	138	91	48	16	-2	-1	614
1990	-2	0	30	57	99	133	148	103	58	13	-2	-2	635
1991	-3	-1	24	78	124	127	148	117	51	18	-8	-6	669
1992	-8	-2	31	70	113	138	137	108	43	17	-3	-4	640
1993	-4	0	31	68	117	139	122	103	54	19	-2	-7	640
1994	-3	-1	29	68	120	128	134	113	56	17	-5	-6	650
1995	-6	-2	21	59	126	144	131	100	66	18	-3	-4	650
1996	-2	-2	12	59	98	123	128	102	46	14	-2	-4	572
1997	-3	-2	12	58	106	127	137	104	54	15	1	-7	602
1998	-2	2	27	76	138	144	147	120	56	17	0	-2	723
1999	-2	2	29	64	111	128	138	118	57	18	-2	-3	658
2000	-2	0	28	69	98	124	130	89	48	18	-2	-4	596
2001	0	2	28	64	117	124	133	115	58	18	-3	-5	651
2002	-4	8	18	49	111	151	134	106	47	16	-2	-8	626
2003	-4	-2	6	57	109	123	147	107	52	18	-5	-6	602
2004	-2	4	29	72	105	143	138	93	43	17	-3	-4	635
2005	-3	0	26	72	123	128	140	98	53	20	3	-9	651
2006	-7	4	25	82	117	141	142	111	58	17	-2	-4	684
2007	2	-2	18	56	112	135	149	90	53	18	-3	-6	622
2008	-4	0	26	56	111	137	146	111	53	19	-5	-3	647
2009	-2	1	16	65	110	143	147	117	61	15	2	-4	671
MEAN	-3	-1	16	63	109	127	134	102	48	17	-2	-4	607
MIN	-8	-4	0	47	88	99	110	75	32	13	-8	-9	514
MAX	2	8	31	82	138	151	150	126	66	20	4	0	723
COUNT	*49*	*48*	*47*	*50*	*49*	*49*	*50*	*50*	*50*	*50*	*51*	*51*	*45*

Slave Lake

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
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1961													
1962													
1963													
1964													
1965													

Slave Lake

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968						118	126	94	39	16	-1	-3	
1969	-2	-4	22	68	117	146	135	104	39	17	0	-5	637
1970	-3	4	9	71	113	129	135	111	50	18	-3	-4	630
1971	-3	-1	16	77	132	118	138	113	43	20		-3	
1972	-2	-1	3	61	127	120	128	110	37	18	-4	-3	594
1973	-3	-2	29	62	115	115	136	102	49	16	-5	-5	609
1974	-2	-1	1	63	102	136	126	95	44	20	2	-4	582
1975	-1	-2	2	57	105	117	147	86	56	15	2	-2	582
1976	-2	0	14	76	113	110	127	98	60	19	5	-4	616
1977	-4	7	23	73	99	137	116	92	41	20	-2	-2	600
1978	-3	-4	23	51	102	135	140	95	45	20	1	-4	601
1979	-3	-1	27	50	91	124	140	107	47	18	0	-4	596
1980	-3	-3	12	79	114	119	124	81	42	21	2	-3	585
1981	-7	-2	32	57	118	123	130	128	55	16	5	-5	650
1982	-1	-2		59	106	146	130	84	51	19	-1	-4	
1983	-3	0	18	65	101	114	114	121	41	17	-4	-3	581
1984	0	7	28	69	86	134	149	107	36	17	-3	-2	628
1985	-4	-2	28	66	118	134	151	104	37	16	-3	-3	642
1986	-4	-3	27	57	106	135	114	118	41	19	-2	-5	603
1987	-4	0	6	69	117	131	136	87	61	19	2	-4	620
1988	-2	2	27	74	106	114	120	102	50	22	-2	-3	610
1989	-2	-3	4	76	109	128	144	88	47	17	-1	-3	604
1990	-3	-2	34	60	106	127	99	70	44	22	-10	-7	540
1991	-3	3	28	71	119	113	148	119	43	15	-4	-5	647
1992	-3	0	35	62	110	133	130	108	35	18	-1	-3	624
1993	-4	1	32	65	124	134	122	100	53	20	3	-2	648
1994	-2	-2	32	71	116	124	130	103	58	18	-3	-6	639
1995	-6	-2	29	58	122	136	121	86	62	18	-2	-8	614
1996	-2	-1	16	58	90	119	122	98	42	15	-1	-3	553
1997	-1	7	28	63	107	117	131	104	52	13	1	-3	619
1998	-3	-5	28	74	140	132	137	115	56	18	-3	-4	685
1999	-3	-1	29	66	108	125	130	114	55	19	2	-4	640
2000	-3	1	31	65	99	120	126	90	48	19	4	-2	598
2001	2	5	30	64	107	118	125	112	57	17	1	-7	631
2002	-4	6	5	52	106	144	128	99	46	15	0	-9	588
2003	-4	-3	16	61	102	125	136	102	50	19	-5	-6	593
2004	-3	0	30	64	96	142	129	94	42	17	4	-4	611
2005	-4	-2	28	65	118	123	129	95	49	19	3	-5	618
2006	-5	3	16	77	106	129	136	105	54	16	-2	-6	629
2007	-5	-3	28	54	105	125	143	86	49	20	2	-5	599
2008	-4	-2	30	51	110	127	137	100	52	20	0	-3	618
2009	-3	-2	23	60	107	134	134	107	60	12	4	-3	633
MEAN	-3	0	22	64	110	127	131	101	48	18	0	-4	613
MIN	-7	-5	1	50	86	110	99	70	35	12	-10	-9	540
MAX	2	7	35	79	140	146	151	128	62	22	5	-2	685
COUNT	*41*	*41*	*40*	*41*	*41*	*42*	*42*	*42*	*42*	*42*	*41*	*42*	*39*

Suffield

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
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1948													
1949													
1950													
1951													
1952													
1953	-4	-4	20	53	114	137	182	150	73	39	11	-1	770
1954	-1	2	2	48	114	112	174	121	64	38	10	4	688
1955	-4	-4	0	60	102	151	155	156	69		-1		
1956	-5	-4	4	70	120	141	160	134	65	30	12	0	727
1957	-3	-2	38	76	145	114	174	122	70	24	6	5	769
1958	4	-3	2	66	151	124	156	144	71	37	6	-3	755
1959	-3	-5	37	80	119	153	181	137	60	27	0	3	789
1960	-3	-2	28	76	115	149	186	130	82	32	4	-5	792
1961	-2	-1	37	73	114	179	165	150	67	32	9	-4	819
1962	-4	-3	10	90	117	156	171	136	86	37	12	4	812
1963	-2	13	46	82	134	132	183	148	85	42	5	5	873
1964	-2	16	30	73	120	134	182	128	52	39	9	-3	778
1965	-4	-2	16	69	114	135	177	133	52	37		8	

Suffield

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-5	41	71	137	142	179	137	85	29	2	-5	811
1967	-3	-3	11	64	115	155	184	151	93	33	9	-3	806
1968	-3	12	46	77	124	131	170	114	70	30	10	-3	778
1969	-2	-3	0	79	132	140	170	159	74	25	12	-3	783
1970	-4	-2	10	64	128	150	171	151	70	31	0	-3	766
1971	-2	-3	1	75	139	114	170	158	62	32	7	-3	750
1972	-1	-2	37	85	130	159	145	147	59	23	8	-2	788
1973	5	0	49	63	135	145	173	133	69	33	-4	-3	798
1974	-2	-3	4	75	103	165	166	103	66	39	10	4	730
1975	-4	-3	2	46	104	136	173	117	78	27	10	-5	681
1976	-4	15	30	82	133	123	150	132	79	32	10	-2	780
1977	-5	19	43	96	110	159	128	108	50	36	10	-5	749
1978		-1	6	51	116	161	152	129	65	35	5	-4	
1979	-2	-1	39	54		161	171	135	87		-6	5	
1980	-2	2	2	93	133	139	165	111	65	30	11	2	751
1981	5	11	45	80	104	137	154	148	83	27	11	-3	802
1982	0	0	27	74	111	147	159	134	72	33	5		
1983	-1	9	29	82	127	128	152	151	69	36	9	-1	790
1984	-1	18	29	84	110	137	172	145	57	25	-2	-2	772
1985					135	166	174	119	46	28	-2	-2	
1986	5	1		74	105	162	157	136	44	34	4	3	
1987	7	18	29	91	138	160	156	120	87	37	11	4	858
1988	3	15		100	142	167	173	135	70	37	9	5	
1989	2	1	32	77	114	152	168	115	76	34	7	0	778
1990	0	16	44	76	118	153	163	137	97	30	8	-1	841
1991	-2	13	40	81	118	125	180			30	8	5	
1992	6	16	48	77	118	132	140	128	63	29	7	-2	762
1993	-2	6	42	88	144	149	142	126	72	33	10	6	816
1994	-2	-2	50	96	134	155	181	148	94	30	10	5	899
1995	-5	17	50	80	137	166	171	139	81	32	4	-4	868
1996	-3	16	34	86	120	167	189	170	66	34	-3	-8	868
1997	-2	14	39	84	136	157	181	145	90	34	12	5	895
1998	-3	18	36	101	154	148	174	154	86	37	10	3	918
1999	-5	16	51	89	127	154	170	143	82	38	12	4	881
2000	-3	5	47	89	146	156	181	146	78	34	9	-3	885
2001	6	-1	48	88	152	158	177	162	84	32	12	-1	917
2002	3	17	4	77	129	146	178	119	70	26	11	5	785
2003	3	2	41	80	117	151	185	149	74	37	-3	-1	835
2004	-2	0	47	96	116	155	169	120	74	32	12	2	821
2005	-4	20	49	95	149	138	178	128	76	34	12	-1	874
2006	8	9	37	94	138	157	201	154	80	29	7	4	918
2007	7	-1	49	79	135	166	204	146	80	37	11	-3	910
2008	-3	-2	46	96	108	137	163	137	77	35	11	-2	803
2009	-2	-1	19	81	121	137	142	116	97	24	12	-3	743
MEAN	-1	5	30	78	125	147	169	137	73	32	7	0	808
MIN	-5	-5	0	46	102	112	128	103	44	23	-6	-8	681
MAX	8	20	51	101	154	179	204	170	97	42	12	8	918
COUNT	*55*	*56*	*54*	*56*	*56*	*57*	*57*	*56*	*56*	*55*	*56*	*55*	*48*

Vauxhall

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
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1949													
1950													
1951													
1952													
1953													
1954				40	103	115	175	121	64	37	12	6	
1955	0	0	28	63	99	170	150	157	65	32	-1	-1	762
1956	-3	0	31	72	123	145	164	137	70	31	12		
1957	-2	5	35	72	137	135	180	123	75	23	9	5	797
1958	7	1	3	67	157	137	163	149	74	39	8	3	808
1959	-2	1	41	80	118	147	182	136	62	27	7	5	804
1960	-2	4	34	73	108	154	188	129	80	31	9	2	810
1961	7	13	33	62	113	184	166	144	65	30	9	-1	825
1962	3	0	29	80	113	148	160	125	73	31	11	4	777
1963	0	12	34	71	120	121	176	144	81	40	10	1	810
1964	3	18	29	67	113	131	180	130	48	40	9	-1	767
1965	-1	4	24	69	107	127	176	129	43	36	2	0	716

Vauxhall

Shallow Lake Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	4	45	70	130	132	173	127	81	28	5	-1	793
1967	-2	11	29	57	105	140	180	150	90	29	10	-2	797
1968	-2	15	42	70	113	124	164	105	65	27	10	-2	731
1969	0	-3	30	78	124	130	170	157	69	25	13	4	797
1970				59	119	143	168	145	65				
1971				72	131	139	162	150	62				
1972				81	120	152	141	136	55				
1973				59	137	136	177	132	67				
1974				74	100	163	164	107	67				
1975				46	103	136	171	114	77				
1976				76	138	118	147	128	81	28			
1977				92	110	153	151	105	54	30			
1978				47	104	156	150	123	62	33			
1979				50	105	152	166	132	82	30			
1980				88	132	142	160	108	66	32			
1981					106	128	150	143	80	27			
1982													
1983				74	125	119	149	141	67	32	8	-1	
1984	6	18	29	75	108	138	173	134	53	24	6	1	765
1985	3	8	40	73	131	160	180	132	46	26	-1	5	803
1986	5	2	37	75	117	158	150	135	44	34	7	6	770
1987	8	17	25	84	132	151	151	116	81	36	12	6	819
1988	6	15	34	92	131	160	168	133	67	36	10	6	858
1989	5	0	21	78	121	153	168	108	74	33	10	7	778
1990	7	17	44	75	108	155	157	138	96	30	9	0	836
1991	-5	17	47	83	110	136	174	138	75	34	8	3	820
1992	6	19	54	80	128	130	137	128	65	31	8	-5	781
1993	-6	-2	43	80	134	128	121	118	70	30	8	3	727
1994	-3	-3	54	82	126	152	174	124	88	29	10	5	838
1995	-6	16	45	69	112	133	156	130	69	28	4	-6	750
1996	-1	7	26	75	95	139	169	140	63	35	-2	-4	742
1997	-3	6	46	86	118	145	167	130	73	29	9	5	811
1998	-6	19	22	89	145	124	172	159	85	32	7	-2	846
1999	-4	19	48	80	116	147	148	125	77	30	9	3	798
2000	-3	-4	45	74	115	139	164	118	63	28	5	-5	739
2001	3	-3	46	86	130	131	150	153	81	27	10	-6	808
2002	-3	15	-1	74	118	158	167	108	61	26	8	-1	730
2003	-2	-4	25	71	122	136	169	151	63	28	-6	-4	749
2004	-8	-10	57	107	130	162	182	138	76	36	12	-9	873
2005	-9	22	50	89	137	126	167	119	62	28	9	2	802
2006	6	19	20	95	143	150	198	152	77	30	8	5	903
2007	7	0	54	76	129	165	206	144	77	41	11	-5	905
2008	0	3	54	93	115	157	180	146	84	38	11	-3	878
2009	-2	0	51	94	141	162	166	127	98	26	14	-5	872
MEAN	0	7	36	75	120	143	166	132	70	31	8	1	800
MIN	-9	-10	-1	40	95	115	121	105	43	23	-6	-9	716
MAX	8	22	57	107	157	184	206	159	98	41	14	7	905
COUNT	*41*	*41*	*41*	*54*	*55*	*55*	*55*	*55*	*55*	*49*	*43*	*42*	*40*

Beaverlodge

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
1922													
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1934													
1935													
1936	-1	-1	25	67	146	141	151	125	60	21	6	-1	739
1937	-1	1	27	72	141	172	176	116	78	20	1	0	803
1938	-3	-1	39	84	149	156	154	121	93	19	2	-1	812
1939	0	1	28	89	132	147	164	156	64				
1940	8	13			95	79	151	92	101	19			
1941					121	145	171	101	36	23			
1942					141	148	161	143	78				
1943					116	134	170	125	107				
1944			26	103	144		178	132	78	31	-8		
1945		-3		54			173	160		21	-6	-9	
1946	-4	-2	30	79	142	128	159	148	74	21	-5	-7	763
1947	-5	-5	4		143	129	134	83	58	22	-3	-5	
1948	-4	-6	1	7	144	196	135	93	70	25	-2	-7	652
1949	-6	-5	2	83	111	128	139	108	77	14	3	-7	647
1950		-7	-2	32	124	178	155	101	86	21	-7		
1951		-5	-4	58	103	126	119	88	57	5			
1952				64	139	123	144	101	68	24	0		
1953					124	103	117	116	65	24			
1954		0	6	42	125	141	166	92	62	24	3	0	
1955	1	0	7	77	140	202	156	161	93	26	-2	-1	860
1956	-1	1	24	61	130	138	189	147	76	22	13	-1	799
1957	-2	4	41	83	140	151	142	118	103	18	4	2	804
1958	2	0	10	73	187	170	208	170	69	28	5	-1	921
1959	-1	4	38	86	147	148	208	116	66	18	1	2	833
1960	-2	2	9	110	124	137	208	141	101	22	0	-2	850
1961	1	1	25	98	141	175	169	184	68	21	0	-1	882
1962	5	-1	24	89	129	181	163	110	81	24	3	-2	806
1963	-2	3	14	77	148	187	160	153	76	27	-2	0	841
1964	-1	8	5	82	116	148	142	102	56	28	-1	-1	684
1965	-1	1	36	65	145	175	168	138	52	28	-3	-1	803

Beaverlodge

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	3	33	63	155	158	142	126	85	25	-1	-1	786
1967	-1	2	0	67	143	176	194	177	98	19	2	-1	876
1968	-1	7	31	84	139	155	164	119	65	19	4	-2	784
1969	-1	0	31	82	165	169	177	141	49	23	4	-1	839
1970	-2	4	24	83	144	183	193	173	83	32	-3	-1	913
1971	-2	9	21	84							0	-3	
1972	-1	-1	15	70	187	153	147	140	50	21	-2	-1	778
1973	-1	2	38	78	167	158	181	146	81	18	-2	0	866
1974	-1	2	3	82	112	205	152	126	76	28	6	0	791
1975	-3	0	6	78	156		190	122	107	17	-1	-2	
1976	2	2	28	107	152	114	159	99	92	25	8	1	789
1977	0	11	27	120	127	172	135	116	64	26	0	0	798
1978	-1	0	34	67	139	170	200	134	57	32	3	-1	834
1979	-4	-1	38	62	128	170	173	159	90	28	9	-3	849
1980	-2	-1	26	131	161	158	174	124	59	31	5	-1	865
1981	-7	-1	43	74	158	173	199	217	97	21	3	-3	974
1982	-1	0	8	76	150	212	154	97	80	28	0	-1	803
1983	0	1	20	100	172	146	154	177	80	26	-4	-2	870
1984	1	9	45	109	131	162	205	152	58	15	-1	-1	885
1985	1	1	33	112	189	183	230	148	56	17	-1	3	972
1986	1	-3	31	77	141	188	148	181	58	25	-1	-7	839
1987	-4	-2	6	121	184	199	176	121	106	34	2	0	943
1988	-2	2	40	120	170	112	173	150	94	31	-3	-3	884
1989	-2	-1	5	119	163	184	170	101	76	19	1	-3	832
1990	-2	0	51	88	136	173	202	165	114	15	-1	-3	938
1991	-4	4	28	113	172	148		141	92	18	-4	-2	
1992	-4	-1	55	94	149	181	176	172	53	20	-1	-2	892
1993	-4	-2	43	93	161	163	126	124	98	27	3	-3	829
1994	-3	-1	47	99	161	165	171	134	81	20	-3	-4	867
1995	-3	1	33	84	169	186	181	144	119	27	-1	-4	936
1996	-3	4	17	90	126	170	186	163	76	29	2	-1	859
1997	1	13	35	112	192	145	148	115	72	17	0	-2	848
1998	-4	-2	38	119	185	160	185	190	101	18	-4	-5	981
1999	-5	1	46	99	138	163	177	166	92	31	2	1	911
2000	-3	6	44	106	117	158	183	130	81	25	6	-4	849
2001	3	3	50	94	160	152	166	146	101	26	-1	-5	895
2002	-4	7	4	58	140	207	192	149	70	17	4	-5	839
2003	-4	-1	23	73	156	185	207	146	83	28	-1	-5	890
2004	-3	8	44	97	147	179	161	119	64	19	4	-4	835
2005	-5	10	40	114	165	138	156	126	81	25	6	-8	848
2006	-7	8	23	134	172	211	205	186	94	25	-3	-4	1044
2007	1	-4	33	87	146	181	209	108	84	24	2	-6	865
2008	-4	3	48	90	155	197	215	157	94	30	1	-3	983
2009	0	4	31	96	158	218	181	172	108	14	3	-3	982
MEAN	-2	2	26	86	146	162	170	136	79	23	1	-2	851
MIN	-7	-7	-4	7	95	79	117	83	36	5	-8	-9	647
MAX	8	13	55	134	192	218	230	217	119	34	13	3	1044
COUNT	*64*	*68*	*67*	*68*	*72*	*70*	*72*	*73*	*72*	*70*	*67*	*64*	*58*

Brooks

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
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1950													
1951													
1952													
1953						165	201	225	117	73	21	3	
1954	-2	17	17	62	165	162	247	161	100	64	21	6	1020
1955	-3	-1	17	93	139	217	198	233	115	53	1	0	1062
1956	-2	-2	20	103	170	201	214	193	120	50	16	3	1086
1957	-2	-1	48	110	199	177	238	172	121	32	9	8	1111
1958	7	-1	8	101	223	199	222	231	124	60	7	0	1181
1959	-1	-2	54	119	156	207	260	197	97	34	6	5	1132
1960	0	1	35	123	167	205	284	198	140	51	6	-1	1209
1961	4	10	51	105	163	279	242	251	113	45	10	-1	1272
1962	-1	-1	13	132	160	208	215	202	126	54	17	4	1129
1963	-2	10	56	118	183	178	240	215	141	66	13	1	1219
1964	-1	18	34	96	170	189	263	208	80	63	9	-2	1127
1965	-2	-1	10	89	161	179	248	215	42	61	2	7	1011

Brooks

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	-3	59	96	192								
1967		-1	4	61	138	176		211	169	49	8	-1	
1968	0	13	68	104	161	178	212	148	98	43	7	-4	1028
1969	-2	-2	1	110	181	184	221	232	115	29	14	-1	1082
1970	-3	-1	10	81	170	199	210	214	113	42	-2	-3	1030
1971	-3	-2	6	99	181	185	221	232	102	43	6	-3	1067
1972	-2	-2	23	115	165	202	180	203	85	24	2	-3	992
1973	-3	-3	55	76	185	189	243	181	106	44	-4	-4	1065
1974	-3	-3	6	86	127	224	232	149	110	64	9	-1	1000
1975	-3	-2	4	46	132	187	204	157	99	37	10	-4	867
1976	-3	11	36	109	200	166	211	193	148	46	9	-1	1125
1977	-4	17	57	151	161	218	211	147	75	54	7	-3	1091
1978	-3	-3	9	62	138	211	200	167	99	53	0	-3	930
1979	-2	0	53	73	156	215	240	211	150	51	-6	4	1145
1980	-2	1	35	155	214	193	233	167	118	51	12	2	1179
1981	4	11	64	140	153	182	214	242	147	37	16	-3	1207
1982	0	1	23	103	155	193	204	198	119	46	3	1	1046
1983	1	8	36	112	173	184	202	239	119	54	8	-1	1135
1984	0	21	37	128	167	199	266	238	88	33	0	-1	1176
1985	-3	0	31	106	190	233	272	180	72	38	-2	-1	1116
1986	5	2	54	114	154	209	195	224	64	49	3	2	1075
1987	6	15	32	141	196	234	212	158	139	57	12	3	1205
1988	2	13	56	163	229	244	260	205	126	63	12	5	1378
1989	1	1	36	122	174	217	259	183	129	56	7	0	1185
1990	2	12	66	115	160	205	236	213	181	47	8	0	1245
1991	-2	15	43	117	140	162	220	194	124	41	6	4	1064
1992	6	14	39	118	169	190	171	184	106	42	5	0	1044
1993	-1	4	54	108	162	200	183	190	123	53	14	13	1103
1994	3	1	62	107	157	177	225	186	141	44	9	0	1112
1995	-2	13	48	86	156	198	203	194	133	41	14	-1	1083
1996	1	14	39	123	149	196	239	209	83	41	1	-1	1094
1997	-2	0	38	105	160	193	225	192	136	38	10	8	1103
1998	-4	19	39	133	218	174	230	232	137	52	5	-3	1232
1999	-6	17	65	127	161	176	184	162	120	59	12	3	1080
2000	-7	-6	54	114	187	194	260	194	104	52	-4	-8	1134
2001	-5	-4	60	122	214	191	238	252	142	54	14	-9	1269
2002	-7	18	-1	97	173	181	230	140	90	27	7	-8	947
2003	-8	-5	40	91	140	164	238	206	101	57	-7	-10	1007
2004	-6	-6	51	129	138	165	188	128	83	43	11	-8	916
2005	-7	21	59	120	177	128	188	139	84	40	8	2	959
2006	4	17	28	133	181	195	264	213	131	41	7	6	1220
2007	7	4	82	97	170	205	284	193	110	61	13	-4	1222
2008	-1	1	70	114	174	185	220	210	111	62	14	-4	1156
2009	-2	-2	41	128	202	217	202	164	166	35	17	-5	1163
MEAN	-1	5	38	109	170	194	225	196	115	48	8	0	1108
MIN	-8	-6	-1	46	127	128	171	128	42	24	-7	-10	867
MAX	7	21	82	163	229	279	284	252	181	73	21	13	1378
COUNT	*55*	*56*	*56*	*56*	*56*	*56*	*55*	*56*	*56*	*56*	*56*	*56*	*54*

Calgary International Airport

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921										57	7	-2	
1922	1	1	25	61	117	118	103	106	59	45	-11	-4	621
1923	3	11	43	59	98	126	120	109	81	48	2	-6	694
1924	-6	19	14	73	161	143	190	122	91	39	-5	-4	837
1925	-4	-2	30	84	183	155	188	138	61	-2	8	2	841
1926	7	12	57	126	141	154	185	106	56	37	-1	-6	874
1927	-5	-2	23	77	95	145	171	134	68	36	-4	-3	735
1928	-4	1	28	63	163	116	157	112	93	31	13	-9	764
1929	-4	-8	36	55	103	154	251	177	78	31	-3	-3	867
1930	1	0	17	64	114	161	204	164	60	31	5	-7	814
1931	-5									49	1	-3	
1932	-4	0	3	61	105	135	158	137	101	29	-4	-5	716
1933	-5	-2	23	55	119	200	210	168	95	32	15	0	910
1934	7	20	38	126	175	144	194	163	70	38	12	5	992
1935	0	19	38	78	132	142	193	150	111	38	6	4	911
1936	1	0	41	79	173		232	163	89	45	21	5	
1937	2		34	101	164	170	183	157	102	41	7	4	
1938	8	2	52	94	130	153	183	153	132	51	7	2	967
1939			33			100			90	31	15	3	
1940	0	1	24	52	152	173	156	191	81	34	3	0	867
1941	3	14	36		127	161	200	138	63		14		
1942	8	-5	46	90	116	124	161	130	83	36	-9	-2	778
1943	-2	10	11	106	123	117	209	174	125	42	17	9	941
1944	7	2	33	104	149	143	184	155	101	65	7	3	953
1945	-1	5	47	59	126	139	201	176	81	42	0	-4	871
1946	2	10	56	116	138	138	205	159	104	40	2	-2	968
1947	3	-1	20	105	150	134	237	141	92	41	3	2	927
1948	7	-2	4	44	135	169	210	169	126	60	13	-2	933
1949	-5	-1	38	115	160	190	193	202	139	32	24	-4	1083
1950	-2	2	6	73	146	175	173	139	120	27	2	0	861
1951	-3	0	6	98	155	126	172		81	24	8	-1	
1952	-4	-1	4	113	158	144	175	148	107	57	13	4	918
1953	-1	5	38	49	112	120	185	157	104	58	14	6	847
1954	-1	15	15	45	121	140	208	113	85	54	19	10	824
1955	5	4	16	79	123	207	162	198	94	46	0	-1	933
1956	-2	1	35	78	174	171	182	162	97	37	18	5	958
1957	-2	4	39	81	154	142	213	127	104	29	8	6	905
1958	7	-1	3	76	203	154	182	192	114	63	11	6	1010
1959	-1	3	56	111	139	169	239	149	83	36	7	6	997
1960	1	0	36	119	157	184	238	177	129	48	10	4	1103
1961	10	14	45	92	148	248	203	199	93	37	11	-2	1098
1962	2	-1	37	121	135	200	195	152	122	50	16	3	1032
1963	-1	9	52	93	162	173	210	188	132	64	9	0	1091
1964	4	23	34	101	160	172	231	192	83	60	5	-3	1062
1965	-1	3	13	85	141	148	199	165	62	62	2	-3	876

Calgary International Airport

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	5	58	77	170	167	189	152	131	44	-1	-4	986
1967	-3	12	7	60	138	178	227	208	161	46	12	0	1046
1968	-2	17	58	99	151	154	202	131	104	47	12	-1	972
1969	0	-1	38	114	170	173		212	102	38	22	4	
1970	-1	16	41	100	161	202	214	217	129	54	4	-1	1136
1971	1	14	45	106	188	184	217	231	110	52	10	-2	1156
1972	0	0	46	119	174	187	151	182	87	39	10	-2	993
1973	7	16	62	82	194	201	241	179	106	52	-2	0	1138
1974	0	15	32	111	120	235	228	140	112	62	14	8	1077
1975	7	0	35	77	145	185	219	170	141	48	14	4	1045
1976	8	18	52	125	201	169	223	181	133	45	19	5	1179
1977	1	28	61	162	153	270	204	133	80	59	12	-2	1161
1978	-1	-2	44	66	146	192	183	166	95	64	8	2	963
1979	0	-1	65	72	144	209	235	176	144	47	16	5	1112
1980	0	12	41	148	193	155	219	146	110	59	21	3	1107
1981	10	20	66	146	128	186	171	198	136	41	20	6	1128
1982	0	6	40	118	168	172	186	171	114	56	8	5	1044
1983	6	13	33	105	176	178	212	223	117	47	11	0	1121
1984	10	30	45	128	147	198	255	229	88	34	7	2	1173
1985	9	14	76	112	201	209	249	151	73	41	2	3	1140
1986	13	13	68	113	161	205	171	196	60	59	-2	8	1065
1987	15	21	36	140	203	240	170	140	149	63	17	10	1204
1988	7	17	66	155	215	199	218	161	108	55	14	6	1221
1989	7	6	38	114	151	184	209	128	120	51	14	6	1028
1990	8	16	76	104	120	178	179	179	159	47	8	2	1076
1991	6	17	49	124	132	159	215	194	122	46	9	10	1083
1992	12	17	80	115	155	167	154	165	97	41	7	1	1011
1993	-1	16	47	101	159	164	144	136	115	54	10	6	951
1994	-2	2	83	119	159	179	212	175	142	44	10	3	1126
1995	1	16	56	91	141	168	179	157	124	44	9	1	987
1996	2	17	35	86	84	167	193	196	78	47	4	2	911
1997	2	15	46	102	142	159	199	161	122	41	11	10	1010
1998	2	18	32	99	166	124	173	198	116	50	8	5	991
1999	5	23	53	99	147	142	163	138	110	54	16	12	962
2000	5	17	55	104	145	158	208	181	116	55	11	1	1056
2001	11	7	70	111	195	151	206	220	133	53	16	4	1177
2002	7	20	6	90	147	200	242	174	111	37	20	7	1061
2003	6	6	46	85	152	175	221	211	122	60	8	5	1097
2004	4	21	77	130	134	166	187	139	96	45	20	7	1026
2005	2	20	66	134	185	129	198	144	94	48	17	6	1043
2006	12	20	21	126	183	164	208	181	123	35	4	10	1087
2007	10	2	72	90	158	163	211	142	104	54	15	3	1024
2008	6	19	69	96	151	164	184	174	107	54	16	-3	1037
2009	9	12	42	104	177	196	196	155	159	29	23	-2	1100
MEAN	3	9	40	97	151	167	197	165	105	45	9	2	992
MIN	-6	-8	3	44	84	100	103	106	56	-2	-11	-9	621
MAX	15	30	83	162	215	270	255	231	161	65	24	12	1221
COUNT	*87*	*85*	*87*	*85*	*86*	*86*	*85*	*85*	*87*	*88*	*89*	*88*	*81*

Cold lake

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
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1957													
1958													
1959													
1960													
1961													
1962													
1963													
1964													
1965													

Cold lake

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973							182	140	85	23	-2	-2	
1974	-1	-1	4	95	115	176	163	128	72	31	2	-4	780
1975	-1	0	7	74	141	145	187	111	89	22	3	-2	776
1976	-3	2	32	111	173	162	167	145	100	22	8	-2	917
1977	-2	8	33	125	154	190	139	122				-1	
1978	-1	0	34	80	133	175	193	133	59	38	-1	-3	840
1979	-3	0	34	58	153	156	178	126	75	21	1	-5	794
1980	-3	-2	12	156	192	157	188	105	57	32	2	-1	895
1981	-5	1	46	101	187	180	167	188	102	18	5	-2	988
1982	-1		13	88	146	187	153	116	90	31	-1	-3	
1983	-5	-2	15	101	135	130	141	172	66	24	-7	-4	766
1984	-1	7	35	125	126	179	190	153	57	20		-2	
1985	-3	-1	41	96	171	161	194	152	54	21	-1	-1	884
1986	0	1	36	100	147	188	124	166	62	29	-1		
1987		1	14	103	167	178		101	96	27	3	-5	
1988		0	29	122	164	148	146	122	70	25	-6	-4	
1989	-2	-2	3	101	139	138	182	127	65	24	-5	-6	764
1990	-5	-3	33	80	160	181	160	140	94	20	-3	-2	855
1991	-3	2	22	107		134	195	207	75	14	-4	-5	
1992	-6	-1	48	95	140	169	150	148	57	22	-5	-3	814
1993	-3	-1	47	77	169	156	146	132	79	25	-1	-5	821
1994	-2	0	46	112	160	154	155	149	114	25	-2	-3	908
1995	-4	0	34	83	190	192	168	106	103	24	-2	-3	891
1996	-2	0	17	78	118	165	161	149	61	20	-1	-3	763
1997	-2	-2	34	86	152	154	191	152	85	17	-2	-4	861
1998	-3	-4	36	132	210	188	188	178	106	22	-3	-4	1046
1999	-3	0	39	105	142	186	178	157	95	30	1	-6	924
2000	-3	-1	44	106	153	170	154	127	74	31	-4	-4	847
2001	-7	1	48	117	179	163	183	177	95	24	1	-5	976
2002	-3	5	9	66	187	224	210	149	87	14	-2	-9	937
2003	-2	-1	28	92	166	170	186	162	82	26	-4	-7	898
2004	-3	-4	35	105	143	180	164	125	75	22	5	-4	843
2005	-3	8	42	114	164	151	165	126	82	29	3	-7	874
2006	-6	0	26	141	144	185	192	151	99	25	0	1	958
2007	3	3	44	104	154	159	208	123	83	31	-1	-4	907
2008	-4	0	40	86	188	205	189	157	101	38	6	-3	1003
2009	-2	0	20	92	169	184	182	151	118	15	6	-9	926
MEAN	-3	0	30	100	158	170	173	143	82	25	0	-4	878
MIN	-7	-4	3	58	115	130	124	101	54	14	-7	-9	763
MAX	3	8	48	156	210	224	210	207	118	38	8	1	1046
COUNT	*34*	*35*	*36*	*36*	*35*	*36*	*36*	*37*	*36*	*36*	*35*	*36*	*29*

Coronation

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
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1918													
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1960													
1961													
1962													
1963													
1964													
1965													

Coronation

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975								142	123	32	8	-3	
1976	-3	-2	4	116	193	156	185	184	129	35	7	-4	1000
1977	-3	-4	38	142	139	224	208	143	68	46	1	-2	1000
1978	-3	-3	2	68	155	202	200	173	77	46	-2	-5	910
1979	-4	-1	29	60	149	183	193	172	127	35	6	-6	943
1980	-4	-4	3	135	207	163	204	130	89	38	4	-3	962
1981	-6	-2	46	119	150	174	181	216	124	28	4	-6	1028
1982	-1	-3	0	91	144	185	179	151	106	40	-4	-5	883
1983		-3	13	100	175				88		-1		
1984	-3			118	142	166	231	196	71	24	-4	-2	
1985	-5	-2	5	91	167	187	229	154	59	26	-3	-3	905
1986	-4	-3	42	97	154	172	132	180	60	40	-3	-6	861
1987	-5	-2	7	117	179	217	164	110	121	46	-2	-8	944
1988	-5	-2	39	114	184	193	196	98	85	42	-6	-10	928
1989	-3	-2	3	93	134	151	194	109	81	37	1	-3	795
1990	-4	-3	43	84	140	154	165	147	129	30	5	-2	888
1991	-3	7	37	108	138	147	191	178	105	28	-4	-5	927
1992	-4	-4	56	91	140	164	147	159	80	31	-6	-4	850
1993	-5	-5	4	69	163	162	140	132	97	39	-1	-7	788
1994	-3	0	39	112	156	155	189	139	109	30	-2	-8	916
1995	-5	-3	22	76	167	191	178	125	125	40	-3	-3	910
1996	-2	-2	3	83	113	160	175	194	74	32	-1	-1	828
1997	0	12	39	107	162	152	197	186	125	34	1	2	1017
1998	-3	-4	26	126	211	183	199	214	126	33	-4	-6	1101
1999	-5	-3	14	107	134	172	150	141	105	45	4	0	864
2000	-5	-3	34	98	159	176	209	166	92	45	-4	-4	963
2001	-7	-2	45	119	195	155	200	233	133	40	4	-6	1109
2002	-5	0	1	69	186	220	255	145	97	23	4	-6	989
2003	-5	-3	13	84	140	158	213	204	100	52	-6	-7	943
2004	-3	-3	44	121	158	190	175	140	85	33	5	-6	939
2005	-5	-2	19	109	174	128	188	137	84	40	2	-8	866
2006	-12	-1	2	116	150	175	231	176	106	30	-4	-5	964
2007	-4	-2	40	88	155	175	261	162	105	50	8	-6	1032
2008	-5	-3	45	91	178	171	210	192	115	52	7	-4	1049
2009	-2	-2	5	109	188	213	227	150	148	23	11	-3	1067
MEAN	-4	-2	23	101	161	175	194	161	101	37	1	-5	943
MIN	-12	-5	0	60	113	128	132	98	59	23	-6	-10	788
MAX	0	12	56	142	211	224	261	233	148	52	11	2	1109
COUNT	*33*	*33*	*33*	*34*	*34*	*33*	*33*	*34*	*35*	*34*	*35*	*34*	*32*

Edmonton City Centre Airport

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912	-4	-4	2	77	144	182	116	111	74	27	6	3	734
1913	1	6	30	101	132	132	143	109	80	22	4	0	760
1914	-2	1	36	103	163	122	162	139	55	24	2	-3	802
1915	-3	-5	28	113	119	113	124	147	87	29	3	-2	753
1916	-1	-1	30	96	124	151	142	117	70	23	5	-1	755
1917	0	0	32	64	131	164	188	139	83	21	10	-1	831
1918	0	2	40	112	127	150	163	129	85	31	3	-3	839
1919	-2	0	4	97	139	166	159	142	75	13	-1	-2	790
1920	-2	3	8	38	128	143	195	130	68	27	1	-1	738
1921	0	7	28	95	151	172	169	124	86	36	1	0	869
1922	-1	-1	26	77	147	147	180	131	93	28	5	-1	831
1923	-1	4	24	112	154	149	159	129	93	44	6	-1	872
1924	-2	4	15	82	151	159	169	117	79	29	-1	-3	799
1925	-3	-2	24	92	170	159	175	123	60	18	3	0	819
1926	1	3	46	109	143	150	196	109	48	20	1	-2	824
1927	-1	0	36	80	120	155	155	141	71	23	0	-1	779
1928	-2	8	30	64	178	120	160	123	100	26	4	6	817
1929	-1	0	45	73	145	178	207	160	75	48	11	-1	940
1930	-2	6	50	91	119	112	182	157	70	22	5	-1	811
1931	-3	13	33	127	173		171	165	83	40	8	2	
1932	1	-1	5	70	156	173	194	201	117	23	4	-3	940
1933	0			102	144	162	181	178	88	30	9	-1	
1934	4	14	39	145	180	133	173	173	65	45	6	-2	975
1935	-2	10	14	59	118	145	182	131	101	30	0	-5	783
1936	-1	0	21	76	162	152	219	166	86	34	11	1	927
1937	0	1	41	97	163	173	168	134	39	26	3	0	845
1938	-2	0	42	100	158	167	188	137	132	36	4	-2	960
1939	-2	0	16	107	133	107	178	175	69	17	3		
1940	-1	-1	25	74	133	142	127	140	95	28	-1	-3	758
1941	0	5	41	116		153	186	128	62	28	6	1	
1942	-3	1	49	97	157	139	162	140	48	33	-3	-6	814
1943	-2	-4	7	115	145	136	172	121	111	26	8	0	835
1944	-5	-4	13	123	142	137	162	140	78	48	-3	-7	824
1945	-4	-3	38	68	153	166	196	144	74	33	-5	-6	854
1946	-6	-3	38	112	145	137	185	143	72	31	-4	-6	844
1947	-3	-3	4	75	160	132	198	110	69	32	-4	-5	765
1948	-3	-4	1	24	143	193	180	137	88	41	2	-6	796
1949	-3	-2	30	123	164	182	170	157	105	25	10	-6	955
1950	3	-3	2	80	162	207	194	144	114	17	-5	-7	908
1951	-5	-4	0	82	148	175	150	126	79	17	-5	-6	757
1952	-5	-5	0	129	174	152	169	149	91	44	6	-6	898
1953	-6	0	8	79	149	141	160	134	93	43	7	1	809
1954	-1	8	29	57	121	132	177	94	76	43	9	1	746
1955	-3	1	8	71	159	206	158	173	79	31	-3	-2	878
1956	-2	-3	13	86	202	164	179	153	82	34	12	-1	919
1957	-4	-2	17	95	167	209	200	134	110	30	3	-3	956
1958	-2	-1	10	90	199	174	201	180	91	41	7	-2	988
1959	-1	1	57	117	159	156	214	123	82	19	5	1	933
1960	-4	-2	19	117	146	156	206	139	102	33	4	-6	910
1961	-3	0	34	103	165	220	190	189	88	24	5	-3	1012
1962	-2	-3	3	97	151	180	161	139	99	39	4	-2	866
1963	-2	-1	33	99	152	182	194	170	111	44	3	-1	984
1964	-4	9	17	113	155	189	205	151	65	41	0	-2	939
1965	-1	0	16	79	156	167	194	160	65	51	-1	-3	883

Edmonton City Centre Airport

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-2	34	81	195	180	188	132	110	29	0	-3	942
1967	-2	-1	3	67	173	183	206	203	143	32	5	-2	1010
1968	-3	4	46	107	196	177	205	142	81	29	5	-3	986
1969	-3	-2	31	105	178	212	194	183	68	28	6	-4	996
1970	-4	7	15	110	174	201	174	182	104	29	-4	-4	984
1971	-3	-2	19	111	211	144	178	191	84	38	4	-2	973
1972	-2	-1	30	101	187	186	162	170	57	34	2	-2	924
1973	-2	1	46	91	196	192	204	147	91	27	-3	-1	989
1974	1	7	14	103	154	219	210	144	87	44	11	3	997
1975	8	3	30	77	158	174	209	134	108	28	8	-1	936
1976	0	7	35	126	192	169	206	179	102	34	13	2	1065
1977	1	21	49	153	155	217	171	140	77	48	12	0	1044
1978	-2	1	43	93	157	203	195	146	65	44	5	-2	948
1979	-3	0	50	77	159	174	176	151	101	30	8	-3	920
1980	-2	1	34	143	188	149	181	120	61	36	10	0	921
1981	-5	8	55	119	164	179	175	198	107	33	7	-3	1037
1982	-1	-2	12	100	188	209	168	135	100	40	0	-2	947
1983	-3	0	5	112	173	157	166	185	80	32	-2	-2	903
1984	2	13	42	135	125	174	217	182	67	25	-3	-2	977
1985	-1	1	48	110	197	194	224	148	67	30	-1	-1	1016
1986	1	0	45	99	174	202	135	189	68	37	0	-1	949
1987	-1	7	23	128	186	205	176	112	122	43	8	1	1010
1988	0	10	54	152	213	172	192	154	97	43	3	0	1090
1989	0	1	26	130	164	169	182	116	97	35	5	0	925
1990	0	4	59	95	166	176	191	158	130	32	4	0	1015
1991	1	11	36	121	165	143	220	178	98	26	-2	-1	996
1992	1	3	57	99	151	201	185	179	78	37	3	-2	992
1993	-3	5	44	84	183	176	159	142	102	38	6	2	938
1994	0	1	63	129	169	151	181	137	114	36	4	-5	980
1995	-2	6	46	77	162	167	149	111	119	28	2	-1	864
1996	0	7	33	82	93	138	152	157	65	25	-1	-1	750
1997	-3	6	40	101	158	163	194	157	98	21	4	4	943
1998	-4	-2	39	135	210	171	190	189	114	29	0	-3	1068
1999	-5	3	44	117	146	184	173	160	112	39	7	6	986
2000	0	13	57	107	152	176	181	137	90	34	4	-4	947
2001	4	4	62	138	198	157	177	198	116	35	10	-4	1095
2002	-2	12	24	84	185	221	226	143	90	21	11	2	1017
2003	1	4	33	81	165	166	207	190	97	36	2	2	984
2004	-1	9	52	121	162	195	166	135	76	27	14	0	956
2005	-3	10	48	133	185	150	196	147	91	34	8	-3	996
2006	-5	16	22	142	176	189	235	187	107	32	-3	4	1102
2007	5	1	61	100	157	186	247	158	114	58	10	-7	1090
2008	-6	6	62	104	172	193	211	190	121	56	11	-5	1115
2009	0	4	35	106	182	212	194	174	144	21	14	-4	1082
MEAN	-2	3	31	100	161	168	182	150	89	32	4	-2	915
MIN	-6	-5	0	24	93	107	116	94	39	13	-5	-7	734
MAX	8	21	63	153	213	221	247	203	144	58	14	6	1115
COUNT	*98*	*97*	*97*	*98*	*97*	*97*	*98*	*98*	*98*	*98*	*98*	*97*	*94*

Edmonton International Airport

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
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1957													
1958													
1959													
1960													
1961	-6	-4	23	100	172	228	190	198	92	23	5	-2	1019
1962	-1	-2	-1	88	149	175	156	134	96	37	4	-3	832
1963	-2	-2	30	97	149	178	186	158	109	45	-2	-2	944
1964	-5	3	5	107	147	172	191	141	65	42	-1	-3	864
1965	-3	-2	1	66	144	139	166	130	53	46	-4	-5	731

Edmonton International Airport

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-4	0	73	186	159	164	110	92	26	-3	-5	796
1967	-4	-4	-2	59	150	160	179	168	132	24	-4	-5	853
1968	-4	-3	42	98	179	160	187	116	65	25	3	-5	863
1969	-2	-4	0	91	162	188	180	168	64	25	2	-5	869
1970	-4	-1	2	95	165	190	160	187	98	30	-3	-2	917
1971	-1	-3	3	93	191	136	156	170	80	34	3	-1	861
1972	-1	1	23	96	166	180	142	146	54	30	-4	-6	827
1973	-2	-1	32	17	175	167	180	136	81	24	-3	-2	804
1974	-1	0	3	79	127	180	158	114	74	39	6	-1	778
1975	-1	0	6	63	152	156	166	113	92	26	6	-4	775
1976	-2	0	33	112	176	141	167	133	90	29	9	-2	886
1977	-3	9	36	137	133	187	144	106	58	39	5	-2	849
1978	-2	-1	34	81	144	185	179	135	59	41	1	-2	854
1979	-1	0	56	80	149	163	160	138	94	30	7	-3	873
1980	-3	-1	16	127	175	138	161	106	63	32	5	-1	818
1981	-4	6	47	107	144	163	155	177	104	25	3	-4	923
1982	-1	-1	9	84	176	182	143	115	84	34	0	-2	823
1983	-2	1	1	96	158	138	152	160	72	29	-2	-1	802
1984	1	9	34	120	120	162	197	161	64	22	-2	-1	887
1985	-2	1	40	98	185	181	212	130	58	25	-1	-1	926
1986	1	-1	42	90	162	185	126	171	63	34	-1	-2	870
1987	1	8	24	120	176	190	152	106	115	41	5	-2	936
1988	-1	7	51	139	200	166	173	141	93	43	2	2	1016
1989	3	3	17	113	149	165	165	96	92	32	3	-1	837
1990	-2	2	48	87	153	166	179	149	131	33	3	-1	948
1991	2	9	30	105	156	140	199	172	93	24	-2	-1	927
1992	-2	-1	56	93	145	192	160	151	76	33	2	-3	902
1993	-3	2	38	78	175	165	143	126	87	34	-1	-5	839
1994	-3	-1	43	117	161	153	180	132	107	35	0	-4	920
1995	-2	3	37	72	160	158	146	107	106	29	1	-1	816
1996	0	3	20	76	95	139	159	159	64	25	0	0	740
1997	0	6	18	84	131	154	174	145	99	19	2	2	834
1998	0	-1	19	110	187	140	163	169	103	28	4	-1	921
1999	0	2	25	93	131	166	146	137	103	38	4	3	848
2000	0	4	37	87	139	153	158	129	84	36	5	0	832
2001	4	5	53	115	180	141	161	158	88	28	4	-2	935
2002	-4	6	3	64	162	213	206	126	85	20	7	1	889
2003	0	-1	20	78	159	155	178	174	90	32	-3	-2	880
2004	-2	0	46	116	156	170	142	113	65	22	6	-4	830
2005	-5	2	34	113	172	135	181	114	69	27	4	-6	840
2006	-9	11	3	128	170	178	206	162	92	28	-7	-6	956
2007	-4	-4	29	78	148	166	202	139	93	52	7	-6	900
2008	-5	0	47	94	161	173	189	177	110	51	9	-5	1001
2009	-3	-3	4	92	175	202	178	148	135	19	9	-3	953
MEAN	-2	1	25	94	159	167	169	142	86	32	2	-2	872
MIN	-9	-4	-2	17	95	135	126	96	53	19	-7	-6	731
MAX	4	11	56	139	200	228	212	198	135	52	9	3	1019
COUNT	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*

Edson

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
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Edson

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973	-4	-2	39	75	152	153	183	125	71	19	-3	-4	804
1974	-3	1	4	91	113	182	167	112	77	32	4	-1	779
1975	-2	-1	6	74	124	141	178	94	93	22	0	-3	726
1976	-1	4	31	108	153	131	168	105	88	28	9	1	825
1977	0	16	41	123	128	176	144	108	58	35	1	-2	828
1978	-3	-2	37	69	134	170	165	127	61	42	2	-1	801
1979		-1	51	66	127	160	163	150	86	23	7	-3	
1980	-2	0	30	135	147	141	172	108	60	35	5	-2	829
1981	-4	9	54	118	117	159	161	176	85	21	2	-5	893
1982	-1	-1	11	83	145	158	138	106	77	33	-2	-3	744
1983	-3	2	13	102	148	133	155	167	69	23	-3	-3	803
1984	2	12	38	99	116	143	195	139	52	18	-2	-2	810
1985				94	170	154	199	123	55	23	-2	0	
1986	1	0	41	75	138	162	109	168	52	33	-1	-4	774
1987	-2	6	28	121	156	175	138	108	112	11	4	0	857
1988	-2	9	46	129	168	156	175	135	84	38	2	-2	938
1989	-2	0	28	107	143	170	160	93	79	26	6	-1	809
1990	-2	5	57	87	111	146	175	137	107	31	-1	-1	852
1991	-2	10	41	95	137	138	179	159	94	19	1	0	871
1992	0	9	60	87	127	161	151	144	70	24	0	-3	830
1993	-2	10	53	111	179	176	157	125	95	27	5	-5	931
1994	-2	0	62	118	148	163	168	123	103	30	1	-7	907
1995	-7	4	44	85	166	167	152	106	103	33	-2	-2	849
1996	0	15	35	101	104	156	163	151	64	32	-1	-3	817
1997	-2	13	42	100	154	162	172	144	86	23	2	2	898
1998	-4	7	39	127	184	146	181	163	90	22	-4	-4	947
1999	-6	5	45	108	148	155	161	144	94	40	2	7	903
2000	-2	3	53	104	128	167	173	120	86	32	7	2	873
2001	7	2	56	102	182	151	146	168	104	35	2	-4	951
2002	-3	13	12	76	151	220	213	151	81	25	6	-8	937
2003	-6	-1	39	79	152	180	213	174	92	41	6	3	972
2004	2	14	54	119	141	177	162	126	73	30	9	0	907
2005	-4	15	58	136	168	137	176	138	88	36	5	-7	946
2006	-7	10	15	130	170	194	200	160	103	29	-2	-2	1000
2007	4	-2	57	99	154	164	217	116	87	36	6	-1	937
2008	1	15	58	89	166	162	180	153	92	42	6	-3	961
2009	2	2	38	96	164	192	178	141	110	20	6	-7	942
MEAN	-2	6	39	100	146	162	170	135	83	29	2	-2	870
MIN	-7	-2	4	66	104	131	109	93	52	11	-4	-8	726
MAX	7	16	62	136	184	220	217	176	112	42	9	7	1000
COUNT	*35*	*36*	*36*	*37*	*37*	*37*	*37*	*37*	*37*	*37*	*37*	*37*	*35*

Fairview

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
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1927													
1928													
1929													
1930													
1931										21	-3	-4	
1932	-3	-2	1	51	136	140	135	96	57	14	-4	-4	617
1933	-1	0	5	69	123	113	150	137	51		-1	0	
1934	0	5		114	134	121	134	109	41	28	0	0	
1935		7	6	61	119	105	137	96	64	15	1	-1	
1936	-1	0	23	59	137	116	143	122	53	18	6	-1	675
1937	-1	0	25	64	121	144	161	105	86	15	-1	-1	718
1938	-1	0	31	77	130	131	169	127	102	20	1	-1	786
1939	0	1	16	85	124	122	143	146	64				
1940					141	129	142	134	88	19			
1941					112	139	168	107	38	20			
1942					137	142	155	142	77				
1943					118	128	166	125	95				
1944					142	121	176	136	71	24			
1945					153	136	173	171	63				
1946				74	140	131	146	159	86	19			
1947				50	127		137	91	51	17			
1948					149	198	161	121	73	25			
1949				93	118	133	160	136	90				
1950					141	188	176	110	100				
1951				64	106	153	143	117	74	7			
1952				81	162	130	153	121	78				
1953				66	142	125	147	137	64	21	-6	-11	
1954					129	150	156	93	67	22	1	-6	
1955	-6	-3	-1	53	149	186	159	145		23	-2		
1956		-3			202								
1957		-1	14	85	154	170	162	125	98	18	3	-2	
1958	-3	0	6	76	186	175	214	184	71	28	0	-5	932
1959	-1	-2	38	98	157	163	195	112	72	15	-4	0	843
1960	-3	-1	6	127	154	134	207	145	96	20	-3	-3	879
1961	-3	0	8	96	157	175	171	201	67	16	-3	-2	883
1962	-3	-3	1	76	141	173	175	120	82	25	-3		
1963	-1	0	13	85	158	193	178	153	83	31	-1	-1	891
1964	-3	5	3	86	138	165	144	108	65	24	-2	-1	732
1965	-1	-1	28	67	154	187	191	151	54	30	-3	-3	854

Fairview

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	0	-2	31	64	167	147	137	135	79	22	-1	-3	776
1967	-1	-1	0	65	165	175	202	179	90	20	-2	-3	889
1968	-1	-1	25	88	156	141	147	130	60	17	-4	0	758
1969	-1	-6	11	92	165	170	175	161	51	17	2	-5	832
1970	-1	-1	16	90	139	159	169	154	78	26	-1	0	828
1971	-1	5	23	100							0	-2	
1972	-1	0	15	75	195	162	151	146	51	20	-2	0	812
1973	-1	0	39	88	171	137	197	137	78	16	-2	0	860
1974	-1	0	3	83	137	186	147	129	76	28	4	0	792
1975	-1	1	16	92	155		191	131	109	18	-1	0	
1976	1	2	19	119	158	131	163	116	103	23	8	1	844
1977	0	12	32	130	149	166	150	114	77	22	-1	1	852
1978	0	0		73	135	169	205	131	57	30	1		
1979						168	174	138	84			-3	
1980	-1	-1	16	141	165	182	180	127	56		1	-3	
1981	-5	-3	40	68	177	172	207	211	98	17	2	-2	982
1982	-1	-2	4	80	155	225	185	101	87	24	-1	-4	853
1983	-3	-3	6	101	157	161	145	157	63	21	-5	-2	798
1984	-2	5	35	98	125	169	186	130	59	13	-4	-2	812
1985	-2	0		98	185	180	199	127	59	19	-2	-4	
1986	-3	-3	29	77	148	190	146	167	52	22	-4	-5	816
1987	-4	0	6	118	177	178	177	119	103	29	1	-1	903
1988	-2	1	41	118	149	156	126	140	85	28	-1	0	841
1989	-2	1	6	120	161	186	183	117	79	20	0	0	871
1990	-2	0	46	89	151	171	189	155	106	14	-2	-2	915
1991	-2	1	22	118	169	148	178	167	63	15	-6	-5	868
1992													
1993													
1994	-4	-3	45	95	171	189	203	176	108	27	-2	-5	1000
1995	-5	-3	9	88	178	202	192	156	119	28	-3	-5	956
1996	-4	-2	4	90	137	180	188	166	87	23	-3	-5	861
1997	-5	2	17	79	155	184	198	170	108	20	4	-1	931
1998	-4	0	38	110	197	202	213	188	110	26	1	-5	1076
1999	-5	-1	39	96	152	182	195	183	107	28	3	-2	977
2000													
2001													
2002	-4	2	29	59	155	204	168	142	70	14	-6	-12	821
2003	-72	-1	7	76	142	177	197	149	85	23	-5	-6	772
2004	-3	-2	35	104	145	204	163	122	64	18	-1	-7	842
2005	-5	3	37	113	174	164	177	134	88	22	3	-9	901
2006	-8	3	7	133	178	196	190	160	103	19	-3	-6	972
2007	-5	-2	12	73	152	174	192	109	78	26	-4	-7	798
2008	-5	-2	33	79	166	193	220	174	92	30	-4	-4	972
2009	-3	0	14	93	160	197	198	181	105	19	4	-4	964
MEAN	-4	0	19	88	151	163	171	139	78	21	-1	-3	857
MIN	-72	-6	-1	50	106	105	126	91	38	7	-6	-12	617
MAX	1	12	46	141	202	225	220	211	119	31	8	1	1076
COUNT	*55*	*58*	*54*	*63*	*72*	*70*	*72*	*72*	*71*	*63*	*59*	*57*	*45*

Fort McMurray

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
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1961													
1962													
1963													
1964													
1965													

Fort McMurray

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971												-3	
1972	-2	-2	9	67	193	169	151	162	41	14	-5	-3	794
1973	-3	-2	32	94	179	142	163	122	72	16	-4	-3	808
1974	-2	-2	0	94	123	172	144	124	66	22	-4	-5	732
1975	-2	1	5	77	130	132	177	103	67	14	-2	-4	698
1976	-3	-2	9	123	168	159	159	123	99	17	2	-3	851
1977	-4	6	27	117	162	176	148	117	59	23	-3	-1	827
1978	-3	-3	26	76	134	163	173	116	48	20	-3	-2	745
1979	-3	-1	7	49	143	176	190	122	63	18	-2	-6	756
1980	-2	-2	10	153	168	180	163	99	51	22	0	-2	840
1981	-5	-2	38	76	196	170		185	87	14	3	-2	
1982	-1	-3	4	81	152	194	161	105	83	24	0	-2	798
1983	-1	1	26	100	137	150	170	164	58	20	-4	-1	820
1984	-2	3	32	112	120	191	194	145	58	12	-2	-2	861
1985	-2	0	38	109	177	180	185	142	54	15	-1	-3	894
1986	-2	0	33	89	155	199		160	71	19	-1	-2	
1987	-4	-1	11	105	158	179	185	117	88	20	0	-6	852
1988	-2	0	23	105	148	151	155	128	79	18	-5	-2	798
1989	-1	2	9	96	147	141	190	141	57	17	-2	-2	795
1990	-2	0	39	83	181	181	190	150	77	10	-2	-2	905
1991	-2	3	32	123	173	141	183	180	64	12	-2	-2	905
1992	-3	0	37	85	146	150	162	141	47	19	-2	-2	780
1993	-2	3	47	74	159	154	132	120	66	15	0	-3	765
1994	-1	0	62	112	159	165	166	159	77	20	0	-3	916
1995	-6	0	28	76	192	187	165	125	114	17	-4	-4	890
1996	-1	0	28	89	115	164	157	140	52	15	-4	-3	752
1997	-1	-1	22	96	147	165	185	132	69	9	-9	-10	804
1998	-4	-8	39	128	184	174	192	181	88	24	-7	-4	987
1999	-2	2	56	116	142	180	178	155	100	27	0	-5	949
2000	-2	4	48	95	131	143	174	116	63	26	-8	-3	787
2001	-8	-1	41	108	156	159	177	174	97	21	0	-6	918
2002	-3	1	11	78	161	202	183	129	71	10	-6	-11	826
2003	-3	-1	34	100	155	162	193	136	65	18	-5	-7	847
2004	-2	-4	39	101	128	197	212	120	63	20	1	-4	871
2005	-1	-4	35	110	170	145	168	123	70	25	-1	-10	830
2006	-4	-1	39	129	142	196	147	130	77	18	0	1	874
2007	-2	0	22	96	152	173	205	107	56	24	-2	-4	827
2008	-2	-1	25	78	184	184	162	120	61	21	-6	-1	825
2009	-1	0	19	89	145	162	164	118	76	12	2	-2	784
MEAN	-3	0	27	97	156	169	172	135	70	18	-2	-4	831
MIN	-8	-8	0	49	115	132	132	99	41	9	-9	-11	698
MAX	-1	6	62	153	196	202	212	185	114	27	3	1	987
COUNT	*38*	*38*	*38*	*38*	*38*	*38*	*36*	*38*	*38*	*38*	*38*	*39*	*36*

Grande Prairie

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
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1959													
1960													
1961													
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1963													
1964													
1965													

Grande Prairie

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980	-2	-2	21	134	165	169	178	128	58	31	3	-1	882
1981	-4	-1	40	79	167	180	200	222	89	21	4	-3	994
1982	0	0	6	73	156	217	156	97	79	27	0	-1	810
1983	0	1	16	101	175	151	155	182	77	26	-4	-2	878
1984	0	9	37	103	129	171	209	155	58	15	-1	-1	884
1985	0	0	36	117	198	193	239	149	54	17	-1	2	1004
1986	-2	-2	30	79	146	197	153	187	56	25	-2	-7	860
1987	-6	-2	5	124	193	209	182	124	110	34	1	-3	971
1988	-2	1	42	122	177	170	179	153	97	31	-3	-4	963
1989	-2	-1	5	124	171	186	173	103	80	19	1	-3	856
1990	-2	0	51	89	141	179	206	167	116	15	-2	-2	958
1991	-3	2	23	115	175	151	193	143	88	17	-4	-2	898
1992	-4	-1	51	94	150	179	174	173	52	21	-2	-2	885
1993	-3	-2	39	95	163	172	135	126	97	26	3	-3	848
1994	-2	-1	42	99	161	169	171	138	87	20	-2	-3	879
1995	-5	-1	20	78	194	178	150	124	114	22	-3	-4	867
1996	-2	-1	12	82	128	165	170	151	62	18	-1	-2	782
1997	-2	2	30	92	152	177	167	134	82	14	-4	-3	841
1998	-3	-3	45	129	200	184	189	190	101	16	-5	-4	1039
1999	-4	-4	38	100	142	166	179	169	95	30	1	0	912
2000	-2	-1	45	109	136	167	184	108	79	20	0	-5	840
2001	-1	0	48	94	164	155	170	154	102	26	0	-4	908
2002	-3	5	5	62	149	218	203	157	69	16	1	-5	877
2003	-3	0	15	77	163	189	208	154	90	29	-1	-3	918
2004	-2	4	46	98	152	176	166	122	65	18	2	-4	843
2005	-3	6	39	116	172	148	171	138	94	26	5	-7	905
2006	-8	1	6	133	176	204	204	182	93	23	-3	-7	1004
2007	-4	-3	16	80	145	180	197	104	82	24	0	-5	816
2008	-5	-1	42	91	158	196	210	153	89	28	-1	-2	958
2009	-2	0	16	95	159	216	172	162	103	12	0	-3	930
MEAN	-3	0	29	99	162	180	181	148	84	22	-1	-3	900
MIN	-8	-4	5	62	128	148	135	97	52	12	-5	-7	782
MAX	0	9	51	134	200	218	239	222	116	34	5	2	1039
COUNT	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*

High Level

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
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1959													
1960													
1961													
1962													
1963													
1964													
1965													

High Level

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972	-1	0	4	61	183	158	169	140	47	12	-4	-1	768
1973	-1	-1	20	91	180	130	151	119	71	9	-2	-2	765
1974	-1	0	2	92	136	170	148	112	59	15	-3	-2	728
1975		0	3	94	143	187	191	109	70	12	-2	-1	
1976	0	0	7	115						14	0	0	
1977	-1	2	27	110	151	168	141	129	62	21	-2	-1	807
1978	-1	-1	20	80	137	159	166	113	52	15	-1	-1	738
1979		0	8	59		159	180	112	51				
1980	-1	-1	21	128	158	184	159	115	43	22	0	0	828
1981	-1	-1	34	57	178	165	177	166	63	9	-3	-4	840
1982	0	0	7	69	140	196	195		68		-1	-1	
1983	-1	-1	2	81	127		166	143		15	-4		
1984	-1	0	23	105	127	168	168	126	50	9	-1	-1	773
1985	-1	0	25	81	161	186	167	103	53	9	0		
1986	-1	-1	19	76	148	181	163	134	65	12	-1	-3	792
1987		-1	3		152	158	155	110	64	12		-5	
1988	-2	-1	8	80	81	135	131	118	66	12	-3	-2	623
1989	-1	0	4	91	156	162	172	130	63	13	-1	-1	788
1990	-1	0	34	85	161		195	145	68	7	-1	-1	
1991	-1	-1		108	158	168	156	131	52	10	-1	-1	
1992	-1	0	33				148	132	42	14	-10		
1993		-1	33	90	152	177	151	101	68	12	-4	-4	
1994	-1	-1	29	97	159	180	172	140	58	12	-4	-2	839
1995	-4	-2	2	82	183	182	156	121	99	4	-5	-5	813
1996	-2	-3	1	77	146	186	168	111	60	4	-4	-4	740
1997	-2	-4	3	76	146	172	152	124	62	7	-8	-8	720
1998	-2	-4	32	120	180	177	199	151	77	14	-5	-5	934
1999	-3	-3	33	102	149	181	159	143	85	16	-4	-2	856
2000	-1	3	41	108	158	178	181	110	60	14	-6	-2	844
2001	-7	-1	30	104	166	185	180	136	81	17	-4	-4	883
2002	-2	1	6	70	159	214	178	149	73	13	-2	-9	850
2003	-3	-1	9	91	179	185	191	154	76	11	-6	-6	880
2004	-2	-4	30	98	138	219	202	136	70	11	-8	-2	888
2005	-1	-2	31	105	170	173	159	124	68	17	-5	-7	832
2006	-4	0	22	117	160	174	162	134	82	14	-3	-8	850
2007	-6	-1	4	93	148	185	168	108	48	13	-6	-4	750
2008	-3	0	30	86	177	178	168	135	67	19	-6	-2	849
2009	-2	0	12	92	148	185	167	136	80	9	-8	-3	816
MEAN	-2	-1	18	91	154	175	168	128	65	12	-4	-3	807
MIN	-7	-4	1	57	81	130	131	101	42	4	-10	-9	623
MAX	0	3	41	128	183	219	202	166	99	22	0	0	934
COUNT	*34*	*38*	*37*	*36*	*35*	*34*	*37*	*36*	*36*	*36*	*36*	*34*	*27*

Jasper

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
1922													
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1956													
1957													
1958													
1959													
1960													
1961													
1962													
1963													
1964													
1965													

Jasper

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977	-1	16	43	118	136	179	155	143	71	31	1	-2	890
1978	-2	4	48	101	145	171	178	141	58	38	4	-1	885
1979	-2	-1	56	87	124	173	216	173	97	33	2	-3	955
1980	-3	2	7	131	151	150	181	113	71	38	5	-1	845
1981	-4	7	52	95	135	158	165	187	92	25	8	-3	917
1982	-3	-1	33	89	143	189	152	110	83	27	1	-3	820
1983	0	10	33	104	172	136	159	181	71	26	6	-3	895
1984	-1	11	49	95	121	156	217	159	68	21	1	-2	895
1985				89	176	175	263	165	62	19	-2	-1	
1986	4	0	44	90	149	192	135	200	72	37	2	-2	923
1987	0	9	39	111			177	122	120	42	4	-3	
1988	-2	7	46	110	164	175	183	142	95	38	4	-1	961
1989	-2	-2	44	108	144	179	190	111	96	23	6	-3	894
1990	0	3	53	104	129	156	185	162	116	21	2	-3	928
1991	0	13	47	108	142	141	176	178	102	32	7	4	950
1992	3	11	49	97	151	200	180	165	75	28	1	-4	956
1993	-3	2	48	111	163	153	146	130	112	36	3	-4	897
1994	-2	-1	56	106	145	154	206	157	104	24	3	-3	949
1995	-3	6	52	97	165	164	162	120	113	26	-2	-6	894
1996	-3	15	46	104	131	170	206	190	77	32	-2	-5	961
1997	-8	10	41	106	147	173	184	159	94	28	5	1	940
1998	-3	16	52	122	187	174	210	195	117	35	-1	-4	1100
1999	-6	14	59	110	159	177	182	169	108	37	-3	-7	999
2000	-3	20	54	109	139	195	192	155	90	34	-2	-7	976
2001	-6	1	53	96	169	169	180	183	108	32	2	-6	981
2002	-3	12	32	92	149	218	236	162	91	36	8	-5	1028
2003	2	14	53	111	163	213	269	226	127	47	8	3	1236
2004	4	15	67	126	141	202	200	148	71	29	6	-5	1004
2005	-3	16	58	123	187	156	172	155	73	35	3	-7	968
2006	0	13	58	132	174	214	247	176	114	41	-3	-3	1163
2007	-5	10	64	102	182	199	268	156	103	36	-2	-8	1105
2008	-5	13	63	98	162	189	204	182	102	39	7	-5	1049
2009	-4	13	52	107	170	215	216	193	133	27	3	-6	1119
MEAN	-2	9	48	106	154	177	194	161	94	32	3	-3	970
MIN	-8	-2	7	87	121	136	135	110	58	19	-3	-8	820
MAX	4	20	67	132	187	218	269	226	133	47	8	4	1236
COUNT	*32*	*32*	*32*	*33*	*32*	*32*	*33*	*33*	*33*	*33*	*33*	*33*	*31*

Lacombe

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
1922													
1923													
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1930													
1931													
1932													
1933													
1934													
1935													
1936													
1937													
1938													
1939			18	97	144	105	186	169	69	22	4		
1940	-4	-2	14	35		147		171	78	45			
1941	-2	-3	49	102	123	154	163	137	55	28	7	-2	811
1942	-3	-4	29	84	123	125	149	128	65	27	-6	-5	712
1943		-4	32	94	113	117	176	123	95	30	9	-4	
1944	-5	-4	3	101	133	134	147	126	73	50	-2	-5	751
1945	-4	-3		60	131	136	166	132	66	32	-5	-5	
1946	-6	-4	20	108	132	115	167	118	62	33	-4	-5	736
1947		-3		80	132	112	236	106	60	26	-7	-8	
1948			-1	11	112	146	163	128	82	43	5		
1949		-2	29	116	142	160	167	146	106	25	16		
1950		-4	0	72	139	169	164	116	100	19	-5	-6	
1951	-4	-3	-1	76	135	133	143	109	68	22	-3	-5	670
1952	-3	-5	-3	94	146	122	152	127	81	43	5	-5	754
1953	-4	-3	4	58	103	108	144	113	79	45	11	1	659
1954	-1	6	5	45	106	125	176	92	71	42	10	0	677
1955	-3	-1	2	65	128	192	152	165	81	36	-2	-2	813
1956	-2	-2	5	73	175	159	167	133	73	34	12	-1	826
1957	-2	-2	16	76	156	141	201	126	107	29	3	-2	849
1958	-1	-2	1	77	186	165	179	186	100	50	5	-4	942
1959	-1	-1	52	102	138	156	203	117	73	23	2	1	865
1960	-4	-1	10	110	149	153	193	141	105	34	2	-4	888
1961	-2	1	38	87	143	228	185	192	94	25	7	-2	996
1962	-1	-2	14	104	134	174	164	143	109	39	7	-3	882
1963	-2	0	38	83	139	166	178	153	115	50	1	-5	916
1964	-3	8	11	94	140	158	188	151	68	42	2	-1	858
1965	0	0	4	67	135	145	171	141	53	50	-4	-4	758

Lacombe

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-2	25	73	181	157	159	118	103	34	-3	-5	838
1967	-3	-2	2	52	129	163	189	185	142	30	3		
1968	-3	2	44	97	170	147	182	126	79	29	4	-1	876
1969	-1	-2	19	99	167	176	172	165	81	29	6	-5	906
1970	-2	3	17	88	158	193	179	172	107	35	0	-1	949
1971	1	-1	12	89	183	138	138	180	106	34	5	-1	884
1972	0	0	27	103	164	159	142	160	56	29	1	-1	840
1973	-1	-1	28	94	173	229	183	137	90	43	-4	-3	968
1974	-1	0	3	79	115	200	180	119	79	39	9	0	822
1975	-3	-1	6	53	128	151	175	124	111	31	10	-2	783
1976	-1	4	31	114	174	141	180	146	101	33	12	-1	934
1977	-1	10	42	141	138	206	164	119	61	45	9	-2	932
1978	-2	-2	35	89	149	176	173	142	70	43	6	-1	878
1979	-2	0	48	66	133	176	181	155	115		-6	-3	
1980	-2	-2	11	123	181	138	166	118	71	40	6	0	850
1981	-7	6	53	113	127	151	143	174	100	21	4	-3	882
1982	0	1	10	87	158	170	144	116	88	39	0	-2	811
1983	0	4	25	91	160	140	156	169	80	32	3	-2	858
1984	0	8	27	125	118	158	186	174	66	25	-3	-2	882
1985	-5	0	37	100	186	189	205	121	56	28	-3	-2	912
1986	0	-1	44	91	148	170	128	153	54	37	-2	-4	818
1987	-1	4	19	115	174	203	144	110	116	48	2	-1	933
1988	-1	8	55	141	206	186	179	154	91	49	4	-1	1071
1989	-2	-2	2	95	145	176	187	105	96	37	3	-1	841
1990	-3	2	43	83	128	151	169	149	129	37	2	-1	889
1991	-6	9	-1	108	135	129	182	153	98	22	-3	-2	824
1992	2	4	61	107	141	167	156	157	86	36	6	-1	922
1993	-5	-2	40	90	156	162	165	147	95	44	2	-2	892
1994	-4	-1	60	128	171	169	182	134	106	37	5	-6	981
1995	-6	0	44	86	165	174	156	117	113	38	-4	-5	878
1996	-1	3	11	69	88	141	159	157	60	29	-1	0	715
1997	-1	3	15	82	124	143	169	124	85	23	5	3	775
1998	0	0	29	99	161	123	153	154	90	23	-1	0	831
1999	-1	4	17	73	108	117	120	101	75	29	2	1	646
2000	0	1	30	70	112	126	145	123	71	34	2	-1	713
2001	1	2	31	83	125	121	148	154	92	28	3	-2	786
2002	-5	4	2	65	161	216	216	138	82	27	5	-6	905
2003	-6	-4	17	78	147	170	212	178	92	48	-4	-5	923
2004	-5	-1	48	119	145	164	158	123	71	32	7	-6	855
2005	-6	4	41	116	178	130	169	128	75	37	4	-6	870
2006	-7	4	4	123	174	170	185	142	84	24	-2	-4	897
2007	-3	-3	45	78	147	162	195	119	82	44	6	-6	866
2008	-5	-1	46	86	165	154	169	151	94	49	6	-6	908
2009	-3	-2	20	99	175	188	179	131	134	20	10	-5	946
MEAN	-2	0	23	89	146	157	170	140	86	35	3	-3	850
MIN	-7	-5	-3	11	88	105	120	92	53	19	-7	-8	646
MAX	2	10	61	141	206	229	236	192	142	50	16	3	1071
COUNT	*65*	*69*	*69*	*71*	*70*	*71*	*70*	*71*	*71*	*70*	*70*	*66*	*61*

Lethbridge

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912	-5	-5	8	97	160	209	157	149	82	49	16	8	925
1913	-3	14	7	120	142	181	217	202	130	44		1	
1914	-5	-2	47	93	166	173	237	180	112	37	10	-4	1044
1915	3	-2	36	126	128	139	165	199	91	55	11	5	956
1916	0	-2	28	111	126	166	216	189	99	42	-2	-5	968
1917	-4	-2	20	59	112	157	264	195	91	35	6	-3	930
1918	-4	-3	58	104	138	221	214	179	109	45	6	2	1069
1919	4	-2	4	107	138	213	209	192	77	30	-4	-5	963
1920	-1	2	48	48	131	173	231	188	128	45	7	-1	999
1921	-2	-1	20	84	139	212	239	190	111	70	7	-3	1066
1922	0	-2	5	59	140	185	194	177	114	46	6	-2	922
1923	1	3	51	105	153	155	185	164	110	48	13	3	991
1924	-4	11	45	92	164	150	217	153	105	43	-2	1	975
1925	0	-3	14	91	182	182	196	185	69	30	4	2	952
1926	5	10	50	116	162	182	227	148	58	54	0	-1	1011
1927	4	5	39	80	86	170	179	150	75	49	-3	-2	832
1928	-3	5	39	78	195	132	183	158	115	30	12	-3	941
1929	-3	-4	42	77	136	177	236	231	90	58	6	-2	1044
1930	-2	13	42	100	128	160	209	191	95	39	11	6	992
1931	9	28	42	121	164	183	216	190	90	65	5	-5	1108
1932	-3	4	19	95	152	181	237	198	117	39	9	3	1051
1933	5	5	50	88	151	237	262	194	113	39	17	0	1161
1934	6	22	53	149	205	174	244	209	74	48	12	1	1197
1935	-1	21	38	77	142	188	242	213	143	49	6	2	1120
1936	-1	0	35	84	196	199	275	192	120	57	16	4	1177
1937	0	3	39	116	187	198	222	199	123	47	8	3	1145
1938	5	-2	46	94	119	164	208	172	148	60	9	6	1029
1939	9	0	52	118	189	120	235	212	109	45	22	6	1117
1940	2	2	42	60	167	205	198	213	107	43	2	4	1045
1941	5	18	58	118	156	182	232	163	84	56	18	4	1094
1942	10	0	53	112	124	136	199	166	103	52	4	-4	955
1943	-1	17	10	125	154	161	252	205	138	57	15	7	1140
1944	8	1	22	128	153	163	224	177	127	74	6	3	1086
1945	-5	2	59	73	143	141	231	202	89	54	-4	-5	980
1946	3	11	69	137	148	163	232	188	106	38	0	-4	1091
1947	1	-3	3	109	164	146	244	154	90	48	-1	3	958
1948	4	-5	5	67	135	144	202	197	139	69	14	-5	966
1949	-6	-5	16	144	158	185	210	212	136	35	24	-7	1102
1950	-4	4	5	88	156	176	201	177	139	47	-2	1	988
1951	-6	-3	4	103	175	137	192	132	89	30	7	-5	855
1952	-6	12	21	128	171	178	199	178	134	74	15	3	1107
1953	2	12	47	62	152	162	236	210	136	78	21	3	1121
1954	-3	22	15	66	173	170	248	159	105	68	25	13	1061
1955	1	3	33	98	132	220	185	235	130	60	0	-3	1094
1956	-3	1	53	106	168	202	194	177	116	56	20	7	1097
1957	-2	7	62	96	179	170	251	171	131	34	11	8	1118
1958	11	2	7	91	212	170	199	223	139	76	9	4	1143
1959	-3	3	71	114	145	204	258	204	103	46	8	9	1162
1960	-3	6	49	119	154	209	279	189	157	62	13	3	1237
1961	8	16	54	99	145	253	221	228	108	57	11	-1	1199
1962	5	-1	41	144	150	203	213	205	127	57	18	5	1167
1963	-1	11	70	109	176	174	222	194	154	72	15	2	1198
1964	4	25	43	100	162	179	243	197	83	72	10	-1	1117
1965	-1	8	29	95	164	162	221	187	58	69	4	1	997

Lethbridge

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	7	70	98	178	186	217	186	147	48	7	3	1146
1967	-1	12	36	58	142	174	266	227	177	53	13	0	1157
1968	-1	19	70	101	161	176	223	150	106	47	13	-2	1063
1969	-2	-3	39	122	185	160	224	261	134	35	25	5	1185
1970	-2	16	37	90	177	214	249	243	126	53	6	-2	1207
1971	-2	13	42	112	173	197	238	246	116	50	8	-1	1192
1972	-2	2	43	110	164	222	188	202	93	38	14	-2	1072
1973	6	6	71	87	210	207	272	222	117	48	-5	-1	1240
1974	-3	13	34	113	135	244	239	154	127	71	17	5	1149
1975	0	0	24	50	138	186	229	169	133	39	12	4	984
1976	7	19	57	122	211	176	219	187	158	49	18	7	1230
1977	-1	31	58	154	169	232	235	154	97	63	10	-2	1200
1978	-4	-2	40	65	142	222	202	190	116	61	7	0	1039
1979	-3	0	54	60	150	228	243	166	97	56	15	9	1075
1980	2	10	47	144	203	189	242	158	112	58	21	6	1192
1981	10	14	69	140	142	197	202	218	150	47	24	5	1218
1982	0	2	30	114	163	176	216	201	129	61	7	4	1103
1983	8	13	36	109	183	168	204	234	123	59	9	-2	1144
1984	8	28	39	125	166	196	268	236	92	41	8	2	1209
1985	6	14	63	119	193	225	275	181	69	48	1	3	1197
1986	6	4	65	127	163	217	223	220	64	65	8	11	1173
1987	15	28	40	162	211	236	202	158	157	72	21	8	1310
1988	8	23	67	164	222	239	262	213	135	71	20	8	1432
1989	6	1	24	118	178	205	232	161	139	64	15	6	1149
1990	10	23	81	113	149	218	206	208	195	55	14	0	1272
1991	6	20	55	133	160	189	244	217	140	59	14	15	1252
1992	15	27	87	136	198	180	164	185	115	49	10	-1	1165
1993	-3	9	61	113	182	176	147	160	113	61	12	6	1037
1994	3	0	90	117	176	193	225	190	171	49	12	8	1234
1995	1	19	61	88	130	156	178	171	111	49	9	1	974
1996	2	21	39	97	101	191	218	243	99	52	2	2	1067
1997	2	18	48	97	145	165	215	183	155	48	10	9	1095
1998	2	22	34	112	176	127	188	218	141	58	10	6	1094
1999	4	28	62	99	155	160	184	169	128	59	18	15	1081
2000	3	19	64	116	182	194	267	206	116	62	11	0	1240
2001	12	7	76	114	209	178	237	256	157	65	23	8	1342
2002	10	20	5	94	154	188	223	135	98	29	24	12	992
2003	10	5	58	100	166	188	261	239	117	53	7	9	1213
2004	6	25	100	157	164	189	228	179	121	61	22	8	1260
2005	6	34	81	126	191	140	217	161	102	45	18	7	1128
2006	18	27	55	140	209	191	271	236	144	48	13	15	1367
2007	13	13	99	105	177	225	299	215	129	76	22	6	1379
2008	9	28	94	134	167	203	225	218	128	72	24	-2	1300
2009	9	26	67	129	190	208	197	184	191	40	28	-2	1267
MEAN	2	10	45	106	162	185	223	192	117	53	11	3	1109
MIN	-6	-5	3	48	86	120	147	132	58	29	-5	-7	832
MAX	18	34	100	164	222	253	299	261	195	78	28	15	1432
COUNT	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*97*	*98*	*97*

Medicine Hat

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912	-4	0	1	99	153	212	174	142	75	36	9	2	899
1913	2	2	17	120	143	182	211	188	126	31	9	2	1033
1914	0	0	49	105	188	181	273	185	81	34	10	-3	1103
1915	-2	-3	40	146	150	150	182	207	78	54	8	-2	1008
1916	-1	-2	52	131	137	162	197	160	92	32	4	-5	959
1917	-4	-3	3	68	167	181	255	167	92	29	13	-4	964
1918	-4	-3	44	120	161	223	224	183	118	52	5	-7	1116
1919	2	-2	2	99	184	202	223	217	88	29	-6	-5	1033
1920	-5	-5	3	54	152	204	238	207	127	46	5	-3	1023
1921	-7	1	15	91	139	218	232	208	93	79	-1	-7	1061
1922	-7	-2	5	69	145	204	210	192	124	48	2	-4	986
1923	-1	1	42	114	171	150	172	183	122	53	11	-5	1013
1924	-5	9	12	99	180	174	245	167	103	48	-6	1	1027
1925	-2	-4	9	92	196	196	238	189	68	27	-1	-1	1007
1926	3	9	49	118	186	205	251	159	58	47	-3	-2	1080
1927	1	3	33	86	95	176	202	158	81	47	-5	-1	876
1928	-4	2	40	80	207	133	191	166	108	28	11	-3	959
1929	-3	-3	39	75	143	185	264	240	89	53	7	-2	1087
1930	-1	14	42	95	145	137	226				9	3	
1931	9	20	39	113	159	167	177	187	86	58	3	-3	1015
1932	-2	2	5	89	154	174	239	199	112	29	8	1	1010
1933	2	3	45	79	144	231	263	229	114	37	11	-1	1157
1934	5		45	145	213	174	254	223	80	52	10	0	
1935	0	8	32	70	138	183	256	213	135	47	1	-3	1080
1936	-2	0	35	78	200	193	297	204	121	47	13	3	1189
1937	0	1	39	110	173	201	244	202	118	39	8	2	1137
1938	3	2	46	96	130	169	224	180	142	53	8	1	1054
1939	1	0	36	111	169	127	241	210	115	35	16	5	1066
1940	-3	-1	28	57	170	197	188	229	123	43	-2	-2	1027
1941	1	5	45	111	154	168	209	174	73	48	10	2	1000
1942	4	-1	59	106	133	130	199	164	97	44	3	-4	934
1943	-5	-6	3	127	152	167	262	214	148	60	14	4	1140
1944	2	1	11	141	180	166	239	182	123	69	-2	-4	1108
1945	-5	-2	39	80	158	192	248	209	86	45	-2	-5	1043
1946	-5	-3	56	131	146			169	93	31	-1	-7	
1947	-4	-4	2	95	160	140	262	167	88	46	-3	-6	943
1948	0	-4	1	69	159	221	249	210	133	65	10	-4	1109
1949	-4	-2	39	168	180	207	225	235	130	31	21	-5	1225
1950	-4	-5	19	92	160	188	223	169	128	36	4	-3	1007
1951	-5	-4	-1	97	179	133	216	149	87	31	7	-4	885
1952	-5	-4	3	135	182	181	202	191	124	67	15	-3	1088
1953	-2	10	36	67	156	177	253	235	139		24	4	
1954	-2	20	27	67	174	169	253	167	106	67	23	7	1078
1955	-3	-1	22	93	138	214	193	242	113	57	2	-1	1069
1956	-4	-2	32	105	169	209	216	195	118	51	18	4	1111
1957	-2	0	52	106	203	183	268	176	123	32	13	8	1162
1958	8	-1	16	102	231	195	225	239	128	64	8	-1	1214
1959	-1	-3	56	127	163	211	268	207	105	38	7	6	1184
1960	-3	1	41	123	169	210	297	204	145	58	8	-1	1252
1961	5	13	52	110	156	249	255	266	109	53	11	-1	1278
1962	-1	-1	17	141	155	222	222	209	136	60	20	5	1185
1963	-2	10	60	122	197	191	250	223	147	75	15	1	1289
1964	-2	18	36	103	177	195	273	211	84	65	9	-2	1167
1965	-2	-1	11	89	169	178	249	223	44	67	3	8	1038

Medicine Hat

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	-1	61	90	195	174	241	204	147	42	1	0	1153
1967	0	0	21	66	146	194	268	240	163	51	11	-1	1159
1968	-2	14	68	106	176	173	230	180	113	48	11	-2	1115
1969	-2	-3	11	120	191	196	239	270	134	30	18	1	1205
1970	-3	1	30	102	168	218	233	249	121	46	3	-2	1166
1971	0	5	43	121	206	190	248	276	119	55	9	-2	1270
1972	0	1	54	131	193	227	192	231	117	39	12	0	1197
1973	6	11	82	93	217	210	276	232	127	60	-1	2	1315
1974	0	13	40	122	152	238	267	178	127	75	18	7	1237
1975	1	-2	24	49	150	185	257	181	139	46	12	0	1042
1976	3	19	48	137	225	191	238	222	162	58	14	2	1319
1977	-1	26	74	169	190	210	239	178	96	64	12	-3	1254
1978	-1	-1	41	79	163	223	225	207	125	60	6	-3	1124
1979	-2	-1	61	83	168	235	252	223	168			5	
1980	-2	3	1	174	236	199	249	176	128	52	16	3	1235
1981	5		75	151	166	199	236	256	158	44	18	-3	
1982	0	0	33	112	160	214	214	214	127	54	6	1	1135
1983	0	22	38	119	179	200	217	254	129	64	9	-2	1229
1984	-1	26	40	141	181	208	280	252	101	39	-2	-1	1264
1985	-3	0	59	119	204	247	295	199	73	49	-2	-3	1237
1986	5	1	65	131	164	228	215	243	67	55	5	3	1182
1987	7	21	38	151	211	251	229	172	149	66	15	4	1314
1988	3	18	61	175	248	260	282	221	131	66	14	5	1484
1989	3	1	42	124	179	225	267	197	129	61	7	0	1235
1990	4	18	68	118	168	219	245	227	190	55	10	-1	1321
1991	-2	16	53	132	153	178	250	228	141	51	9	8	1217
1992	8	20	82	134	194	203	180	203	115	49	9	-2	1195
1993	-4	4	59	114	192	190	158	164	108	52	8	2	1047
1994	-3	0	75	131	188	201	259	226	165	44	11	6	1303
1995	-3	17	60	103	173	207	211	209	138	42	6	-4	1159
1996	2	18	41	103	118	200	236	235	88	46	1	-1	1087
1997	-1	6	43	113	169	191	236	209	158	44	10	9	1187
1998	2	18	47	136	219	174	252	259	163	61	14	6	1351
1999	2	18	67	115	156	178	204	193	132	53	16	4	1138
2000	-1	8	53	116	199	195	273	229	130	63	8	0	1273
2001	6	6	73	139	225	206	259	271	162	52	17	-1	1415
2002	1	20	2	106	182	186	239	152	110	35	17	6	1056
2003	2	3	55	111	167	186	269	261	129	65	2	5	1255
2004	-2	7	78	150	164	200	239	166	112	50	17	6	1187
2005	2	28	73	136	201	162	244	186	122	58	15	1	1228
2006	4	16	46	144	192	194	286	249	145	45	10	5	1336
2007	6	0	86	99	178	217	310	228	133	61	15	-4	1329
2008	0	-1	65	108	174	199	247	236	125	66	18	-5	1232
2009	-2	0	46	136	203	213	223	190	185	34	20	-4	1244
MEAN	0	5	39	110	173	194	238	206	118	50	9	0	1140
MIN	-7	-6	-1	49	95	127	158	142	44	27	-6	-7	876
MAX	9	28	86	175	248	260	310	276	190	79	24	9	1484
COUNT	*98*	*96*	*98*	*98*	*98*	*97*	*97*	*97*	*97*	*95*	*97*	*98*	*92*

Peace River

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
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1954													
1955													
1956													
1957													
1958													
1959	-2	-3	33	88	148	149	182	101	67	14	-4	-2	771
1960	-4	-3	2	114	154	131	194	142	84	16	-4	-5	821
1961	-4	-2	7	94	158	177	169	183	64	16	-3	-3	856
1962	-3	-3	1	72	124	159	159	105	69	20	-4	-5	694
1963	-3	-3	4	78	150	181	163	134	70	24	-4	-4	790
1964	-5	3	0	82	129	158	137	94	59	20	-3	-2	672
1965	-3	-2	6	64	152	180	191	136	47	26	-4	-3	790

Peace River

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-3	-3	15	58	176	165	132	125	72	21	-3	-5	750
1967	-3	-2	0	65	164	170	195	173	88	16	-3	-4	859
1968	-4	-4	24	84	146	140	152	115	57	16	-7	-3	716
1969	-2	-4	9	81	157	168	164	153	49	15	-2	-5	783
1970	-3	-1	5	89	142	160	175	148	74	21	-4	-3	803
1971	-2	-4	6	96							-4	-3	
1972	-2	-2	4	66	190	162	150	140	49	18	-4	-3	768
1973	-3	-1	21	81	174	141	151	125	70	16	-3	-4	768
1974	-1	-1	2	81	137	193	147	114	67	24	1	-4	760
1975	-3	-2	3	90	155		188	127	90	15	-2	-3	
1976	-3	-1	7	115	157	130	162	111	88	19	3	-2	786
1977	-2	5	30	121	151	164	141	103	69	20	-4	-4	794
1978	-3	-3		70	134	170	183	120	55	25	-1	-5	
1979						164	175	133	77	32	4	-3	
1980	-2	-1	9	136	166	181	179	124	53	26	1	-3	869
1981	-4	-3	37	67	179	177	207	208	95	16	2	-4	977
1982	-2	-1	2	79	156	227	183	98	82	22	-1	-4	841
1983	-2			99	153	158	143	154	61	20	-5	-2	
1984	-2	3	33	97	124	168	183	131	59	14	-3	-1	806
1985				98	188	181	197	128	58	17	-2	-4	
1986	-3	-2	27	76	148	190	147	162	49	20	-3	-5	806
1987	-4	-1	5	118	175	177	177	118	100	28	0	-1	892
1988	-2	1	39	118	147	155	125	138	81	26	-2	0	826
1989	-2	1	7	117	159	183	180	116	77	19	-2	-1	854
1990	-2	0	44	87	151	167	186	153	103	13	-2	-2	898
1991	-3	-1	28	124	178	155	184	162	74	18	-8	-6	905
1992	-8	-2	45	103	159	169	162	150	63	20	-3	-4	854
1993	-4	0	46	98	169	185	140	120	85	22	-2	-7	852
1994	-3	-1	40	106	172	172	162	148	92	19	-5	-6	896
1995	-6	-2	22	81	188	198	160	127	117	19	-3	-4	897
1996	-2	-2	12	77	133	153	148	126	64	14	-2	-4	717
1997	-3	-2	12	77	143	164	165	132	84	17	1	-7	783
1998	-2	2	38	131	217	204	218	205	102	25	0	-2	1138
1999	-2	2	41	105	164	179	191	190	100	26	-2	-3	991
2000	-2	0	40	108	137	162	166	107	73	22	-2	-4	807
2001	0	2	40	105	186	168	162	158	99	22	-3	-5	934
2002	-4	8	18	69	170	219	183	155	73	16	-2	-8	897
2003	-4	-2	6	78	165	165	193	151	87	22	-5	-6	850
2004	-2	4	38	108	140	201	170	122	71	20	-3	-4	865
2005	-3	0	35	117	176	184	179	138	89	27	3	-9	936
2006	-7	4	30	139	178	183	187	159	100	18	-2	-4	985
2007	2	-2	18	82	149	172	188	108	72	25	-3	-6	805
2008	-4	0	28	78	170	180	197	166	80	26	-5	-3	913
2009	-2	1	16	102	157	194	181	162	98	16	2	-4	923
MEAN	-3	-1	20	93	159	172	171	138	76	20	-2	-4	842
MIN	-8	-4	0	58	124	130	125	94	47	13	-8	-9	672
MAX	2	8	46	139	217	227	218	208	117	32	4	0	1138
COUNT	*49*	*48*	*47*	*50*	*49*	*49*	*50*	*50*	*50*	*50*	*51*	*51*	*45*

Slave Lake

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
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1961													
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1963													
1964													
1965													

Slave Lake

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968						141	146	105	57	18	-1	-3	
1969	-2	-4	25	91	152	175	165	136	48	17	0	-5	798
1970	-3	4	9	92	146	155	155	135	71	19	-3	-4	776
1971	-3	-1	16	102	180	133	149	130	62	26		-3	
1972	-2	-1	3	83	167	150	141	125	48	20	-4	-3	727
1973	-3	-2	34	81	156	131	159	117	68	16	-5	-5	747
1974	-2	-1	1	79	129	169	142	111	61	27	2	-4	714
1975	-1	-2	2	71	137	140	176	104	77	16	2	-2	720
1976	-2	0	14	107	157	127	155	122	85	24	6	-4	791
1977	-4	7	26	106	127	160	131	108	55	28	-2	-2	740
1978	-3	-4	26	74	124	164	166	117	55	28	1	-4	744
1979	-3	-1	29	52	113	144	159	126	67	20	0	-4	702
1980	-3	-3	12	123	156	145	146	99	53	27	2	-3	754
1981	-7	-2	40	76	166	149	160	168	86	17	5	-5	853
1982	-1	-2		70	141	195	152	103	74	24	-1	-4	
1983	-3	0	18	92	142	142	137	149	64	22	-4	-3	756
1984	0	7	38	105	119	170	188	138	54	17	-3	-2	831
1985	-4	-2	39	95	166	174	188	133	55	19	-3	-3	857
1986	-4	-3	38	82	144	172	135	149	65	22	-2	-5	793
1987	-4	0	6	105	157	170	169	110	100	27	2	-4	838
1988	-2	2	35	112	146	142	157	132	84	29	-2	-3	832
1989	-2	-3	4	102	147	151	166	104	73	21	-1	-3	759
1990	-3	-2	43	75	142	155	132	103	72	26	-10	-7	726
1991	-3	3	33	110	163	139	189	165	67	15	-4	-5	872
1992	-3	0	50	91	149	167	156	145	52	20	-1	-3	823
1993	-4	1	44	81	146	157	151	134	82	24	3	-2	817
1994	-2	-2	45	87	138	150	146	128	87	20	-3	-6	788
1995	-6	-2	33	74	163	169	135	100	96	20	-2	-8	772
1996	-2	-1	16	74	111	142	136	110	51	15	-1	-3	648
1997	-1	7	37	87	134	136	158	123	70	13	1	-3	762
1998	-3	-5	32	106	182	154	163	160	82	21	-3	-4	885
1999	-3	-1	40	95	144	161	154	151	81	27	2	-4	847
2000	-3	1	45	100	135	158	156	109	69	26	4	-2	798
2001	2	5	45	104	154	149	157	154	92	20	1	-7	876
2002	-4	6	5	64	159	190	169	123	65	15	0	-9	783
2003	-4	-3	16	80	131	150	164	135	80	22	-5	-6	760
2004	-3	0	36	89	124	180	143	105	58	18	5	-4	751
2005	-4	-2	36	93	152	132	149	111	66	23	3	-5	754
2006	-5	3	16	119	133	156	162	129	85	17	-2	-6	807
2007	-5	-3	32	73	132	149	180	97	67	27	2	-5	746
2008	-4	-2	33	60	146	148	168	124	65	29	0	-3	764
2009	-3	-2	26	84	139	163	143	127	83	12	6	-3	775
MEAN	-3	0	27	89	145	155	156	125	70	21	0	-4	782
MIN	-7	-5	1	52	111	127	131	97	48	12	-10	-9	648
MAX	2	7	50	123	182	195	189	168	100	29	6	-2	885
COUNT	*41*	*41*	*40*	*41*	*41*	*42*	*42*	*42*	*42*	*42*	*41*	*42*	*39*

Suffield

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
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1951													
1952													
1953	-4	-4	20	64	141	157	230	206	122	71	17	-1	1019
1954	-1	2	2	56	152	177	231	154	89	64	14	4	944
1955	-4	-4	0	82	137	200	181	242	121		-1		
1956	-5	-4	4	100	161	196	210	191	116	50	15	0	1034
1957	-3	-2	45	101	199	158	264	167	125	31	6	5	1096
1958	4	-3	2	97	221	184	220	235	129	66	6	-3	1158
1959	-3	-5	49	121	162	214	266	206	105	39	0	3	1157
1960	-3	-2	29	123	170	210	285	199	151	57	4	-5	1218
1961	-2	-1	57	107	162	282	252	270	123	54	9	-4	1309
1962	-4	-3	10	143	160	218	228	218	148	66	18	4	1206
1963	-2	19	78	140	181	195	269	215	165	82	5	5	1352
1964	-2	18	35	108	184	196	271	219	89	68	10	-3	1193
1965	-4	-2	16	94	169	186	249	224	52	68		11	

Suffield

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-5	54	101	201	184	238	204	158	46	2	-5	1176
1967	-3	-3	11	73	151	197	267	239	179	55	11	-3	1174
1968	-3	12	77	113	175	183	233	174	118	51	11	-3	1141
1969	-2	-3	0	127	193	200	235	267	136	34	17	-3	1201
1970	-4	-2	10	90	184	219	234	250	127	52	0	-3	1157
1971	-2	-3	1	110	194	170	240	263	110	52	7	-3	1139
1972	-1	-2	40	127	186	219	199	223	101	35	8	-2	1133
1973	5	0	82	87	203	205	257	217	121	57	-4	-3	1227
1974	-2	-3	4	110	136	238	251	162	120	72	14	4	1106
1975	-4	-3	2	46	140	179	244	166	132	42	12	-5	951
1976	-4	16	37	127	203	173	215	199	147	53	13	-2	1177
1977	-5	24	70	166	174	234	211	167	86	63	10	-5	1195
1978		-1	6	72	156	214	214	189	108	59	5	-4	
1979	-2	-1	56	77		227	247	215	164		-6	5	
1980	-2	2	2	164	221	188	236	168	117	49	15	2	1162
1981	5	11	72	138	152	185	220	247	157	42	17	-3	1243
1982	0	0	29	107	157	200	208	205	131	52	5		
1983	-1	9	38	119	180	190	209	253	126	63	9	-1	1194
1984	-1	24	39	139	172	196	274	251	99	36	-2	-2	1225
1985					200	241	284	189	76	44	-2	-2	
1986	5	1		117	148	224	208	234	65	53	4	3	
1987	7	20	38	146	205	242	222	167	149	66	15	4	1281
1988	3	16		170	238	254	272	212	129	66	13	5	
1989	2	1	39	121	175	216	263	190	130	60	7	0	1204
1990	0	16	66	117	163	212	238	220	185	51	9	-1	1276
1991	-2	15	53	131	154	168	241			48	8	7	
1992	8	19	82	131	185	193	180	197	112	46	7	-2	1158
1993	-2	6	66	124	196	205	205	194	127	56	11	7	1195
1994	-2	-2	85	152	196	213	270	238	181	46	15	5	1397
1995	-5	21	82	114	190	238	239	204	144	52	4	-4	1279
1996	-3	17	46	128	154	235	264	290	98	54	-3	-8	1272
1997	-2	14	48	128	205	215	268	222	166	58	15	5	1342
1998	-3	24	41	156	220	189	234	268	158	64	12	3	1366
1999	-5	18	81	132	175	196	230	216	152	67	22	4	1288
2000	-3	5	76	125	217	208	263	243	140	57	9	-3	1337
2001	6	-1	78	126	241	211	249	296	149	40	20	-1	1414
2002	3	22	4	110	184	198	250	153	106	33	17	8	1088
2003	3	2	56	108	140	185	259	242	128	62	-3	-1	1181
2004	-2	0	77	134	132	198	219	154	112	50	21	2	1097
2005	-4	28	78	143	207	169	239	176	126	55	16	-1	1232
2006	8	9	45	145	185	193	288	242	127	41	7	7	1297
2007	7	-1	71	104	166	218	313	224	122	63	12	-3	1296
2008	-3	-2	65	132	144	176	225	230	126	63	17	-2	1171
2009	-2	-1	19	125	188	202	198	170	185	30	23	-3	1134
MEAN	-1	6	42	117	178	203	241	214	128	54	9	0	1200
MIN	-5	-5	0	46	132	157	180	153	52	30	-6	-8	944
MAX	8	28	85	170	241	282	313	296	185	82	23	11	1414
COUNT	*55*	*56*	*54*	*56*	*56*	*57*	*57*	*56*	*56*	*55*	*56*	*55*	*48*

Vauxhall

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
1922													
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1943													
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1946													
1947													
1948													
1949													
1950													
1951													
1952													
1953													
1954				58	158	163	249	158	99	64	24	11	
1955	0	0	30	98	135	225	189	236	117	54	-1	-1	1082
1956	-3	0	43	105	169	204	203	182	117	51	18		
1957	-2	5	54	100	184	175	259	172	126	28	9	7	1117
1958	9	1	3	91	217	172	206	224	134	70	8	3	1138
1959	-2	1	66	115	151	203	258	205	103	40	7	8	1155
1960	-2	4	43	115	156	212	283	192	148	53	11	2	1217
1961	7	13	48	93	153	266	232	232	105	48	11	-1	1207
1962	3	0	32	138	150	207	218	206	123	53	17	4	1151
1963	0	12	55	110	177	174	229	199	149	71	14	1	1191
1964	3	23	39	98	163	181	251	203	81	71	9	-1	1121
1965	-1	4	25	91	164	167	226	186	59	66	2	0	989

Vauxhall

Potential Evaporation (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	4	72	98	183	179	218	181	143	45	5	-1	1126
1967	-2	11	34	64	140	174	261	225	171	50	10	-2	1136
1968	-2	15	70	101	157	171	218	150	106	44	12	-2	1040
1969	0	-3	33	120	183	167	220	256	127	34	22	4	1163
1970				89	174	212	244	236	117				
1971				108	173	193	229	244	111				
1972				114	166	216	186	203	92				
1973				85	206	202	266	218	114				
1974				108	134	237	241	154	121				
1975				51	141	185	228	166	128				
1976				121	208	165	216	184	150	45			
1977				152	169	226	229	149	92	51			
1978				64	144	217	200	182	109	57			
1979				57	149	220	240	172	110	51			
1980				142	200	184	231	155	118	54			
1981					148	179	206	224	150	43			
1982													
1983				110	180	172	203	229	122	55	8	-1	
1984	6	26	41	125	169	199	262	233	91	34	6	1	1193
1985	3	8	64	118	198	228	271	190	74	42	-1	5	1200
1986	6	2	61	118	166	217	211	216	65	58	7	10	1137
1987	13	25	34	148	205	228	200	156	148	63	18	7	1245
1988	6	17	54	156	215	237	255	208	123	63	15	6	1355
1989	5	0	21	117	182	210	236	164	131	57	15	7	1145
1990	9	19	73	112	151	214	205	205	182	50	11	0	1231
1991	-5	19	54	107	144	176	221	199	118	49	8	3	1093
1992	7	21	76	108	160	178	184	176	103	47	8	-5	1063
1993	-6	-2	62	104	169	169	167	166	109	46	8	3	995
1994	-3	-3	80	129	183	191	238	198	164	43	11	5	1236
1995	-6	18	62	96	150	182	192	180	119	41	4	-6	1032
1996	-1	7	26	104	120	205	229	225	96	54	-2	-4	1059
1997	-3	6	53	116	170	184	218	189	133	46	9	8	1129
1998	-6	22	22	122	199	142	209	230	135	48	7	-2	1128
1999	-4	25	70	120	155	172	178	159	123	46	12	4	1060
2000	-3	-4	60	107	172	172	232	181	98	40	5	-5	1055
2001	3	-3	62	112	203	170	203	240	142	42	14	-6	1182
2002	-3	15	-1	88	147	176	193	120	83	26	8	-1	851
2003	-2	-4	25	80	142	154	210	202	96	43	-6	-4	936
2004	-8	-10	70	140	147	168	192	152	90	47	12	-9	991
2005	-9	31	72	128	190	135	209	156	95	41	11	2	1061
2006	6	20	20	128	190	177	251	217	124	41	8	8	1190
2007	7	0	88	99	170	205	281	201	116	71	15	-5	1248
2008	0	3	82	124	157	184	215	209	110	65	15	-3	1161
2009	-2	0	56	136	200	218	205	175	181	36	22	-5	1222
MEAN	0	8	50	108	169	192	224	194	118	50	10	1	1126
MIN	-9	-10	-1	51	120	135	167	120	59	26	-6	-9	851
MAX	13	31	88	156	217	266	283	256	182	71	24	11	1355
COUNT	*41*	*41*	*41*	*54*	*55*	*55*	*55*	*55*	*55*	*49*	*43*	*42*	*40*

Beaverlodge

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
1922													
1923													
1924													
1925													
1926													
1927													
1928													
1929													
1930													
1931													
1932													
1933													
1934													
1935													
1936	-1	-1	18	36	68	102	122	85	20	10	2	0	461
1937	-1	2	19	33	70	95	110	72	26	13	2	0	441
1938	-2	-1	18	29	65	84	143	69	35	14	2	0	456
1939	1	1	20	40	66	94	98	83	24				
1940	8	8			87	73	104	82	18	17			
1941					77	93	112	72	34	20			
1942					63	101	96	62	23				
1943					61	91	95	70	14				
1944			21	32	71		106	70	19	12	-7		
1945		-3		45			101	62		16	-6	-9	
1946	-4	-2	21	45	76	99	110	77	26	17	-5	-8	452
1947	-5	-5	4		78	89	119	77	30	15	-3	-5	
1948	-3	-7	2	8	93	117	117	86	34	12	-1	-7	451
1949	-6	-5	2	49	66	104	116	82	27	13	2	-7	443
1950		-7	-2	31	82	127	113	81	40	18	-7		
1951		-5	-4	54	81	92	111	81	36	6			
1952				55	88	88	123	68	35	17	0		
1953					90	96	109	100	30	15			
1954		1	6	40	63	86	100	66	28	12	3	0	
1955	1	0	7	28	57	86	88	61	14	11	-2	-1	350
1956	0	2	19	16	9	78	99	59	17	12	0	-1	310
1957	-1	5	17	38	56	81	86	72	15	14	2	3	388
1958	3	1	9	31	53	94	112	55	18	8	5	0	389
1959	-1	4	19	31	68	79	85	47	17	16	1	2	368
1960	-1	2	8	21	51	69	98	65	14	9	1	-1	336
1961	1	2	18	29	53	94	106	48	18	10	1	-1	379
1962	6	-1	20	28	51	77	96	64	17	11	3	-1	371
1963	-2	3	12	33	67	81	82	70	19	10	-2	1	374
1964	0	8	6	33	45	83	105	79	21	9	0	-1	388
1965	0	1	23	31	57	86	109	74	20	9	-3	-1	406

Beaverlodge

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	4	20	40	52	80	91	59	18	11	-1	0	373
1967	-1	3	1	54	51	86	77	51	11	11	3	-1	346
1968	-1	7	18	30	69	83	91	68	17	11	4	-2	395
1969	0	1	20	33	53	85	93	56	34	16	5	0	396
1970	-1	4	19	29	44	77	85	62	16	11	-2	-1	343
1971	-2	9	18	38							1	-3	
1972	0	-1	13	43	62	75	102	77	24	12	-2	0	405
1973	0	2	19	36	46	81	91	61	19	12	-2	0	365
1974	-1	2	3	42	48	89	99	70	17	10	2	1	382
1975	-2	0	7	41	65		92	52	15	13	-1	-2	
1976	3	3	19	45	50	77	92	66	18	12	0	1	386
1977	0	7	21	24	60	94	94	71	21	12	0	1	405
1978	0	1	19	20	61	102	67	53	20	7	4	-1	353
1979	-4	-1	20	40	47	71	91	64	15	6	0	-2	347
1980	-1	-1	20	19	40	82	90	60	20	9	4	-1	341
1981	-6	0	19	21	46	79	80	40	14	9	3	-3	302
1982	0	0	8	43	45	87	99	59	18	9	1	-1	368
1983	0	2	18	22	36	61	99	66	13	8	-4	-1	320
1984	1	7	13	15	40	64	81	43	17	14	-1	-1	293
1985	2	1	15	15	28	49	65	39	17	11	0	4	246
1986	2	-2	19	19	45	68	80	51	18	8	0	-7	301
1987	-4	-2	6	15	32	63	61	45	11	5	2	1	235
1988	-1	2	18	15	32	104	74	44	13	9	-3	-2	305
1989	-2	0	6	27	40	89	111	66	18	13	1	-2	367
1990	-1	1	18	26	51	84	98	44	13	15	-1	-2	346
1991	-3	4	21	26	63	82		66	16	13	-4	-2	
1992	-4	0	17	18	40	79	90	45	15	11	0	-2	309
1993	-4	-2	20	28	48	69	79	65	15	13	4	-2	333
1994	-3	-1	21	28	53	79	111	78	16	14	-2	-4	390
1995	-3	2	21	29	84	84	66	44	14	10	0	-4	347
1996	-3	4	15	33	63	81	77	47	16	7	3	-1	342
1997	2	8	15	13	10	106	113	90	27	15	0	-1	398
1998	-4	-2	31	30	60	94	87	39	12	11	-3	-5	350
1999	-5	1	24	37	38	77	67	37	13	8	3	0	300
2000	-2	6	18	25	47	61	69	18	13	9	2	-4	262
2001	0	3	16	24	38	64	79	60	14	10	-1	-5	302
2002	-4	7	5	33	52	69	65	48	21	16	1	-4	309
2003	-3	0	20	35	46	67	74	50	17	10	0	-4	312
2004	-3	7	18	13	42	68	98	68	19	15	1	-3	343
2005	-5	9	16	19	61	94	94	63	19	13	0	-7	376
2006	-6	8	20	16	42	70	66	32	12	12	-3	-3	266
2007	2	-3	24	46	50	78	68	54	17	12	2	-5	345
2008	-4	4	20	27	45	64	58	38	16	8	1	-2	275
2009	0	4	22	40	49	67	82	49	12	14	4	-3	340
MEAN	-1	2	15	31	55	83	93	62	20	12	0	-2	355
MIN	-6	-7	-4	8	9	49	58	18	11	5	-7	-9	235
MAX	8	9	31	55	93	127	143	100	40	20	5	4	461
COUNT	*64*	*68*	*67*	*68*	*72*	*70*	*72*	*73*	*72*	*70*	*67*	*64*	*58*

Brooks

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
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1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950													
1951													
1952													
1953						86	39	42	9	5	0	4	
1954	-2	8	16	33	45	59	80	54	16	9	0	2	320
1955	-3	0	16	22	54	103	101	51	12	9	2	0	367
1956	-2	-1	18	28	64	72	97	61	12	9	4	3	365
1957	-2	0	18	43	65	74	32	53	11	17	7	2	320
1958	5	0	8	21	52	68	76	31	11	7	8	1	288
1959	-1	-2	18	18	53	64	68	40	12	13	6	2	291
1960	0	2	20	15	34	64	59	38	9	6	7	0	254
1961	4	10	15	21	45	53	56	8	11	10	7	-1	239
1962	0	-1	12	15	55	62	79	21	11	8	1	5	268
1963	-2	10	13	14	29	41	82	45	9	5	4	2	252
1964	-1	10	20	22	28	46	71	25	14	9	6	-1	249
1965	-1	-1	9	35	35	72	85	23	40	6	2	7	312

Brooks

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	-2	18	36	48								
1967		0	4	48	54	105		67	10	9	7	-1	
1968	0	10	14	30	62	81	100	51	23	11	7	-4	385
1969	-2	-1	1	31	63	71	107	64	15	19	6	0	374
1970	-3	0	9	31	62	82	116	65	14	13	-2	-3	384
1971	-3	-1	6	37	80	93	103	56	16	15	6	-3	405
1972	-2	-2	22	39	73	92	91	67	17	11	2	-3	407
1973	-2	-2	23	42	64	84	96	64	17	12	-4	-4	390
1974	-3	-3	6	48	67	94	93	43	16	10	7	0	378
1975	-2	-2	5	43	61	117	90	75	14	13	6	-3	417
1976	-2	10	24	39	53	69	78	53	10	11	8	0	353
1977	-3	14	19	18	49	83	72	60	19	10	8	-3	346
1978	-3	-3	9	46	74	83	80	61	18	12	0	-3	374
1979	-1	0	17	21	45	69	75	40	8	8	-6	5	281
1980	-1	1	25	12	35	87	81	45	12	11	4	3	315
1981	4	10	17	16	51	74	70	33	7	13	3	-3	295
1982	0	2	20	31	53	79	95	45	11	13	3	1	353
1983	2	8	19	32	59	51	81	29	10	9	9	-1	308
1984	1	10	19	15	38	70	55	17	13	14	0	-1	251
1985	-2	0	16	23	52	73	42	33	16	11	-2	0	262
1986	5	2	17	19	61	67	79	20	20	14	3	3	310
1987	5	12	17	20	48	55	70	52	13	7	5	4	308
1988	3	13	14	14	22	56	46	36	10	7	3	5	229
1989	2	2	21	23	38	72	53	15	14	8	6	1	255
1990	3	10	19	23	56	73	69	32	6	8	7	1	307
1991	-1	13	26	33	82	94	127	71	14	15	6	4	484
1992	4	12	36	23	58	77	89	63	15	12	6	0	395
1993	0	4	19	36	76	70	57	41	10	8	5	0	326
1994	4	1	20	37	83	113	113	69	14	11	8	1	474
1995	-1	12	18	41	72	89	77	56	13	11	2	0	390
1996	1	11	18	13	23	91	91	62	23	16	1	0	350
1997	-5	-5	34	43	72	90	78	53	12	12	7	1	392
1998	-4	15	32	40	71	91	106	52	15	15	5	-3	435
1999	-6	13	21	34	73	110	113	93	21	12	6	2	492
2000	-6	-5	26	53	72	103	84	63	32	16	-4	-7	427
2001	-5	-4	26	44	60	103	96	46	14	14	5	-9	390
2002	-6	14	0	50	76	108	116	95	42	23	7	-7	518
2003	-7	-5	34	63	96	122	114	74	34	15	-7	-10	523
2004	-6	-5	31	54	100	126	138	109	52	21	10	-8	622
2005	-7	16	30	52	88	118	138	101	53	23	8	3	623
2006	4	13	26	41	73	104	99	62	18	18	7	3	468
2007	7	4	18	44	85	110	87	64	30	11	6	-3	463
2008	0	1	20	41	80	111	108	57	36	11	6	-4	467
2009	-1	-2	32	37	72	96	114	83	12	19	4	-5	461
MEAN	-1	4	18	32	60	83	86	52	17	12	4	0	369
MIN	-7	-5	0	12	22	41	32	8	6	5	-7	-10	229
MAX	7	16	36	63	100	126	138	109	53	23	10	7	623
COUNT	*55*	*56*	*56*	*56*	*56*	*56*	*55*	*56*	*56*	*56*	*56*	*56*	*54*

Calgary International Airport

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921										10	7	-2	
1922	1	2	22	33	110	109	95	96	53	13	-11	-4	519
1923	3	10	18	55	89	110	114	100	45	21	1	-5	561
1924	-5	15	13	67	71	70	93	72	30	20	-5	-4	437
1925	-4	-2	25	38	86	114	122	85	34	-1	6	1	504
1926	3	11	18	39	57	96	113	76	37	23	0	-6	467
1927	-5	-2	23	59	58	86	109	75	43	22	-3	-2	463
1928	-4	0	27	57	114	99	147	103	55	22	7	-8	619
1929	-4	-7	34	51	95	127	120	54	22	27	-3	-3	513
1930	2	0	15	60	74	76	122	67	52	23	5	-7	489
1931	-5									13	1	-3	
1932	-3	0	4	58	98	127	138	97	34	23	-4	-5	567
1933	-4	-1	23	51	88	101	120	81	27	17	3	1	507
1934	4	13	20	47	65	94	123	85	19	15	5	5	495
1935	0	13	23	36	75	80	107	74	18	15	6	4	451
1936	1	0	18	36	68		119	74	18	12	0	5	
1937	2		18	31	75	84	118	79	21	13	8	5	
1938	5	3	16	36	71	101	109	82	34	14	7	3	481
1939			23			87			16	17	2	1	
1940	0	2	22	47	71	108	118	72	36	18	3	1	498
1941	4	11	28		55	116	121	68	31		5		
1942	3	-5	18	23	66	65	110	77	26	14	-9	-2	386
1943	-2	10	10	39	56	67	97	74	16	13	3	0	383
1944	5	3	22	27	59	82	101	74	16	11	7	4	411
1945	-1	5	17	48	64	73	114	76	19	16	0	-3	428
1946	3	9	19	39	72	84	123	75	15	14	3	-2	454
1947	3	-1	18	30	69	69	100	56	17	13	3	2	379
1948	5	-1	4	41	71	82	99	60	11	7	2	-2	379
1949	-5	-1	22	14	42	62	83	53	9	14	0	-4	289
1950	-2	2	6	26	45	66	100	79	14	16	3	1	356
1951	-3	1	7	23	50	54	113		19	20	6	-1	
1952	-4	-1	4	33	67	82	96	79	16	12	5	3	392
1953	-1	5	23	38	54	73	115	88	17	9	3	1	425
1954	0	9	14	33	56	59	97	68	20	10	0	0	366
1955	5	5	14	29	52	91	84	75	17	10	0	0	382
1956	-2	1	26	37	68	65	101	72	15	15	2	6	406
1957	-2	4	19	27	70	68	107	61	14	18	6	1	393
1958	3	0	3	27	53	72	102	57	12	7	6	4	346
1959	0	3	14	30	54	67	97	60	17	12	7	0	361
1960	1	0	24	19	48	75	101	50	11	9	7	4	349
1961	2	13	17	26	56	89	76	55	17	13	6	-2	368
1962	3	-1	26	23	66	78	92	15	15	10	3	3	333
1963	-1	9	17	31	63	81	101	73	14	8	7	1	404
1964	4	10	20	22	41	66	89	47	15	8	5	-2	325
1965	-1	4	12	37	46	67	113	72	20	8	2	-2	378

Calgary International Airport

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	5	17	35	59	85	103	66	15	10	-1	-4	388
1967	-3	11	7	41	53	104	101	61	8	10	4	1	398
1968	-1	14	15	26	55	66	92	45	16	11	5	-1	343
1969	0	-1	28	22	44	61		72	17	16	0	4	
1970	0	13	25	49	56	84	110	59	12	9	4	0	421
1971	1	11	27	40	67	92	113	54	15	12	6	-1	437
1972	0	0	19	28	76	78	75	82	30	13	7	-2	406
1973	7	14	20	38	53	85	98	63	18	11	-2	0	405
1974	0	13	24	36	59	98	86	47	15	8	4	0	390
1975	8	1	20	43	61	79	96	55	14	11	5	5	398
1976	6	13	18	22	58	77	79	63	15	12	3	4	370
1977	2	9	15	19	59	64	85	67	20	10	8	-1	357
1978	-1	-1	19	26	60	111	95	67	18	9	8	3	414
1979	0	-1	16	31	51	75	84	69	12	11	2	4	354
1980	1	10	24	28	49	92	103	57	14	8	0	4	390
1981	2	12	19	13	54	80	91	74	12	12	0	7	376
1982	1	6	20	30	60	85	94	64	14	9	9	3	395
1983	6	11	20	28	50	63	81	37	11	8	5	0	320
1984	2	7	15	14	27	66	76	22	15	12	7	3	266
1985	5	13	15	23	42	87	79	43	15	10	3	3	338
1986	0	11	13	23	54	77	99	64	23	10	-2	0	372
1987	0	10	18	18	56	70	96	69	12	7	3	0	359
1988	8	9	15	17	32	70	75	68	15	11	2	4	326
1989	7	6	25	27	56	95	105	50	19	10	4	3	407
1990	5	14	15	27	44	70	82	65	11	9	7	3	352
1991	6	9	20	29	58	74	106	55	15	12	7	0	391
1992	0	11	13	16	43	79	95	66	13	12	7	1	356
1993	-1	13	16	28	55	79	83	71	16	11	7	0	378
1994	-1	2	15	25	59	90	94	55	12	13	7	4	375
1995	5	14	18	30	70	89	105	81	23	13	6	4	458
1996	3	15	22	28	62	94	124	76	19	13	4	3	463
1997	3	13	19	35	58	97	127	74	26	13	5	0	470
1998	2	14	23	47	89	93	126	75	22	12	9	6	518
1999	5	9	17	25	65	82	100	80	21	10	3	0	417
2000	5	14	17	35	67	101	128	74	16	12	8	1	478
2001	0	7	17	40	46	84	110	59	15	12	3	5	398
2002	8	12	7	35	65	82	77	39	14	17	0	1	357
2003	6	6	21	45	59	88	90	45	10	8	8	4	390
2004	4	13	17	28	76	94	95	74	18	11	0	2	432
2005	3	13	17	25	58	95	94	66	24	14	2	3	414
2006	0	14	18	26	62	94	107	55	15	16	4	0	411
2007	3	2	17	32	70	100	107	70	24	10	3	3	441
2008	6	15	15	36	64	91	91	52	21	9	2	-3	399
2009	7	10	24	32	56	71	78	60	9	17	0	-2	362
MEAN	1	7	18	33	62	84	102	66	20	13	3	1	409
MIN	-5	-7	3	13	27	54	75	15	8	-1	-11	-8	266
MAX	8	15	34	67	114	127	147	103	55	27	9	7	619
COUNT	*87*	*85*	*87*	*85*	*86*	*86*	*85*	*85*	*87*	*88*	*89*	*88*	*81*

Cold lake

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
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1959													
1960													
1961													
1962													
1963													
1964													
1965													

Cold lake

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973							93	70	17	13	-2	-2	
1974	0	0	4	36	54	81	108	70	17	7	2	-4	375
1975	-1	1	7	32	50	87	107	65	18	12	4	-2	380
1976	-2	2	19	18	46	89	97	74	17	12	3	-2	373
1977	-1	8	20	16	61	92	88	62					
1978	-1	1	18	20	58	92	95	65	20	10	0	-2	376
1979	-3	0	22	30	56	96	124	84	25	13	1	-5	443
1980	-2	-2	11	21	59	72	101	64	20	12	2	-1	357
1981	-4	1	16	18	42	92	87	66	15	14	5	-2	350
1982	-1		12	33	50	78	100	68	16	14	-1	-3	
1983	-5	-2	13	23	49	64	86	73	19	11	-6	-4	321
1984	-1	7	18	14	24	72	82	45	16	12		-2	
1985	-2	-1	18	23	48	74	89	58	15	13	-1	0	334
1986	0	2	17	20	45	79	70	73	17	12	0		
1987		1	13	21	49	65		65	16	8	3	-5	
1988		1	19	23	46	90	100	78	23	17	-6	-4	
1989	-2	-2	3	37	51	83	117	73	27	17	-5	-6	393
1990	-4	-3	22	34	66	82	99	66	18	11	-2	-2	387
1991	-2	2	19	24		72	104	51	16	13	-4	-5	
1992	-6	-1	16	17	42	89	81	61	18	13	-5	-3	322
1993	-3	-1	15	21	56	69	80	60	17	13	-1	-4	322
1994	-2	0	17	20	44	80	90	65	14	12	-1	-3	336
1995	-4	0	21	31	52	84	95	69	16	15	-2	-3	374
1996	-2	0	16	39	56	90	100	61	21	15	-1	-3	392
1997	-2	-2	21	30	51	84	89	59	22	15	-1	-3	363
1998	-2	-4	20	14	54	83	90	55	15	12	-2	-3	332
1999	-3	1	18	17	51	75	83	66	16	9	1	-6	328
2000	-3	-1	18	27	52	78	103	67	22	10	-4	-4	365
2001	-6	1	16	16	49	90	90	58	21	13	1	-5	344
2002	-3	5	8	39	29	74	73	59	18	13	-2	-9	304
2003	-2	-1	20	28	57	96	95	54	18	15	-4	-7	369
2004	-3	-3	23	24	52	78	92	60	18	14	3	-3	355
2005	-2	8	18	15	51	98	98	56	18	10	4	-7	367
2006	-6	0	21	15	62	84	94	62	15	10	0	1	358
2007	4	3	16	22	64	84	94	60	18	11	0	-4	372
2008	-4	0	20	26	37	72	75	43	14	5	2	-2	288
2009	-2	0	18	27	48	72	88	60	14	14	2	-9	332
MEAN	-2	1	16	24	50	82	93	63	18	12	0	-4	356
MIN	-6	-4	3	14	24	64	70	43	14	5	-6	-9	288
MAX	4	8	23	39	66	98	124	84	27	17	5	1	443
COUNT	*34*	*35*	*36*	*36*	*35*	*36*	*36*	*37*	*36*	*36*	*35*	*35*	*29*

Coronation

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
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1955													
1956													
1957													
1958													
1959													
1960													
1961													
1962													
1963													
1964													
1965													

Coronation

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975								63	13	15	7	-3	
1976	-3	-1	4	39	54	84	108	66	15	14	7	-4	383
1977	-3	-4	25	25	69	95	95	68	21	13	1	-2	403
1978	-3	-3	2	37	74	109	91	65	22	14	-1	-5	402
1979	-4	-1	26	44	73	91	116	74	17	14	5	-6	449
1980	-3	-4	4	31	60	96	115	71	17	17	4	-3	405
1981	-6	-2	25	36	59	94	81	56	12	17	4	-5	371
1982	-1	-2	1	45	58	87	118	73	16	15	-3	-5	402
1983		-3	13	37	57				17		0		
1984	-3			30	37	85	83	48	17	17	-3	-2	
1985	-5	-2	5	49	70	99	95	61	19	16	-3	-3	401
1986	-3	-3	22	36	66	82	96	73	19	17	-2	-6	397
1987	-5	-2	7	45	60	81	116	80	19	11	-2	-7	403
1988	-4	-1	20	45	48	100	113	57	50	17	-6	-10	429
1989	-3	-2	3	48	67	97	120	61	29	18	2	-2	438
1990	-3	-2	31	53	83	110	115	78	16	16	5	-1	501
1991	-3	7	28	36	70	87	122	70	16	15	-4	-4	440
1992	-4	-3	20	29	64	85	95	64	17	16	-5	-4	374
1993	-5	-4	4	43	78	84	109	78	24	15	-1	-6	419
1994	-3	0	23	41	80	110	117	84	28	20	-2	-8	490
1995	-5	-2	21	54	83	103	127	92	14	15	-2	-3	497
1996	-2	-2	3	50	79	89	116	62	30	18	0	-1	442
1997	1	11	18	23	68	113	109	62	16	17	1	2	441
1998	-2	-3	22	40	77	93	106	46	14	19	-4	-6	402
1999	-5	-2	13	33	69	96	111	88	22	12	4	0	441
2000	-4	-3	25	43	76	96	110	68	26	13	-4	-4	442
2001	-6	-1	21	34	68	113	106	43	14	14	4	-6	404
2002	-4	0	1	51	54	81	78	70	21	19	4	-6	369
2003	-5	-3	12	48	79	109	106	58	18	12	-5	-6	423
2004	-3	-3	29	34	72	86	111	77	33	18	5	-6	453
2005	-4	-2	17	38	76	112	117	74	35	18	2	-8	475
2006	-11	-1	3	45	75	107	103	68	19	18	-3	-4	419
2007	-3	-1	24	40	84	106	92	67	28	14	8	-6	453
2008	-5	-3	28	46	68	108	103	53	19	10	7	-4	430
2009	-2	-2	6	40	70	80	93	71	13	19	5	-3	390
MEAN	-4	-1	15	40	68	96	106	67	21	16	1	-4	425
MIN	-11	-4	1	23	37	80	78	43	12	10	-6	-10	369
MAX	1	11	31	54	84	113	127	92	50	20	8	2	501
COUNT	*33*	*33*	*33*	*34*	*34*	*33*	*33*	*34*	*35*	*34*	*35*	*34*	*32*

Edmonton City Centre Airport

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912	-4	-3	2	36	67	106	80	70	27	15	5	3	404
1913	2	6	19	37	71	90	107	85	31	17	4	1	470
1914	-1	1	16	19	54	88	126	91	34	19	2	-2	447
1915	-2	-4	25	38	66	99	113	111	44	14	3	-2	505
1916	-1	-1	21	32	62	89	97	76	28	13	5	0	421
1917	1	1	20	43	59	103	120	96	28	15	0	0	486
1918	0	2	20	41	61	95	117	86	33	15	3	-2	471
1919	-1	0	5	38	75	105	103	79	28	12	0	-1	443
1920	-2	3	7	36	63	93	131	86	26	16	1	-1	459
1921	0	7	20	43	68	102	112	76	17	11	1	0	457
1922	0	0	21	37	62	76	108	76	18	13	4	-1	414
1923	0	4	19	37	61	87	99	94	39	15	4	-1	458
1924	-1	4	13	39	68	105	108	81	33	17	-1	-3	463
1925	-3	-2	20	41	73	110	114	79	24	16	3	1	476
1926	1	4	19	50	82	94	117	69	35	17	1	-1	488
1927	-1	0	20	49	63	100	120	86	28	16	0	-1	480
1928	-1	7	21	42	92	90	133	92	30	18	4	4	532
1929	-1	0	19	39	54	64	95	60	19	9	0	-1	357
1930	-1	6	22	32	56	56	111	90	29	18	4	-1	422
1931	-2	11	17	15	38		90	55	13	12	6	2	
1932	2	-1	6	43	73	67	73	32	11	13	5	-2	322
1933	0			34	48	59	105	61	15	14	6	-1	
1934	4	10	13	17	58	51	96	51	8	7	6	-2	319
1935	-2	10	13	55	84	78	97	74	16	12	0	-4	433
1936	-1	0	19	44	65	90	96	46	16	9	0	2	386
1937	1	2	17	29	67	89	98	73	6	9	4	0	395
1938	-1	0	17	20	56	81	104	58	13	13	4	-1	364
1939	-1	0	14	38	72	88	124	73	21	16	3		
1940	0	0	20	62	88	113	114	96	28	13	0	-3	531
1941	0	5	19	42		115	129	85	20	16	3	2	
1942	-2	1	15	21	47	83	107	72	43	12	-3	-6	390
1943	-2	-3	7	41	49	68	109	79	19	14	4	0	385
1944	-5	-4	12	28	54	95	97	75	18	9	-3	-7	369
1945	-3	-3	19	30	40	70	86	69	18	14	-5	-6	329
1946	-6	-3	20	28	50	79	101	77	20	16	-3	-6	373
1947	-2	-3	4	28	54	60	113	53	19	12	-3	-5	330
1948	-3	-4	1	24	63	86	85	63	17	10	2	-6	338
1949	-3	-2	24	16	46	59	75	88	16	14	0	-6	327
1950	4	-3	2	33	50	73	87	66	13	16	-5	-7	329
1951	-5	-4	0	36	58	82	98	74	19	16	-5	-6	363
1952	-5	-4	1	22	57	83	102	80	17	11	3	-5	362
1953	-6	0	7	41	49	76	102	81	18	10	4	2	384
1954	-1	8	21	30	53	65	96	69	22	11	2	1	377
1955	-3	1	7	33	64	93	97	81	18	12	-2	-2	399
1956	-2	-2	12	42	62	68	106	75	18	13	1	-1	392
1957	-4	-2	14	38	61	33	91	59	16	16	4	-2	324
1958	-2	0	10	28	52	80	99	57	17	11	6	-1	357
1959	-1	2	18	29	53	79	100	56	19	14	5	1	375
1960	-4	-1	17	25	48	73	104	64	16	12	4	-6	352
1961	-3	1	21	26	49	77	101	63	17	12	5	-3	366
1962	-1	-3	3	33	59	89	97	64	17	11	4	-2	371
1963	-2	-1	20	39	49	71	87	67	16	10	3	0	359
1964	-3	8	15	17	38	61	86	53	18	10	0	-1	302
1965	-1	1	14	41	54	76	96	61	18	7	-1	-3	363

Edmonton City Centre Airport

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-2	22	35	52	80	94	62	14	9	0	-3	361
1967	-2	0	4	49	40	72	77	59	7	10	5	-1	320
1968	-3	5	17	27	53	63	92	63	17	11	4	-3	346
1969	-3	-2	23	29	61	76	99	74	20	17	4	-4	394
1970	-3	7	13	33	45	62	87	65	13	12	-3	-4	327
1971	-3	-2	16	41	36	70	101	60	13	10	4	-2	344
1972	-2	0	21	30	52	68	80	77	16	9	2	-1	352
1973	-2	2	16	25	45	67	90	71	16	12	-2	0	340
1974	1	7	12	29	38	57	70	58	15	6	0	4	297
1975	7	4	20	24	43	64	85	59	16	11	4	0	337
1976	1	7	17	24	29	81	89	47	9	10	0	3	317
1977	1	7	15	13	53	80	82	56	15	7	3	0	332
1978	-2	1	17	16	50	84	93	66	20	9	5	-1	358
1979	-2	0	18	30	53	80	113	83	23	11	3	-2	410
1980	-2	2	22	15	36	85	102	70	26	12	3	0	371
1981	-4	8	18	23	45	93	98	67	14	14	5	-2	379
1982	-1	-2	11	39	53	63	100	68	16	12	0	-1	358
1983	-2	1	5	27	40	69	106	66	17	11	-1	-1	338
1984	3	9	19	17	40	86	85	52	18	14	-3	-1	339
1985	-1	1	17	25	51	91	102	66	17	11	0	0	380
1986	2	1	17	22	45	77	85	69	17	13	1	0	349
1987	-1	6	20	23	64	87	88	61	15	9	4	1	377
1988	0	10	13	14	32	87	92	66	16	11	4	1	346
1989	1	1	21	29	46	93	115	68	21	13	6	1	415
1990	1	5	19	27	63	81	95	54	14	12	4	0	375
1991	2	7	21	23	67	73	100	64	15	14	-1	0	385
1992	2	3	16	21	43	75	91	49	14	11	3	-1	327
1993	-2	5	16	27	51	65	87	70	16	12	6	2	355
1994	0	1	14	16	49	81	104	68	16	13	4	-5	361
1995	-1	6	18	25	55	79	77	64	17	12	2	-1	353
1996	0	7	20	38	38	77	95	86	20	14	0	-1	394
1997	-3	5	30	42	45	94	101	69	18	14	4	0	419
1998	-4	-2	23	21	54	74	94	49	13	14	0	-2	334
1999	-4	3	27	27	54	74	86	59	16	9	2	0	353
2000	1	10	15	16	38	64	107	62	16	11	4	-4	340
2001	2	5	13	13	20	69	82	60	15	10	0	-3	286
2002	-2	10	20	30	15	63	64	48	14	15	2	3	282
2003	2	4	25	35	46	70	87	65	13	8	3	2	360
2004	-1	8	16	20	55	73	106	70	21	13	0	0	381
2005	-2	10	16	18	52	75	94	56	16	12	1	-3	345
2006	-5	12	20	18	70	76	108	75	22	17	-3	3	413
2007	5	1	17	25	63	107	112	84	15	10	5	-6	438
2008	-5	6	19	49	28	88	106	65	19	8	2	-4	381
2009	0	4	22	26	46	63	90	57	10	17	0	-4	331
MEAN	-1	2	16	31	54	80	99	69	19	12	2	-1	380
MIN	-6	-4	0	13	15	33	64	32	6	6	-5	-7	282
MAX	7	12	30	62	92	115	133	111	44	19	6	4	532
COUNT	*98*	*97*	*97*	*98*	*97*	*97*	*98*	*98*	*98*	*98*	*98*	*97*	*94*

Edmonton International Airport

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
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1955													
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1957													
1958													
1959													
1960													
1961	-5	-3	22	39	55	79	100	55	17	14	5	-2	376
1962	0	-1	0	46	68	95	106	77	18	13	4	-3	423
1963	-2	-1	21	43	58	82	106	79	17	10	-1	-1	411
1964	-4	3	5	24	43	75	102	64	19	12	-1	-3	339
1965	-2	-1	2	51	59	97	122	86	27	11	-4	-4	444

Edmonton International Airport

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-3	0	41	65	101	114	83	25	14	-3	-4	431
1967	-4	-3	-2	55	59	99	111	90	11	18	-4	-5	425
1968	-4	-3	20	36	58	71	98	82	21	16	3	-5	393
1969	-2	-4	1	36	67	79	109	76	21	19	2	-5	399
1970	-4	0	2	50	56	86	114	66	14	15	-3	-2	394
1971	-1	-3	3	54	48	78	116	82	17	13	3	-1	409
1972	0	1	20	31	74	107	104	100	19	13	-4	-6	459
1973	-2	0	23	18	65	90	116	82	19	16	-3	-2	422
1974	-1	0	3	47	67	107	126	82	20	11	6	0	468
1975	-1	1	6	39	55	82	123	79	31	16	6	-3	434
1976	-1	1	21	34	54	87	114	93	30	13	4	-2	448
1977	-3	8	23	24	73	105	102	84	24	11	5	-2	454
1978	-2	-1	20	25	59	103	111	71	30	12	1	-1	428
1979	0	1	17	32	59	94	129	93	33	15	5	-3	475
1980	-2	-1	14	30	48	103	114	74	28	14	5	0	427
1981	-4	6	20	25	50	98	101	78	14	17	3	-3	405
1982	-1	-1	9	46	58	88	115	86	26	15	0	-1	440
1983	-2	2	1	34	50	77	120	85	19	14	-1	-1	398
1984	2	9	20	23	40	84	92	57	19	16	-1	-1	360
1985	-1	2	20	35	49	89	103	74	19	14	-1	-1	402
1986	2	-1	19	25	51	80	85	77	18	15	-1	-2	368
1987	2	8	19	26	58	90	91	61	20	10	4	-2	387
1988	-1	7	16	24	36	96	106	68	16	12	3	3	386
1989	4	4	16	40	54	97	125	76	25	15	3	0	459
1990	-1	3	21	39	68	88	110	65	15	13	4	0	425
1991	2	9	22	32	65	81	117	64	16	16	-1	-1	422
1992	-1	-1	18	28	47	86	108	63	16	14	2	-2	378
1993	-2	2	19	29	57	73	102	82	20	15	0	-5	392
1994	-3	-1	24	27	53	89	118	76	16	14	0	-3	410
1995	-2	4	22	36	77	100	96	72	23	15	1	-1	443
1996	0	3	18	45	54	82	110	88	20	17	1	0	438
1997	1	6	17	44	52	103	126	91	20	16	1	1	478
1998	0	0	16	47	75	97	117	81	16	16	4	0	469
1999	1	2	21	42	62	83	101	81	24	11	4	2	434
2000	1	4	20	31	62	92	132	85	22	14	6	1	470
2001	4	5	17	30	47	95	118	106	32	16	4	-1	473
2002	-4	5	4	50	36	62	75	58	16	16	2	1	321
2003	1	-1	18	36	47	77	110	72	16	12	-2	-1	385
2004	-1	1	18	22	59	92	124	85	31	18	3	-3	449
2005	-4	2	23	36	63	88	98	85	28	18	4	-5	436
2006	-8	9	3	28	71	80	127	92	33	21	-6	-6	444
2007	-4	-3	26	48	70	125	148	97	29	13	7	-6	550
2008	-4	1	32	57	35	100	118	70	24	11	2	-4	442
2009	-2	-2	5	36	48	62	100	76	12	16	2	-3	350
MEAN	-1	2	15	36	57	89	111	79	21	14	1	-2	422
MIN	-8	-4	-2	18	35	62	75	55	11	10	-6	-6	321
MAX	4	9	32	57	77	125	148	106	33	21	7	3	550
COUNT	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*

Edson

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
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1956													
1957													
1958													
1959													
1960													
1961													
1962													
1963													
1964													
1965													

Edson

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973	-3	-1	20	39	65	84	105	76	27	16	-3	-3	422
1974	-3	2	5	29	52	97	103	74	19	13	4	0	395
1975	-1	-1	7	35	62	81	105	63	27	15	1	-2	392
1976	0	4	21	38	56	83	95	71	22	13	3	2	408
1977	1	7	19	19	58	90	93	69	22	13	1	-2	390
1978	-3	-2	19	24	57	90	99	68	21	11	2	0	386
1979		-1	16	29	40	85	94	81	24	17	6	-3	
1980	-2	0	20	23	55	87	91	63	20	14	5	-2	374
1981	-3	9	17	16	60	81	82	72	19	15	2	-4	366
1982	-1	0	10	35	50	78	93	60	24	15	-2	-2	360
1983	-2	2	13	25	64	66	87	77	18	15	-3	-3	359
1984	3	9	18	17	39	71	89	56	22	13	-2	-1	334
1985				17	52	84	100	63	20	13	-2	1	
1986	2	1	18	24	48	82	71	69	34	14	-1	-3	359
1987	-2	6	19	18	62	72	80	60	16	8	4	1	344
1988	-1	9	16	22	40	76	65	55	18	12	3	-1	314
1989	-2	1	21	29	51	78	102	73	19	16	6	-1	393
1990	-2	5	15	25	47	69	100	59	17	14	-1	-1	347
1991	-1	8	18	23	57	70	96	55	16	14	2	1	359
1992	1	9	14	18	42	68	88	64	16	15	1	-2	334
1993	-2	10	18	32	53	69	78	64	24	17	6	-5	364
1994	-2	0	16	30	56	107	115	86	28	18	1	-7	448
1995	-7	4	22	38	79	110	101	75	31	15	-1	-1	466
1996	0	12	26	40	83	97	101	80	31	16	-1	-2	483
1997	-2	11	21	37	70	94	109	75	29	19	2	2	467
1998	-3	7	20	35	81	104	109	71	32	18	-4	-4	466
1999	-5	5	22	29	78	102	97	75	25	12	2	0	442
2000	-1	3	18	42	73	92	106	75	24	16	7	2	457
2001	2	2	17	36	58	100	116	76	24	14	2	-4	443
2002	-2	12	12	37	62	91	84	65	28	19	4	-8	404
2003	-6	-1	26	48	64	84	88	59	20	11	6	4	403
2004	2	10	17	35	72	102	113	77	26	16	2	0	472
2005	-4	13	14	16	78	107	100	74	18	13	4	-6	427
2006	-7	10	14	34	78	91	102	62	17	16	-2	-2	413
2007	5	-1	16	26	68	104	100	78	26	14	6	0	442
2008	2	13	18	38	71	103	101	71	30	12	3	-2	460
2009	3	2	26	41	74	90	114	82	26	17	5	-7	473
MEAN	-1	5	17	30	61	88	97	70	23	15	2	-2	405
MIN	-7	-2	5	16	39	66	65	55	16	8	-4	-8	314
MAX	5	13	26	48	83	110	116	86	34	19	7	4	483
COUNT	*35*	*36*	*36*	*37*	*37*	*37*	*37*	*37*	*37*	*37*	*37*	*37*	*35*

Fairview

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
1922													
1923													
1924													
1925													
1926													
1927													
1928													
1929													
1930													
1931										8	-2	-4	
1932	-3	-2	1	39	50	79	79	88	21	13	-3	-4	358
1933	-1	1	6	31	48	39	82	89	17		0	0	
1934	1	6		15	37	61	80	54	15	2	1	0	
1935		8	6	37	45	46	72	63	20	13	1	-1	
1936	-1	0	17	31	50	61	96	76	21	12	5	-1	367
1937	0	0	19	24	37	75	84	43	17	12	-1	-1	309
1938	-1	1	20	32	32	31	85	47	14	8	2	-1	270
1939	1	1	14	27	43	44	71	74	20				
1940					47	68	89	55	15	10			
1941					61	70	97	67	26	18			
1942					50	81	91	55	19				
1943					43	75	94	62	14				
1944					44	68	82	53	18	11			
1945					56	76	84	56	16				
1946				46	59	87	90	63	16	13			
1947				42	61		93	65	30	14			
1948					75	98	98	64	21	12			
1949				31	39	51	85	61	16				
1950					50	94	90	56	16				
1951				49	58	79	91	70	19	7			
1952				29	49	62	93	71	17				
1953				48	55	65	92	76	17	8	-5	-11	
1954					45	58	73	60	19	9	2	-5	
1955	-6	-3	-1	22	33	53	70	54		9	-1		
1956		-3			24								
1957		-1	12	28	41	54	72	74	14	14	3	-1	
1958	-2	1	6	31	47	63	70	32	15	4	0	-4	263
1959	-1	-2	19	18	49	58	69	47	15	12	-3	1	282
1960	-3	0	6	15	38	61	77	63	13	9	-2	-2	275
1961	-2	0	7	35	54	67	97	35	16	11	-2	-1	317
1962	-3	-3	2	27	41	47	85	44	12	9	-3		
1963	0	1	12	39	50	45	57	69	17	5	-1	-1	293
1964	-2	5	4	31	43	53	78	58	17	8	-1	-1	293
1965	0	-1	21	32	60	68	85	39	15	5	-2	-3	319

Fairview

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	0	-2	19	35	46	86	79	46	12	10	0	-3	328
1967	0	-1	0	51	48	59	64	47	16	10	-1	-2	291
1968	0	0	20	22	42	61	93	47	18	11	-4	0	310
1969	-1	-5	9	21	47	50	71	40	31	16	2	-5	276
1970	-1	0	14	29	41	61	77	52	14	8	0	0	295
1971	-1	5	20	33							0	-1	
1972	-1	0	13	37	43	67	89	69	17	11	-2	0	343
1973	-1	1	18	34	50	74	39	65	17	15	-2	0	310
1974	-1	1	4	31	50	83	89	65	16	7	2	0	347
1975	-1	2	14	37	47		91	59	15	11	0	0	
1976	2	3	17	22	41	61	91	67	15	8	0	1	328
1977	1	7	21	15	50	81	78	45	17	10	-1	1	325
1978	0	0		18	43	74	68	52	17	3	1		
1979						84	101	74	17			-3	
1980	-1	0	14	12	29	72	83	49	19		2	-3	
1981	-5	-2	18	23	41	74	83	29	12	10	3	-2	284
1982	0	-1	4	34	31	51	72	46	16	10	0	-4	259
1983	-2	-2	6	26	56	85	101	75	17	9	-4	-2	365
1984	-1	5	17	17	44	85	109	48	19	13	-3	-1	352
1985	-2	0		18	34	63	91	45	19	17	-2	-3	
1986	-3	-2	20	23	53	76	99	58	15	11	-3	-5	342
1987	-4	0	6	16	42	85	82	68	13	6	1	0	315
1988	-1	2	17	14	39	67	104	45	13	10	-1	0	309
1989	-2	2	6	26	38	83	86	60	17	11	1	0	328
1990	-2	1	16	20	37	93	101	43	13	14	-1	-2	333
1991	-1	2	19	17	55	83	92	41	17	13	-6	-4	328
1992													
1993													
1994	-4	-3	21	44	95	89	80	50	14	10	-1	-5	390
1995	-4	-3	8	38	95	96	81	60	18	13	-2	-5	395
1996	-4	-2	4	37	78	91	80	51	15	14	-3	-5	356
1997	-5	2	15	43	75	83	80	45	13	10	4	0	365
1998	-4	0	19	40	89	100	81	55	14	6	1	-5	396
1999	-5	-1	20	33	77	89	89	54	15	8	4	-2	381
2000													
2001													
2002	-4	2	20	36	44	74	91	60	22	13	-6	-12	340
2003	-78	-1	7	29	67	78	96	56	16	11	-4	-6	271
2004	-3	-2	20	27	57	79	102	66	19	14	-1	-6	372
2005	-5	3	18	21	60	94	95	59	16	11	2	-9	365
2006	-8	3	7	14	45	76	83	55	13	14	-3	-6	293
2007	-4	-2	10	28	58	90	94	68	22	9	-3	-7	363
2008	-5	-1	21	27	44	84	78	39	15	6	-4	-4	300
2009	-2	0	12	25	42	73	90	39	13	10	3	-4	301
MEAN	-3	0	13	29	50	71	85	57	17	10	-1	-3	324
MIN	-78	-5	-1	12	24	31	39	29	12	2	-6	-12	259
MAX	2	8	21	51	95	100	109	89	31	18	5	1	396
COUNT	*55*	*58*	*54*	*63*	*72*	*70*	*72*	*72*	*71*	*63*	*59*	*57*	*45*

Fort McMurray

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
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Fort McMurray

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971												-3	
1972	-2	-2	8	30	58	73	88	63	21	12	-4	-3	342
1973	-3	-2	17	23	45	72	91	57	15	15	-4	-3	323
1974	-2	-1	0	23	40	74	87	66	16	9	-4	-5	303
1975	-2	1	5	28	42	81	89	53	18	14	-2	-3	324
1976	-3	-2	8	14	38	68	80	59	13	11	3	-3	286
1977	-3	6	19	15	50	73	79	55	17	7	-3	-1	314
1978	-3	-3	20	19	37	60	72	49	21	8	-3	-1	276
1979	-2	-1	7	24	35	66	80	64	20	8	-1	-5	295
1980	-2	-2	9	10	38	62	75	42	20	7	1	-2	258
1981	-5	-1	16	25	36	62		49	13	14	3	-2	
1982	-1	-3	4	24	36	69	86	57	14	9	0	-2	293
1983	-1	1	17	16	42	52	77	56	16	9	-4	-1	280
1984	-1	4	17	13	25	64	69	50	15	12	-1	-2	265
1985	-1	0	14	16	43	71	80	51	15	15	-1	-2	301
1986	-1	0	15	16	40	65		59	16	10	-1	-2	
1987	-3	-1	10	14	39	64	72	57	13	8	0	-5	268
1988	-2	0	18	19	22	52	74	48	14	11	-4	-1	251
1989	0	2	8	21	36	62	88	52	17	10	-2	-1	293
1990	-2	1	15	18	51	73	73	48	15	10	-1	-1	300
1991	-1	4	19	15	29	55	76	40	13	10	-2	-2	256
1992	-3	1	13	16	28	61	75	52	18	10	-1	-2	268
1993	-2	4	12	16	41	53	70	52	15	11	0	-2	270
1994	-1	0	16	17	41	57	82	52	12	8	1	-2	283
1995	-6	0	19	15	43	41	61	52	12	15	-3	-4	245
1996	-1	0	21	34	34	66	113	87	28	11	-4	-3	386
1997	-1	-1	19	36	42	84	108	83	34	8	-9	-10	393
1998	-3	-8	19	17	61	67	81	42	17	9	-6	-4	292
1999	-2	2	17	17	51	72	77	51	16	11	1	-5	308
2000	-2	4	16	17	48	85	106	67	23	11	-7	-3	365
2001	-7	-1	19	24	52	64	76	92	23	14	1	-5	352
2002	-3	1	11	26	23	70	93	59	19	10	-6	-11	292
2003	-3	-1	21	14	45	64	88	57	28	16	-4	-7	318
2004	-2	-3	19	24	35	64	78	55	18	13	1	-4	298
2005	-1	-3	22	28	54	72	114	72	20	11	-1	-9	379
2006	-3	0	17	10	32	71	78	54	15	8	0	2	284
2007	-1	0	19	15	40	57	76	49	17	4	-2	-4	270
2008	-2	-1	20	27	29	65	76	47	19	8	-5	-1	282
2009	-1	0	17	24	48	52	76	44	18	11	3	-2	290
MEAN	-2	0	15	20	40	65	82	56	18	10	-2	-3	300
MIN	-7	-8	0	10	22	41	61	40	12	4	-9	-11	245
MAX	0	6	22	36	61	85	114	92	34	16	3	2	393
COUNT	*38*	*38*	*38*	*38*	*38*	*38*	*36*	*38*	*38*	*38*	*38*	*39*	*36*

Grande Prairie

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
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1964													
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Grande Prairie

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980	-1	-2	19	20	41	90	94	63	21	9	2	-1	355
1981	-4	-1	19	24	53	82	78	37	14	9	5	-3	313
1982	0	0	6	38	48	84	99	58	18	9	0	-1	359
1983	1	2	14	23	34	65	97	64	12	8	-4	-2	314
1984	1	8	16	17	32	71	80	45	16	14	-1	-1	298
1985	0	1	13	16	32	57	67	39	17	11	-1	3	255
1986	-1	-2	19	20	47	75	87	56	18	9	-1	-7	320
1987	-6	-2	5	18	37	69	64	45	11	6	1	-2	246
1988	-2	2	18	15	37	71	75	46	13	9	-3	-3	278
1989	-2	0	6	31	41	86	111	67	18	13	1	-2	370
1990	-1	0	18	25	52	85	97	43	13	15	-1	-2	344
1991	-3	2	20	26	64	84	99	68	16	13	-4	-2	383
1992	-4	-1	18	19	47	78	86	45	15	12	-1	-1	313
1993	-3	-2	18	27	50	79	88	66	15	13	4	-3	352
1994	-2	-1	19	30	51	81	109	83	17	14	-2	-3	396
1995	9	10	12	35	58	97	106	71	15	14	-3	-4	420
1996	-2	0	10	41	63	91	100	65	26	15	0	-2	407
1997	-2	2	20	27	48	71	98	75	19	14	-4	-2	366
1998	-3	-3	23	19	46	76	88	44	14	13	-5	-4	308
1999	-4	-3	30	38	38	79	72	38	12	8	2	0	310
2000	-2	0	18	23	29	55	78	47	15	13	0	-5	271
2001	-1	0	17	25	37	65	78	54	14	10	0	-4	295
2002	-2	5	6	28	44	60	56	44	23	15	1	-5	275
2003	-3	0	13	30	41	66	78	46	14	10	0	-2	293
2004	-2	4	16	12	38	71	98	67	19	15	2	-3	337
2005	-3	6	17	18	56	84	81	53	15	12	1	-7	333
2006	-8	1	6	18	42	83	75	40	14	14	-2	-7	276
2007	-4	-3	14	54	56	86	89	63	18	12	0	-5	380
2008	-4	0	25	27	45	71	71	47	18	10	0	-2	308
2009	-1	0	14	42	50	74	95	60	15	12	0	-2	359
MEAN	-2	1	16	26	45	76	86	55	16	12	0	-3	328
MIN	-8	-3	5	12	29	55	56	37	11	6	-5	-7	246
MAX	9	10	30	54	64	97	111	83	26	15	5	3	420
COUNT	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*

High Level

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
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1963													
1964													
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High Level

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972	-1	0	5	28	58	74	88	58	15	8	-4	-1	328
1973	-1	0	18	18	46	66	90	61	14	9	-2	-1	318
1974	-1	0	3	18	40	80	100	68	16	9	-3	-1	329
1975		0	3	21	29	23	84	53	18	10	-2	-1	
1976	0	0	8	14						8	0	0	
1977	0	2	19	15	55	92	83	56	16	6	-2	-1	341
1978	-1	-1	18	22	39	94	61	50	19	8	0	0	309
1979		0	8	22		79	97	65	20				
1980	-1	0	18	11	42	83	80	46	17	4	1	0	301
1981	-1	0	16	20	46	59	86	50	13	9	-3	-4	291
1982	0	0	7	16	35	74	64		16		-1	-1	
1983	-1	-1	3	21	36		78	59		9	-4		
1984	-1	0	19	14	34	68	80	47	16	9	-1	-1	284
1985	-1	0	17	16	36	63	75	45	16	9	0		
1986	-1	0	17	18	28	62	83	48	15	10	-1	-2	277
1987		0	3		36	76	95	61	15	12		-5	
1988	-1	0	8	18	58	63	80	63	16	11	-3	-1	312
1989	0	1	4	33	50	86	96	44	14	8	-1	-1	334
1990	-1	0	17	20	45		78	44	13	7	-1	-1	
1991	-1	0		20	44	75	69	47	14	10	-1	-1	
1992	-1	0	15				83	45	20	10	-10		
1993		0	15	17	35	59	80	62	16	12	-4	-4	
1994	-1	-1	17	26	57	90	87	68	16	11	-3	-2	365
1995	-4	-2	2	28	48	65	105	66	14	3	-4	-5	316
1996	-2	-3	2	30	58	89	103	77	21	4	-4	-4	371
1997	-2	-4	4	36	57	85	107	75	25	7	-7	-8	375
1998	-2	-4	19	20	72	98	93	60	18	9	-4	-4	375
1999	-2	-3	18	17	56	79	88	64	15	8	-3	-2	335
2000	-1	3	15	16	33	71	99	53	19	11	-6	-2	311
2001	-7	-1	18	16	45	81	85	60	16	8	-4	-4	313
2002	-2	2	6	27	44	72	70	41	14	9	-2	-9	272
2003	-2	-1	8	21	40	72	80	49	17	10	-6	-6	282
2004	-2	-3	20	21	50	82	89	47	16	10	-7	-2	321
2005	0	-2	20	17	49	93	93	64	19	9	-4	-6	352
2006	-4	0	19	16	58	94	92	66	16	11	-3	-7	358
2007	-5	-1	4	25	65	86	99	66	28	11	-6	-4	368
2008	-3	0	20	20	42	101	98	64	19	8	-6	-2	361
2009	-2	0	11	18	55	88	102	59	16	9	-7	-3	346
MEAN	-2	-1	12	20	46	77	87	57	17	9	-3	-3	328
MIN	-7	-4	2	11	28	23	61	41	13	3	-10	-9	272
MAX	0	3	20	36	72	101	107	77	28	12	1	0	375
COUNT	*34*	*38*	*37*	*36*	*35*	*34*	*37*	*36*	*36*	*36*	*36*	*34*	*27*

Jasper

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
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1961													
1962													
1963													
1964													
1965													

Jasper

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977	0	8	16	21	42	55	65	51	19	13	1	-2	289
1978	-2	4	17	31	50	68	72	44	24	13	4	0	325
1979	-2	-1	16	27	40	63	62	57	15	13	2	-2	290
1980	-2	3	7	15	40	66	61	38	15	13	5	0	261
1981	-3	7	16	21	44	53	59	46	16	14	8	-3	278
1982	-3	0	21	33	38	54	67	43	17	14	2	-3	283
1983	0	10	17	18	36	46	58	43	16	12	6	-2	260
1984	0	8	17	17	26	52	59	33	19	12	2	-2	243
1985				24	46	66	67	48	18	16	-2	-1	
1986	5	1	17	24	47	61	56	48	17	13	2	-2	289
1987	0	9	19	25			58	50	16	11	5	-2	
1988	-2	7	16	23	42	49	41	42	14	12	4	0	248
1989	-1	-2	19	27	35	51	67	47	17	16	7	-2	281
1990	0	3	15	27	41	57	75	49	20	16	3	-2	304
1991	0	9	19	28	57	47	75	24	15	13	7	4	298
1992	3	10	12	19	37	59	73	43	15	15	2	-3	285
1993	-3	2	18	19	46	55	54	44	15	13	4	-3	264
1994	-1	-1	16	16	43	51	55	45	11	13	4	-2	250
1995	-3	6	16	16	37	49	101	72	24	18	-2	-6	328
1996	-3	12	19	45	77	91	91	62	35	17	-1	-5	440
1997	-8	9	20	44	89	98	102	73	31	17	5	1	481
1998	-3	13	17	42	92	100	106	68	21	16	0	-4	468
1999	-6	12	17	37	76	91	86	75	24	15	-3	-6	418
2000	-3	14	16	42	78	78	106	71	25	18	-2	-7	436
2001	-6	2	18	42	70	100	101	71	22	16	2	-6	432
2002	-3	11	22	35	74	99	87	70	23	16	3	-5	432
2003	2	12	18	33	57	74	59	34	9	9	8	4	319
2004	4	11	18	41	82	106	107	80	34	18	4	-4	501
2005	-3	12	18	42	83	106	107	75	36	17	3	-6	490
2006	0	12	18	36	76	86	83	66	21	15	-2	-3	408
2007	-4	9	17	40	73	90	78	66	18	15	-2	-7	393
2008	-5	10	16	36	76	96	99	58	28	15	6	-5	430
2009	-3	11	18	38	80	84	100	58	15	18	3	-6	416
MEAN	-2	7	17	30	57	72	77	54	20	15	3	-3	350
MIN	-8	-2	7	15	26	46	41	24	9	9	-3	-7	243
MAX	5	14	22	45	92	106	107	80	36	18	8	4	501
COUNT	*32*	*32*	*32*	*33*	*32*	*32*	*33*	*33*	*33*	*33*	*33*	*33*	*31*

Lacombe

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
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1938													
1939			17	41	71	96	14	94	19	19	4		
1940	-4	-1	13	34		107		83	33	1			
1941	-1	-2	12	58	55	109	152	77	30	18	7	-1	514
1942	-3	-4	26	33	70	92	116	93	35	18	-6	-5	465
1943		-4	19	63	70	88	117	78	33	18	6	-3	
1944	-5	-4	3	41	68	100	114	88	24	12	-1	-5	435
1945	-4	-3		51	66	97	131	86	31	17	-5	-5	
1946	-6	-4	17	34	67	98	137	98	38	18	-3	-5	489
1947		-3		41	88	103	80	76	39	18	-7	-8	
1948			0	12	85	119	134	91	22	12	5		
1949		-2	26	26	62	88	99	104	22	18	0		
1950		-4	0	40	48	83	113	92	22	17	-5	-6	
1951	-3	-3	0	46	82	86	119	79	28	19	-2	-5	446
1952	-3	-5	-2	47	90	102	118	87	27	14	6	-4	477
1953	-4	-2	5	40	74	96	127	98	33	12	4	2	485
1954	-1	6	5	41	66	84	112	87	31	13	4	1	449
1955	-3	0	3	38	73	112	104	81	18	13	-2	-2	435
1956	-2	-2	5	44	74	73	123	88	32	16	4	0	455
1957	-1	-2	14	46	57	68	101	65	15	19	4	-1	385
1958	0	-2	1	32	58	92	110	56	16	9	6	-3	375
1959	-1	0	18	25	59	78	103	45	18	17	2	2	366
1960	-4	0	9	26	50	65	104	46	14	12	3	-3	322
1961	-2	1	23	25	60	79	79	49	16	14	7	-2	349
1962	-1	-2	13	34	57	73	98	61	16	11	4	-2	362
1963	-2	1	21	38	55	75	102	80	16	9	2	-5	392
1964	-2	8	10	27	41	67	93	45	18	12	3	-1	321
1965	0	0	5	43	49	75	99	61	23	9	-3	-4	357

Lacombe

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-2	22	39	59	83	104	67	17	14	-2	-5	394
1967	-3	-2	2	45	43	90	96	63	10	12	3		
1968	-3	2	17	25	49	61	88	64	18	12	4	-1	336
1969	-1	-2	17	31	50	72	107	78	19	17	6	-4	390
1970	-2	3	15	32	49	84	107	63	13	12	1	-1	376
1971	1	-1	11	47	50	77	64	51	25	11	5	0	341
1972	0	1	21	30	73	75	94	85	19	14	2	-1	413
1973	-1	0	24	9	43	2	99	74	17	2	-3	-3	263
1974	-1	1	4	38	51	87	102	63	19	12	5	0	381
1975	-3	-1	7	37	54	66	94	61	16	12	5	-1	347
1976	-1	4	21	23	37	64	83	57	24	11	3	-1	325
1977	-1	9	22	14	48	81	75	56	28	10	7	-1	348
1978	-1	-2	20	12	47	88	89	62	17	11	6	-1	348
1979	-1	1	18	31	44	61	87	62	14		-5	-2	
1980	-2	-1	10	29	35	92	119	73	18	12	5	0	390
1981	-7	6	20	17	57	90	96	82	16	17	4	-3	395
1982	0	1	9	37	44	81	104	71	19	14	1	-1	380
1983	0	4	20	33	53	64	108	72	14	13	3	-1	383
1984	0	8	22	28	33	79	95	67	19	16	-3	-2	362
1985	-5	1	24	44	56	95	94	78	22	15	-2	-1	421
1986	1	0	21	31	68	92	113	93	34	16	-1	-4	464
1987	0	4	18	36	64	94	110	74	25	11	1	0	437
1988	-1	8	19	26	40	95	101	74	17	13	5	-1	396
1989	-1	-2	3	48	72	104	126	68	23	14	3	-1	457
1990	-2	3	26	42	72	96	117	81	15	11	2	-1	462
1991	-6	9	-1	34	73	78	126	79	20	19	-2	-1	428
1992	3	4	17	21	48	84	96	58	13	12	6	0	362
1993	-5	-1	23	51	99	105	100	74	30	16	2	-2	492
1994	-4	0	20	34	68	103	113	71	29	15	5	-5	449
1995	-6	0	27	45	78	105	115	81	30	16	-3	-5	483
1996	0	3	10	35	56	93	120	88	24	18	0	0	447
1997	0	3	13	46	56	102	118	76	33	20	5	4	476
1998	0	0	21	32	61	81	114	79	23	19	-1	1	430
1999	0	4	16	30	51	71	92	73	20	13	2	1	373
2000	0	2	19	30	55	73	116	85	30	17	3	0	430
2001	1	3	17	17	16	90	121	93	26	15	3	-1	401
2002	-5	4	3	54	75	101	105	84	37	21	5	-6	478
2003	-5	-3	15	54	74	98	120	78	28	15	-4	-5	465
2004	-4	-1	25	40	81	106	127	93	43	19	5	-6	528
2005	-6	4	28	42	77	110	123	87	41	18	4	-5	523
2006	-6	4	5	42	76	99	126	89	41	19	-2	-3	490
2007	-2	-3	24	47	86	109	128	90	40	15	5	-6	533
2008	-5	-1	25	51	82	115	123	89	39	13	5	-6	530
2009	-2	-1	18	50	80	100	126	94	21	16	4	-5	501
MEAN	-2	1	15	36	61	87	107	76	24	14	2	-2	418
MIN	-7	-5	-2	9	16	2	14	45	10	1	-7	-8	263
MAX	3	9	28	63	99	119	152	104	43	21	7	4	533
COUNT	*65*	*69*	*69*	*71*	*70*	*71*	*70*	*71*	*71*	*70*	*70*	*66*	*61*

Lethbridge

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912	-5	-5	8	47	81	104	94	71	23	14	5	2	439
1913	-3	13	7	28	60	105	101	66	33	13		1	
1914	-4	-1	32	40	96	102	116	73	24	17	10	-4	501
1915	3	-2	30	35	77	86	114	83	17	13	8	5	469
1916	0	-1	27	41	70	76	103	66	32	19	-2	-5	426
1917	-4	-2	18	49	88	117	96	70	38	18	5	-3	490
1918	-4	-3	18	61	77	101	91	85	28	20	6	3	483
1919	4	-1	4	48	60	94	116	69	65	21	-4	-5	471
1920	-1	2	20	29	84	109	99	87	23	13	7	-1	471
1921	-2	-1	19	47	74	90	86	76	13	8	8	-2	416
1922	1	-2	5	46	83	89	102	67	22	15	6	-2	432
1923	1	3	18	45	79	94	108	78	25	18	6	4	479
1924	-3	10	19	43	77	80	94	68	38	18	-2	2	444
1925	1	-2	15	47	95	99	108	81	33	23	4	2	506
1926	5	10	30	42	61	98	102	70	40	17	0	0	475
1927	5	6	36	60	57	111	120	88	43	18	-2	-1	541
1928	-2	5	36	58	95	101	132	93	47	21	10	-3	593
1929	-3	-4	27	55	76	98	100	48	29	16	6	-1	447
1930	-1	13	23	54	65	104	131	76	20	18	9	2	514
1931	4	14	22	37	64	113	104	85	34	12	5	-4	490
1932	-3	4	18	30	74	87	108	67	32	16	7	3	443
1933	5	6	18	41	79	86	99	72	16	16	3	0	441
1934	4	16	11	37	56	84	86	46	19	13	7	2	381
1935	0	16	27	46	69	71	84	51	11	13	5	2	395
1936	-1	0	21	47	81	100	81	53	15	13	6	4	420
1937	1	4	19	37	55	89	97	65	15	13	9	4	408
1938	5	-2	26	44	77	100	117	87	32	16	7	4	513
1939	3	1	22	27	72	93	110	43	21	15	0	4	411
1940	3	3	22	50	83	107	101	61	37	15	2	3	487
1941	6	15	24	42	59	95	96	66	25	13	3	4	448
1942	3	0	22	33	65	81	110	79	23	10	4	-4	426
1943	-1	13	9	38	68	77	96	71	21	14	7	1	414
1944	5	1	21	40	87	94	103	70	18	10	6	4	459
1945	-4	2	19	40	81	94	107	67	20	12	-3	-4	431
1946	3	10	16	23	60	106	103	56	17	17	1	-4	408
1947	2	-2	3	43	74	95	100	68	25	15	0	3	426
1948	4	-5	5	52	72	94	116	74	14	10	6	-4	438
1949	-6	-5	14	27	74	100	90	64	14	19	0	-7	384
1950	-5	4	5	37	68	77	106	81	15	16	-2	2	404
1951	-6	-2	4	44	58	97	146	79	33	25	7	-5	480
1952	-7	9	20	23	79	93	105	77	15	10	7	4	435
1953	3	9	25	38	62	91	109	65	14	7	1	4	428
1954	-2	10	14	30	59	74	94	81	30	10	0	0	400
1955	2	3	27	25	58	100	101	61	14	10	1	-3	399
1956	-3	1	22	36	71	80	110	80	16	11	3	4	431
1957	-1	7	19	34	76	82	86	66	21	20	9	0	419
1958	1	2	8	37	78	93	104	60	13	7	8	5	416
1959	-3	3	17	37	67	83	95	53	18	14	8	0	392
1960	-3	6	23	26	52	82	75	57	12	8	6	4	348
1961	5	13	18	32	60	79	82	42	22	13	7	-1	372
1962	5	0	35	19	72	81	90	35	20	9	4	4	374
1963	0	10	15	25	52	62	106	77	13	8	4	2	374
1964	5	10	21	30	56	74	95	43	16	7	7	-1	363
1965	0	8	25	43	39	75	110	66	23	6	4	1	400

Lethbridge

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	7	16	30	63	86	120	72	13	10	7	4	427
1967	-1	12	22	38	66	98	90	65	7	8	8	0	413
1968	0	15	14	31	64	74	104	52	17	11	7	-2	387
1969	-2	-3	27	27	58	76	117	45	11	15	0	4	375
1970	-1	13	19	23	55	69	83	47	12	10	6	-2	334
1971	-2	12	28	32	81	85	94	45	13	13	8	-1	408
1972	-1	3	21	39	62	85	92	58	16	13	9	-2	395
1973	7	6	15	29	58	64	82	36	15	10	-5	-1	316
1974	-2	12	26	34	60	85	77	52	14	7	6	2	373
1975	1	0	22	35	54	79	109	56	19	12	7	5	399
1976	7	12	17	22	59	81	71	70	12	11	5	2	369
1977	-1	11	17	23	45	79	69	59	17	9	9	-1	336
1978	-4	-2	19	27	58	93	94	61	15	8	7	0	376
1979	-3	0	17	48	53	77	80	87	50	9	4	0	422
1980	3	10	19	24	50	100	86	53	12	9	1	7	374
1981	3	13	15	14	55	86	95	72	9	10	0	6	378
1982	0	2	24	37	45	90	99	61	13	10	7	5	393
1983	4	12	21	27	59	59	86	40	11	8	6	-2	331
1984	4	6	16	15	38	65	74	23	16	13	8	2	280
1985	7	12	14	17	47	73	76	52	16	10	1	4	329
1986	5	4	13	31	58	90	92	48	20	11	8	0	380
1987	0	11	18	21	55	74	98	71	12	6	2	2	370
1988	8	11	14	20	43	74	67	49	10	7	3	4	310
1989	7	1	22	31	51	89	97	46	14	10	4	5	377
1990	3	15	16	31	57	86	101	59	8	9	3	1	389
1991	7	9	22	28	65	75	109	54	12	10	5	0	396
1992	1	11	13	14	50	78	119	76	15	12	9	0	398
1993	-2	8	18	36	79	86	89	84	22	10	7	1	438
1994	4	1	14	26	72	96	109	61	10	13	7	3	416
1995	1	14	19	42	84	108	116	89	33	14	8	2	530
1996	2	15	21	25	50	80	109	40	16	14	3	2	377
1997	3	14	20	43	65	98	121	61	12	12	8	1	458
1998	3	14	23	40	83	95	122	63	14	11	10	6	484
1999	5	12	18	27	62	72	93	57	15	11	3	0	375
2000	4	15	18	30	38	73	77	59	24	13	10	1	362
2001	2	7	16	42	42	68	88	30	11	8	0	6	320
2002	5	11	6	45	66	114	95	70	18	16	0	0	446
2003	5	5	22	33	63	66	56	40	10	7	7	0	314
2004	6	14	15	41	79	114	113	82	22	12	4	3	505
2005	6	11	18	39	67	100	99	64	17	13	0	3	437
2006	0	12	36	39	62	95	104	51	12	14	8	0	433
2007	2	10	14	41	69	92	95	60	18	8	3	6	418
2008	9	16	16	44	52	97	121	58	31	8	0	-1	451
2009	9	18	34	48	79	103	127	60	8	15	0	-1	500
MEAN	1	6	19	36	66	89	99	63	20	13	5	1	418
MIN	-7	-5	3	14	38	59	56	23	7	6	-5	-7	280
MAX	9	18	36	61	96	117	146	93	65	25	10	7	593
COUNT	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*97*	*98*	*97*

Medicine Hat

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912	-4	0	1	53	74	110	103	65	27	17	7	3	456
1913	2	3	16	29	76	103	97	74	19	18	9	2	448
1914	0	0	25	44	74	88	98	60	15	21	10	-3	432
1915	-1	-2	29	38	65	103	119	87	33	15	8	-1	493
1916	-1	-1	18	14	74	94	128	104	42	22	4	-5	493
1917	-4	-2	3	51	82	103	106	81	38	20	6	-4	480
1918	-4	-3	34	52	69	103	103	83	27	15	5	-6	478
1919	2	-2	2	31	67	125	115	42	50	27	-5	-5	449
1920	-5	-4	4	51	85	95	117	65	17	17	5	-2	445
1921	-6	1	14	62	84	87	109	64	19	0	-1	-7	426
1922	-7	-2	6	56	77	93	98	68	20	15	2	-4	422
1923	-1	1	17	39	79	141	161	88	30	19	7	-4	577
1924	-4	9	13	37	75	90	93	77	32	18	-6	1	435
1925	-2	-4	9	43	93	99	108	71	34	22	-1	-1	471
1926	4	8	32	55	66	101	97	70	39	16	-2	-2	484
1927	2	3	32	62	64	110	138	91	47	17	-4	-1	561
1928	-4	2	27	58	83	101	135	90	36	21	9	-3	555
1929	-3	-3	28	47	75	91	97	57	22	15	7	-2	431
1930	-1	13	22	44	75	127	123				9	2	
1931	4	14	22	18	48	83	37	71	21	16	3	-2	335
1932	-2	3	6	19	43	60	71	47	22	16	9	2	296
1933	2	3	19	23	57	70	70	17	14	15	6	-1	295
1934	5		11	26	39	73	71	35	17	13	8	1	
1935	0	8	23	35	54	50	71	30	8	13	1	-2	291
1936	-1	0	22	41	68	74	66	34	14	12	7	4	341
1937	1	2	20	25	61	67	67	47	12	12	9	3	326
1938	4	2	16	23	54	78	96	71	29	15	8	1	397
1939	2	0	22	28	56	89	87	51	16	20	3	6	380
1940	-2	-1	25	45	73	101	94	47	17	16	-1	-2	412
1941	2	5	18	53	65	100	124	57	30	15	6	3	478
1942	4	-1	15	32	43	71	100	70	18	12	3	-3	364
1943	-5	-6	3	17	49	65	69	39	11	10	6	3	261
1944	2	1	11	20	44	74	82	47	16	10	-2	-4	301
1945	-5	-2	20	33	65	108	77	48	20	15	-1	-5	373
1946	-5	-2	16	17	56			64	17	19	-1	-7	
1947	-3	-4	3	38	67	76	87	65	18	12	-2	-6	351
1948	1	-3	2	44	76	14	63	51	13	10	8	-4	275
1949	-4	-1	22	3	55	85	76	38	10	15	0	-5	294
1950	-4	-4	18	28	52	64	81	69	13	16	4	-2	335
1951	-5	-4	0	45	68	91	125	57	21	21	7	-3	423
1952	-5	-3	4	31	76	93	98	60	12	7	5	-3	375
1953	-2	9	20	30	53	94	98	41	10		0	3	
1954	-2	9	21	26	45	63	76	52	16	7	0	0	313
1955	-2	-1	20	17	47	92	91	47	10	8	3	-1	331
1956	-3	-2	22	24	53	74	95	56	11	9	3	5	347
1957	-2	0	18	36	60	76	60	50	11	16	7	0	332
1958	3	0	15	17	49	58	74	28	10	7	7	0	268
1959	-1	-2	17	20	53	59	67	38	12	13	7	0	283
1960	-2	1	21	13	31	63	57	36	9	6	8	-1	242
1961	5	12	15	20	28	6	55	8	10	9	6	0	174
1962	0	-1	16	15	40	69	80	14	10	7	0	5	255
1963	-1	10	12	13	37	49	85	46	8	4	3	1	267
1964	-1	10	19	23	30	44	68	15	14	8	6	-2	234
1965	-2	0	11	31	37	68	78	26	41	6	3	6	305

Medicine Hat

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	-1	18	23	42	80	92	44	9	10	1	1	318
1967	0	1	19	49	52	92	73	36	6	10	6	-1	343
1968	-1	12	13	23	57	59	91	35	14	10	7	-1	319
1969	-2	-2	11	17	52	60	82	25	8	16	3	2	272
1970	-2	2	23	41	27	59	85	30	10	11	3	-1	288
1971	1	5	22	25	62	54	78	22	11	11	6	-2	295
1972	0	1	19	26	58	66	45	44	15	11	9	0	294
1973	7	9	13	28	48	54	70	22	12	7	-1	3	272
1974	1	12	21	25	66	55	66	49	11	5	4	2	317
1975	2	-2	21	38	64	74	84	54	13	10	6	1	365
1976	3	11	19	21	49	65	78	46	8	9	5	3	317
1977	-1	14	13	12	34	93	60	40	14	8	7	-3	291
1978	-1	-1	24	19	56	98	83	52	13	10	7	-2	358
1979	-2	0	19	29	48	82	77	38	8			2	
1980	-1	3	2	11	43	89	90	50	12	11	4	3	317
1981	5		17	17	59	91	87	32	7	12	3	-2	
1982	0	0	27	32	55	97	103	51	11	14	6	1	397
1983	0	8	21	32	58	65	92	31	10	8	9	-2	332
1984	0	11	19	17	49	80	59	20	15	14	-2	-1	281
1985	-3	0	21	32	60	82	56	47	16	12	-2	-2	319
1986	4	2	18	31	69	85	101	25	20	15	5	3	378
1987	5	13	19	22	59	68	84	65	13	7	6	4	365
1988	4	14	14	13	32	65	61	50	10	7	3	6	279
1989	3	2	21	22	41	80	58	31	14	8	7	1	288
1990	4	15	19	25	65	88	76	41	6	8	6	-1	352
1991	-2	10	21	21	71	81	109	47	10	11	9	1	389
1992	3	13	11	14	41	66	88	52	12	10	9	-1	318
1993	-3	4	19	37	51	83	94	78	18	12	8	2	403
1994	-3	0	16	18	57	90	87	37	8	13	7	5	335
1995	-2	13	15	27	62	82	80	51	12	12	6	-4	354
1996	2	14	19	28	58	87	104	42	24	15	2	0	395
1997	-1	6	23	38	70	92	94	55	11	11	7	1	407
1998	2	10	18	21	63	56	89	34	9	9	3	6	320
1999	2	9	19	31	74	92	103	67	15	10	2	2	426
2000	0	7	17	29	65	87	74	40	13	11	8	1	352
2001	6	6	12	13	40	80	76	18	9	11	2	-1	272
2002	1	14	3	32	53	84	82	66	20	18	4	3	380
2003	2	3	19	38	56	84	69	13	12	8	2	4	310
2004	-2	6	15	22	59	73	74	65	17	14	4	5	352
2005	3	11	15	24	52	100	80	50	16	13	5	1	370
2006	4	12	25	24	58	87	67	19	11	15	9	3	334
2007	6	0	16	39	63	88	54	29	13	9	4	-4	317
2008	0	-1	20	35	65	85	80	31	16	8	2	-4	337
2009	-2	0	29	24	58	74	76	53	6	17	2	-4	333
MEAN	0	3	17	30	58	81	86	49	17	13	4	0	357
MIN	-7	-6	0	3	27	6	37	8	6	0	-6	-7	174
MAX	7	15	34	62	93	141	161	104	50	27	10	6	577
COUNT	*98*	*96*	*98*	*98*	*98*	*97*	*97*	*97*	*97*	*95*	*97*	*98*	*92*

Peace River

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
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1953													
1954													
1955													
1956													
1957													
1958													
1959	-2	-3	20	25	54	70	81	54	17	14	-4	-1	325
1960	-4	-3	2	21	36	63	87	61	17	12	-3	-5	284
1961	-4	-2	7	35	52	64	96	49	16	11	-2	-3	319
1962	-3	-3	1	29	56	62	98	57	19	12	-4	-5	319
1963	-3	-3	4	43	56	56	71	82	20	9	-4	-4	327
1964	-5	3	0	33	51	59	84	69	19	10	-2	-2	319
1965	-3	-2	6	32	58	72	82	50	19	8	-3	-3	316

Peace River

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-3	-2	13	38	35	64	82	52	15	10	-3	-5	296
1967	-3	-2	1	47	47	60	70	48	13	12	-2	-4	287
1968	-4	-4	20	25	49	60	84	57	18	11	-6	-3	307
1969	-2	-4	8	29	53	49	79	45	32	13	-1	-5	296
1970	-3	0	5	29	38	59	71	54	15	12	-3	-3	274
1971	-2	-4	6	33							-4	-3	
1972	-2	-2	4	40	45	65	87	71	17	12	-4	-3	330
1973	-3	-1	18	38	47	71	89	73	19	16	-3	-4	360
1974	-1	0	2	32	48	76	88	74	19	10	1	-4	345
1975	-3	-1	3	36	46		91	61	23	13	-2	-3	
1976	-3	-1	8	23	40	61	90	70	18	10	3	-2	317
1977	-2	5	21	18	48	80	82	52	19	12	-3	-4	328
1978	-3	-2		19	42	66	87	58	25	6	0	-5	
1979						80	96	73	18	2	1	-2	
1980	-2	-1	8	13	26	70	82	48	19	7	1	-3	268
1981	-4	-2	19	22	38	69	80	28	13	10	2	-4	271
1982	-2	-1	2	33	30	48	70	46	17	11	0	-4	250
1983	-2			25	55	83	99	73	17	9	-4	-1	
1984	-1	3	17	16	43	83	107	47	19	14	-3	-1	344
1985				17	31	62	90	44	19	15	-2	-3	
1986	-3	-2	20	22	51	74	98	57	15	11	-3	-5	335
1987	-4	0	5	15	40	84	80	67	13	6	1	-1	306
1988	-1	1	17	14	38	66	104	44	13	11	-1	0	306
1989	-2	1	7	26	37	81	85	59	17	11	-2	0	320
1990	-2	1	17	20	36	91	100	42	12	13	-1	-2	327
1991	-3	0	20	21	56	89	101	59	21	16	-7	-6	367
1992	-8	-2	17	27	54	97	102	54	19	12	-2	-3	367
1993	-4	0	15	30	53	80	95	77	18	13	-2	-7	368
1994	-2	-1	18	20	54	74	97	68	16	12	-4	-6	346
1995	-6	-1	19	29	49	77	92	64	12	13	-3	-4	341
1996	-2	-1	11	34	51	84	99	69	22	13	-2	-3	375
1997	-3	-1	11	32	59	80	99	67	18	12	2	-6	370
1998	-2	2	16	14	41	68	60	19	9	6	0	-2	231
1999	-1	3	16	16	44	65	71	30	12	8	-2	-3	259
2000	-2	1	17	19	47	75	83	64	18	11	-2	-4	327
2001	1	2	15	16	33	69	95	61	15	11	-2	-4	312
2002	-3	8	16	22	36	67	74	44	18	15	-2	-8	287
2003	-3	-2	6	30	40	71	89	51	16	11	-4	-5	300
2004	-2	4	19	25	59	71	97	56	14	12	-2	-4	349
2005	-3	0	18	16	56	60	88	48	15	9	2	-8	301
2006	-7	4	20	14	40	86	86	51	15	13	-2	-4	316
2007	2	-2	15	23	64	87	98	65	26	9	-3	-6	378
2008	-4	0	21	27	39	82	81	42	19	9	-5	-2	309
2009	-1	2	14	19	51	78	102	59	17	13	2	-3	353
MEAN	-3	0	12	26	46	72	88	56	17	11	-2	-4	318
MIN	-8	-4	0	13	26	48	60	19	9	2	-7	-8	231
MAX	2	8	21	47	64	97	107	82	32	16	3	0	378
COUNT	*49*	*48*	*47*	*50*	*49*	*49*	*50*	*50*	*50*	*50*	*51*	*51*	*45*

Slave Lake

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
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1961													
1962													
1963													
1964													
1965													

Slave Lake

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968						87	98	78	20	12	-1	-3	
1969	-2	-4	21	38	72	107	97	63	28	14	1	-4	431
1970	-2	4	8	41	69	96	107	78	22	16	-3	-4	432
1971	-3	0	14	43	72	97	119	90	20	13		-3	
1972	-2	-1	4	33	75	83	109	89	22	13	-3	-3	419
1973	-3	-1	21	36	63	92	105	80	24	15	-5	-5	422
1974	-2	-1	1	41	66	93	103	73	23	10	2	-4	405
1975	-1	-2	3	39	63	86	109	62	29	12	2	-2	400
1976	-2	1	12	35	59	87	92	68	27	13	2	-4	390
1977	-4	7	21	30	64	105	94	70	23	10	-2	-1	417
1978	-3	-4	21	24	73	97	105	65	31	9	2	-4	416
1979	-3	-1	22	44	61	97	114	81	22	13	1	-3	448
1980	-3	-2	11	25	61	85	96	59	27	11	3	-3	370
1981	-6	-2	20	33	59	90	93	76	18	13	5	-4	395
1982	-1	-2		43	62	85	101	59	21	13	-1	-3	
1983	-3	1	17	31	50	80	86	84	18	11	-3	-3	369
1984	0	7	18	24	45	88	100	67	19	16	-3	-2	379
1985	-4	-2	17	28	59	84	105	67	18	11	-3	-2	378
1986	-3	-2	16	26	59	88	88	79	18	14	-2	-4	377
1987	-4	0	6	24	67	83	94	58	17	8	2	-3	352
1988	-1	3	19	27	55	80	75	63	16	14	-1	-3	347
1989	-2	-2	5	40	60	97	114	67	18	12	-1	-3	405
1990	-3	-1	20	38	60	92	59	31	15	18	-10	-8	311
1991	-2	3	20	23	63	80	97	62	18	15	-4	-4	371
1992	-3	0	19	24	60	90	96	62	18	13	-1	-2	376
1993	-4	1	18	43	93	100	84	57	18	13	3	-2	424
1994	-2	-2	18	47	85	90	106	70	21	13	-3	-6	437
1995	-6	-2	21	37	68	92	100	66	18	14	-1	-8	399
1996	-2	0	14	36	61	88	101	78	27	14	0	-3	414
1997	0	7	19	30	71	91	95	77	27	13	1	-3	428
1998	-3	-5	21	32	83	101	102	58	23	11	-3	-4	416
1999	-3	-1	18	28	62	78	98	67	21	8	2	-4	374
2000	-3	1	16	20	53	71	88	64	20	8	5	-2	341
2001	3	5	15	16	48	78	84	58	16	12	1	-7	329
2002	-4	6	6	35	40	84	76	66	21	15	1	-8	338
2003	-4	-3	14	35	62	92	98	61	17	14	-5	-6	375
2004	-3	1	20	32	58	91	109	76	22	14	0	-4	416
2005	-3	-1	19	29	71	106	102	71	25	14	2	-5	430
2006	-5	4	13	24	69	92	102	73	18	14	-2	-5	397
2007	-4	-2	21	29	67	91	96	68	25	9	3	-4	399
2008	-4	-2	24	37	63	97	96	67	32	8	0	-3	415
2009	-2	-1	20	28	64	94	117	79	29	12	0	-3	437
MEAN	-3	0	16	32	64	90	98	69	22	13	0	-4	394
MIN	-6	-5	1	16	40	71	59	31	15	8	-10	-8	311
MAX	3	7	24	47	93	107	119	90	32	18	5	-1	448
COUNT	*41*	*41*	*40*	*41*	*41*	*42*	*42*	*42*	*42*	*42*	*41*	*42*	*39*

Suffield

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
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1946													
1947													
1948													
1949													
1950													
1951													
1952													
1953	-3	-3	19	38	75	112	116	77	15	7	3	0	456
1954	0	2	3	36	64	33	101	80	33	11	4	4	371
1955	-3	-4	1	30	56	87	122	49	13		-1		
1956	-5	-3	5	30	65	72	96	63	13	10	5	1	352
1957	-3	-2	27	40	73	60	64	64	13	19	6	2	363
1958	5	-3	3	26	61	49	76	33	12	7	6	-2	273
1959	-3	-4	22	26	62	75	75	50	14	14	0	3	334
1960	-3	-1	25	16	45	73	64	44	10	7	4	-5	279
1961	-1	0	17	29	53	54	59	8	9	10	7	-4	241
1962	-3	-2	9	22	62	79	98	36	13	8	1	4	327
1963	-2	5	12	14	72	54	77	63	2	2	4	6	309
1964	-1	11	22	27	40	58	72	18	14	8	6	-3	272
1965	-4	-2	15	36	43	70	87	24	48	5		5	

Suffield

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-4	23	32	56	86	103	51	10	11	3	-4	365
1967	-2	-3	10	50	68	98	80	43	5	10	6	-3	362
1968	-2	9	14	29	57	67	90	40	15	9	7	-3	332
1969	-2	-3	1	18	55	65	86	28	9	16	4	-3	274
1970	-4	-1	10	30	56	66	93	30	10	10	1	-2	299
1971	-2	-3	1	30	67	46	81	30	12	12	7	-3	278
1972	-1	-2	30	29	59	82	76	53	14	12	8	-2	358
1973	6	0	15	30	48	69	69	29	13	8	-4	-3	280
1974	-2	-3	5	30	58	74	61	31	11	6	4	4	279
1975	-4	-3	2	43	58	80	86	55	14	11	5	-4	343
1976	-3	12	20	25	44	60	70	49	8	10	5	-2	298
1977	-5	14	14	12	31	66	30	35	13	9	9	-5	223
1978		-1	6	25	62	93	74	52	16	10	5	-4	
1979	-2	0	18	25		77	77	38	8		-6	4	
1980	-1	2	2	11	26	77	76	40	12	11	4	3	263
1981	5	11	17	13	44	75	71	28	7	12	2	-3	282
1982	0	1	24	30	51	80	94	46	11	13	5		
1983	-1	8	21	33	59	51	80	28	10	8	9	-1	305
1984	-1	10	19	15	34	63	49	17	14	14	-2	-1	231
1985					53	72	40	33	17	11	-2	-2	
1986	5	1		19	51	82	92	17	20	14	4	3	
1987	5	14	20	21	53	59	75	58	13	7	5	4	334
1988	3	13		13	24	61	53	40	10	7	4	6	
1989	2	2	21	20	39	71	53	23	14	8	7	1	261
1990	0	13	19	25	59	78	69	35	6	8	6	0	318
1991	-2	10	21	18	70	70	100			11	8	2	
1992	3	13	12	14	36	56	87	43	12	10	7	-1	292
1993	-2	6	16	36	69	72	56	36	12	10	6	2	319
1994	-1	-1	13	19	52	75	65	32	5	13	3	5	280
1995	-4	13	16	31	62	70	78	50	11	12	4	-4	339
1996	-3	13	18	27	68	75	87	19	22	12	-3	-8	327
1997	-2	10	25	24	43	77	67	43	10	9	6	3	315
1998	-3	12	28	26	64	89	91	10	10	9	6	3	345
1999	-5	14	17	30	60	93	86	46	9	8	0	2	360
2000	-3	5	16	36	50	82	71	21	11	11	9	-3	306
2001	6	-1	16	34	34	83	79	5	11	22	0	-1	288
2002	3	11	4	29	53	74	82	70	20	20	1	0	367
2003	4	3	18	39	78	99	83	30	13	11	-3	-1	374
2004	-2	1	15	40	88	91	97	73	21	14	0	2	440
2005	-4	12	17	29	67	92	94	60	14	13	4	-1	397
2006	6	8	25	26	70	102	86	38	18	17	7	0	403
2007	7	-1	19	42	86	93	65	44	21	10	7	-2	391
2008	-2	-2	20	42	57	82	78	19	15	7	1	-1	316
2009	-2	0	17	20	33	53	67	44	6	18	0	-3	253
MEAN	-1	4	15	28	56	74	78	40	13	11	4	0	320
MIN	-5	-4	1	11	24	33	30	5	2	2	-6	-8	223
MAX	7	14	30	50	88	112	122	80	48	22	9	6	456
COUNT	*55*	*56*	*54*	*56*	*56*	*57*	*57*	*56*	*56*	*55*	*56*	*55*	*48*

Vauxhall

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
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1949													
1950													
1951													
1952													
1953													
1954				17	34	55	81	72	19	9	0	0	
1955	0	1	23	18	51	97	98	57	12	9	0	-1	365
1956	-3	1	18	28	63	72	111	76	15	11	3		
1957	-1	5	16	34	74	82	81	60	15	19	7	0	392
1958	3	2	4	34	78	89	105	54	11	7	8	4	399
1959	-2	1	16	34	71	75	87	49	16	13	7	0	367
1960	-2	4	20	19	46	79	71	49	10	8	6	3	313
1961	5	12	17	23	61	82	84	37	16	12	6	0	355
1962	4	0	25	13	63	74	85	27	15	9	2	4	321
1963	1	11	13	20	47	54	106	73	11	8	4	2	350
1964	3	10	19	26	48	68	90	38	15	7	7	-1	330
1965	-1	5	22	38	36	76	109	58	22	5	3	1	374

Vauxhall

Areal Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	4	17	31	61	72	112	58	12	10	5	-1	380
1967	-1	10	22	47	59	93	79	56	6	8	6	-2	383
1968	-1	12	14	29	55	64	93	48	16	10	6	-2	344
1969		-3	25	23	50	80	104	35	9	16	1	5	
1970				21	49	59	74	33	11				
1971				26	74	71	77	34	12				
1972				36	59	71	83	52	15				
1973				26	48	54	67	27	14				
1974				29	55	71	69	47	13				
1975				38	52	73	98	48	15				
1976				19	49	60	61	57	10	11			
1977				17	35	62	54	49	15	8			
1978				27	52	78	86	49	13	8			
1979				41	48	67	74	79	46	9			
1980				19	45	86	71	47	12	9			
1981					52	63	79	43	8	12			
1982													
1983				26	53	54	80	34	10	8	6	-1	
1984	7	6	16	15	31	61	64	16	15	13	7	2	253
1985	4	8	15	16	46	74	68	58	17	10	0	6	322
1986	3	2	13	19	55	83	72	35	20	10	7	0	319
1987	1	6	17	12	41	55	87	64	11	7	2	2	305
1988	6	11	13	14	28	65	59	40	9	7	2	6	260
1989	5	1	20	26	44	81	83	39	12	9	2	7	329
1990	2	14	15	26	52	79	94	53	8	9	6	0	358
1991	-4	12	34	45	60	77	104	56	16	17	8	4	429
1992	3	16	22	38	79	66	72	60	16	14	7	-4	389
1993	-6	-2	20	44	79	72	60	52	17	14	7	4	361
1994	-2	-3	19	20	50	95	86	31	8	14	6	5	329
1995	-5	13	19	31	57	67	100	60	14	14	4	-5	369
1996	-1	6	25	33	58	52	86	30	18	14	-2	-4	315
1997	-3	5	33	40	47	89	95	51	10	12	8	0	387
1998	-5	15	21	41	69	99	117	62	18	14	7	-1	457
1999	-4	12	19	26	60	108	102	82	16	12	4	1	438
2000	-3	-3	24	28	40	88	75	37	18	15	5	-4	320
2001	3	-2	24	45	35	75	78	39	12	12	2	-6	317
2002	-2	13	0	51	72	131	131	89	32	26	8	0	551
2003	-2	-3	24	56	92	110	108	77	20	13	-6	-3	486
2004	-7	-9	36	55	103	148	164	116	53	22	10	-8	683
2005	-8	13	20	33	62	110	104	65	18	15	5	3	440
2006	5	16	19	45	75	112	118	62	16	18	8	0	494
2007	7	1	16	41	70	105	102	65	22	10	4	-4	439
2008	0	3	18	44	56	110	123	60	48	11	5	-3	475
2009	-1	0	40	33	58	83	107	61	9	17	1	-4	404
MEAN	0	6	20	30	56	80	90	53	16	12	5	0	382
MIN	-8	-9	0	12	28	52	54	16	6	5	-6	-8	253
MAX	7	16	40	56	103	148	164	116	53	26	10	7	683
COUNT	*40*	*41*	*41*	*54*	*55*	*55*	*55*	*55*	*55*	*49*	*43*	*42*	*39*

Beaverlodge

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
1922													
1923													
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1925													
1926													
1927													
1928													
1929													
1930													
1931													
1932													
1933													
1934													
1935													
1936	-1	-1	22	65	143	135	143	119	57	21	7	0	710
1937	-1	2	23	71	138	167	169	111	77	20	2	0	779
1938	-2	-1	34	83	146	152	143	117	90	19	2	0	783
1939	1	1	25	87	129	142	158	150	63				
1940	8	14			87	73	145	82	100	17			
1941					116	140	164	96	34	20			
1942					139	142	156	140	77				
1943					113	129	165	121	100				
1944			22	102	141		172	128	75	28	-7		
1945		-3		51			168	157		19	-6	-9	
1946	-4	-2	28	77	138	122	152	143	73	18	-5	-8	732
1947	-5	-5	4		139	124	126	77	56	20	-3	-5	
1948	-3	-7	2	8	138	189	128	87	68	24	-1	-7	626
1949	-6	-5	2	80	108	121	131	102	76	13	3	-7	618
1950		-7	-2	31	119	169	148	96	83	18	-7		
1951		-5	-4	54	98	121	111	81	55	6			
1952				60	134	118	136	97	66	21	0		
1953					118	96	109	109	63	22			
1954		1	6	40	122	137	160	88	61	23	3	0	
1955	1	0	7	76	138	198	152	158	85	25	-2	-1	837
1956	0	2	21	57	126	134	184	144	70	22	14	-1	773
1957	-1	5	36	81	138	147	137	114	95	18	5	3	778
1958	3	1	9	72	185	165	201	168	64	28	5	0	901
1959	-1	4	34	85	144	145	204	114	61	18	1	2	811
1960	-1	2	8	110	123	134	203	137	93	22	1	-1	831
1961	1	2	22	98	140	170	163	183	63	21	1	-1	863
1962	6	-1	21	88	127	178	158	107	75	24	3	-1	785
1963	-2	3	12	76	145	183	156	149	74	27	-2	1	822
1964	0	8	6	81	115	144	136	97	55	29	0	-1	670
1965	0	1	35	64	143	171	161	133	48	28	-3	-1	780

Beaverlodge

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	4	31	61	154	154	137	123	82	25	-1	0	769
1967	-1	3	1	63	142	172	191	175	91	19	3	-1	858
1968	-1	7	27	83	136	150	159	115	60	20	4	-2	758
1969	0	1	28	81	164	164	172	138	48	20	5	0	821
1970	-1	4	21	82	143	180	189	170	77	29	-2	-1	891
1971	-2	9	18	83							1	-3	
1972	0	-1	13	68	185	150	141	135	49	21	-2	0	759
1973	0	2	35	77	166	154	176	143	79	18	-2	0	848
1974	-1	2	3	80	110	201	146	122	70	28	7	1	769
1975	-2	0	7	76	153		186	119	100	17	-1	-2	
1976	3	3	25	104	151	110	154	95	90	25	9	1	770
1977	0	11	25	120	125	167	129	112	63	25	0	1	778
1978	0	1	30	67	137	165	198	131	54	32	4	-1	818
1979	-4	-1	36	60	127	168	168	155	83	29	9	-2	828
1980	-1	-1	22	131	161	154	169	121	56	31	6	-1	848
1981	-6	0	40	75	157	170	196	217	89	22	3	-3	960
1982	0	0	8	73	149	209	149	93	77	28	1	-1	786
1983	0	2	18	101	172	144	149	173	74	27	-4	-1	855
1984	1	9	41	107	130	160	202	151	53	16	-1	-1	868
1985	2	1	30	106	190	183	229	147	52	18	0	4	962
1986	2	-2	27	78	140	186	144	179	53	26	0	-7	826
1987	-4	-2	6	121	185	198	174	120	98	35	2	1	934
1988	-1	2	36	119	171	104	170	149	87	30	-3	-2	862
1989	-2	0	6	119	163	180	163	97	72	19	1	-2	816
1990	-1	1	46	88	135	169	196	164	105	15	-1	-2	915
1991	-3	4	26	113	170	144		138	86	18	-4	-2	
1992	-4	0	49	95	149	178	171	171	49	21	0	-2	877
1993	-4	-2	38	92	160	160	122	120	91	26	4	-2	805
1994	-3	-1	43	99	159	161	164	129	75	20	-2	-4	840
1995	-3	2	32	83	163	181	178	142	112	27	0	-4	913
1996	-3	4	15	88	122	165	182	160	70	30	3	-1	835
1997	2	14	32	105	183	138	139	107	70	15	0	-1	804
1998	-4	-2	35	118	182	154	180	188	93	19	-3	-5	955
1999	-5	1	44	97	137	158	174	164	85	31	3	2	891
2000	-2	6	40	105	115	156	180	131	74	25	7	-4	833
2001	4	3	44	93	159	149	161	142	92	27	-1	-5	868
2002	-4	7	5	57	137	204	189	146	69	17	5	-4	828
2003	-3	0	20	71	154	182	203	143	78	27	0	-4	871
2004	-3	7	40	91	146	176	155	114	60	18	5	-3	806
2005	-5	10	35	114	162	132	150	122	80	24	7	-7	824
2006	-6	8	20	135	171	208	202	185	87	24	-3	-3	1028
2007	2	-3	32	84	144	177	206	104	79	24	2	-5	846
2008	-4	4	47	89	154	194	213	155	88	30	1	-2	969
2009	0	4	30	94	156	215	177	169	99	14	4	-3	959
MEAN	-1	2	24	84	144	158	165	133	74	23	1	-2	830
MIN	-6	-7	-4	8	87	73	109	77	34	6	-7	-9	618
MAX	8	14	49	135	190	215	229	217	112	35	14	4	1028
COUNT	*64*	*68*	*67*	*68*	*72*	*70*	*72*	*73*	*72*	*70*	*67*	*64*	*58*

Brooks

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
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1952													
1953						159	200	221	107	65	22	4	
1954	-2	16	16	60	162	159	242	157	93	56	22	6	987
1955	-3	0	16	93	135	209	190	229	105	47	2	0	1023
1956	-2	-1	18	101	165	197	206	188	108	44	17	3	1044
1957	-2	0	45	106	194	172	238	168	110	28	10	8	1077
1958	7	0	8	100	219	195	217	229	113	53	8	1	1150
1959	-1	-2	48	118	153	203	256	194	89	30	6	6	1100
1960	0	2	34	119	166	202	281	196	127	46	7	0	1180
1961	4	10	46	104	160	277	240	251	103	40	10	-1	1244
1962	0	-1	12	130	157	204	210	202	115	48	18	5	1100
1963	-2	10	51	113	182	176	234	211	128	59	14	2	1178
1964	-1	17	31	95	170	188	258	207	73	54	9	-1	1100
1965	-1	-1	9	86	160	174	241	215	40	54	2	7	986

Brooks

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	-2	55	94	189								
1967		0	4	58	134	167		205	156	43	8	-1	
1968	0	10	60	102	157	172	203	144	96	37	8	-4	985
1969	-2	-1	1	108	176	179	212	226	109	25	14	0	1047
1970	-3	0	9	79	166	194	200	209	106	36	-2	-3	991
1971	-3	-1	6	96	175	178	213	228	98	36	6	-3	1029
1972	-2	-2	22	112	160	195	173	197	81	24	2	-3	959
1973	-2	-2	54	74	180	183	235	175	104	38	-4	-4	1031
1974	-3	-3	6	84	122	217	224	146	106	55	9	0	963
1975	-2	-2	5	43	128	177	198	150	90	32	10	-3	826
1976	-2	10	35	106	197	162	206	188	134	41	9	0	1086
1977	-3	14	50	150	158	213	207	142	72	47	8	-3	1055
1978	-3	-3	9	60	133	205	195	161	95	45	0	-3	894
1979	-1	0	48	72	154	211	235	208	136	45	-6	5	1107
1980	-1	1	34	148	213	187	227	163	107	44	12	3	1138
1981	4	10	57	140	149	177	210	240	134	33	16	-3	1167
1982	0	2	20	101	151	187	197	195	108	39	3	1	1004
1983	2	8	33	109	169	182	196	238	108	47	9	-1	1100
1984	1	21	34	126	165	195	263	238	80	29	0	-1	1151
1985	-2	0	27	105	187	228	271	178	65	33	-2	0	1090
1986	5	2	48	113	150	205	189	224	63	41	3	3	1046
1987	7	14	30	139	193	232	207	154	129	51	13	4	1173
1988	3	13	51	160	230	242	258	203	115	55	12	5	1347
1989	2	2	35	121	172	212	257	184	123	49	7	1	1165
1990	3	10	60	113	156	200	231	212	164	42	9	1	1201
1991	-1	13	42	114	134	155	209	188	117	35	6	5	1017
1992	7	12	36	117	165	185	164	179	97	37	6	0	1005
1993	0	4	47	105	156	195	179	187	111	47	14	15	1060
1994	4	1	57	104	150	168	216	180	136	39	9	1	1065
1995	-1	12	44	82	150	191	198	189	124	36	14	0	1039
1996	1	11	34	115	149	190	233	204	82	36	1	0	1056
1997	-5	-5	44	118	193	199	240	199	145	45	10	9	1192
1998	-4	15	36	129	213	168	222	228	134	44	5	-3	1187
1999	-6	13	63	124	156	168	175	155	118	51	12	3	1032
2000	-6	-5	53	109	182	186	255	189	101	44	-4	-7	1097
2001	-5	-4	59	118	210	183	230	249	139	46	14	-9	1230
2002	-6	14	0	93	167	172	220	133	86	23	7	-7	902
2003	-7	-5	37	86	134	156	229	199	98	48	-7	-10	958
2004	-6	-5	49	124	131	156	177	119	78	36	11	-8	862
2005	-7	16	57	115	170	118	178	131	79	36	8	3	904
2006	4	13	27	129	175	188	256	208	129	35	7	6	1177
2007	7	4	76	93	163	197	277	188	107	53	13	-3	1175
2008	0	1	66	111	168	176	211	206	107	54	14	-4	1110
2009	-1	-2	38	125	197	210	192	157	161	30	17	-5	1119
MEAN	-1	5	36	106	167	189	220	192	108	42	8	0	1072
MIN	-7	-5	0	43	122	118	164	119	40	23	-7	-10	826
MAX	7	21	76	160	230	277	281	251	164	65	22	15	1347
COUNT	*55*	*56*	*56*	*56*	*56*	*56*	*55*	*56*	*56*	*56*	*56*	*56*	*54*

Calgary International Airport

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921										52	7	-2	
1922	1	2	23	60	110	109	95	96	53	40	-11	-4	574
1923	3	10	39	55	92	119	114	100	78	41	1	-5	647
1924	-5	15	13	67	158	141	186	118	90	33	-5	-4	807
1925	-4	-2	28	82	179	148	181	133	59	-1	9	3	815
1926	7	12	52	124	139	149	179	102	54	30	0	-6	842
1927	-5	-2	23	74	92	141	165	130	65	30	-3	-2	708
1928	-4	0	27	59	156	110	147	103	89	26	13	-8	718
1929	-4	-7	34	51	95	146	245	175	78	28	-3	-3	835
1930	2	0	15	60	110	158	196	161	56	26	5	-7	782
1931	-5									43	1	-3	
1932	-3	0	4	58	98	127	149	131	99	26	-4	-5	680
1933	-4	-1	23	51	114	195	203	163	94	28	16	1	883
1934	8	17	37	123	173	139	186	158	69	34	13	5	962
1935	0	17	37	77	128	138	187	145	111	34	6	5	885
1936	1	0	37	78	171		226	159	87	41	22	5	
1937	2		30	101	160	166	176	152	102	38	8	5	
1938	9	3	48	93	126	147	177	148	130	45	7	3	936
1939			33			95			84	28	16	4	
1940	0	2	23	51	149	167	149	188	79	30	3	1	842
1941	4	11	35		126	154	193	135	61		14		
1942	8	-5	42	91	113	122	154	126	82	33	-9	-2	755
1943	-2	10	10	105	122	115	205	170	124	38	18	10	925
1944	8	3	33	104	148	139	179	151	96	58	7	4	930
1945	-1	5	42	56	123	136	195	172	80	37	0	-3	842
1946	3	9	51	114	135	135	198	155	97	36	3	-2	934
1947	3	-1	18	105	147	132	233	139	89	37	3	2	907
1948	7	-1	4	41	132	166	205	166	117	55	14	-2	904
1949	-5	-1	37	110	160	189	189	201	130	29	25	-4	1060
1950	-2	2	6	73	145	174	167	134	115	24	3	1	842
1951	-3	1	7	98	154	124	166		81	22	9	-1	
1952	-4	-1	4	112	155	140	170	143	101	51	14	5	890
1953	-1	5	36	48	111	117	178	152	103	52	15	7	823
1954	0	15	14	44	119	139	203	110	85	49	20	11	809
1955	5	5	14	78	122	203	158	194	92	42	0	0	913
1956	-2	1	33	76	171	170	177	159	90	33	19	6	933
1957	-2	4	35	81	151	140	208	124	97	26	8	7	879
1958	8	0	3	76	202	152	177	191	107	58	11	7	992
1959	0	3	52	110	138	167	235	147	78	33	7	7	977
1960	1	0	35	120	156	181	233	176	120	45	10	4	1081
1961	10	13	41	92	147	245	201	198	90	34	12	-2	1081
1962	3	-1	36	121	132	197	191	152	119	46	16	3	1015
1963	-1	9	47	93	160	170	205	184	125	59	9	1	1061
1964	4	23	32	101	160	170	228	191	78	55	5	-2	1045
1965	-1	4	12	84	140	146	193	161	61	57	2	-2	857

Calgary International Airport

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	5	55	76	169	163	184	148	127	40	-1	-4	960
1967	-3	11	7	58	136	172	222	206	151	42	13	1	1016
1968	-1	14	53	99	149	152	198	130	100	43	13	-1	949
1969	0	-1	37	115	170	172		208	100	34	23	5	
1970	0	15	40	98	160	199	208	215	120	50	4	0	1109
1971	1	11	43	105	186	180	211	230	106	47	10	-1	1129
1972	0	0	45	119	171	184	148	177	86	35	10	-2	973
1973	7	14	60	81	193	198	236	176	106	47	-2	0	1116
1974	0	13	31	109	118	231	225	139	108	57	15	9	1055
1975	8	1	34	75	143	182	214	169	139	44	14	5	1028
1976	9	16	48	126	200	166	221	179	132	41	20	5	1163
1977	2	27	56	163	151	270	201	129	80	53	12	-1	1143
1978	-1	-1	42	66	144	186	179	163	94	58	8	3	941
1979	0	-1	60	71	143	207	232	173	135	43	17	6	1086
1980	1	10	40	148	193	151	213	143	103	54	22	4	1082
1981	10	18	60	142	127	183	167	195	126	38	21	7	1094
1982	1	6	39	118	166	168	182	168	107	52	9	6	1022
1983	6	13	32	105	176	177	210	224	110	44	11	0	1108
1984	12	30	41	124	149	196	253	231	82	31	7	3	1159
1985	9	13	69	112	201	206	247	151	68	38	3	3	1120
1986	15	11	63	113	160	203	166	193	60	54	-2	9	1045
1987	17	20	33	141	202	239	165	136	141	58	18	11	1181
1988	8	18	61	156	217	198	216	158	102	49	15	7	1205
1989	7	6	37	114	149	179	204	127	120	47	15	7	1012
1990	9	14	70	104	119	176	175	177	150	44	9	3	1050
1991	6	17	49	123	130	157	210	193	118	42	9	11	1065
1992	13	17	74	116	155	164	149	162	91	37	7	1	986
1993	-1	13	43	101	158	161	140	132	114	49	11	7	928
1994	-1	2	76	119	158	175	208	173	134	40	10	4	1098
1995	5	16	53	84	134	162	153	144	113	41	6	4	915
1996	3	15	34	86	81	163	186	192	77	42	4	3	886
1997	3	14	43	101	140	154	191	157	121	37	12	11	984
1998	2	15	31	97	161	119	165	194	116	45	9	6	960
1999	5	22	49	100	145	139	158	133	110	49	17	14	941
2000	5	14	50	103	142	152	200	178	114	49	11	1	1019
2001	12	7	64	109	195	147	201	218	131	47	17	5	1153
2002	8	18	7	88	143	196	238	173	104	32	21	8	1036
2003	6	6	45	83	149	170	216	210	113	54	8	6	1066
2004	4	18	70	130	129	160	182	134	95	41	21	8	992
2005	3	17	60	133	182	123	193	140	93	43	18	7	1012
2006	12	17	18	126	181	158	201	178	120	31	4	11	1057
2007	11	2	65	89	155	157	204	137	103	48	15	3	989
2008	6	15	64	94	148	158	179	172	106	50	18	-3	1007
2009	9	10	41	103	175	193	193	151	147	25	24	-2	1069
MEAN	3	8	38	96	149	164	191	161	101	41	10	3	966
MIN	-5	-7	3	41	81	95	95	96	53	-1	-11	-8	574
MAX	17	30	76	163	217	270	253	231	151	59	25	14	1205
COUNT	*87*	*85*	*87*	*85*	*86*	*86*	*85*	*85*	*87*	*88*	*89*	*88*	*81*

Cold lake

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
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1958													
1959													
1960													
1961													
1962													
1963													
1964													
1965													

Cold lake

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973							177	136	79	23	-2	-2	
1974	0	0	4	94	113	172	156	124	66	32	2	-4	759
1975	-1	1	7	73	139	141	181	107	88	22	4	-2	760
1976	-2	2	28	112	173	158	162	141	98	22	9	-2	901
1977	-1	8	31	126	151	186	135	119					
1978	-1	1	31	80	130	170	188	129	56	34	0	-2	816
1979	-3	0	33	57	151	150	170	120	74	21	1	-5	769
1980	-2	-2	11	156	190	154	182	101	54	29	2	-1	874
1981	-4	1	42	102	187	176	163	184	94	19	5	-2	967
1982	-1		12	87	145	184	147	112	83	27	-1	-3	
1983	-5	-2	13	101	133	128	137	168	62	24	-6	-4	749
1984	-1	7	31	123	127	177	186	152	53	20		-2	
1985	-2	-1	36	97	170	158	190	149	50	21	-1	0	867
1986	0	2	32	100	147	185	121	162	57	27	0		
1987		1	13	103	167	176		97	92	27	3	-5	
1988		1	25	122	163	143	140	117	69	21	-6	-4	
1989	-2	-2	3	100	137	134	175	123	64	20	-5	-6	741
1990	-4	-3	31	78	157	178	155	136	92	21	-2	-2	837
1991	-2	2	19	107		131	189	206	69	14	-4	-5	
1992	-6	-1	43	94	140	165	146	144	52	22	-5	-3	791
1993	-3	-1	43	77	167	153	143	129	74	24	-1	-4	801
1994	-2	0	41	112	160	151	150	145	106	24	-1	-3	883
1995	-4	0	33	82	188	187	162	101	98	22	-2	-3	864
1996	-2	0	16	76	115	159	154	145	60	19	-1	-3	738
1997	-2	-2	32	85	150	149	186	149	84	17	-1	-3	844
1998	-2	-4	35	130	208	184	182	175	100	22	-2	-3	1025
1999	-3	1	34	105	140	182	173	153	92	29	1	-6	901
2000	-3	-1	40	105	151	165	146	123	73	29	-4	-4	820
2001	-6	1	43	117	177	157	177	173	94	23	1	-5	952
2002	-3	5	8	64	187	220	207	145	85	13	-2	-9	920
2003	-2	-1	25	91	163	164	180	159	79	23	-4	-7	870
2004	-3	-3	34	104	140	176	158	121	72	21	5	-3	822
2005	-2	8	37	112	161	144	158	123	79	28	4	-7	845
2006	-6	0	23	141	141	180	186	147	92	25	0	1	930
2007	4	3	39	104	150	154	202	119	81	29	0	-4	881
2008	-4	0	38	85	188	202	185	155	92	38	7	-2	984
2009	-2	0	18	91	167	181	176	148	110	14	6	-9	900
MEAN	-2	1	27	100	156	166	167	139	78	24	0	-4	856
MIN	-6	-4	3	57	113	128	121	97	50	13	-6	-9	738
MAX	4	8	43	156	208	220	207	206	110	38	9	1	1025
COUNT	*34*	*35*	*36*	*36*	*35*	*36*	*36*	*37*	*36*	*36*	*35*	*35*	*29*

Coronation

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
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1961													
1962													
1963													
1964													
1965													

Coronation

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975								139	116	28	8	-3	
1976	-3	-1	4	114	192	152	179	181	127	31	7	-4	979
1977	-3	-4	37	142	136	220	203	140	68	41	1	-2	979
1978	-3	-3	2	67	151	196	196	170	77	41	-1	-5	888
1979	-4	-1	28	58	145	179	186	168	127	31	5	-6	916
1980	-3	-4	4	134	206	158	198	126	86	33	4	-3	939
1981	-6	-2	45	118	148	170	178	215	115	25	4	-5	1005
1982	-1	-2	1	89	142	181	172	147	104	35	-3	-5	860
1983		-3	13	99	173				85		0		
1984	-3			118	142	163	229	195	66	21	-3	-2	
1985	-5	-2	5	88	164	182	225	151	56	24	-3	-3	882
1986	-3	-3	39	96	151	169	126	176	57	34	-2	-6	834
1987	-5	-2	7	114	178	215	157	105	120	41	-2	-7	921
1988	-4	-1	37	111	184	188	189	95	81	36	-6	-10	900
1989	-3	-2	3	90	131	146	187	107	79	32	2	-2	770
1990	-3	-2	41	81	135	147	158	143	129	27	5	-1	860
1991	-3	7	36	107	134	143	184	175	101	24	-4	-4	900
1992	-4	-3	51	90	137	161	142	156	75	27	-5	-4	823
1993	-5	-4	4	67	159	158	134	127	96	34	-1	-6	763
1994	-3	0	38	110	151	147	181	133	107	25	-2	-8	879
1995	-5	-2	21	72	162	184	168	117	120	35	-2	-3	867
1996	-2	-2	3	80	108	155	167	190	72	27	0	-1	797
1997	1	11	35	107	158	144	190	182	124	29	1	2	984
1998	-2	-3	25	124	206	177	192	212	119	28	-4	-6	1068
1999	-5	-2	13	105	130	166	142	134	104	40	4	0	831
2000	-4	-3	33	96	155	170	201	161	90	40	-4	-4	931
2001	-6	-1	44	117	192	147	193	231	128	35	4	-6	1078
2002	-4	0	1	65	184	216	251	140	96	19	4	-6	966
2003	-5	-3	12	81	135	150	206	201	99	45	-5	-6	910
2004	-3	-3	42	120	153	185	168	134	82	28	5	-6	905
2005	-4	-2	17	107	169	121	180	132	81	34	2	-8	829
2006	-11	-1	3	113	145	168	224	171	106	25	-3	-4	936
2007	-3	-1	38	86	149	168	256	157	103	43	8	-6	998
2008	-5	-3	43	88	174	163	203	189	114	46	7	-4	1015
2009	-2	-2	6	107	184	209	221	146	142	19	11	-3	1038
MEAN	-4	-1	22	99	158	170	187	157	99	32	1	-4	914
MIN	-11	-4	1	58	108	121	126	95	56	19	-6	-10	763
MAX	1	11	51	142	206	220	256	231	142	46	11	2	1078
COUNT	*33*	*33*	*33*	*34*	*34*	*33*	*33*	*34*	*35*	*34*	*35*	*34*	*32*

Edmonton City Centre Airport

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912	-4	-3	2	76	141	176	112	108	73	24	7	3	715
1913	2	6	27	100	128	128	136	104	78	20	5	1	735
1914	-1	1	33	104	162	117	153	133	53	20	2	-2	775
1915	-2	-4	27	111	116	107	117	138	83	26	3	-2	720
1916	-1	-1	28	95	121	146	136	112	69	23	6	0	734
1917	1	1	30	62	129	158	181	132	81	20	10	0	805
1918	0	2	38	110	124	145	155	123	83	27	3	-2	808
1919	-1	0	5	95	135	160	153	137	74	12	0	-1	769
1920	-2	3	7	36	126	138	187	124	67	23	1	-1	709
1921	0	7	25	92	147	167	162	120	83	33	1	0	837
1922	0	0	24	76	145	144	174	126	92	26	5	-1	811
1923	0	4	21	111	152	145	154	123	90	38	7	-1	844
1924	-1	4	13	80	148	153	163	112	77	25	-1	-3	770
1925	-3	-2	21	90	166	152	168	118	59	16	3	1	789
1926	1	4	44	106	139	145	189	105	46	18	1	-1	797
1927	-1	0	34	77	118	149	148	135	69	21	0	-1	749
1928	-1	7	28	62	172	115	151	116	98	22	4	7	781
1929	-1	0	43	71	144	177	202	158	74	43	12	-1	922
1930	-1	6	49	90	117	111	176	151	68	18	6	-1	790
1931	-2	12	30	126	173		167	163	77	35	9	2	
1932	2	-1	6	67	153	171	191	202	109	23	5	-2	926
1933	0			101	143	160	175	175	81	26	10	-1	
1934	4	14	36	145	178	132	167	171	62	42	7	-2	956
1935	-2	10	13	55	113	142	177	126	98	28	0	-4	756
1936	-1	0	19	73	159	148	214	165	79	33	12	2	903
1937	1	2	37	97	161	169	163	129	41	27	4	0	831
1938	-1	0	37	101	156	164	182	134	123	31	4	-1	930
1939	-1	0	14	105	130	102	170	170	68	16	3		
1940	0	0	23	70	128	134	120	134	93	26	0	-3	725
1941	0	5	40	114		146	178	122	60	24	6	2	
1942	-2	1	44	97	156	135	156	136	43	30	-3	-6	787
1943	-2	-3	7	113	144	133	166	116	110	25	8	0	817
1944	-5	-4	12	123	140	132	157	135	74	43	-3	-7	797
1945	-3	-3	33	68	153	164	192	141	70	29	-5	-6	833
1946	-6	-3	37	112	144	134	180	138	70	27	-3	-6	824
1947	-2	-3	4	75	159	130	191	108	66	29	-3	-5	749
1948	-3	-4	1	24	141	190	176	134	85	37	2	-6	777
1949	-3	-2	29	124	164	181	167	152	101	24	11	-6	942
1950	4	-3	2	79	161	205	190	140	106	16	-5	-7	888
1951	-5	-4	0	80	146	171	144	121	78	16	-5	-6	736
1952	-5	-4	1	129	172	148	163	144	88	39	6	-5	876
1953	-6	0	7	77	148	138	155	128	93	39	8	2	789
1954	-1	8	26	56	119	130	172	91	75	38	10	1	725
1955	-3	1	7	70	157	202	153	168	76	28	-2	-2	855
1956	-2	-2	12	84	200	162	173	149	79	30	12	-1	896
1957	-4	-2	14	94	165	211	196	131	106	26	4	-2	939
1958	-2	0	10	90	199	171	196	178	87	37	7	-1	972
1959	-1	2	52	116	157	153	209	120	81	19	5	1	914
1960	-4	-1	17	117	145	153	200	136	98	30	4	-6	889
1961	-3	1	33	103	164	217	185	186	86	24	5	-3	998
1962	-1	-3	3	96	149	176	156	136	96	35	5	-2	846
1963	-2	-1	29	98	151	180	190	166	107	39	3	0	960
1964	-3	8	15	114	156	188	201	149	60	37	0	-1	924
1965	-1	1	14	77	154	164	189	157	60	47	-1	-3	858

Edmonton City Centre Airport

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-2	33	80	194	176	183	129	103	30	0	-3	921
1967	-2	0	4	64	174	180	203	201	134	31	5	-1	993
1968	-3	5	42	107	195	175	200	138	75	28	6	-3	965
1969	-3	-2	30	104	176	209	189	179	66	24	6	-4	974
1970	-3	7	13	109	173	200	170	179	97	27	-3	-4	965
1971	-3	-2	16	109	212	142	172	189	78	35	4	-2	950
1972	-2	0	28	100	186	184	158	166	53	32	2	-1	906
1973	-2	2	41	91	196	191	200	144	85	26	-2	0	972
1974	1	7	12	103	154	219	208	141	81	42	12	4	984
1975	9	4	27	77	158	172	206	131	106	28	9	0	927
1976	1	7	31	126	193	166	202	178	96	32	14	3	1049
1977	1	21	44	151	153	214	167	137	72	44	13	0	1017
1978	-2	1	38	91	156	199	191	142	63	40	5	-1	923
1979	-2	0	46	77	157	170	169	145	100	29	9	-2	898
1980	-2	2	33	145	188	145	176	115	60	32	11	0	905
1981	-4	8	50	119	164	174	170	195	99	29	8	-2	1010
1982	-1	-2	11	98	186	208	163	131	97	35	0	-1	925
1983	-2	1	5	111	173	155	160	182	74	31	-1	-1	888
1984	3	13	39	136	124	170	213	180	61	23	-3	-1	958
1985	-1	1	44	110	196	189	219	145	62	28	0	0	993
1986	2	1	41	99	174	199	131	185	63	33	1	0	929
1987	-1	6	20	128	184	202	172	109	118	39	9	1	987
1988	0	10	50	152	214	168	188	150	93	38	4	1	1068
1989	1	1	24	130	164	164	175	112	96	31	6	1	905
1990	1	5	53	94	164	173	186	157	125	29	4	0	991
1991	2	11	35	121	162	140	215	175	91	23	-1	0	974
1992	2	3	52	100	150	199	181	177	73	33	3	-1	972
1993	-2	5	39	84	182	174	154	138	98	34	6	2	914
1994	0	1	58	130	168	147	175	133	112	32	4	-5	955
1995	-1	6	43	77	161	164	146	107	118	26	2	-1	848
1996	0	7	30	81	93	134	147	151	64	23	0	-1	729
1997	-3	5	37	98	157	157	187	152	96	21	5	6	918
1998	-4	-2	37	135	208	167	184	187	104	26	0	-2	1040
1999	-4	3	42	116	144	180	168	156	109	36	7	7	964
2000	1	10	51	105	152	173	174	133	85	31	4	-4	915
2001	4	5	56	131	200	154	172	194	112	32	11	-3	1068
2002	-2	12	22	83	187	219	223	141	83	20	12	3	1003
2003	2	4	32	80	164	163	202	186	89	34	3	2	961
2004	-1	8	46	121	159	192	159	130	76	25	16	0	931
2005	-2	10	43	133	183	146	190	144	83	31	8	-3	966
2006	-5	12	20	142	172	185	228	181	105	27	-3	4	1068
2007	5	1	57	100	154	179	239	151	110	50	9	-6	1049
2008	-5	6	60	100	173	188	204	186	120	49	11	-4	1088
2009	0	4	34	105	181	210	189	171	132	19	16	-4	1057
MEAN	-1	3	28	99	159	165	176	146	85	29	4	-1	893
MIN	-6	-4	0	24	93	102	112	91	41	12	-5	-7	709
MAX	9	21	60	152	214	219	239	202	134	50	16	7	1088
COUNT	*98*	*97*	*97*	*98*	*97*	*97*	*98*	*98*	*98*	*98*	*98*	*97*	*94*

Edmonton International Airport

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
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1956													
1957													
1958													
1959													
1960													
1961	-5	-3	22	99	171	225	185	196	89	22	5	-2	1004
1962	0	-1	0	85	146	170	150	129	96	32	4	-3	808
1963	-2	-1	28	94	147	175	180	153	107	40	-1	-1	919
1964	-4	3	5	107	147	169	185	138	63	37	-1	-3	846
1965	-2	-1	2	63	142	133	158	124	52	40	-4	-4	703

Edmonton International Airport

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-3	0	72	183	153	156	105	91	24	-3	-4	772
1967	-4	-3	-2	55	148	155	172	162	123	20	-4	-5	817
1968	-4	-3	38	97	177	157	182	110	64	22	3	-5	838
1969	-2	-4	1	90	160	185	174	164	63	21	2	-5	849
1970	-4	0	2	92	163	187	153	184	91	26	-3	-2	889
1971	-1	-3	3	90	191	132	149	165	74	30	3	-1	832
1972	0	1	20	96	163	173	135	139	49	28	-4	-6	794
1973	-2	0	31	18	172	163	173	130	80	21	-3	-2	781
1974	-1	0	3	77	124	173	150	109	74	35	6	0	750
1975	-1	1	6	61	150	152	158	108	90	23	6	-3	751
1976	-1	1	32	111	175	137	160	126	88	26	10	-2	863
1977	-3	8	35	137	130	181	138	100	58	35	5	-2	822
1978	-2	-1	32	81	142	179	173	131	58	36	1	-1	829
1979	0	1	52	79	147	158	151	131	92	26	8	-3	842
1980	-2	-1	14	126	175	132	154	102	61	28	5	0	794
1981	-4	6	42	107	143	157	150	173	96	21	3	-3	891
1982	-1	-1	9	81	174	178	135	109	83	30	0	-1	796
1983	-2	2	1	94	157	135	145	155	71	26	-1	-1	782
1984	2	9	32	120	119	158	193	158	59	21	-1	-1	869
1985	-1	2	39	97	184	177	207	125	53	24	-1	-1	905
1986	2	-1	37	90	161	182	121	166	58	30	-1	-2	843
1987	2	8	22	120	175	186	148	103	115	37	6	-2	920
1988	-1	7	47	139	201	162	166	137	88	38	3	3	990
1989	4	4	16	111	148	160	157	91	91	28	3	0	813
1990	-1	3	47	86	150	162	172	146	130	30	4	0	929
1991	2	9	29	104	153	136	192	169	88	22	-1	-1	902
1992	-1	-1	51	93	144	188	153	148	70	30	2	-2	875
1993	-2	2	35	78	174	162	137	121	86	29	0	-5	817
1994	-3	-1	41	117	160	149	173	127	104	31	0	-3	895
1995	-2	4	36	71	157	153	141	103	105	25	1	-1	793
1996	0	3	18	74	92	136	153	153	62	21	1	0	713
1997	1	6	17	82	130	148	166	139	99	16	1	3	808
1998	0	0	16	107	184	134	156	164	98	24	4	0	887
1999	1	2	23	91	129	162	140	131	102	34	4	3	822
2000	1	4	35	86	137	148	149	124	84	31	6	1	806
2001	5	5	49	114	179	136	154	150	86	24	4	-1	905
2002	-4	5	4	61	162	211	202	122	78	18	8	1	868
2003	1	-1	18	76	158	151	170	169	83	28	-2	-1	850
2004	-1	1	43	116	152	164	133	107	63	19	6	-3	800
2005	-4	2	33	111	169	129	175	107	67	22	4	-5	810
2006	-8	9	3	127	166	174	196	154	89	22	-6	-6	920
2007	-4	-3	27	75	143	156	190	130	91	44	7	-6	850
2008	-4	1	44	90	161	166	181	172	108	45	9	-4	969
2009	-2	-2	5	91	174	200	171	142	124	16	9	-3	925
MEAN	-1	2	23	93	157	162	162	137	84	28	2	-2	846
MIN	-8	-4	-2	18	92	129	121	91	49	16	-6	-6	703
MAX	5	9	52	139	201	225	207	196	130	45	10	3	1004
COUNT	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*	*49*

Edson

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
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1960													
1961													
1962													
1963													
1964													
1965													

Edson

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973	-3	-1	37	73	149	149	177	120	69	18	-3	-3	782
1974	-3	2	5	91	111	177	161	108	76	29	4	0	761
1975	-1	-1	7	73	122	137	172	91	91	20	1	-2	710
1976	0	4	29	106	152	127	163	101	87	26	9	2	806
1977	1	16	37	124	125	171	139	104	58	31	1	-2	805
1978	-3	-2	33	69	132	166	159	123	61	37	2	0	777
1979		-1	46	66	127	156	158	144	85	20	7	-3	
1980	-2	0	26	135	145	137	167	105	58	31	5	-2	805
1981	-3	9	49	117	115	156	157	172	85	20	2	-4	875
1982	-1	0	10	82	144	155	133	103	76	28	-2	-2	726
1983	-2	2	13	102	145	130	151	162	65	22	-3	-3	784
1984	3	12	34	98	116	140	191	136	52	18	-2	-1	797
1985				93	169	150	194	120	51	23	-2	1	
1986	2	1	38	75	137	159	106	164	51	29	-1	-3	758
1987	-2	6	25	122	154	172	134	105	111	8	4	1	840
1988	-1	9	43	129	168	153	173	133	81	34	3	-1	924
1989	-2	1	26	107	142	167	154	89	78	23	6	-1	790
1990	-2	5	52	86	110	143	170	134	106	28	-1	-1	830
1991	-1	10	36	95	135	135	174	157	89	17	2	1	850
1992	1	9	55	87	127	159	147	141	65	23	1	-2	813
1993	-2	10	49	110	177	172	152	120	93	23	6	-5	905
1994	-2	0	56	117	146	156	160	116	100	25	1	-7	868
1995	-7	4	43	83	160	160	145	101	100	28	-1	-1	815
1996	0	12	34	99	98	150	156	145	62	27	-1	-2	780
1997	-2	11	41	98	150	156	164	139	84	19	2	3	865
1998	-3	7	38	125	179	139	173	158	88	18	-4	-4	914
1999	-5	5	44	107	143	148	154	138	93	35	2	8	872
2000	-1	3	50	102	124	162	165	114	84	27	7	2	839
2001	8	2	50	100	179	144	137	162	102	31	2	-4	913
2002	-2	12	12	74	147	214	208	146	79	20	6	-8	908
2003	-6	-1	37	76	149	176	208	170	91	36	6	4	946
2004	2	10	49	117	137	170	153	120	72	26	9	0	865
2005	-4	13	52	136	163	129	169	133	87	31	6	-6	909
2006	-7	10	14	128	165	188	193	156	102	25	-2	-2	970
2007	5	-1	51	98	150	157	210	110	85	32	6	0	903
2008	2	13	55	87	162	156	173	148	90	37	7	-2	928
2009	3	2	37	94	160	187	170	134	107	17	6	-7	910
MEAN	-1	5	36	99	144	157	164	130	81	25	2	-2	844
MIN	-7	-2	5	66	98	127	106	89	51	8	-4	-8	710
MAX	8	16	56	136	179	214	210	172	111	37	9	8	970
COUNT	*35*	*36*	*36*	*37*	*37*	*37*	*37*	*37*	*37*	*37*	*37*	*37*	*35*

Fairview

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
1922													
1923													
1924													
1925													
1926													
1927													
1928													
1929													
1930													
1931										22	-2	-4	
1932	-3	-2	1	49	135	136	131	88	56	13	-3	-4	597
1933	-1	1	6	68	122	113	146	131	47		0	0	
1934	1	6		112	134	119	130	107	39	30	1	0	
1935		8	6	59	118	104	134	92	61	15	1	-1	
1936	-1	0	21	58	135	114	137	117	52	18	6	-1	656
1937	0	0	21	64	121	140	157	103	82	15	-1	-1	701
1938	-1	1	27	76	131	132	164	126	94	21	2	-1	772
1939	1	1	14	85	123	122	140	141	63				
1940					140	126	137	132	82	19			
1941					109	136	162	103	38	19			
1942					135	138	150	139	76				
1943					117	125	161	121	87				
1944					142	118	173	133	65	24			
1945					151	133	169	168	58				
1946				71	138	126	141	156	79	18			
1947				48	124		131	87	50	16			
1948					145	193	155	117	72	24			
1949				92	118	132	155	133	83				
1950					140	183	171	107	95				
1951				61	104	149	138	112	72	7			
1952				81	160	127	147	117	72				
1953				63	140	122	142	132	59	22	-5	-11	
1954					128	148	152	90	64	23	2	-5	
1955	-6	-3	-1	53	150	186	157	143		24	-1		
1956		-3			204								
1957		-1	12	84	153	169	158	120	91	18	3	-1	
1958	-2	1	6	75	185	173	211	184	66	29	0	-4	924
1959	-1	-2	33	98	156	161	192	110	66	15	-3	1	826
1960	-3	0	6	124	154	132	204	141	88	20	-2	-2	862
1961	-2	0	7	95	155	173	165	200	62	17	-2	-1	869
1962	-3	-3	2	75	141	173	171	119	77	25	-3		
1963	0	1	12	83	157	194	177	149	76	32	-1	-1	879
1964	-2	5	4	85	137	164	140	104	59	25	-1	-1	719
1965	0	-1	26	66	151	184	187	151	50	31	-2	-3	840

Fairview

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	0	-2	27	62	166	142	134	133	74	23	0	-3	756
1967	0	-1	0	61	164	173	200	177	83	20	-1	-2	874
1968	0	0	21	88	155	139	142	128	55	17	-4	0	741
1969	-1	-5	9	92	164	169	173	160	51	16	2	-5	825
1970	-1	0	14	89	139	157	165	152	72	27	0	0	814
1971	-1	5	20	98							0	-1	
1972	-1	0	13	73	194	159	146	142	47	20	-2	0	791
1973	-1	1	34	86	170	134	198	133	73	17	-2	0	843
1974	-1	1	4	82	135	182	142	125	70	29	5	0	774
1975	-1	2	14	91	154		186	127	103	18	0	0	
1976	2	3	17	119	157	129	158	112	96	23	9	1	826
1977	1	13	30	129	148	162	146	112	72	23	-1	1	836
1978	0	0		72	134	166	203	129	53	31	1		
1979						164	168	133	78			-3	
1980	-1	0	14	134	166	179	176	125	52		2	-3	
1981	-5	-2	35	68	177	169	203	211	91	18	3	-2	966
1982	0	-1	4	79	156	225	182	99	80	24	0	-4	844
1983	-2	-2	6	100	155	156	138	152	58	22	-4	-2	777
1984	-1	5	30	98	124	165	180	129	55	13	-3	-1	794
1985	-2	0		99	185	179	194	126	55	17	-2	-3	
1986	-3	-2	25	77	146	187	140	164	48	22	-3	-5	796
1987	-4	0	6	118	177	174	173	115	95	29	1	0	884
1988	-1	2	37	114	148	153	119	139	78	27	-1	0	815
1989	-2	2	6	119	161	182	179	114	74	20	1	0	856
1990	-2	1	41	89	151	166	184	153	98	14	-1	-2	892
1991	-1	2	19	119	167	144	173	166	58	15	-6	-4	852
1992													
1993													
1994	-4	-3	43	92	163	183	198	173	99	26	-1	-5	964
1995	-4	-3	8	86	171	195	186	151	117	25	-2	-5	925
1996	-4	-2	4	87	132	174	183	163	79	22	-3	-5	830
1997	-5	2	15	76	150	179	194	167	98	20	4	0	900
1998	-4	0	35	107	190	196	208	184	100	26	1	-5	1038
1999	-5	-1	36	95	147	176	189	180	100	28	4	-2	947
2000													
2001													
2002	-4	2	26	56	153	200	162	138	69	13	-6	-12	797
2003	-78	-1	7	75	138	173	190	145	79	22	-4	-6	740
2004	-3	-2	33	102	142	199	156	117	59	18	-1	-6	814
2005	-5	3	32	112	171	158	171	130	81	22	3	-9	869
2006	-8	3	7	130	176	192	185	156	94	18	-3	-6	944
2007	-4	-2	10	72	149	168	185	104	76	26	-3	-7	774
2008	-5	-1	32	78	164	188	215	172	84	31	-4	-4	950
2009	-2	0	12	92	158	193	191	179	96	19	5	-4	939
MEAN	-3	0	17	86	149	160	167	136	73	21	0	-3	836
MIN	-78	-5	-1	48	104	104	119	87	38	7	-6	-12	597
MAX	2	13	43	134	204	225	215	211	117	32	9	1	1038
COUNT	*55*	*58*	*54*	*63*	*72*	*70*	*72*	*72*	*71*	*63*	*59*	*57*	*45*

Fort McMurray

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
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1961													
1962													
1963													
1964													
1965													

Fort McMurray

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971												-3	
1972	-2	-2	8	66	191	166	147	159	39	15	-4	-3	780
1973	-3	-2	28	93	179	139	158	119	66	15	-4	-3	785
1974	-2	-1	0	94	123	169	139	120	60	23	-4	-5	716
1975	-2	1	5	76	130	128	172	101	63	15	-2	-3	684
1976	-3	-2	8	121	168	156	155	120	91	18	3	-3	832
1977	-3	6	23	116	160	173	144	114	54	23	-3	-1	806
1978	-3	-3	23	76	133	161	170	114	45	20	-3	-1	732
1979	-2	-1	7	48	143	174	186	118	60	19	-1	-5	746
1980	-2	-2	9	144	168	179	160	98	48	23	1	-2	824
1981	-5	-1	33	76	197	169		183	81	14	3	-2	
1982	-1	-3	4	81	152	192	157	102	76	24	0	-2	782
1983	-1	1	23	98	136	150	167	161	54	21	-4	-1	805
1984	-1	4	29	105	121	189	191	143	54	13	-1	-2	845
1985	-1	0	34	107	176	177	181	140	50	15	-1	-2	876
1986	-1	0	30	84	155	197		157	65	19	-1	-2	
1987	-3	-1	10	98	158	177	182	114	81	20	0	-5	831
1988	-2	0	20	106	150	150	151	127	73	18	-4	-1	788
1989	0	2	8	96	147	139	186	138	52	17	-2	-1	782
1990	-2	1	35	83	180	178	187	148	71	10	-1	-1	889
1991	-1	4	28	121	174	140	179	179	59	12	-2	-2	891
1992	-3	1	33	80	147	148	159	138	44	19	-1	-2	763
1993	-2	4	43	69	158	153	129	117	61	16	0	-2	746
1994	-1	0	56	113	159	164	162	157	72	20	1	-2	901
1995	-6	0	25	71	192	188	163	121	103	16	-3	-4	866
1996	-1	0	25	86	114	161	148	132	50	11	-4	-3	719
1997	-1	-1	19	93	145	160	177	125	66	8	-9	-10	772
1998	-3	-8	34	128	180	171	187	178	84	24	-6	-4	965
1999	-2	2	50	116	139	176	173	152	97	25	1	-5	924
2000	-2	4	42	91	129	138	166	111	61	24	-7	-3	754
2001	-7	-1	38	107	154	156	173	165	94	20	1	-5	895
2002	-3	1	11	76	161	199	177	125	68	10	-6	-11	808
2003	-3	-1	32	93	153	159	188	132	62	16	-4	-7	820
2004	-2	-3	34	100	128	194	208	117	58	19	1	-4	850
2005	-1	-3	33	108	167	141	159	118	69	24	-1	-9	805
2006	-3	0	34	120	141	193	142	127	70	19	0	2	845
2007	-1	0	19	90	151	171	201	104	51	25	-2	-4	805
2008	-2	-1	22	77	184	181	157	118	56	21	-5	-1	807
2009	-1	0	17	89	143	160	160	116	69	11	3	-2	765
MEAN	-2	0	25	95	155	166	168	132	65	18	-2	-3	811
MIN	-7	-8	0	48	114	128	129	98	39	8	-9	-11	684
MAX	0	6	56	144	197	199	208	183	103	25	3	2	965
COUNT	*38*	*38*	*38*	*38*	*38*	*38*	*36*	*38*	*38*	*38*	*38*	*39*	*36*

Grande Prairie

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
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1957													
1958													
1959													
1960													
1961													
1962													
1963													
1964													
1965													

Grande Prairie

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980	-1	-2	19	135	165	164	173	124	57	31	4	-1	868
1981	-4	-1	38	79	166	176	197	222	83	22	5	-3	980
1982	0	0	6	71	155	213	150	94	74	27	0	-1	789
1983	1	2	14	101	175	149	150	178	72	27	-4	-2	863
1984	1	9	33	103	129	168	206	153	53	15	-1	-1	868
1985	0	1	33	114	199	192	237	148	50	18	-1	3	994
1986	-1	-2	27	79	145	194	149	185	51	26	-1	-7	845
1987	-6	-2	5	125	193	207	180	123	102	35	1	-2	961
1988	-2	2	37	122	177	168	176	152	89	30	-3	-3	945
1989	-2	0	6	123	171	182	166	99	76	19	1	-2	839
1990	-1	0	46	88	140	175	201	166	107	15	-1	-2	934
1991	-3	2	20	115	173	147	187	139	81	17	-4	-2	872
1992	-4	-1	45	95	149	176	170	171	49	21	-1	-1	869
1993	-3	-2	35	94	162	169	130	122	90	25	4	-3	823
1994	-2	-1	40	98	160	165	164	132	80	20	-2	-3	851
1995	9	15	41	77	190	172	142	119	109	21	-3	-4	888
1996	-2	0	10	80	124	159	163	146	61	17	0	-2	756
1997	-2	2	26	91	150	173	160	128	81	14	-4	-2	817
1998	-3	-3	43	129	199	179	183	188	92	16	-5	-4	1014
1999	-4	-3	36	97	141	162	175	168	88	30	2	0	892
2000	-2	0	40	108	136	166	179	106	73	20	0	-5	821
2001	-1	0	42	93	164	152	165	151	93	26	0	-4	881
2002	-2	5	6	61	148	216	201	155	68	15	1	-5	869
2003	-3	0	13	76	162	186	204	151	82	28	0	-2	897
2004	-2	4	41	92	151	173	159	117	62	17	2	-3	813
2005	-3	6	34	116	169	143	166	135	86	25	6	-7	876
2006	-8	1	6	133	175	199	200	181	85	21	-2	-7	984
2007	-4	-3	14	76	142	175	192	100	80	23	0	-5	790
2008	-4	0	40	90	156	192	206	151	87	27	0	-2	943
2009	-1	0	14	92	157	212	166	158	95	12	0	-2	903
MEAN	-2	1	27	98	161	177	177	145	79	22	0	-3	882
MIN	-8	-3	5	61	124	143	130	94	49	12	-5	-7	756
MAX	9	15	46	135	199	216	237	222	109	35	6	3	1014
COUNT	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*	*30*

High Level

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
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1956													
1957													
1958													
1959													
1960													
1961													
1962													
1963													
1964													
1965													

High Level

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972	-1	0	5	60	180	154	164	137	43	13	-4	-1	750
1973	-1	0	18	91	179	127	146	115	65	9	-2	-1	746
1974	-1	0	3	92	135	166	141	107	54	16	-3	-1	709
1975		0	3	94	144	190	186	106	63	12	-2	-1	
1976	0	0	8	110						15	0	0	
1977	0	2	23	104	149	162	136	126	57	22	-2	-1	778
1978	-1	-1	18	80	136	153	163	110	48	15	0	0	721
1979		0	8	58		155	175	108	46				
1980	-1	0	18	120	157	180	155	113	40	22	1	0	805
1981	-1	0	30	57	177	163	172	163	58	9	-3	-4	821
1982	0	0	7	68	140	193	193		62		-1	-1	
1983	-1	-1	3	81	127		162	139		15	-4		
1984	-1	0	20	98	127	166	164	124	46	9	-1	-1	751
1985	-1	0	22	76	160	183	164	101	49	9	0		
1986	-1	0	17	73	148	179	158	132	60	13	-1	-2	776
1987		0	3		152	155	149	106	59	13		-5	
1988	-1	0	8	79	78	132	126	114	60	12	-3	-1	604
1989	0	1	4	90	154	157	166	129	57	14	-1	-1	770
1990	-1	0	29	85	160		191	143	63	7	-1	-1	
1991	-1	0		107	157	164	154	129	49	10	-1	-1	
1992	-1	0	30				144	130	39	14	-10		
1993		0	29	88	152	175	147	98	62	12	-4	-4	
1994	-1	-1	25	96	157	176	168	136	53	13	-3	-2	817
1995	-4	-2	2	81	182	179	147	116	89	3	-4	-5	784
1996	-2	-3	2	76	143	180	160	104	58	4	-4	-4	714
1997	-2	-4	4	74	143	166	144	117	60	7	-7	-8	694
1998	-2	-4	27	119	174	170	193	146	73	14	-4	-4	902
1999	-2	-3	28	101	146	176	153	138	76	17	-3	-2	825
2000	-1	3	36	101	158	174	173	106	55	14	-6	-2	811
2001	-7	-1	26	100	164	180	174	132	72	18	-4	-4	850
2002	-2	2	6	68	157	210	174	146	66	13	-2	-9	829
2003	-2	-1	8	90	177	180	186	150	68	10	-6	-6	854
2004	-2	-3	26	98	135	214	195	133	63	10	-7	-2	860
2005	0	-2	27	104	168	167	152	119	64	17	-4	-6	806
2006	-4	0	19	116	156	168	155	128	74	14	-3	-7	816
2007	-5	-1	4	92	143	179	160	102	46	13	-6	-4	723
2008	-3	0	26	85	175	171	160	130	64	19	-6	-2	819
2009	-2	0	11	92	144	178	159	132	72	9	-7	-3	785
MEAN	-2	-1	16	89	152	171	162	124	59	13	-3	-3	782
MIN	-7	-4	2	57	78	127	126	98	39	3	-10	-9	604
MAX	0	3	36	120	182	214	195	163	89	22	1	0	902
COUNT	*34*	*38*	*37*	*36*	*35*	*34*	*37*	*36*	*36*	*36*	*36*	*34*	*27*

Jasper

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
1922													
1923													
1924													
1925													
1926													
1927													
1928													
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1949													
1950													
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958													
1959													
1960													
1961													
1962													
1963													
1964													
1965													

Jasper

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977	0	16	39	118	136	178	153	141	68	29	1	-2	877
1978	-2	4	44	100	144	169	175	140	58	33	4	0	869
1979	-2	-1	51	87	124	172	215	171	91	30	2	-2	938
1980	-2	3	7	131	152	147	180	112	66	33	5	0	834
1981	-3	7	48	95	135	158	164	186	86	24	8	-3	905
1982	-3	0	31	88	144	189	150	109	79	26	2	-3	812
1983	0	10	29	105	173	136	158	181	66	26	6	-2	888
1984	0	11	45	95	122	156	216	160	65	21	2	-2	891
1985				89	176	173	262	163	57	19	-2	-1	
1986	5	1	41	90	148	191	133	199	67	33	2	-2	908
1987	0	9	35	111			176	120	119	38	5	-2	
1988	-2	7	42	111	164	175	184	142	88	34	4	0	949
1989	-1	-2	42	108	145	179	188	110	93	21	7	-2	888
1990	0	3	48	103	129	155	182	161	115	20	3	-2	917
1991	0	13	45	108	140	141	173	180	95	29	7	4	935
1992	3	11	46	97	151	199	178	164	70	25	2	-3	943
1993	-3	2	44	111	162	152	145	129	108	33	4	-3	884
1994	-1	-1	51	106	144	153	206	156	97	23	4	-2	936
1995	-3	6	47	93	165	164	156	115	111	22	-2	-6	868
1996	-3	12	44	101	126	164	200	186	75	27	-1	-5	926
1997	-8	9	40	103	141	167	177	154	91	24	5	1	904
1998	-3	13	47	119	180	168	202	190	116	30	0	-4	1058
1999	-6	12	56	108	154	171	177	164	106	32	-3	-6	965
2000	-3	16	48	106	134	191	184	150	89	28	-2	-7	934
2001	-6	2	51	94	165	162	173	178	106	28	2	-6	949
2002	-3	11	31	91	145	212	231	157	90	31	9	-5	1000
2003	2	12	48	110	160	209	267	226	117	42	8	4	1205
2004	4	11	60	123	135	195	193	142	69	24	6	-4	958
2005	-3	12	52	120	181	148	164	149	71	29	3	-6	920
2006	0	12	56	130	169	209	243	171	113	36	-2	-3	1134
2007	-4	9	58	100	178	194	264	151	102	31	-2	-7	1074
2008	-5	10	57	96	157	183	198	178	100	33	7	-5	1009
2009	-3	11	47	104	165	210	209	189	130	23	3	-6	1082
MEAN	-2	8	45	105	151	174	190	158	90	28	3	-3	947
MIN	-8	-2	7	87	122	136	133	109	57	19	-3	-7	812
MAX	5	16	60	131	181	212	267	226	130	42	9	4	1205
COUNT	*32*	*32*	*32*	*33*	*32*	*32*	*33*	*33*	*33*	*33*	*33*	*33*	*31*

Lacombe

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
1922													
1923													
1924													
1925													
1926													
1927													
1928													
1929													
1930													
1931													
1932													
1933													
1934													
1935													
1936													
1937													
1938													
1939			17	95	140	99	190	163	65	19	4		
1940	-4	-1	13	34		141		166	77	47			
1941	-1	-2	46	98	121	148	152	132	54	24	8	-1	779
1942	-3	-4	28	83	119	120	142	121	63	23	-6	-5	681
1943		-4	29	90	109	113	169	119	93	25	10	-3	
1944	-5	-4	3	99	130	128	140	120	72	44	-1	-5	721
1945	-4	-3		57	128	130	158	126	64	27	-5	-5	
1946	-6	-4	17	107	129	109	157	111	60	28	-3	-5	700
1947		-3		79	126	106	233	101	57	22	-7	-8	
1948			0	12	107	139	154	122	82	38	5		
1949		-2	28	116	140	156	161	138	105	22	17		
1950		-4	0	70	138	166	158	109	99	17	-5	-6	
1951	-3	-3	0	74	131	128	135	104	67	19	-2	-5	645
1952	-3	-5	-2	91	140	116	145	121	80	37	6	-4	722
1953	-4	-2	5	56	99	102	136	106	77	40	12	2	629
1954	-1	6	5	43	103	121	169	87	70	37	10	1	651
1955	-3	0	3	64	124	185	146	160	78	33	-2	-2	786
1956	-2	-2	5	71	172	156	159	128	71	30	13	0	801
1957	-1	-2	14	74	154	139	195	123	99	25	4	-1	823
1958	0	-2	1	76	185	161	173	184	96	46	6	-3	923
1959	-1	0	48	102	136	153	197	116	70	21	2	2	846
1960	-4	0	9	110	148	151	187	139	98	32	3	-3	870
1961	-2	1	37	87	141	225	182	191	90	24	7	-2	981
1962	-1	-2	13	103	132	171	158	140	108	36	7	-2	863
1963	-2	1	37	82	138	164	172	148	111	46	2	-5	894
1964	-2	8	10	94	140	156	183	150	64	38	3	-1	843
1965	0	0	5	65	134	142	166	138	53	46	-3	-4	742

Lacombe

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-2	24	71	179	153	153	114	101	30	-2	-5	814
1967	-3	-2	2	50	129	159	184	182	132	29	3		
1968	-3	2	40	97	169	145	178	122	75	28	4	-1	856
1969	-1	-2	17	99	166	174	166	161	81	26	6	-4	889
1970	-2	3	15	88	157	190	173	169	100	32	1	-1	925
1971	1	-1	11	86	182	135	136	178	105	31	5	0	869
1972	0	1	25	102	161	156	137	155	51	26	2	-1	815
1973	-1	0	27	90	173	221	178	132	87	45	-3	-3	946
1974	-1	1	4	78	114	196	174	116	78	35	9	0	804
1975	-3	-1	7	52	126	149	170	121	108	29	11	-1	768
1976	-1	4	30	114	175	139	177	144	100	31	13	-1	925
1977	-1	9	41	141	137	203	161	117	60	41	10	-1	918
1978	-1	-2	33	84	148	171	169	139	65	39	6	-1	850
1979	-1	1	43	65	132	175	177	152	109		-5	-2	
1980	-2	-1	10	123	181	134	158	113	66	36	7	0	825
1981	-7	6	48	114	125	147	138	169	96	19	4	-3	856
1982	0	1	9	85	158	166	138	112	88	34	1	-1	791
1983	0	4	22	90	159	138	149	165	75	29	3	-1	833
1984	0	8	26	124	118	155	182	171	63	22	-3	-2	864
1985	-5	1	36	98	185	184	200	116	56	25	-2	-1	893
1986	1	0	39	90	146	166	121	146	53	32	-1	-4	789
1987	0	4	18	114	172	199	137	105	115	43	1	0	908
1988	-1	8	50	141	207	182	173	150	88	43	5	-1	1045
1989	-1	-2	3	93	142	170	179	101	96	33	3	-1	816
1990	-2	3	41	81	125	146	162	145	128	34	2	-1	864
1991	-6	9	-1	107	131	126	174	148	97	19	-2	-1	801
1992	3	4	56	108	141	164	151	154	80	33	6	0	900
1993	-5	-1	39	86	148	154	158	142	93	37	2	-2	851
1994	-4	0	57	126	167	162	174	129	104	32	5	-5	947
1995	-6	0	42	84	160	167	148	110	111	32	-3	-5	840
1996	0	3	10	68	86	136	151	151	59	25	0	0	689
1997	0	3	13	79	122	138	162	119	84	20	5	4	749
1998	0	0	27	99	159	119	146	149	89	19	-1	1	807
1999	0	4	16	72	107	114	115	97	74	27	2	1	629
2000	0	2	27	69	110	122	138	117	70	29	3	0	687
2001	1	3	28	80	125	116	140	148	91	25	3	-1	759
2002	-5	4	3	61	157	209	210	131	79	22	5	-6	870
2003	-5	-3	15	74	143	164	203	173	90	41	-4	-5	886
2004	-4	-1	46	117	140	157	149	116	67	27	7	-6	815
2005	-6	4	39	114	173	122	159	121	71	30	4	-5	826
2006	-6	4	5	120	169	164	176	135	81	19	-2	-3	862
2007	-2	-3	43	75	142	154	186	112	78	37	5	-6	821
2008	-5	-1	44	82	160	146	160	144	91	43	6	-6	864
2009	-2	-1	18	96	169	182	170	124	132	16	10	-5	909
MEAN	-2	1	22	88	143	152	164	135	84	31	3	-2	824
MIN	-7	-5	-2	12	86	99	115	87	51	16	-7	-8	629
MAX	3	9	57	141	207	225	233	191	132	47	17	4	1045
COUNT	*65*	*69*	*69*	*71*	*70*	*71*	*70*	*71*	*71*	*70*	*70*	*66*	*61*

Lethbridge

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912	-5	-5	8	95	156	205	153	145	82	44	17	9	904
1913	-3	13	7	120	140	176	212	200	129	40		1	
1914	-4	-1	44	92	161	167	231	176	111	33	10	-4	1016
1915	3	-2	34	126	125	135	159	195	89	50	11	5	930
1916	0	-1	27	110	123	163	211	187	98	37	-2	-5	948
1917	-4	-2	18	57	107	150	260	192	89	31	5	-3	900
1918	-4	-3	53	100	135	216	210	174	108	39	6	3	1037
1919	4	-1	4	105	136	209	203	190	72	26	-4	-5	939
1920	-1	2	48	48	126	167	227	183	128	41	7	-1	975
1921	-2	-1	19	82	136	209	236	187	104	65	8	-2	1041
1922	1	-2	5	57	135	181	189	174	114	41	6	-2	899
1923	1	3	49	103	149	151	180	159	109	42	14	4	964
1924	-3	10	44	90	160	147	213	150	103	38	-2	2	952
1925	1	-2	15	89	176	177	190	181	68	26	4	2	927
1926	5	10	48	115	160	178	222	145	56	47	0	0	986
1927	5	6	36	76	84	164	172	145	73	43	-2	-1	801
1928	-2	5	37	75	190	126	175	152	111	25	12	-3	903
1929	-3	-4	41	74	133	172	232	231	89	51	6	-1	1021
1930	-1	13	41	97	125	154	202	187	95	34	11	7	965
1931	10	24	41	120	162	177	211	186	89	58	5	-4	1079
1932	-3	4	18	95	149	177	232	196	115	35	9	3	1030
1933	5	6	48	86	148	235	258	191	113	35	18	0	1143
1934	6	17	49	148	204	171	241	209	74	43	12	2	1176
1935	0	16	37	75	139	186	239	212	134	44	5	2	1089
1936	-1	0	34	81	193	194	274	190	118	51	16	4	1154
1937	1	4	35	115	186	195	218	197	119	43	9	4	1126
1938	5	-2	45	92	115	159	202	167	146	53	9	6	997
1939	10	1	51	118	187	115	229	212	109	41	23	7	1103
1940	3	3	40	57	163	199	193	211	105	39	2	4	1019
1941	6	16	57	116	154	178	229	160	83	50	19	4	1072
1942	11	0	53	112	122	132	193	162	102	48	4	-4	935
1943	-1	13	9	124	151	158	248	202	138	50	15	8	1115
1944	9	1	21	127	148	158	220	174	127	67	6	4	1062
1945	-4	2	54	71	138	136	226	200	89	49	-3	-4	954
1946	3	10	64	138	146	157	227	187	104	34	1	-4	1067
1947	2	-2	3	107	161	141	240	151	89	43	0	3	938
1948	4	-5	5	64	132	140	196	193	135	63	14	-4	937
1949	-6	-5	14	144	155	181	207	210	132	30	25	-7	1080
1950	-5	4	5	87	153	174	196	173	139	41	-2	2	967
1951	-6	-2	4	101	174	132	183	128	88	29	7	-5	833
1952	-7	9	20	129	167	174	194	174	132	67	16	4	1079
1953	3	9	45	61	150	157	231	208	134	71	23	4	1096
1954	-2	22	14	65	171	167	244	154	104	62	26	14	1041
1955	2	3	32	99	130	216	180	233	127	55	1	-3	1075
1956	-3	1	52	105	166	199	188	173	114	51	21	8	1075
1957	-1	7	57	96	175	167	248	169	131	30	11	9	1099
1958	12	2	8	90	209	166	194	222	134	69	9	5	1120
1959	-3	3	65	113	143	201	254	202	103	42	8	10	1141
1960	-3	6	48	119	153	206	278	187	152	57	13	4	1220
1961	9	15	50	99	143	252	219	228	107	51	12	-1	1184
1962	5	0	39	145	147	200	210	206	127	53	18	5	1155
1963	0	10	65	110	176	173	217	191	147	66	16	2	1173
1964	5	24	42	100	161	177	240	197	78	66	10	-1	1099
1965	0	8	29	93	165	159	215	184	58	64	4	1	980

Lethbridge

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	7	65	98	176	182	210	183	144	45	7	4	1120
1967	-1	12	35	56	139	170	263	225	166	50	14	0	1129
1968	0	15	65	101	159	174	218	148	106	44	13	-2	1041
1969	-2	-3	37	122	184	158	218	261	126	31	26	6	1164
1970	-1	13	34	90	176	213	247	243	118	49	6	-2	1186
1971	-2	12	40	112	170	194	235	246	109	46	8	-1	1169
1972	-1	3	42	109	162	220	184	201	89	35	14	-2	1056
1973	7	6	65	86	209	206	270	223	114	45	-5	-1	1225
1974	-2	12	33	112	133	242	237	152	121	65	17	6	1128
1975	1	0	23	48	137	183	224	167	133	36	12	5	969
1976	7	17	52	123	210	173	218	184	151	45	19	8	1207
1977	-1	28	53	155	169	230	234	152	95	58	10	-1	1182
1978	-4	-2	37	65	140	219	198	188	110	56	7	0	1014
1979	-3	0	50	57	149	226	241	161	93	52	16	10	1052
1980	3	10	46	145	203	185	239	157	106	54	22	7	1177
1981	10	13	64	138	140	194	198	215	141	44	25	6	1188
1982	0	2	29	113	163	173	212	199	122	55	7	5	1080
1983	9	12	36	109	182	167	200	235	116	55	10	-2	1129
1984	9	29	36	125	167	195	266	239	86	37	8	2	1199
1985	7	12	58	121	193	224	274	180	65	45	1	4	1184
1986	7	4	61	127	161	214	219	219	64	59	8	12	1155
1987	16	26	36	163	210	235	198	155	150	67	22	9	1287
1988	8	20	63	165	222	238	262	212	127	65	21	8	1411
1989	7	1	24	118	177	202	229	160	135	59	16	7	1135
1990	11	19	74	112	147	215	201	206	181	51	15	1	1233
1991	7	21	54	133	158	187	239	216	131	54	15	17	1232
1992	17	23	81	135	198	177	157	181	110	44	11	0	1134
1993	-2	8	56	112	178	172	142	155	112	56	12	7	1008
1994	4	1	83	117	174	189	220	188	160	44	12	8	1200
1995	1	16	61	87	126	151	171	166	110	44	9	2	944
1996	2	18	38	97	99	188	212	244	93	46	3	2	1042
1997	3	16	47	95	142	161	208	181	148	44	10	10	1065
1998	3	19	34	111	172	122	182	216	138	52	11	6	1066
1999	5	25	57	99	153	158	180	167	126	53	18	16	1057
2000	4	15	58	116	183	192	266	204	115	55	10	1	1219
2001	13	7	70	112	209	177	234	257	147	59	24	9	1318
2002	11	18	6	91	150	180	218	131	97	26	26	13	967
2003	10	5	57	98	164	186	260	239	109	50	7	10	1195
2004	6	20	91	154	159	181	221	173	120	54	22	8	1209
2005	6	29	76	124	188	133	211	158	99	40	20	8	1092
2006	19	23	52	138	206	186	265	234	135	42	13	16	1329
2007	14	10	90	103	174	220	294	212	128	68	23	6	1342
2008	9	23	85	131	165	198	216	215	126	65	25	-1	1257
2009	9	21	64	126	186	202	188	180	176	35	29	-1	1215
MEAN	3	9	42	105	160	181	219	190	114	48	11	3	1085
MIN	-7	-5	3	48	84	115	142	128	56	25	-5	-7	801
MAX	19	29	91	165	222	252	294	261	181	71	29	17	1411
COUNT	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*97*	*98*	*97*

Medicine Hat

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912	-4	0	1	97	148	205	168	140	74	32	9	3	873
1913	2	3	16	118	138	175	205	183	125	27	9	2	1003
1914	0	0	48	102	183	176	268	181	76	29	10	-3	1070
1915	-1	-2	38	143	147	145	175	201	76	48	8	-1	977
1916	-1	-1	46	129	132	156	190	153	90	27	4	-5	920
1917	-4	-2	3	66	162	174	248	161	90	25	12	-4	931
1918	-4	-3	41	115	157	217	217	177	115	46	5	-6	1077
1919	2	-2	2	98	180	193	215	215	85	28	-5	-5	1006
1920	-5	-4	4	51	146	198	230	203	127	40	5	-2	993
1921	-6	1	14	87	135	214	225	204	92	73	-1	-7	1031
1922	-7	-2	6	65	140	199	204	188	123	43	2	-4	957
1923	-1	1	38	111	166	141	161	176	120	45	11	-4	965
1924	-4	9	13	97	175	168	240	162	102	41	-6	1	998
1925	-2	-4	9	90	189	190	230	184	67	22	-1	-1	973
1926	4	8	47	114	182	199	246	154	56	41	-2	-2	1047
1927	2	3	32	82	92	168	193	152	77	41	-4	-1	837
1928	-4	2	38	77	201	127	183	160	105	24	11	-3	921
1929	-3	-3	38	72	138	179	259	237	88	47	7	-2	1057
1930	-1	13	40	93	140	127	217				9	4	
1931	10	19	35	114	157	162	177	182	86	50	3	-2	993
1932	-2	3	6	89	153	172	236	197	111	26	9	2	1002
1933	2	3	41	78	141	228	260	230	104	33	12	-1	1131
1934	5		41	144	213	170	251	222	75	45	10	1	
1935	0	8	31	69	136	182	253	213	125	42	1	-2	1058
1936	-1	0	34	76	196	190	295	203	114	41	13	4	1165
1937	1	2	38	110	169	198	241	200	109	35	9	3	1115
1938	4	2	41	95	127	165	218	175	139	47	8	1	1022
1939	2	0	35	110	167	123	236	207	111	30	16	6	1043
1940	-2	-1	28	56	166	190	182	227	122	38	-1	-2	1003
1941	2	5	40	107	151	162	200	171	72	42	11	3	966
1942	4	-1	54	104	132	128	193	159	96	39	3	-3	908
1943	-5	-6	3	128	150	164	259	213	136	53	15	5	1115
1944	2	1	11	141	179	162	234	180	120	61	-2	-4	1085
1945	-5	-2	36	79	154	185	244	207	86	40	-1	-5	1018
1946	-5	-2	50	132	143			165	89	27	-1	-7	
1947	-3	-4	3	93	156	136	258	162	84	41	-2	-6	918
1948	1	-3	2	67	154	224	247	207	123	57	10	-4	1085
1949	-4	-1	38	157	178	202	222	234	120	27	22	-5	1190
1950	-4	-4	18	91	157	186	219	164	118	32	4	-2	979
1951	-5	-4	0	94	175	128	207	145	87	28	8	-3	860
1952	-5	-3	4	134	177	175	196	188	115	60	16	-3	1054
1953	-2	9	35	67	154	171	247	234	128		25	5	
1954	-2	21	26	66	172	166	250	165	100	59	24	8	1055
1955	-2	-1	20	91	136	209	188	240	105	51	3	-1	1039
1956	-3	-2	32	104	167	206	211	192	109	47	18	5	1086
1957	-2	0	48	104	200	179	266	174	114	28	13	9	1133
1958	9	0	15	101	229	193	222	239	118	58	8	0	1192
1959	-1	-2	50	127	160	209	265	205	97	33	7	7	1157
1960	-2	1	41	116	169	207	296	203	134	54	8	-1	1226
1961	5	12	47	109	157	242	254	265	100	47	11	0	1249
1962	0	-1	16	142	154	219	217	210	126	54	21	5	1163
1963	-1	10	55	114	197	190	245	221	136	68	16	1	1252
1964	-1	18	32	102	177	195	270	212	77	57	9	-2	1146
1965	-2	0	11	88	168	175	246	224	41	61	3	9	1024

Medicine Hat

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	-1	55	90	194	170	236	202	136	38	1	1	1121
1967	0	1	19	63	144	188	265	239	151	46	11	-1	1126
1968	-1	12	62	106	173	171	224	179	104	43	12	-1	1084
1969	-2	-2	11	120	189	194	235	271	124	27	19	2	1188
1970	-2	2	29	100	169	216	229	249	112	41	3	-1	1147
1971	1	5	42	120	202	189	244	277	110	49	10	-2	1247
1972	0	1	53	130	191	224	191	230	114	35	12	0	1181
1973	7	9	75	92	215	209	273	233	117	54	-1	3	1286
1974	1	12	40	121	148	237	265	176	117	67	19	7	1210
1975	2	-2	22	47	146	181	253	178	132	41	12	1	1013
1976	3	18	46	136	223	188	234	220	149	52	14	3	1286
1977	-1	22	67	166	190	205	237	176	89	57	12	-3	1217
1978	-1	-1	40	79	160	217	221	204	116	53	7	-2	1093
1979	-2	0	56	82	166	230	248	222	154			6	
1980	-1	3	2	172	235	194	244	174	118	46	16	3	1206
1981	5		67	151	163	193	231	256	146	39	18	-2	
1982	0	0	32	111	157	208	207	211	117	47	6	1	1097
1983	0	22	34	117	176	197	211	254	119	57	10	-2	1195
1984	0	23	36	141	180	204	278	253	94	34	-2	-1	1240
1985	-3	0	56	117	201	242	294	197	67	43	-2	-2	1210
1986	6	2	58	129	159	224	209	244	67	47	5	3	1153
1987	7	17	35	150	208	249	225	167	143	59	15	4	1279
1988	4	15	56	174	248	258	280	218	121	59	14	6	1453
1989	3	2	41	123	178	221	266	197	124	55	7	1	1218
1990	4	15	63	117	164	214	242	225	174	50	10	-1	1277
1991	-2	16	52	132	149	174	243	226	130	46	9	8	1183
1992	8	17	75	132	193	201	175	200	106	44	9	-1	1159
1993	-3	4	53	112	190	185	154	158	107	46	8	2	1016
1994	-3	0	67	131	185	195	255	225	152	39	11	6	1263
1995	-2	15	53	102	169	203	207	206	129	37	6	-4	1121
1996	2	14	37	101	114	193	227	231	88	40	2	0	1049
1997	-1	6	42	109	163	184	229	204	146	38	10	10	1140
1998	2	17	43	134	214	171	245	256	147	52	15	6	1302
1999	2	17	60	112	150	171	196	187	127	45	16	5	1088
2000	0	7	46	113	193	188	268	226	121	53	8	1	1224
2001	6	6	65	132	223	200	254	271	146	45	17	-1	1364
2002	1	15	3	103	176	178	231	144	106	31	17	6	1011
2003	2	3	52	107	161	178	262	260	116	56	2	6	1205
2004	-2	6	68	147	158	194	232	159	109	41	17	6	1135
2005	3	22	64	133	196	154	236	180	119	48	15	1	1171
2006	4	12	44	141	186	186	280	247	130	37	10	5	1282
2007	6	0	75	94	172	209	305	224	122	52	15	-4	1270
2008	0	-1	60	104	167	190	239	232	121	56	18	-4	1182
2009	-2	0	44	132	197	206	216	184	164	30	20	-4	1187
MEAN	0	5	37	108	170	189	233	203	112	44	9	0	1108
MIN	-7	-6	0	47	92	123	154	140	41	22	-6	-7	837
MAX	10	23	75	174	248	258	305	277	174	73	25	10	1453
COUNT	*98*	*96*	*98*	*98*	*98*	*97*	*97*	*97*	*97*	*95*	*97*	*98*	*92*

Peace River

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
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1953													
1954													
1955													
1956													
1957													
1958													
1959	-2	-3	30	87	146	146	178	99	62	14	-4	-1	752
1960	-4	-3	2	114	154	129	190	138	79	16	-3	-5	807
1961	-4	-2	7	92	156	175	164	181	59	16	-2	-3	839
1962	-3	-3	1	72	122	157	153	102	65	19	-4	-5	676
1963	-3	-3	4	76	148	180	161	128	69	24	-4	-4	776
1964	-5	3	0	81	128	156	133	89	55	20	-2	-2	656
1965	-3	-2	6	63	150	178	187	134	43	26	-3	-3	776

Peace River

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-3	-2	13	56	177	163	127	122	67	21	-3	-5	733
1967	-3	-2	1	62	163	168	193	172	82	16	-2	-4	846
1968	-4	-4	20	84	144	138	147	112	52	16	-6	-3	696
1969	-2	-4	8	80	155	168	161	152	49	13	-1	-5	774
1970	-3	0	5	88	142	158	172	146	69	21	-3	-3	792
1971	-2	-4	6	95							-4	-3	
1972	-2	-2	4	64	190	160	146	136	45	19	-4	-3	753
1973	-3	-1	18	80	174	138	146	120	68	16	-3	-4	749
1974	-1	0	2	80	136	190	142	109	64	24	1	-4	743
1975	-3	-1	3	88	154		183	124	88	15	-2	-3	
1976	-3	-1	8	115	157	128	157	106	87	20	4	-2	776
1977	-2	5	29	121	150	160	136	100	67	20	-3	-4	779
1978	-3	-2		69	134	168	178	116	55	26	0	-5	
1979						160	170	128	74	33	5	-2	
1980	-2	-1	8	130	167	179	175	122	49	27	1	-3	852
1981	-4	-2	32	68	179	174	203	209	88	16	2	-4	961
1982	-2	-1	2	78	157	227	180	96	76	23	0	-4	832
1983	-2			98	151	154	137	149	56	21	-4	-1	
1984	-1	3	29	96	123	164	176	129	54	14	-3	-1	783
1985				98	188	179	192	127	53	15	-2	-3	
1986	-3	-2	23	76	146	187	141	159	46	20	-3	-5	785
1987	-4	0	5	117	175	173	174	114	93	29	1	-1	876
1988	-1	1	35	113	147	153	118	137	75	25	-1	0	802
1989	-2	1	7	116	159	179	176	113	71	20	-2	0	838
1990	-2	1	39	87	152	162	181	152	95	13	-1	-2	877
1991	-3	0	25	123	175	149	176	158	72	17	-7	-6	879
1992	-8	-2	40	102	156	162	155	146	60	20	-2	-3	826
1993	-4	0	41	96	166	180	134	114	82	21	-2	-7	821
1994	-2	-1	35	106	170	168	155	143	86	19	-4	-6	869
1995	-6	-1	19	80	186	194	154	122	106	19	-3	-4	866
1996	-2	-1	11	75	131	147	141	121	63	13	-2	-3	694
1997	-3	-1	11	76	140	159	158	127	80	17	2	-6	760
1998	-2	2	34	126	216	201	216	206	94	26	0	-2	1117
1999	-1	3	36	102	162	176	187	189	91	26	-2	-3	966
2000	-2	1	35	108	135	158	161	102	69	22	-2	-4	783
2001	1	2	35	102	186	165	155	154	91	22	-2	-4	907
2002	-3	8	16	69	170	216	179	153	69	16	-2	-8	883
2003	-3	-2	6	76	164	161	187	148	79	22	-4	-5	829
2004	-2	4	34	107	137	197	163	119	65	20	-2	-4	838
2005	-3	0	30	117	173	182	173	135	81	27	4	-8	911
2006	-7	4	27	137	177	178	182	156	91	18	-2	-4	957
2007	2	-2	15	81	145	166	182	103	70	25	-3	-6	778
2008	-4	0	26	77	169	175	192	164	78	26	-5	-2	896
2009	-1	2	14	101	155	190	174	157	94	16	2	-3	901
MEAN	-3	0	18	92	158	169	166	135	72	20	-2	-4	822
MIN	-8	-4	0	56	122	128	118	89	43	13	-7	-8	656
MAX	2	8	41	137	216	227	216	209	106	33	5	0	1117
COUNT	*49*	*48*	*47*	*50*	*49*	*49*	*50*	*50*	*50*	*50*	*51*	*51*	*45*

Slave Lake

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
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1959													
1960													
1961													
1962													
1963													
1964													
1965													

Slave Lake

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966													
1967													
1968						136	140	100	53	18	-1	-3	
1969	-2	-4	22	90	149	169	159	133	48	14	1	-4	775
1970	-2	4	8	90	143	150	149	130	71	18	-3	-4	754
1971	-3	0	14	100	176	127	141	124	60	24		-3	
1972	-2	-1	4	82	163	146	134	119	48	20	-3	-3	707
1973	-3	-1	33	80	153	126	152	111	67	15	-5	-5	723
1974	-2	-1	1	77	126	164	136	106	60	27	2	-4	692
1975	-1	-2	3	69	134	136	169	100	75	17	2	-2	700
1976	-2	1	12	106	155	122	149	118	83	23	6	-4	769
1977	-4	7	23	105	124	154	126	104	55	27	-2	-1	718
1978	-3	-4	22	74	120	159	159	113	55	28	2	-4	721
1979	-3	-1	28	49	110	138	151	120	66	20	1	-3	676
1980	-3	-2	11	122	154	141	140	95	53	26	3	-3	737
1981	-6	-2	38	75	164	144	155	163	84	18	5	-4	834
1982	-1	-2		67	139	191	146	100	73	23	-1	-3	
1983	-3	1	17	91	141	138	132	143	59	22	-3	-3	735
1984	0	7	34	104	118	165	182	135	49	16	-3	-2	805
1985	-4	-2	35	94	163	170	182	129	50	19	-3	-2	831
1986	-3	-2	34	81	141	168	130	143	60	20	-2	-4	766
1987	-4	0	6	105	154	166	164	107	97	28	2	-3	822
1988	-1	3	31	112	144	138	154	129	77	25	-1	-3	808
1989	-2	-2	5	100	145	145	159	100	69	21	-1	-3	736
1990	-3	-1	42	74	139	150	131	103	67	21	-10	-8	705
1991	-2	3	31	110	161	135	184	162	62	15	-4	-4	853
1992	-3	0	45	91	147	163	151	142	47	20	-1	-2	800
1993	-4	1	40	78	138	150	146	130	79	23	3	-2	782
1994	-2	-2	40	83	131	144	139	122	85	20	-3	-6	751
1995	-6	-2	32	71	159	163	128	95	95	19	-1	-8	745
1996	-2	0	14	72	108	136	128	104	50	14	0	-3	621
1997	0	7	32	86	130	130	151	117	68	13	1	-3	732
1998	-3	-5	31	104	176	147	156	156	81	22	-3	-4	858
1999	-3	-1	35	94	140	156	147	146	80	28	2	-4	820
2000	-3	1	40	100	132	155	150	105	68	27	5	-2	778
2001	3	5	40	102	153	144	152	150	88	20	1	-7	851
2002	-4	6	6	62	158	185	165	119	64	15	1	-8	769
2003	-4	-3	14	78	128	143	157	131	74	20	-5	-6	727
2004	-3	1	34	88	121	174	135	99	57	18	6	-4	726
2005	-3	-1	32	92	147	124	142	106	64	21	4	-5	723
2006	-5	4	13	118	129	151	155	124	81	16	-2	-5	779
2007	-4	-2	31	72	128	143	174	93	66	27	3	-4	727
2008	-4	-2	31	57	142	142	162	120	63	29	0	-3	737
2009	-2	-1	23	83	135	157	134	120	80	12	7	-3	745
MEAN	-3	0	25	88	142	150	150	121	67	21	0	-4	757
MIN	-6	-5	1	49	108	122	126	93	47	12	-10	-8	621
MAX	3	7	45	122	176	191	184	163	97	29	7	-1	858
COUNT	*41*	*41*	*40*	*41*	*41*	*42*	*42*	*42*	*42*	*42*	*41*	*42*	*39*

Suffield

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
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1946													
1947													
1948													
1949													
1950													
1951													
1952													
1953	-3	-3	19	63	135	150	221	199	118	62	17	0	978
1954	0	2	3	54	148	176	223	149	88	55	15	4	917
1955	-3	-4	1	80	133	193	174	238	111		-1		
1956	-5	-3	5	98	156	191	202	185	105	44	15	1	994
1957	-3	-2	44	98	193	155	261	162	114	27	6	6	1061
1958	5	-3	3	95	217	182	215	234	117	58	6	-2	1127
1959	-3	-4	47	119	158	209	262	202	95	33	0	4	1122
1960	-3	-1	28	122	168	205	282	196	137	51	4	-5	1184
1961	-1	0	50	105	159	279	249	271	112	47	9	-4	1276
1962	-3	-2	9	142	155	213	220	216	142	57	19	4	1172
1963	-2	20	70	137	176	193	263	210	152	73	4	6	1302
1964	-1	17	35	106	182	193	266	219	81	59	10	-3	1164
1965	-4	-2	15	91	167	181	242	224	48	61		12	

Suffield

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-2	-4	52	99	197	177	230	200	143	40	3	-4	1131
1967	-2	-3	10	70	145	189	262	236	163	48	11	-3	1126
1968	-2	9	68	111	171	179	226	172	113	45	12	-3	1101
1969	-2	-3	1	126	190	196	229	265	124	30	17	-3	1170
1970	-4	-1	10	88	180	215	227	248	116	45	1	-2	1123
1971	-2	-3	1	108	189	168	234	261	100	44	7	-3	1104
1972	-1	-2	39	125	181	213	194	219	92	31	8	-2	1097
1973	6	0	73	85	200	201	253	216	112	50	-4	-3	1189
1974	-2	-3	5	108	132	233	248	161	109	63	14	4	1072
1975	-4	-3	2	43	136	173	238	161	127	37	12	-4	918
1976	-3	15	36	125	201	170	211	196	134	46	13	-2	1142
1977	-5	20	62	163	173	230	211	165	79	55	10	-5	1158
1978		-1	6	72	152	207	209	185	103	51	5	-4	
1979	-2	0	52	76		221	242	213	149		-6	6	
1980	-1	2	2	158	220	183	231	166	107	43	15	3	1129
1981	5	11	63	133	150	180	216	246	143	37	18	-3	1199
1982	0	1	28	105	154	194	201	201	119	44	5		
1983	-1	8	35	117	176	188	204	252	115	55	10	-1	1158
1984	-1	23	35	138	171	193	272	251	90	31	-2	-1	1200
1985					197	236	284	187	68	38	-2	-2	
1986	5	1		116	145	218	201	234	65	45	4	3	
1987	7	18	35	145	202	239	217	162	143	58	15	4	1245
1988	3	14		167	238	251	270	209	117	58	13	6	
1989	2	2	38	120	173	212	261	190	124	53	7	1	1183
1990	0	13	60	115	159	207	234	218	167	45	10	0	1228
1991	-2	16	51	130	148	163	233			43	8	8	
1992	8	16	74	127	183	190	173	194	101	41	7	-1	1113
1993	-2	6	56	119	186	196	198	188	113	46	11	7	1124
1994	-1	-1	72	148	188	204	261	232	157	37	15	5	1317
1995	-4	15	69	109	182	229	229	196	129	43	4	-4	1197
1996	-3	13	41	124	145	226	252	284	94	44	-3	-8	1209
1997	-2	10	46	124	199	206	259	215	146	48	14	5	1270
1998	-3	18	39	150	211	178	222	264	139	52	13	3	1286
1999	-5	14	70	126	168	184	218	209	132	55	22	5	1198
2000	-3	5	64	119	210	197	253	238	123	46	9	-3	1258
2001	6	-1	66	121	235	200	238	284	134	35	20	-1	1337
2002	3	18	4	105	176	189	238	145	101	28	17	8	1032
2003	4	3	52	102	131	173	248	236	116	50	-3	-1	1111
2004	-2	1	65	127	123	186	206	147	107	40	21	2	1023
2005	-4	20	67	138	197	158	227	167	117	44	15	-1	1145
2006	8	8	43	140	176	181	275	234	122	36	7	7	1237
2007	7	-1	64	98	154	206	304	216	117	52	11	-2	1226
2008	-2	-2	58	125	137	166	215	226	118	53	17	-1	1110
2009	-2	0	17	122	184	196	190	164	161	26	23	-3	1078
MEAN	-1	5	38	114	173	197	234	210	117	46	9	1	1151
MIN	-5	-4	1	43	123	150	173	145	48	26	-6	-8	917
MAX	8	23	74	167	238	279	304	284	167	73	23	12	1337
COUNT	*55*	*56*	*54*	*56*	*56*	*57*	*57*	*56*	*56*	*55*	*56*	*55*	*48*

Vauxhall

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
1922													
1923													
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1948													
1949													
1950													
1951													
1952													
1953													
1954				56	157	160	243	151	97	56	25	12	
1955	0	1	30	98	132	217	182	231	106	47	0	-1	1043
1956	-3	1	38	103	164	199	194	175	112	45	19		
1957	-1	5	47	97	178	169	253	167	121	25	9	8	1078
1958	10	2	4	89	210	165	197	220	121	61	9	4	1092
1959	-2	1	58	112	145	198	251	201	97	35	7	9	1112
1960	-2	4	41	114	154	206	278	188	134	47	11	3	1178
1961	8	12	43	92	148	260	225	229	101	41	11	0	1170
1962	4	0	31	133	145	202	211	205	117	46	17	4	1115
1963	1	11	50	109	174	172	220	192	135	62	14	2	1142
1964	3	23	35	97	160	176	244	201	73	62	9	-1	1082
1965	-1	5	24	88	163	161	217	181	58	59	3	1	959

Vauxhall

Potential Evapotranspiration (mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1966	-1	4	64	96	178	174	209	176	133	40	5	-1	1077
1967	-1	10	33	61	136	167	255	220	156	45	10	-2	1090
1968	-1	12	63	99	153	167	211	147	101	39	13	-2	1002
1969		-3	32	119	180	162	212	253	116	29	23	5	
1970				88	171	209	239	234	106				
1971				106	167	188	223	242	101				
1972				111	162	212	179	199	84				
1973				83	203	199	262	217	106				
1974				106	130	233	237	151	109				
1975				49	138	180	220	162	124				
1976				120	205	161	212	179	136	39			
1977				151	168	223	227	145	83	46			
1978				64	141	212	194	178	99	50			
1979				55	146	216	235	165	107	45			
1980				141	198	177	226	152	107	48			
1981					144	175	200	221	136	37			
1982													
1983				109	176	169	197	227	111	48	9	-1	
1984	7	26	36	123	168	196	258	233	82	30	7	2	1168
1985	4	8	57	117	195	223	267	185	67	37	0	6	1166
1986	7	2	55	117	162	211	206	214	64	50	7	11	1106
1987	14	25	31	142	203	225	193	150	134	56	19	8	1200
1988	6	16	48	153	214	233	252	205	112	55	16	7	1317
1989	5	1	20	115	180	204	231	161	120	50	16	8	1111
1990	10	15	65	110	148	209	198	201	164	44	12	0	1176
1991	-4	18	51	100	137	168	208	190	114	40	8	4	1034
1992	8	17	72	103	150	170	175	167	98	38	9	-4	1003
1993	-6	-2	57	98	159	160	160	159	105	37	7	4	938
1994	-2	-3	74	126	177	180	227	193	143	35	10	5	1165
1995	-5	13	58	92	143	174	180	170	107	34	4	-5	965
1996	-1	6	25	100	114	200	218	219	93	43	-2	-4	1011
1997	-3	5	50	110	165	174	206	182	117	38	9	8	1061
1998	-5	17	21	116	190	136	196	219	130	40	7	-1	1066
1999	-4	21	63	116	148	162	168	153	118	38	13	5	1001
2000	-3	-3	59	103	168	162	222	176	94	35	5	-4	1014
2001	3	-2	60	106	199	162	194	232	129	35	15	-6	1127
2002	-2	13	0	83	138	166	184	114	81	26	8	0	811
2003	-2	-3	24	76	134	147	196	190	94	35	-6	-3	882
2004	-7	-9	67	130	139	156	179	142	86	41	12	-8	928
2005	-8	23	67	123	182	128	196	147	93	36	12	3	1002
2006	5	16	19	121	180	169	235	206	118	35	8	8	1120
2007	7	1	76	93	161	192	267	191	111	58	14	-4	1167
2008	0	3	73	118	150	171	199	199	105	53	15	-3	1083
2009	-1	0	52	130	192	207	191	166	160	32	21	-4	1146
MEAN	1	8	46	105	164	185	216	189	110	43	10	2	1075
MIN	-8	-9	0	49	114	128	160	114	58	25	-6	-8	811
MAX	14	26	76	153	214	260	278	253	164	62	25	12	1317
COUNT	*40*	*41*	*41*	*54*	*55*	*55*	*55*	*55*	*55*	*49*	*43*	*42*	*39*

Alberta Government

Technical Report:

Evaporation and Evapotranspiration Update for Alberta

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Calgary, Alberta

for Alberta Environment and Sustainable Resource Development

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Table of Contents

1.0 INTRODUCTION

Evapotranspiration constitutes an important component of the water fluxes in the hydrosphere and atmosphere. It involves complex interactions between water and energy fluxes. The rate of evapotranspiration is affected by the complex spatial variations in climate, terrain features, and vegetation cover, which complicate the estimation of evapotranspiration at a regional scale. Regional evapotranspiration estimation is further complicated by complex temporal variations, including the diurnal and seasonal variability of evaporative fluxes.

Several methods are available for the estimation of actual evapotranspiration (ET) and potential evapotranspiration (PET), free water evaporation E. The methods that can be used to estimate evapotranspiration depend on available data. The evaporation estimates presented in this report were computed using Morton's Complementary Relationship Lake Evaporation (CRLE) and Complementary Relationship Areal Evaporation (CRAE) models (Morton, 1985), which is consistent with the method used by Alberta Environment (AENV) for previous evaporation and evapotranspiration estimates (AENV, 1999).

This report documents the method and data used for the update, presents the updated tables of evaporation and evapotranspiration, and provides a brief discussion of evaporation comparison between the results estimated by Alberta Environment in 1999 and results from the current study.

1.1 Scope of Work

The scope of the work included:

- Compilation of input data required to estimate evaporation and evapotranspiration using Morton's model.
- Comparison of AENV's Morton model coded using Excel VBA tools and Golder's Morton model coded using Excel macros.
- Derivation of solar radiation data for locations where such data is not available using equations that were provided by Alberta Agriculture or transferring data from index stations with the relevant data.
- Updating of monthly potential and shallow actual lake evaporation, and monthly potential and areal evapotranspiration estimated by Alberta Environment (AENV) in 1999 (AENV, 1999) at twenty (20) climate stations shown in Figure 1 using Morton's approach and available data from 1997 to 2009.

For most locations, updates of evaporation and evapotranspiration estimates were also required for the period prior to 1997. For example, evaporation and evapotranspiration estimates for Peace River and Vauxhall were updated from 1991 to 2009.

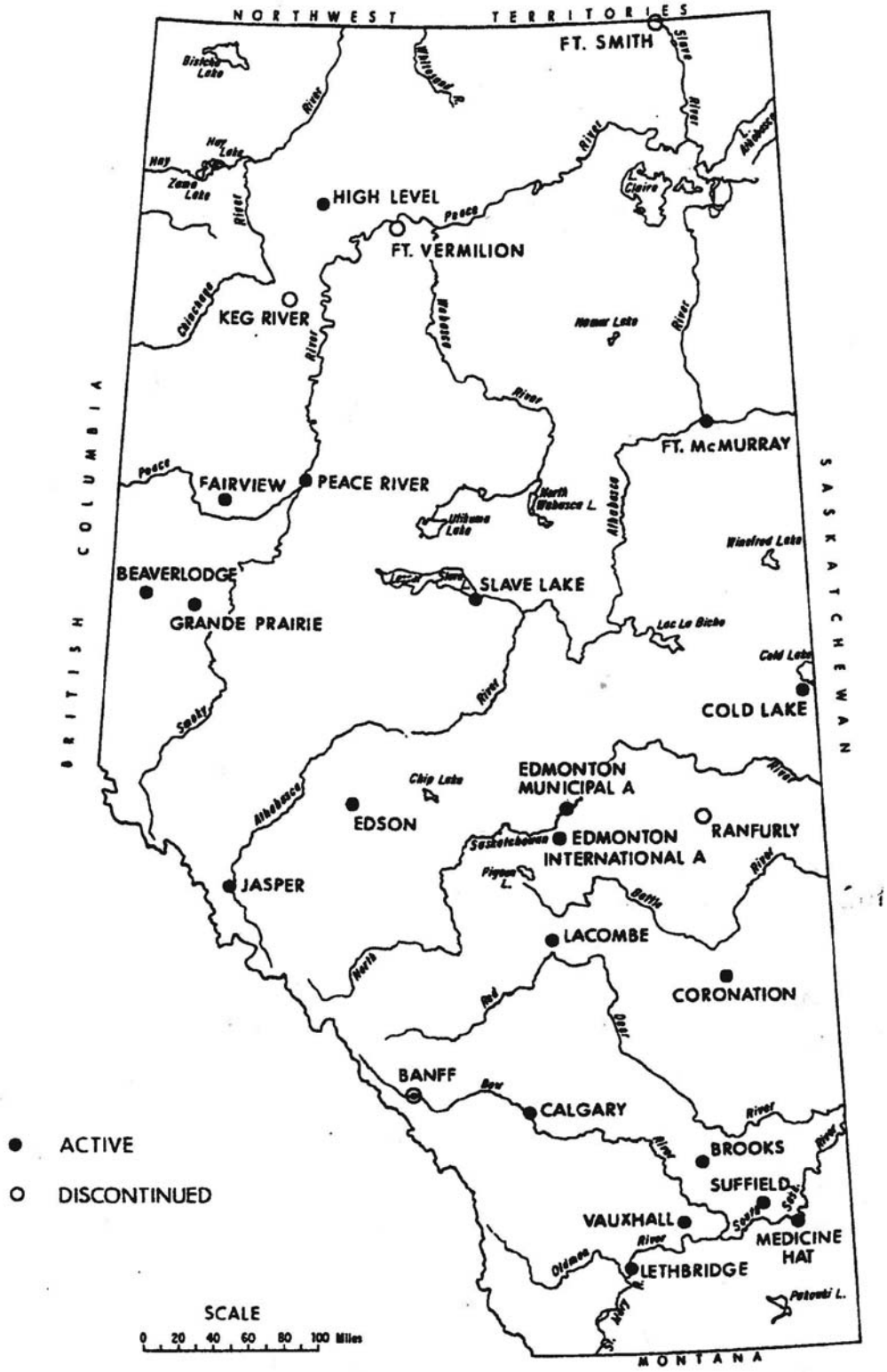

Figure 1: Location of Calculated Evaporation and Evapotranspiration

2.0 METHODOLOGY

A detailed discussion of Morton's model is provided in the Alberta Environment report on evaporation and evapotranspiration estimates for Alberta (AENV, 1999). The relevant sections of that report on the Morton's approach have been reproduced in Appendix A of this report. The implementation of Morton's model required compilation of available input data (mean monthly air temperature, mean monthly dew point temperature, mean monthly solar radiation and mean annual precipitation) prior to running the model to generate monthly evaporation and evapotranspiration for 20 locations in Alberta. Table 1 provides a summary of the available climate data used as input to Morton's model to update evaporation and evapotranspiration estimates at the twenty locations in Alberta.

2.1 Air Temperature and Dew Point Temperature

The hourly or daily air temperature and dew point temperature recorded climate stations that were used as input to Morton's model were obtained from Environment Canada. For some locations, data from two or more climate stations were used to derive continuous input data as shown in Table 1. Missing dew point temperature data at some locations were estimated using relationships established between monthly temperature and monthly dew point temperature for those climate stations.

2.2 Solar Radiation

Solar radiation is an important input variable for estimating evaporation using Morton's model. Recorded historic solar radiation data are only available at a few locations in Alberta. Hence, the solar radiation data for most locations were derived using the Hargreaves and Samani (1982, 1985) equation, which relates solar radiation to extraterrestrial radiation and the difference between the daily maximum and minimum temperatures. The equation is as follows:

$$Rs = Kt * Ra * (T_{\max} - T_{\min})^{0.5} \quad (1)$$

Where:

Rs	=	estimated solar radiation in [MJ $m^{-2}day^{-1}$]
Ra	=	extraterrestrial radiation [MJ $m^{-2}day^{-1}$]
T_{max}	=	daily maximum air temperature (^oC)
T_{min}	=	daily minimum air temperature (^oC)
Kt	=	adjustment coefficient (0.16)

Based on discussions with AENV, the approach to estimating solar radiation at stations without recorded data was as follows. If recorded solar radiation data were available within 100 km radius of the climate station, then the recorded solar radiation data were used as input to the Morton model. However, if there were no recorded solar radiation within 100 km radius, the solar radiation data were computed using equation (1).

The long-term recorded hourly solar radiation data by Environment Canada and Alberta Environment are available at Stony Plain, Lethbridge, and Beaverlodge in Alberta. Near Fort McMurray, recorded hourly solar radiation data is available at the Aurora climate station. The Aurora climate station was installed as part of the Regional Aquatics Monitoring Program (RAMP) and has recorded climate data since 1994. The recorded solar radiation data at these four (4) locations were used as input to Morton model for seven (7) locations as shown in Table 1. For the remaining thirteen (13) locations, the required solar radiation data were derived using equation (1) (see Table 1).

Table 1: Summary of Data used for Evaporation and Evapotranspiration Update

Stations	Latitude	Longitude	Average annual precipitation, mm from AES 1970-2000 Normal	Mean elevation, m	Climate Stations Used	Available Air Temperature and Dew Point	Solar Radiation	Year Starting to Update	Remark
Beaverlodge	55º 12' 00" N	119º 24' 00" W	461.2	744.9 climate station# 30705E9	3070560 - Beaverlodge CDA2 30705E9 - Beaverlodge CDA1 3070600 - Beaverlodge RCS	Jan 1995 -Dec 2009 climate station # 3070560+30705E9 + 3070600	Use observed solar radiation at Beaverlodge 1995-2004, observed solar, AES 3070560 2005 Alberta Agriculture Solar Equation 2006-2009, observed solar, AENV 3070600	1995	
Brooks	50º 33' 19" N	111º 50' 56" W	348	747 climate station# 3030QLP	3030QLP - Brooks	Jan 1997 -Dec 2009 climate station # 3030QLP	Use Alberta Agriculture Solar Equation	1997	
Calgary International Airport	51º 06' 50" N	114º 01' 13" W	412.6	1084.1 climate station# 3031093	3031093 - Calgary International Airport	Jan 1997 -Dec 2009 climate station # 3031093	Use Alberta Agriculture Solar Equation	1997	
Cold Lake	54º 25' 00" N	110º 17' 00" W	426.6	541 climate station# 3081680	3081680 - Cold Lake A	Jan 1995 -Dec 2009 climate station # 3081680	Use Alberta Agriculture Solar Equation	1995	
Coronation	52º 04' 00" N	111º 27' 00" W	401	791 climate station# 3011880	3011880 - Coronation A 3011885 - Coronation (AUT) 3011887 - Coronation Climate	Jan 1994 -Dec 2009 climate station # 3011880+3011885+3011887	Use Alberta Agriculture Solar Equation	1994	
Edmonton International Airport	53º 19' 00" N	113º 35' 00" W	482.7	723.3 climate station# 3012205	3012205 - Edmonton International Airport 301222F - Edmonton Stony Plain 301A001 - Edmonton Stony Plain CS	Jan 1997 -Dec 2009 climate station # 3012205	Use measured solar radiation at Stony Plain AES Station # 301222F+301A001 Missing solar radiation at Stony Plain were filled with observed solar at Lethbridge. Stony Plain = Lethbridge/(1+0.0667) For 2004, use Alberta Agriculture Solar Equation	1997	

Stations	Latitude	Longitude	Average annual precipitation, mm from AES 1970-2000 Normal	Mean elevation, m	Climate Stations Used	Available Air Temperature and Dew Point	Solar Radiation	Year Starting to Update	Remark
Edmonton City Centre Airport	53º 34' 24" N	113º 31' 06" W	476.9	670.6 climate station# 3012208	3012202 - Edmonton City Centre AWOS 3012208 - Edmonton City Centre Airport 301222F - Edmonton Stony Plain 301A001 - Edmonton Stony Plain CS	Jan 1997 -Dec 2009 climate station # 3012202+3012208	Use measured solar radiation at Stony Plain AES Station # 301222F+301A001 Missing solar radiation at Stony Plain were filled with observed solar at Lethbridge. Stony Plain = Lethbridge/(1+0.0667) For 2004, use Alberta Agriculture Solar Equation	1997	
Edson	53º 35' 00" N	116º 28' 00" W	562.4	927.2 climate station# 3062244	3062242 – Edson A1 3062244 – Edson A2 3062245 – Edson AWOS A	Jan 1992 -Dec 2009 climate station #3062242+3062244+ 3062245	Use Alberta Agriculture Solar Equation	1992	
Fairview	56º 04' 53" N	118º 26' 22" W	471.6	654.6 climate station# 3072525	3072539 - Fairview Three Fox Farm 3072525 - Fairview AGDM	Jan 1994 -Dec 2009 climate station # 3072539+3072525 1992 and 1993 data missing 2000 and 2001 data quality is poor	Use Alberta Agriculture Solar Equation	1994	Air temperature and dew point data are not available for 1992 and 1993, and air temperature and dew point data are of poor quality for 2000 and 2001. Therefore, evaporation is not calculated for 1992, 1993, 2000, and 2001.
Fort McMurray	56º 39' 00" N	111º 13' 00" W	455.5	369.1 climate station# 3062693	3062693 - Fort McMurray A 3062696 - Fort McMurray CS Aurora Climate Station C1 - Observed by Regional Aquatics Monitoring Program (RAMP)	Jan 1994 -Dec 2009 climate station # 3062693+3062696	Use measured solar radiation at Aurora climate station Missing data use Stony Plain to fill	1994	

Stations	Latitude	Longitude	Average annual precipitation, mm from AES 1970-2000 Normal	Mean elevation, m	Climate Stations Used	Available Air Temperature and Dew Point	Solar Radiation	Year Starting to Update	Remark
Grande Prairie	55º 10' 47" N	108º 53' 06" W	446.6	669 climate station# 3072920	3072920 - Grande Prairie A	Jan 1995 -Dec 2009 climate station # 3072920	Use observed solar radiation at Beaverlodge 1995-2004, observed solar, AES 3070560 2005 Alberta Agriculture Solar Equation 2006-2009, observed solar, AENV 3070600	1995	
High Level	58º 37' 17" N	117º 09' 53" W	394.1	338.3 climate station# 3073146	3073146 – High Level A	Jan 1995 -Dec 2009 climate station # 3073146	Use Alberta Agriculture Solar Equation	1995	
Jasper	52º 55' 35" N	118º 01' 47" W	398.8	1020.0 climate station# 3053536	3053536 - Jasper Warden	Jan 1995 -Dec 2009 climate station # 3053536	Use Alberta Agriculture Solar Equation	1995	
Lacombe	52º 28' 00" N	113º 45' 00" W	446	847 climate station# 3023720	3023720 - Lacombe CDA 3023722 - Lacombe CDA 2	Jan 1993 -Dec 2009 climate station # 3023720+3023722	Use Alberta Agriculture Solar Equation	1993	
Lethbridge	49º 37' 49" N	112º 47' 59" W	386.3	928.7 climate station# 3033880	3033880 - Lethbridge A3033890 - Lethbridge CDA 3033897 - Lethbridge Demo Farm AGDM	Jan 1997 -Dec 2009 climate station #3033880+3033890	Use measured solar radiationat Lethbridge AES Station # 3033890+3033897 Missing solar radiation at Lethbridge were filled with observed solar at Stony Plain.Lethbridge = Stony Plain * (1+0.0667) For 2004, use Alberta Agriculture Solar Equation	1997	
Medicine Hat	50º 01' 08" N	110º 43' 15" W	333.8	716.90 climate station# 3034480	3034480 - Medicine Hat A 3034485 - Medicine Hat RCS	Jan 1997 -Dec 2009 climate station # 3034480+3034485	Use Alberta Agriculture Solar Equation	1997	
Peace River	56º 13' 37" N	117º 26' 50" W	402.3	570.9 climate station# 3075040	3075040 - Peace River A	Jan 1991 -Dec 2009 climate station # 3075040	Use Alberta Agriculture Solar Equation	1991	

Stations	Latitude	Longitude	Average annual precipitation, mm from AES 1970-2000 Normal	Mean elevation, m	Climate Stations Used	Available Air Temperature and Dew Point	Solar Radiation	Year Starting to Update	Remark
Slave Lake	55º 17' 00" N	114º 47' 00" W	502.7	582.8 climate station# 3065999	3066001 – Slave Lake A1 3065999 – Slave Lake A2 3066002 - Slave Lake AWOS A	Jan 1993 -Dec 2009 climate station # 3066001+3065999+3066002	Use Alberta Agriculture Solar Equation	1993	
Suffield	50º 16' 00" N	111º 11' 00" W	318.2	769.6 climate station# 3036240	3036240 - Suffield A	Jan 1993 -Dec 2009 climate station # 3036240	Use Alberta Agriculture Solar Equation	1993	
Vauxhall	50º 03' 00" N	112º 08' 00" W	321 average of AES 3036690 1982-2007	779 climate station# 3036682	3036690 - Vauxhall North 3036682 - Vauxhall CDA CS	Jan 1991 -Dec 2009 climate station # 3036690+3036682	Use measured solar radiation at Lethbridge AES Station # 3033890+3033897 Missing solar radiation at Lethbridge was filled with observed solar at Stony Plain. Lethbridge = Stony Plain * (1+0.0667) For 2004, use Alberta Agriculture Solar Equation	1991	

3.0 RESULTS

The estimates of monthly potential and shallow lake evaporation and monthly potential and areal evapotranspiration at 20 climate stations in Alberta are presented in Table 1 to Table 20 in Appendix B. A significant portion of air temperature and dew point temperature data is missing from the records at the Fairview climate station for 1992, 1993, 2000, and 2001. Hence, evaporation and evapotranspiration estimates could not be derived for these years at Fairview.

The evaporation and evapotranspiration estimated by AENV in 2001 and the estimates from this study were compared for 5 climate stations: Edmonton international Airport, Lacombe, Calgary, Lethbridge and Medicine Hat, for a concurrent period from 1997 to 2001 (Table 2). The results show that the two sets of estimates are reasonably close, with the estimates from this study being slightly higher than AENV's estimates for potential evaporation and potential evapotranspiration. However, the estimates from the current study are slightly lower than AENV's estimates for lake evaporation and areal evapotranspiration. The raw data used by AENV for their estimates were not available to assess the reason for the differences though both computations use Morton's Model.

Table 2: Comparison of Evaporation and Evapotranspiration Estimated in this Study to AENV Data

Station	Year	Potential Evapotranspiration, mm		Areal Evapotranspiration, mm		Potential Evaporation, mm		Lake Evaporation, mm	
		2011 Golder Estimate	2001 AENV update	2011 Golder Estimate	2001 AENV update	2011 Golder Estimate	2001 AENV update	2011 Golder Estimate	2001 AENV update
Calgary International Airport	1997	1045	985	416	468	1073	1010	780	769
	1998	1018	961	472	516	1052	991	795	781
	1999	1032	940	414	417	1061	962	771	718
	2000	1057	1020	416	478	1099	1056	790	795
	2001	1202	1154	342	397	1234	1177	826	
Edmonton International Airport	1997	848	807	449	479	880	834	693	681
	1998	910	888	402	469	945	921	702	719
	1999	850	823	402	433	875	848	668	665
	2000	810	804	397	469	838	832	643	672
	2001	921	905	377	473	948	935	694	732
Lacombe	1996	762	689	467	447	798	715	658	598
	1997	852	749	503	475	891	775	727	645
	1998	940	807	489	430	978	831	767	652
	1999	776	630	496	374	817	646	683	525
	2000	821	687	513	429	864	713	717	586
	2001	951	761	510	400	993	786	787	610
Lethbridge	1997	1128	1066	415	457	1163	1095	824	805
	1998	1166							
	1999	1162	1057	353	376	1193	1081	806	754
	2000	1226	1220	227	363	1242	1240	772	837
	2001	1343	1319	217	320	1358	1342	829	869
Medicine Hat	1997	1197	1139	329	406	1254	1187	844	840
	1998	1327	1304	256	322	1379	1351	874	885
	1999	1155	1088	354	426	1217	1138	838	829
	2000	1278	1226	263	353	1333	1273	852	861
	2001	1418	1364	210	273	1484	1415	899	893

Report Signature Page

We trust the above meets your present requirements. If you have any questions or require additional details, please contact the undersigned.

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APPENDIX A

Description of Morton Model

July 2011
Report No. 10-1326-0082

Golder Associates

SYNOPSIS

Monthly potential and lake evaporation and potential and areal evapotranspiration for the period 1912 to 1996 are presented for 20 locations throughout Alberta. Evaporation and evapotranspiration are computed using F.I.Morton's Complementary Relationship Lake Evaporation (CRLE) and Complementary Relationship Areal Evapotranspiration (CRAE) models, respectively. Applications for use of evapotranspiration values are provided, including water balances, basin storage analyses and aridity factors.

The text of this report is taken from the original report prepared by R.A. Bothe, P.Eng.

Important notes:
Lake Evaporation is - Shallow Lake Evaporation
Potential Evaporation is - Potential Shallow Lake Evaporation

Deep lake evapoariton has the same annual total as shallow lake evaporation, however it is redistributed throughout the year depending on a number of factors.

TABLE OF CONTENTS

LIST OF FIGURES

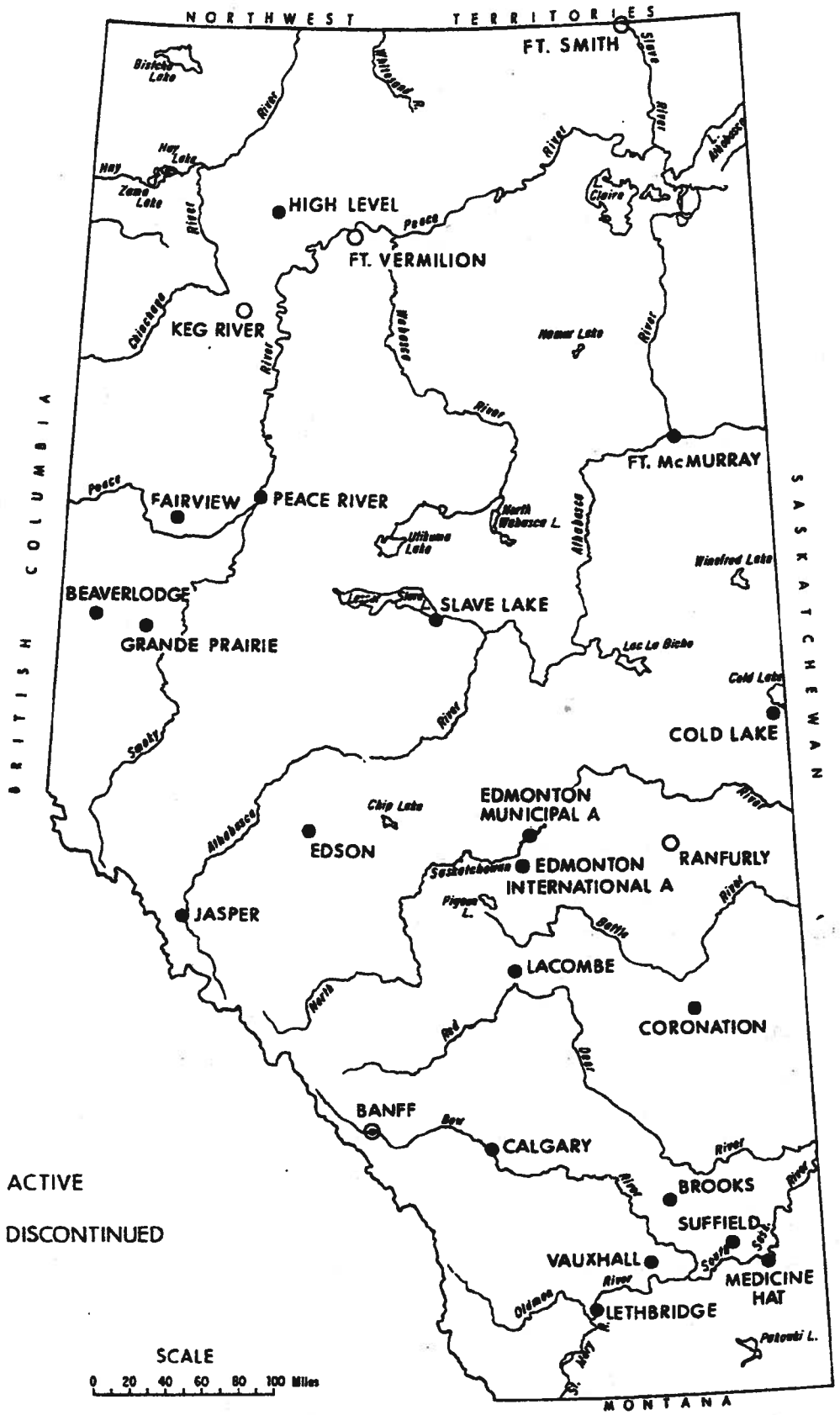
LIST OF TABLES

1. INTRODUCTION

Evaporation deals with the movement of water from water surfaces to the atmosphere. A measure of evaporation rate has long been considered a pertinent factor to any quantitative analysis involving the hydrologic cycle. The amount of water evaporated constitutes a direct loss from lakes and reservoirs and estimates of these losses are needed in most studies involving water balance and reservoir operation.

Evapotranspiration deals with the movement of water from the soil-plant surfaces to the atmosphere. It is generally recognized that evapotranspiration is a much larger proportion of precipitation than runoff throughout most of Alberta. Evapotranspiration is an important component of the hydrologic cycle, in that its accumulated effects on the water stored in the soil and snowpack control the watershed response to precipitation events and that it is the component most directly influenced by land-use and climatic change.

The evaporation estimates presented in this report are computed using the Complementary Relationship Lake Evaporation (CRLE) model, developed by F.I Morton at the National Hydrology Research Institute, Environment Canada. The evapotranspiration estimates are computed using the Complementary Relationship Areal Evapotranspiration (CRAE) model. The analysis is based on the period from 1912 to 1996. Evaporation and evapotranspiration estimates are presented for 20 locations, shown in Figure 1, where climatological data needed in the analysis exist.



Alberta ENVIRONMENT	TECHNICAL SERVICES DIVISION HYDROLOGY BRANCH	LOCATION OF CALCULATED EVAPORATION AND EVAPOTRANSPIRATION
SUBMITTED R. BOTHE, P. ENG. DATE DEC., 1990	DESIGNED R. BOTHE, P. ENG. CHECKED	
APPROVED M. MUSTAPHA, P.ENG. DATE DEC., 1990	DRAWN V. DA SILVA CHECKED R. BOTHE, P. ENG.	SCALE AS SHOWN DATE DEC., 1990 — FIGURE No. 1

2. METHODOLOGY

A general overview of the CRAE and CRLE models and details of the analyses conducted are provided in this section. The text on the CRAE and CRLE models are based on extracts from Morton's papers (Morton, 1976, 1978, 1980, 1983, and 1979, 1983). A more complete discussion on the CRAE model may be obtained by referring to "Operational Estimates of Areal Evapotranspiration and Their Significance to the Science and Practice of Hydrology". Further detail on the CRLE model may be obtained by referring to "Operational Estimates of Lake Evaporation".

2.1 The Complementary Relationship Areal Evapotranspiration (CRAE) Model

The Complementary relationship can be represented by:

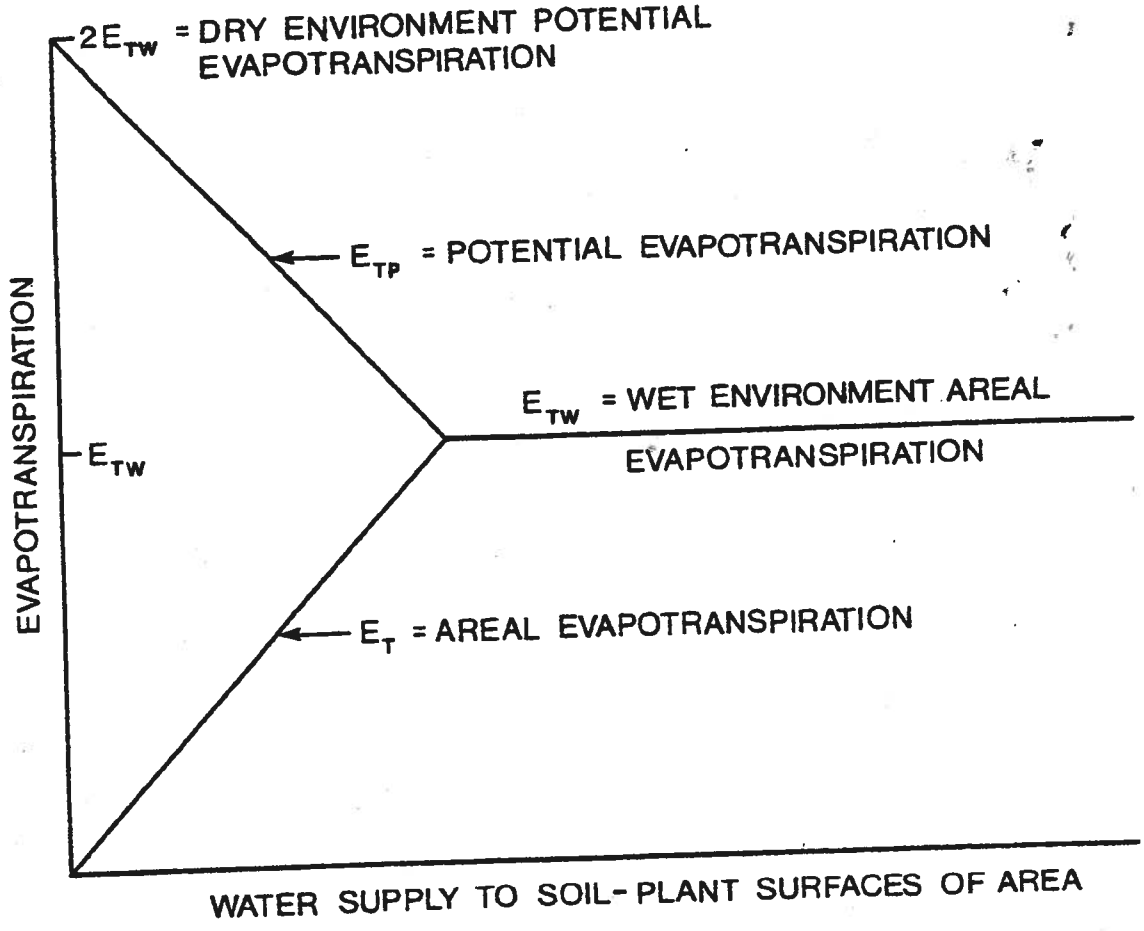
$$E_T + E_{TP} = 2E_{TW}$$

or:

$$E_T = 2E_{TW} - E_{TP}$$

in which E_T is the areal evapotranspiration, the actual evapotranspiration from an area so large that the effects of upwind boundary transitions are negligible; E_{TP} is the potential evapotranspiration, as estimated from a solution of the vapour transfer and energy balance equations, representing the evapotranspiration that would occur from a hypothetical moist surface with radiation absorption and vapour transfer characteristics similar to those of the area and so small that the effects of the evapotranspiration on the overpassing air would be negligible; and E_{TW} is the wet environment areal evapotranspiration, the evapotranspiration that would occur if the soil-plant surface of the area were saturated and there were no limitations on the availability of water.

Figure 2 shows a schematic representation of the complementary relationship under conditions of constant radiant-energy supply. The ordinate represents evapotranspiration and the abscissa represents the



Alberta Environment	TECHNICAL SERVICES DIVISION **HYDROLOGY BRANCH**	COMPLEMENTARY RELATIONSHIP OF AREAL VERSUS POTENTIAL EVAPOTRANSPIRATION
SUBMITTED R. BOTHE, P. ENG. DATE JUNE, 1984	DESIGNED F. I. MORTON (1982) CHECKED	
APPROVED M. MUSTAPHA, P. ENG. DATE JUNE, 1984	DRAWN V. DA SILVA CHECKED R. BOTHE, P. ENG.	SCALE AS SHOWN DATE JUNE, 1984 — **FIGURE No. 2**

MICROFILM DATE

DRAWING No

FILE No

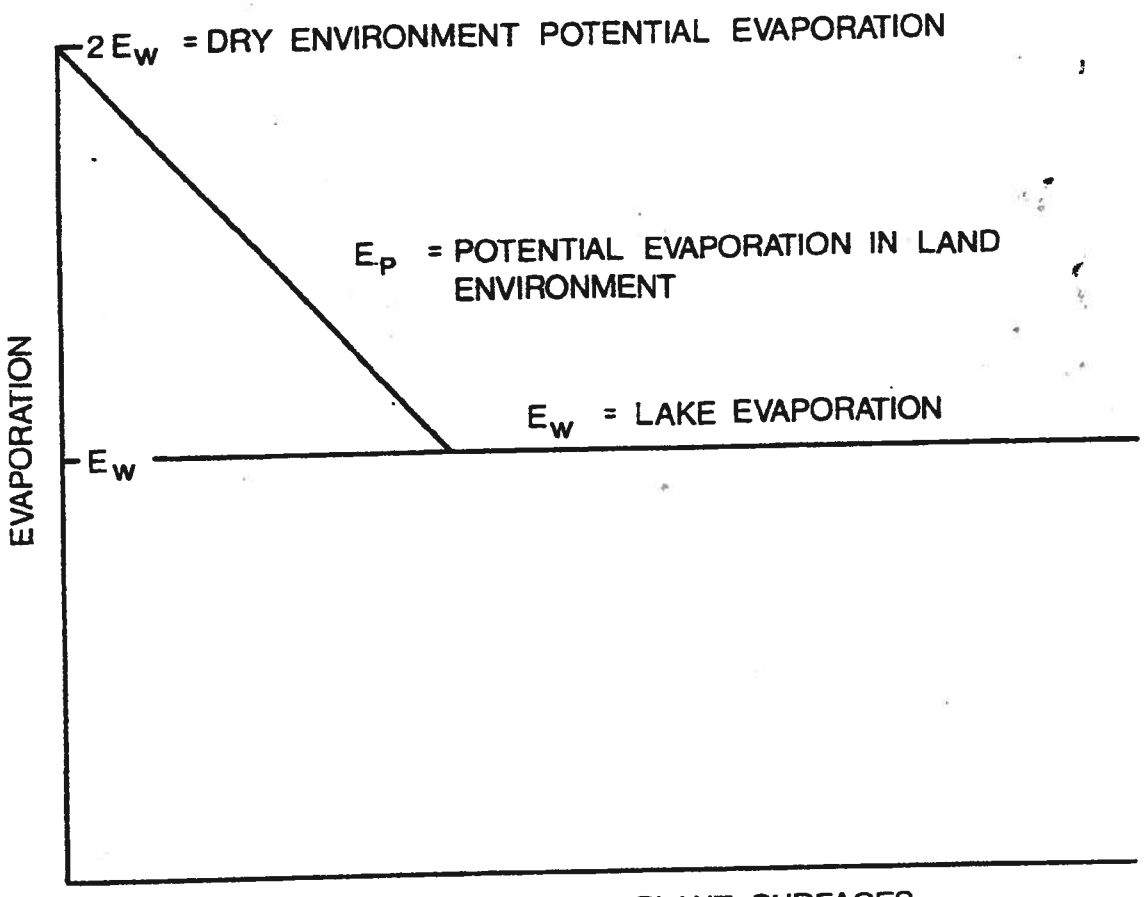
water supply to the soil-plant surfaces of the area. When there is no water available for areal evapotranspiration (extreme left of Figure 2), $E_T = 0$ and E_{TP} is at its maximum rate of $2E_{TW}$, the dry environment potential evapotranspiration. As the water supply to the soil-plant surfaces of the area increases (moving to the right in Figure 2) the resultant increase in E_T causes the overpassing air to become cooler and more humid which in turn produces an equivalent decrease in E_{TP}. When the supply of water to the soil-plant surfaces of the area has increased sufficiently, the values of E_T and E_{TP} converge to that of E_{TW}.

According to the complementary relationship, the areal evapotranspiration, a product of complex processes and interactions in the soil-plant-atmosphere system, is equal to twice the wet environment areal evapotranspiration less the potential evapotranspiration. Both of these quantities may be estimated from climatological observations. The potential evapotranspiration is estimated from a solution of the vapour transfer and energy-balance equations and the wet environment areal evapotranspiration is estimated from an equation of $2E_{TW}$ that was calibrated using data from arid regions under conditions where the monthly areal evapotranspiration could be assumed equal to monthly precipitation.

The CRAE model uses routine climatological observations in estimating evapotranspiration. Meteorological input consists of monthly air temperature, dew point temperature or relative humidity, and the ratio of observed to maximum possible sunshine duration. Of these parameters, the CRAE model estimates of evapotranspiration are most sensitive to errors in humidity; they are comparatively insensitive to errors in sunshine duration or air temperature. Additional data requirements include latitude, elevation and mean annual precipitation.

2.2 The Complementary Relationship Lake Evaporation (CRLE) Model

The concept of the complementary relationship between potential (E_p) and actual (E_W) evaporation was formulated from initial work on evapotranspiration. This relationship between potential and actual lake evaporation is illustrated in Figure 3.



Alberta ENVIRONMENT	TECHNICAL SERVICES DIVISION **HYDROLOGY BRANCH**	COMPLEMENTARY RELATIONSHIP OF LAKE VERSUS POTENTIAL EVAPORATION
SUBMITTED R. BOTHE, P. ENG. DATE JAN., 1988	DESIGNED R. BOTHE, P. ENG. CHECKED	
APPROVED M. MUSTAPHA, P. ENG. DATE JAN., 1988	DRAWN V. DA SILVA CHECKED R. BOTHE, P. ENG.	SCALE AS SHOWN DATE JAN., 1988 — **FIGURE No. 3**

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Because there is no lack of water on a lake, the value of E_W remains constant. However, the value of E_P, the evaporation at the upwind edge responds to changes in the water supply to the soil-plant surfaces in the land environment. In a completely wet land environment $E_P = E_W$. As the water supply in the land environment decreases, E_P increases to the point where, in a completely dry land environment, $E_P = 2E_W$.

Large changes in E_P and in the evaporation at the upwind shoreline are negligible in determining overall lake evaporation, if the width of the shoreline transition is a small part of the downwind width of the lake. Thus, lake evaporation is defined as the evaporation from a water surface so large that the effects of the upwind shoreline transition can be ignored. It is the potential evaporation over the lake downwind of the shoreline transition zone, approximately 300 meters.

The CRLE model uses the same climatological observations as the CRAE model. Of these parameters, the model estimates of lake evaporation are most sensitive to the sunshine duration; they are comparatively insensitive to errors in air temperature or relative humidity.

2.2.1 DEEP LAKE EVAPORATION

The CRLE model does not take into account the effects of seasonal changes in subsurface heat storage so that the monthly estimates of the evaporation are realistic only for shallow lakes or when accumulated to provide annual totals. It is expected that the data required to provide physically based short term estimates will seldom be available on a routine basis so it is fortunate that annual estimates are adequate for most engineering and hydrologic applications. However, is is possible to take subsurface heat storage into account in an approximate way, by applying storage routing techniques similar to those

used in routing water through natural reservoirs. The storage (V) is related to the deep lake evaporation (E_L) in:

$$V = kE_L[1 + 7\exp(-E_L/12)]$$

in which k is the storage constant in units of months and the constant 12 in the argument of the exponential term is in units of mm month^{-1}.

Provisions for adjusting for deep lakes are provided in the CRLE model. The values are site specific and are, therefore, not presented in this report. The effect of depth on seasonal evaporation is illustrated in Figure 4.

2.2.2 EDGE EFFECTS

The CRLE model does not take into account the effects of increased evaporation at the upwind transition. These effects can be ignored for lakes, but they could be significant for ponds or other small bodies of water. The transition can be approximated by:

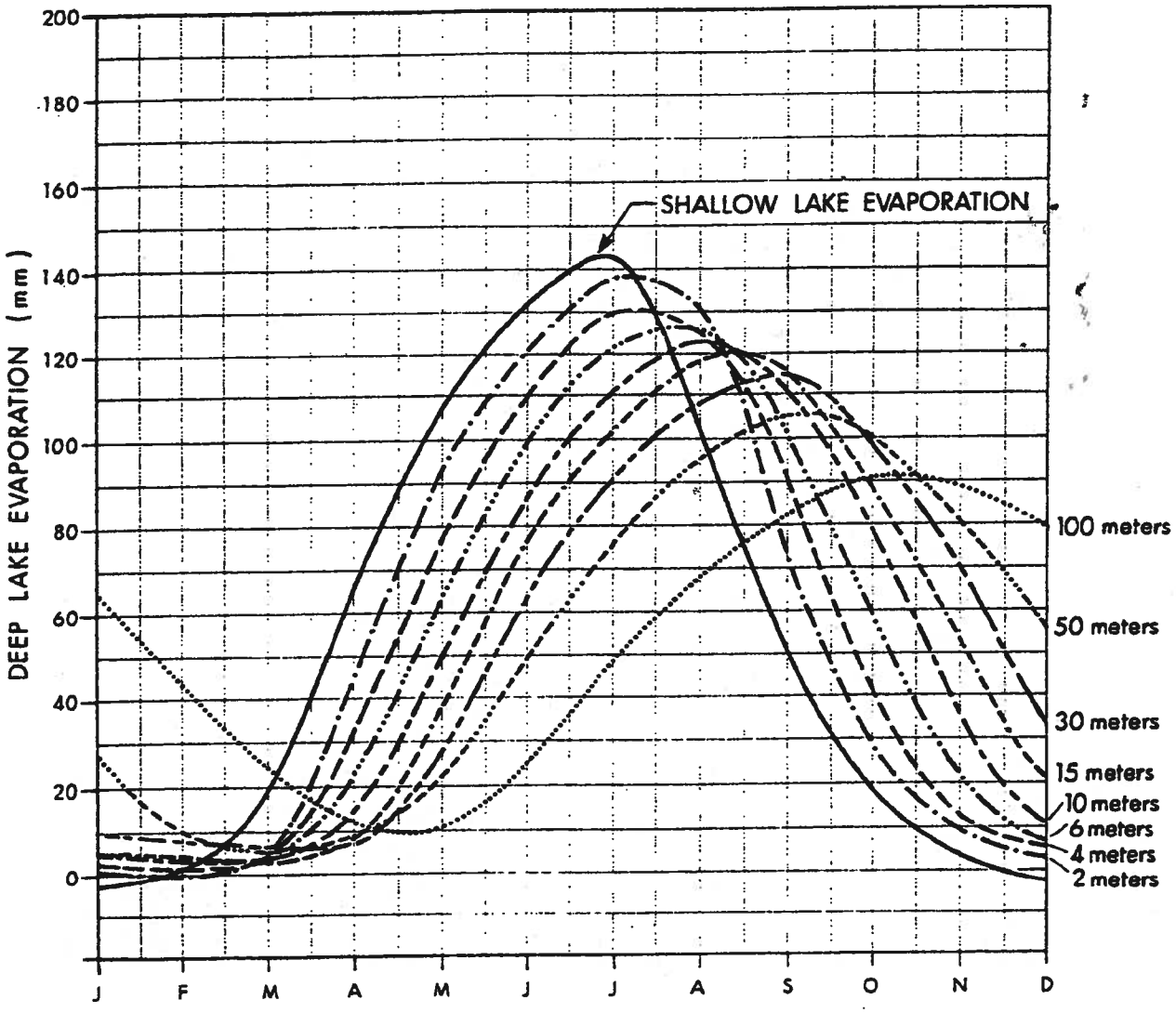
$$E_{PX} = E_L + (E_P - E_L)/(1 + X/C)$$

in which E_{PX} is the potential evaporation at distance X downwind of the upwind shoreline, E_P is the potential evaporation in the land environment, E_L is the deep or shallow lake evaporation, and C is a constant. The value of C is conservatively estimated to be 13 m.

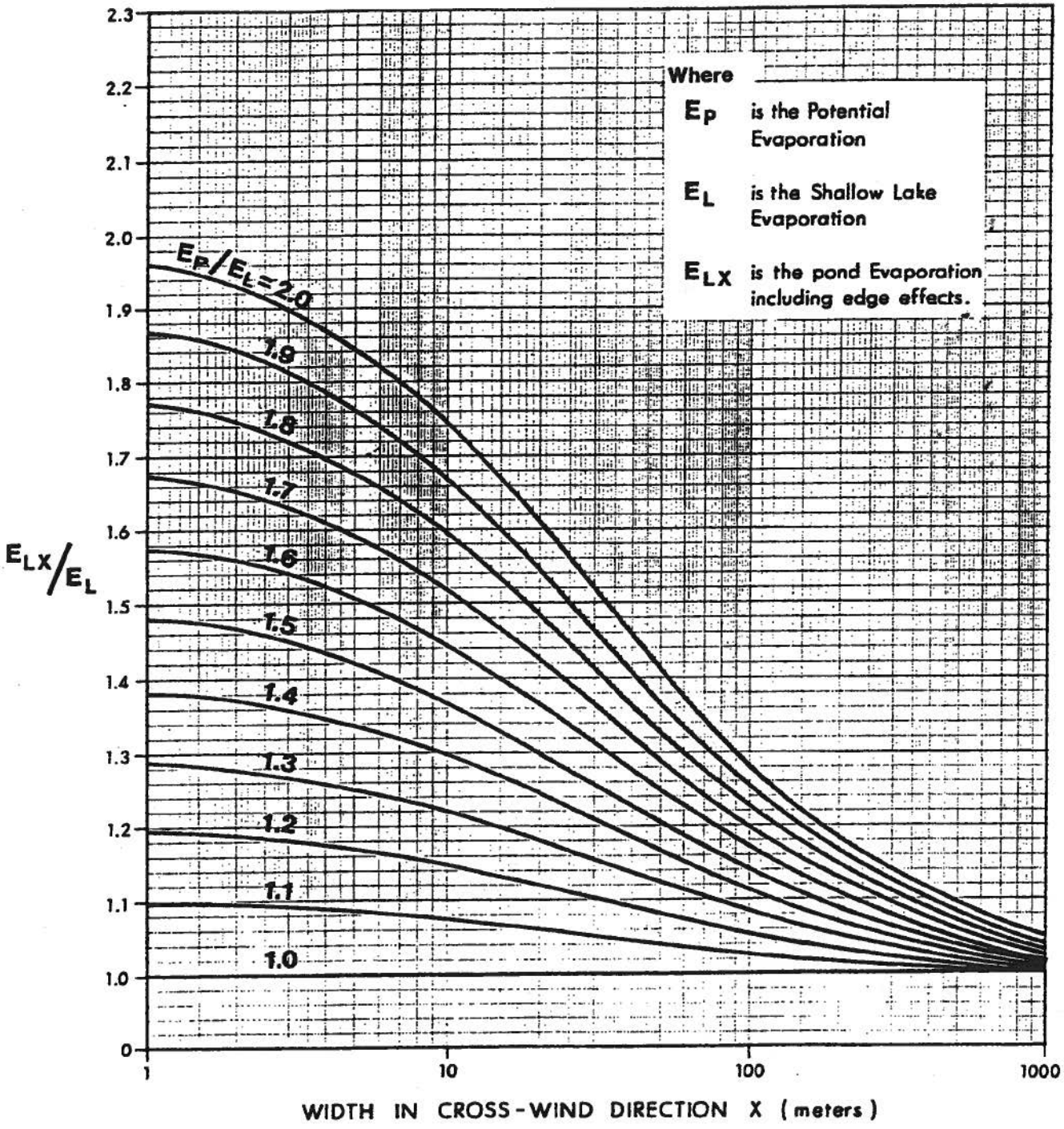
The average evaporation for a lake that is X m wide in the crosswind direction (E_{LX}) can be estimated from the following integration of the above equation.

$$E_{LX} = E_L + (E_P - E_L)\frac{\ln(1 + X/C)}{X/C}$$

The relationship between E_{LX} and E_L for various E_P/E_L ratios and pond widths is illustrated in Figure 5.



Alberta ENVIRONMENT	TECHNICAL SERVICES DIVISION **HYDROLOGY BRANCH**	EXAMPLE OF THE EFFECT OF DEPTH ON SEASONAL DISTRIBUTION OF LAKE EVAPORATION	
SUBMITTED R. BOTHE, P. ENG. DATE JAN., 1988	DESIGNED R. BOTHE, P. ENG. CHECKED		
APPROVED M. MUSTAPHA, P. ENG. DATE JAN., 1988	DRAWN V. DA SILVA CHECKED R. BOTHE, P. ENG.	SCALE AS SHOWN DATE JAN., 1988	**FIGURE No. 4**



Alberta Environment	TECHNICAL SERVICES DIVISION HYDROLOGY BRANCH	LAKE EVAPORATION AJUSTMENT FOR EDGE EFFECTS
SUBMITTED R. BOTHE, P. ENG. DATE JAN., 1988	DESIGNED R. BOTHE, P. ENG. CHECKED	
APPROVED M. MUSTAPHA, P. ENG. DATE JAN., 1988	DRAWN V. DA SILVA CHECKED R. BOTHE, P. ENG.	SCALE AS SHOWN DATE JAN., 1988 — FIGURE No. 5

2.2.3 COOLING PONDS

If additional heat is entering the system from an inflow source, its effect can be accounted for, by the CRLE model, in the calculation of the net radiation. In the documentation of the program (Morton, Goard, Piwowar, 1980), page 31, equation 403, the net radiation, RT, is calculated. The additional heat input, in watts/m^2, is added to RT.

Any body of water where the temperatures of the inflow are significantly different than those of outflow, should be adjusted using this procedure. An example of this is Lake Mead, where the net inflow of heat in 1953 was equivalent to 30.3 watts/m^2, or 388 mm of evaporation out of a total of 1978 mm.

APPENDIX B

Tables of Evaporation and Evapotranspiration Data

July 2011
Report No. 10-1326-0082

Table of Evaporation Stations

Name	Locations
Beaverlodge	01-72-10-W6
Brooks	27-18-14-W4
Calgary	01-25-01-W5
Cold Lake	05-63-02-W4
Coronation	12-36-11-W4
Edmonton International Airport	10-50-25-W4
Edmonton City Centre Airport	18-53-24-W4
Edson	20-53-17-W5
Fairview	34-81-03-W6
Fort McMurray	20-88-08-W4
Grande Prairie	29-71-06-W6
High Level	04-111-19-W5
Jasper	22-45-01-W6
Lacombe	25-40-27-W4
Lethbridge	04-09-21-W4
Medicine Hat	26-12-06-W4
Peace River	29-83-22-W5
Slave Lake	01-73-06-W5
Suffield	21-15-09-W4
Vauxhall	04-13-16-W4

Beaverlodge

Potential Evapotranspiration, mm

Beaverlodge	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-3	1.5	31.8	83	163.3	180.9	177.9	142.1	111.7	26.8	-0.1	-3.8	912
1996	-3.3	3.6	15	88.1	121.9	164.8	181.6	160	69.6	29.7	2.8	-0.6	833
1997	2	13.6	32.2	105.1	182.8	137.8	139.1	107.4	70.5	15.1	-0.2	-0.9	805
1998	-4.1	-1.8	35.4	117.5	182.2	154.3	179.5	188.1	92.6	18.8	-3.2	-4.6	955
1999	-5.1	1.3	43.6	97.2	137.1	158.3	173.5	164.4	84.6	30.8	3	2	891
2000	-2.1	6.1	39.7	105.3	115.2	155.7	180	131.1	74.4	25.2	6.6	-3.5	834
2001	4.1	3.1	43.9	93	159.2	149.2	160.9	142	92.1	26.6	-1	-4.9	868
2002	-3.6	7.2	4.7	56.7	137.3	204.2	188.7	146.2	69.2	16.8	5.1	-4.1	828
2003	-3.1	-0.4	20	71.2	154.4	181.8	203.4	142.7	78.3	27	-0.5	-4.1	871
2004	-3.1	7.3	39.5	90.7	145.9	176.1	154.7	114.5	60.5	18.5	5.2	-3	807
2005	-4.7	9.8	35.2	113.8	162	131.6	149.6	121.8	79.8	23.7	7.2	-6.9	823
2006	-6.3	8	20.4	134.6	171.3	207.7	202.1	184.8	87	23.8	-2.7	-3.3	1027
2007	1.6	-3.3	31.8	83.7	144.1	176.8	206.2	104.5	79.3	23.5	2.1	-5.4	845
2008	-4.1	3.6	46.7	88.6	153.7	194.5	212.7	155.4	87.6	30	1.2	-2.4	968
2009	0.5	3.9	29.8	93.7	156.1	215	176.6	168.6	98.7	14.5	3.7	-3.2	958
												Average	882

Areal Evapotranspiration, mm

Beaverlodge	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-3	1.5	21.4	29.2	83.7	83.8	66.4	44.5	14.1	10.1	-0.1	-3.8	348
1996	-3.3	3.6	15	32.6	63.1	80.7	77	46.8	16	6.8	2.8	-0.6	341
1997	2	7.8	15.3	13.2	10.1	105.6	113.1	90.5	27.4	15.1	-0.2	-0.9	399
1998	-4.1	-1.8	31.1	29.6	60.5	93.9	86.8	38.8	12.2	11.2	-3.2	-4.6	350
1999	-5.1	1.3	23.9	36.7	38.1	77.3	67.3	36.6	12.7	7.8	3	0	300
2000	-2.1	6.1	18.2	25.1	47.1	60.7	69	18.3	12.6	9.2	1.8	-3.5	263
2001	0	3.1	16.1	24.3	37.8	63.8	78.7	59.6	14.3	9.6	-1	-4.9	301
2002	-3.6	7.2	4.7	32.9	52.4	68.6	65.2	47.9	21	15.6	0.7	-4.1	309
2003	-3.1	-0.4	20	34.8	45.9	67.3	74.4	50	17.3	10.5	-0.5	-4.1	312
2004	-3.1	7.3	18.3	13.4	42.3	68.2	97.5	67.8	19.4	14.6	1.2	-3	344
2005	-4.7	9	16.3	18.9	61.4	93.6	94.2	62.6	18.7	12.6	0	-6.9	376
2006	-6.3	8	20.4	15.5	42.3	70.1	66.5	31.8	11.7	12.1	-2.7	-3.3	266
2007	1.6	-3.3	23.6	46.4	49.6	77.9	67.8	53.9	16.9	11.8	2.1	-5.4	343
2008	-4.1	3.6	19.9	27.3	44.8	63.9	58.3	38.2	15.9	8.5	1.2	-2.4	275
2009	0.5	3.9	21.9	40	48.7	66.7	81.6	48.7	12.4	14.5	3.7	-3.2	339
												Average	324

Beaverlodge

Potential Evaporation, mm

Beaverlodge	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-3.4	1.1	32.9	84.2	169.4	185.9	181.1	144.4	119.4	27.2	-0.7	-4.2	937
1996	-3.3	3.5	16.9	89.7	125.6	169.6	186.1	162.7	76.4	28.8	2.1	-1.1	857
1997	1.4	13.2	35.3	112.5	192.2	145.4	147.7	115	72.4	16.7	-0.3	-1.7	850
1998	-4.2	-2	38.4	119	185.4	160.5	184.8	189.8	101.1	18.5	-3.7	-5	983
1999	-5.4	1	45.8	99.4	137.9	162.7	176.9	165.7	92.2	30.9	2.5	1	911
2000	-2.6	6.3	44.2	106.1	117.1	158.2	183.4	130.2	80.6	24.8	5.8	-3.9	850
2001	3.3	2.9	49.5	93.7	159.9	152.1	165.5	145.9	101.1	26.5	-1.4	-5.3	894
2002	-4	7.4	4.2	58.5	139.8	207.3	191.7	148.8	70.3	17.4	4.4	-4.7	841
2003	-3.7	-0.8	22.8	73	156.1	185	207.4	145.6	82.9	27.8	-0.9	-4.7	891
2004	-3.4	7.9	43.8	96.9	147.2	179.2	161.3	119.3	63.7	19	4.4	-3.7	836
2005	-4.9	9.7	39.9	114	165.4	137.9	156.1	126.2	81.1	25.1	6.4	-7.5	849
2006	-6.8	8.5	23.1	134.5	172.5	211	205.1	185.7	94.4	24.7	-3	-3.9	1046
2007	1.2	-3.6	33.2	87.1	146.2	181.2	209.3	107.8	84.3	23.9	1.8	-5.8	867
2008	-4.5	3.3	48.3	89.6	155.1	197.2	214.9	156.8	94.2	30.4	0.6	-2.7	983
2009	-0.2	3.8	30.7	96.3	158.1	218	181.4	171.5	107.7	14.5	3.2	-3.4	982
												Average	905

Lake Evaporation, mm

Beaverlodge	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-3.4	1.1	28.9	60.3	133.1	141	129.8	100.2	69.3	19.9	-0.7	-4.2	675
1996	-3.3	3.5	16.9	65.1	99.1	130.9	137.9	111.2	46.5	19.2	2.1	-1.1	628
1997	1.4	11.2	25.3	64	103.2	129.6	134.4	106.4	53.2	16.7	-0.3	-1.7	643
1998	-4.2	-2	37.1	80	129.9	132.1	141.5	121.9	57.2	15.9	-3.7	-5	701
1999	-5.4	1	37.6	72.6	93.4	125.4	128.2	107.5	53	20.8	2.5	1	638
2000	-2.6	6.3	31.9	70.7	86.3	114.6	132.4	79.1	47	18.4	4.7	-3.9	585
2001	2.2	2.9	33	63.2	105.2	112.8	127.2	108	58.3	19.4	-1.4	-5.3	626
2002	-4	7.4	4.2	48.2	101.6	145.3	134.9	104	48.9	17.4	3.5	-4.7	607
2003	-3.7	-0.8	21.1	57	107.3	132.5	148	103.3	52	20.4	-0.9	-4.7	632
2004	-3.4	7.9	31.8	55.7	100.5	129.5	134	97.5	43.2	17.7	3.7	-3.7	614
2005	-4.9	9.7	28.1	71.7	119.8	119.5	129.9	98.9	53.6	19.8	4.1	-7.5	643
2006	-6.8	8.5	21.9	81.5	114.2	148.1	142.7	116.5	53.6	19.3	-3	-3.9	693
2007	1.2	-3.6	30.2	70.9	103.5	135.6	145.6	84.4	52.4	19.1	1.8	-5.8	635
2008	-4.5	3.3	37	62.6	105.9	137.7	144.4	103.4	56.5	20.8	0.6	-2.7	665
2009	-0.2	3.8	27.8	72.8	109.9	150.8	137.3	116.8	60.7	14.5	3.2	-3.4	694
												Average	645

Brooks

Potential Evapotranspiration, mm

Brooks	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-4.8	-5.1	43.5	117.5	193.4	199.4	240.4	199	145	45.4	10.5	9.1	1193
1998	-3.6	14.7	36.5	129.2	213.1	167.8	222.3	227.9	133.9	43.8	5.2	-2.7	1188
1999	-5.8	13.2	62.7	124.3	155.7	167.6	175.2	154.6	117.5	50.8	12.5	3.4	1032
2000	-6.3	-5.1	53	109.2	181.8	186.1	254.6	188.8	101.1	43.6	-3.8	-7.4	1096
2001	-4.9	-3.9	58.8	118	210.3	183.1	230.3	248.9	139	46.5	14	-9.1	1231
2002	-6.2	14	-0.4	92.8	167.3	172.4	219.9	132.7	86.3	23	6.9	-7.4	901
2003	-7.1	-5	37	85.9	133.6	155.9	228.6	198.9	98.1	48.1	-6.9	-10	957
2004	-5.5	-5.2	49.2	124	131.2	156.1	177	119.3	77.9	35.6	10.7	-7.9	862
2005	-7.3	15.5	56.7	115.2	169.7	118.4	177.9	130.6	79.1	35.7	7.9	2.6	902
2006	3.7	13.3	26.9	129.4	175.4	187.5	256.5	208	129.3	35	6.8	5.8	1178
2007	6.7	3.8	76	93.2	163.4	196.6	277.4	187.6	107.2	53	13.3	-3.1	1175
2008	-0.3	1.4	66.2	110.7	167.6	175.7	211.3	205.5	106.7	53.5	14.1	-4.2	1108
2009	-1.4	-1.6	38.5	125.3	196.6	209.7	192.2	156.7	161.1	29.6	17.4	-4.6	1120
												Average	1073

Areal Evapotranspiration, mm

Brooks	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-4.8	-5.1	34.1	42.6	72.3	90.1	77.6	52.7	12.2	11.7	6.7	0.6	391
1998	-3.6	14.7	32.3	40.3	71.4	90.6	105.5	51.6	14.7	15.2	5.2	-2.7	435
1999	-5.8	13.2	20.6	33.8	73.4	110.2	113	93.3	21.3	12.1	6.5	2.1	494
2000	-6.3	-5.1	26	52.6	71.7	103.1	84	63.3	31.7	15.9	-3.8	-7.4	426
2001	-4.9	-3.9	26.3	44.5	60	103.4	96.4	45.7	14.4	13.7	5.1	-9.1	392
2002	-6.2	14	-0.4	50.5	76.1	107.8	116	94.7	41.8	23	6.9	-7.4	517
2003	-7.1	-5	33.5	63	96.4	122.1	113.8	73.8	34.2	14.8	-6.9	-10	523
2004	-5.5	-5.2	31.1	53.6	99.8	126.3	138.5	109.1	52.5	20.6	9.7	-7.9	623
2005	-7.3	15.5	30.1	51.9	87.8	118.4	137.5	101.2	53.2	23.3	7.7	2.6	622
2006	3.7	13.3	25.7	41	72.9	103.8	99	61.6	17.5	17.7	6.8	2.9	466
2007	6.7	3.8	17.5	44.1	85.1	110.1	87.4	64.2	30	10.9	5.9	-3.1	463
2008	-0.3	1.4	19.7	41.3	79.7	111.3	108.2	57	35.9	10.6	5.7	-4.2	466
2009	-1.4	-1.6	32	37.4	71.5	95.6	113.8	83	12.3	19	3.9	-4.6	461
												Average	483

Brooks

Potential Evaporation, mm

Brooks	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-5	-5.6	46.4	121	198.7	205.6	245.4	202.8	152.8	52	10.8	8.6	1234
1998	-3.9	19.1	38.9	132.6	218.4	174.2	230.4	231.9	137.3	51.8	5.3	-3.2	1233
1999	-6.1	17.3	64.9	126.7	161.2	176.4	184.5	161.8	119.7	59.1	12.5	3.4	1081
2000	-6.6	-5.6	54.5	113.9	187.1	194	260.5	194	104.3	51.9	-4.1	-7.6	1136
2001	-5.1	-4.2	60.5	121.8	214.2	191	237.5	252.5	142	54.3	13.8	-9.4	1269
2002	-6.6	18.3	-1	97	173.1	180.7	229.5	140.1	89.7	27.4	7.4	-7.8	948
2003	-7.5	-5.4	39.6	90.7	140.4	164.5	238	205.5	101.2	57	-7.2	-10.4	1006
2004	-5.6	-5.6	51.4	129.1	138.5	165.2	187.5	128.3	82.6	42.8	11.1	-8.3	917
2005	-7.4	20.7	59	119.9	177	128.2	188.3	138.8	83.9	40.4	8.2	2.4	959
2006	4	16.8	28.1	132.8	180.7	195.3	264.2	213.3	131.1	40.7	6.9	5.6	1220
2007	6.9	3.7	82.5	96.6	170.2	205.3	283.5	193	110.4	61.2	13.4	-3.6	1223
2008	-0.8	1.1	69.9	113.9	173.8	184.6	220	210.1	110.8	61.6	14.1	-4.5	1155
2009	-1.9	-2	40.9	128.2	202	216.8	201.5	164.1	166.4	34.7	17.2	-4.9	1163
												Average	1119

Lake Evaporation, mm

Brooks	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-5	-5.6	42.7	88	143.7	155	170.8	136.1	87	32.2	9.9	5.7	861
1998	-3.9	17.2	37.5	93	154.2	138.2	175.7	151.5	81.8	33.8	5.3	-3.2	881
1999	-6.1	16.3	46.2	86.6	123.9	149.3	154.9	132.6	76.7	36	10.9	3.4	831
2000	-6.6	-5.6	42.9	88.9	137.4	155.4	182	136.5	73.2	34.2	-4.1	-7.6	827
2001	-5.1	-4.2	46.5	89.3	146.4	153.8	175.5	160.2	84.6	34.4	10.8	-9.4	883
2002	-6.6	17.2	-1	78.7	132.2	150	180.7	121.6	69.5	26.2	7.4	-7.8	768
2003	-7.5	-5.4	38.5	80.3	122.9	147.3	184.4	147.9	72.5	36.3	-7.2	-10.4	800
2004	-5.6	-5.6	43.7	97.9	123.6	150.1	167.7	122.1	71	31.7	11.1	-8.3	799
2005	-7.4	19	47.6	91.9	139.8	128.2	167.6	124.2	72.1	33.4	8.2	2.4	827
2006	4	16.3	28	93.5	134.1	156.1	191.4	146.7	81	29.2	6.9	5.3	893
2007	6.9	3.7	52.4	74.9	134.5	164.9	196	136.6	75.9	36.5	10.9	-3.6	890
2008	-0.8	1.1	47.8	83.6	133.8	154.3	172	142.5	79.1	36.6	11.3	-4.5	857
2009	-1.9	-2	38.5	89.5	145.9	164.6	164.5	129.9	96.3	26.7	12.1	-4.9	859
												Average	844

Calgary International Airport

Potential Evapotranspiration, mm

Calgary International Airport	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	1.3	13.5	49.2	110.9	159.8	157.4	191.5	167.2	127	40.4	13.7	13.1	1045
1998	-0.4	15.3	33.1	110.9	172.8	134.7	170.9	198.5	123.1	47	6.3	5.5	1018
1999	4.8	23.4	62.7	119.7	158.9	156.6	165.1	139.5	115.3	50.6	19.6	15.3	1032
2000	3.2	13.7	54.2	116.3	157	165.5	203.7	178.2	109	46.2	11.5	-1.1	1057
2001	14	6.4	62	113.6	209.1	159.6	206.9	232.7	130.1	45.4	18.7	3	1202
2002	7.5	17.5	6.6	88.3	143.3	195.6	238.3	173.2	103.5	31.8	21.3	7.5	1034
2003	6.2	5.8	44.7	82.7	148.9	169.8	216.2	209.8	113.4	54.1	7.7	5.7	1065
2004	4.2	18.1	69.6	129.6	129.2	160.1	181.6	134.1	95.4	40.9	21.3	8	992
2005	2.9	16.7	60.3	133.1	182.4	122.6	192.7	140	92.9	42.6	18.3	6.9	1011
2006	12.2	16.6	18.5	125.9	180.6	158.4	201.3	178.2	119.9	30.9	4.3	10.7	1058
2007	10.7	2.3	65	88.6	154.6	156.7	204.1	137.2	103	48.3	15.3	3.1	989
2008	5.7	15.4	63.5	93.9	148.4	158.2	178.8	172.2	105.7	49.5	17.5	-2.8	1006
2009	9.2	9.8	41	103.2	175.1	192.8	192.7	151.4	147.3	25.2	24.5	-1.8	1070
												Average	1045

Areal Evapotranspiration, mm

Calgary International	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	1.3	13.2	18.7	33.8	55.2	88.9	104	70	15.1	11.6	4.3	0	416
1998	-0.4	12.6	26.2	41.4	77.8	105.2	116.3	55.1	15.5	10.5	6.3	5.5	472
1999	4.8	9.6	17.7	29.2	60.6	97.5	88.3	79.3	16.1	8.3	2.1	0	414
2000	3.2	13.7	15.7	35.2	65.1	98.6	104.4	50.2	13.1	10.9	6.7	-1.1	416
2001	0	6.4	14.1	28	45.8	84.6	95.2	39.6	12.1	10.1	3	3	342
2002	7.5	12.1	6.6	34.7	64.7	81.6	76.6	39.4	14.3	17.3	0	0.6	355
2003	6.2	5.8	21	45.4	58.7	88.3	90.4	44.8	10.4	7.7	7.7	4.1	391
2004	4.2	12.6	16.8	27.5	76.4	93.9	95.4	73.9	17.6	11.3	0.5	2.3	432
2005	2.9	12.7	16.7	25.2	58.1	94.7	94.1	65.9	24.3	13.5	2.5	2.7	413
2006	0.5	13.5	18.5	25.6	61.5	93.9	107	54.9	15.1	16.1	4.3	0	411
2007	3.4	2.3	16.9	32.3	70.1	99.6	107.2	70.4	24.1	10.3	3.4	3.1	443
2008	5.7	15.4	14.7	36.3	63.8	91.1	90.8	51.6	21.3	8.9	1.5	-2.8	398
2009	6.7	9.8	24.3	32.3	55.7	71.4	78	59.9	8.8	16.7	0	-1.8	362
												Average	405

Calgary International Airport

Potential Evaporation, mm

Calgary International	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	0.8	15.1	51.2	112.3	161.9	162.4	198.2	171.7	129.6	44.8	13.3	11.9	1073
1998	-0.9	17.4	34.6	113.2	177.3	141.8	178.9	201.3	125.4	52.3	6.1	5	1052
1999	4.6	27	64.3	120.5	161.6	162.7	170.3	145	116.3	55.5	18.8	13.9	1061
2000	2.8	16.7	60.1	117.9	160.2	171.7	210.4	180.4	118	51.4	11.3	-1.6	1099
2001	13.2	6.3	68.4	114.3	210	164.3	212.5	233.8	140.4	50.1	17.8	2.6	1234
2002	7.2	20.4	6.3	89.7	146.6	199.6	241.6	174.2	110.8	36.6	20	6.9	1060
2003	6	5.9	45.6	85.4	151.5	174.8	221.2	211.4	122.2	59.5	7.6	5.2	1096
2004	3.7	21.1	77	130.3	133.8	165.7	187.3	139	96.3	45.1	20.1	7.3	1027
2005	2.5	19.8	66.3	133.5	184.7	128.6	198.2	144.1	94.1	48.4	17.3	6.1	1044
2006	11.7	19.6	20.9	126.3	183.3	163.9	208.2	181	123.4	35.2	4.1	9.6	1087
2007	10.2	1.9	71.7	89.7	158.3	162.9	210.9	141.8	104.3	53.8	14.7	2.7	1023
2008	5.6	19.1	69.3	95.5	151.4	163.5	184	174.4	106.6	54.5	16.4	-3.3	1037
2009	8.8	11.9	42.3	104.3	177.2	195.7	196.3	154.6	159.3	28.6	23.2	-2.4	1100
												Average	1076

Lake Evaporation, mm

Calgary International	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	0.8	14.5	36.8	78.2	114.6	130.2	157.1	126.9	77.1	28.3	9.9	5.9	780
1998	-0.9	15.2	32	82.1	133.8	127	152.1	135.5	75.1	31.7	6.1	5	795
1999	4.6	18.3	44.1	80.2	117.2	135	134.4	116.6	71.3	32.2	11.8	5.5	771
2000	2.8	16.1	38.1	81.8	118.6	140.4	163.9	121.9	66.2	31.4	9.9	-1.6	790
2001	7.6	6.3	41.7	76.2	136.3	129.4	160.5	145.9	77.4	30.3	11.6	2.6	826
2002	7.2	16.2	6.3	66	111.1	147	167.2	113.4	63.8	26.9	11.2	4.8	741
2003	6	5.9	35.6	68.7	110.6	136.8	162.8	136.1	67.1	34	7.6	5.2	776
2004	3.7	16.8	47.4	84.7	109.6	134.6	146.6	110.8	60.8	28.4	11.7	5.7	761
2005	2.5	16.1	41.8	85.4	128.5	114.8	152.1	109.8	63.3	31.1	11.1	5.2	762
2006	7.4	16.4	20.8	81.4	129.1	133.2	163.6	124.5	73.2	25.6	4.1	4.9	784
2007	7.8	1.9	44.7	64.7	119.8	135.7	165	110.8	68.9	32.3	10.1	2.7	764
2008	5.6	17.3	42.4	70.1	112.8	132	142.6	119.1	68.6	32	10.2	-3.3	749
2009	8.5	11.9	35.4	72.8	123.3	140.2	143.1	112.4	85	22.5	12.4	-2.4	765
												Average	774

Cold lake

Potential Evapotranspiration, mm

Cold lake	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-3.7	0.5	32.6	81.6	187.9	187.2	161.6	101	97.9	21.9	-1.7	-2.9	864
1996	-1.7	0.3	15.8	75.8	115.2	158.9	154.5	145	59.5	18.9	-0.9	-2.6	739
1997	-1.9	-1.6	32.5	84.7	150	148.9	186	148.9	83.8	16.7	-1.3	-3.3	843
1998	-2.4	-3.5	34.8	130.5	207.5	183.7	182.1	174.8	99.8	21.9	-2.5	-3.2	1024
1999	-2.6	0.7	34.2	105	140	181.7	173.3	152.7	91.5	28.9	1.4	-5.9	901
2000	-2.9	-0.6	40.5	105.1	151	165.3	146.5	122.8	73.1	29.4	-3.5	-3.6	823
2001	-6.3	1.1	42.9	116.7	176.9	156.9	177.4	173.3	94	22.9	0.8	-5.1	952
2002	-2.9	4.9	8.4	63.6	187.1	220.3	206.8	145.1	85.1	12.9	-1.6	-8.8	921
2003	-1.9	-0.8	24.9	91.2	163	163.5	179.6	158.9	79.3	22.7	-3.5	-6.9	870
2004	-2.8	-3.4	33.7	104.3	140.2	175.8	158.4	121.4	71.6	21	5.1	-3.3	822
2005	-2.3	7.5	36.8	111.5	161.4	144.1	158.4	122.7	79.3	27.9	3.8	-6.8	844
2006	-5.9	0.5	22.6	141.4	140.6	180.5	185.6	147.1	91.8	25.3	0.5	1.3	931
2007	3.9	3.2	38.8	103.7	150.4	154.2	202.4	119.1	81.3	28.6	-0.5	-3.8	881
2008	-4.2	0.1	37.5	84.8	187.5	202	185.2	155.1	92.3	37.5	6.9	-2.4	982
2009	-1.8	0	17.8	91.4	167.1	180.7	176.5	147.6	110.1	14.3	6	-9.2	901
												Average	887

Areal Evapotranspiration, mm

Cold lake	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-3.7	0.5	20.6	31.3	51.5	83.7	94.9	69.4	15.8	14.6	-1.7	-2.9	374
1996	-1.7	0.3	15.8	38.9	56.4	90.2	99.6	61	20.6	14.9	-0.9	-2.6	393
1997	-1.9	-1.6	20.7	29.5	50.9	83.5	89	58.7	22.2	15.2	-1.3	-3.3	362
1998	-2.4	-3.5	20.2	14.1	53.6	82.6	89.9	55.2	15.2	12.5	-2.5	-3.2	332
1999	-2.6	0.7	18.1	17.2	51.1	75	82.8	66.2	16.4	9.4	1.4	-5.9	330
2000	-2.9	-0.6	18.5	26.6	52.2	77.6	103.4	66.6	22.4	9.6	-3.5	-3.6	366
2001	-6.3	1.1	15.8	16.2	48.8	90.1	89.8	57.8	20.6	12.7	0.8	-5.1	342
2002	-2.9	4.9	8.4	38.6	28.8	74.4	73.1	59.1	17.8	12.9	-1.6	-8.8	305
2003	-1.9	-0.8	20.4	28	56.7	95.5	94.7	53.7	18.2	15.3	-3.5	-6.9	369
2004	-2.8	-3.4	23.4	23.5	51.6	78.1	91.7	59.6	18.4	13.7	3.3	-3.3	354
2005	-2.3	7.5	17.6	15.2	51.1	97.5	98.1	55.8	17.8	10.4	3.8	-6.8	366
2006	-5.9	0.5	20.6	14.7	61.8	83.7	94.2	62.3	15.4	10.1	0.5	1.3	359
2007	3.9	3.2	16.5	21.7	63.9	84.5	94.5	60.3	18.3	11.4	-0.5	-3.8	374
2008	-4.2	0.1	19.5	26.5	37	71.8	74.8	43.3	13.5	4.9	2.1	-2.4	287
2009	-1.8	0	17.8	27	47.6	72	88	59.5	14.5	14.3	1.9	-9.2	332
												Average	350

Cold lake

Potential Evaporation, mm

Cold lake	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-4	0	34	82.9	190.2	191.9	167.9	105.9	102.8	24.3	-2.2	-3.1	891
1996	-1.9	-0.2	17.4	78.1	118.1	164.6	161.2	148.9	60.9	19.9	-1.3	-2.8	763
1997	-2.2	-2	33.8	85.8	152.2	153.7	191.4	152.5	85.1	17	-1.7	-3.9	862
1998	-2.6	-4	36.4	132.4	209.8	188.4	187.6	178.1	105.6	22	-3	-3.6	1047
1999	-2.9	0.3	38.9	104.8	142.2	185.6	178.2	157.3	95.4	29.7	1.2	-6.4	924
2000	-3.3	-1.1	44.1	106.1	153.3	169.6	153.6	127.4	74.4	30.6	-4	-3.7	847
2001	-6.8	0.6	48.2	116.9	178.8	162.6	182.9	177	95.4	23.8	0.6	-5.4	975
2002	-3.2	4.8	8.6	66.1	186.8	223.9	210.3	148.9	87.1	14	-2	-9.1	936
2003	-2.3	-1.3	27.8	92.2	165.8	169.7	185.7	161.9	81.9	26.2	-3.9	-7.2	897
2004	-3	-3.8	35.3	104.9	142.6	180.2	164.1	125.2	74.8	22	4.6	-3.8	843
2005	-2.6	7.7	41.9	113.7	163.6	150.6	165	126	82.5	29.2	3.3	-7.3	874
2006	-6.2	0.1	25.8	141.2	143.9	185.2	191.6	151.3	98.8	24.8	-0.1	0.6	957
2007	3.4	2.7	43.5	104	154.1	159.2	208.2	123.1	83	31.3	-1.2	-4	907
2008	-4.5	-0.4	39.9	85.6	188	205.4	189	156.9	100.9	37.7	6.1	-2.7	1002
2009	-2.2	-0.5	19.7	92.3	168.9	184.3	182	151.4	117.7	14.8	5.5	-8.8	925
												Average	910

Lake Evaporation, mm

Cold lake	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-4	0	28.8	60.8	128.7	143.9	136.3	90.9	62.1	20	-2.2	-3.1	662
1996	-1.9	-0.2	17.4	61.8	91.5	132.3	134.8	110	43	18.2	-1.3	-2.8	603
1997	-2.2	-2	28.7	61.5	107.3	122.9	146	110.9	57.5	17	-1.7	-3.9	642
1998	-2.6	-4	29.9	78.2	140.1	141.6	144.2	123.2	62.9	18.5	-3	-3.6	725
1999	-2.9	0.3	28.5	65.7	101.9	136.5	136.1	117.2	58.9	20.7	1.2	-6.4	658
2000	-3.3	-1.1	32.4	71.3	108.7	129.1	132.3	101.2	51.8	21.1	-4	-3.7	636
2001	-6.8	0.6	32.2	71.9	121	131.3	141.7	123.9	62.5	19.1	0.6	-5.4	693
2002	-3.2	4.8	8.6	55.4	116	157	148.6	109.3	56	14	-2	-9.1	655
2003	-2.3	-1.3	24	64.2	117.7	137.8	145.7	113.4	52.9	21.1	-3.9	-7.2	662
2004	-3	-3.8	31.2	69	102.7	135.2	132.4	96.6	48.7	18.7	4.6	-3.8	629
2005	-2.6	7.7	29.8	68.2	113.8	128.2	136.2	95.2	52.7	20.8	3.3	-7.3	646
2006	-6.2	0.1	23.1	84.7	107.9	140.1	148.5	112.1	58.4	18.7	-0.1	0.6	688
2007	3.4	2.7	30.1	67.6	114.6	126.6	157.4	95.8	54.1	22	-1.2	-4	669
2008	-4.5	-0.4	31.1	60	120.2	145.6	137.9	105.7	57.8	22.8	4.9	-2.7	678
2009	-2.2	-0.5	19.6	63.8	115.3	134.4	140.6	110.9	68.1	14.8	4.7	-8.8	661
												Average	660

Coronation

Potential Evapotranspiration, mm

Coronation	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1994	-2.6	0.3	38	109.7	151.1	146.9	180.7	132.8	107.3	25.2	-1.8	-8	880
1995	-5.3	-2.5	20.7	72	161.9	184	168	117.3	120.4	34.7	-2.2	-3	866
1996	-2.1	-2.1	3.4	79.9	107.8	155.2	166.9	189.7	71.9	27.2	-0.3	-0.9	797
1997	0.8	11	35.4	107.3	157.8	144.1	189.5	181.8	124.3	29	0.8	2.3	984
1998	-2.5	-3.1	25	123.5	206.3	177.1	191.7	212.3	119.4	27.5	-4	-5.5	1068
1999	-4.6	-2.5	12.7	105.2	130.2	165.9	141.7	134.1	103.8	40	3.5	-0.3	830
2000	-4.4	-2.8	32.7	95.5	154.6	170.4	201.3	161.3	90.2	39.6	-3.6	-4	931
2001	-6.4	-1.2	43.6	117.2	191.6	147.4	193.2	231.4	128.3	35.3	4.1	-5.6	1079
2002	-4.5	0.3	1.2	65.2	183.8	215.5	251.3	140.4	95.6	18.6	3.9	-5.7	966
2003	-4.6	-2.6	12.4	81	134.7	150.4	205.6	200.7	99.3	45.3	-5.4	-6.4	910
2004	-3.1	-2.7	42	119.7	153.3	184.6	167.5	134.3	82.1	28.2	5	-5.8	905
2005	-4.4	-2	16.7	107	169	120.6	179.6	131.9	80.9	33.7	2.4	-7.7	828
2006	-11.3	-0.7	2.7	113	144.9	167.8	224.5	171.4	105.5	25.2	-3.2	-4.4	935
2007	-3.1	-1.3	38.2	85.9	149	168.4	255.7	157.2	102.7	43.1	7.7	-5.9	998
2008	-4.6	-2.6	42.9	87.8	174.1	163.2	203.2	189	113.7	46.5	6.6	-4.2	1016
2009	-1.8	-1.6	5.7	107	184.2	209	221.4	145.5	142.4	18.9	10.8	-3	1039
												Average	939

Areal Evapotranspiration, mm

Coronation	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1994	-2.6	0.3	22.8	41.2	80.4	110.1	117.3	83.8	28	19.7	-1.8	-8	491
1995	-5.3	-2.5	20.7	54.4	83.3	102.7	126.9	91.7	14	15.2	-2.2	-3	496
1996	-2.1	-2.1	3.4	50.4	78.7	89	115.9	62.1	29.6	17.8	-0.3	-0.9	442
1997	0.8	11	18.1	23.3	67.6	112.8	108.9	61.9	15.7	16.9	0.8	2.3	440
1998	-2.5	-3.1	22.1	40.3	76.7	93.3	106	46	13.9	18.6	-4	-5.5	402
1999	-4.6	-2.5	12.7	33.2	68.9	96.2	110.6	87.5	22.3	12	3.5	-0.3	440
2000	-4.4	-2.8	25.3	42.7	76.2	95.6	110.5	67.6	26.2	13.3	-3.6	-4	443
2001	-6.4	-1.2	21.4	33.6	67.8	113.2	105.8	42.7	13.8	14	4.1	-5.6	403
2002	-4.5	0.3	1.2	50.6	54.1	80.9	77.5	69.7	20.6	18.6	3.9	-5.7	367
2003	-4.6	-2.6	12.4	47.9	79.4	109.1	106.3	57.5	17.7	11.7	-5.4	-6.4	423
2004	-3.1	-2.7	28.6	34.1	71.7	86.5	111.1	77	33	18.2	5	-5.8	454
2005	-4.4	-2	16.7	37.7	76.3	111.5	116.9	74.2	35	17.5	2.4	-7.7	474
2006	-11.3	-0.7	2.7	45	75.2	106.6	103.4	67.7	19.3	18.3	-3.2	-4.4	419
2007	-3.1	-1.3	24	40	84.4	105.7	92.2	66.6	27.9	13.8	7.7	-5.9	452
2008	-4.6	-2.6	28.3	46.1	68.5	108.5	102.9	53.3	18.6	10.5	6.6	-4.2	432
2009	-1.8	-1.6	5.7	40	70.4	80.4	92.9	70.6	12.7	18.9	5	-3	390
												Average	435

Coronation

Potential Evaporation, mm

Coronation	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1994	-2.8	-0.1	39.4	112.2	156.3	154.6	189	139.1	109.4	30.5	-2.2	-8.3	917
1995	-5.4	-3	22	75.8	167.4	190.6	177.6	124.7	125.3	39.9	-2.6	-3.2	909
1996	-2.3	-2.5	2.8	83.3	113	160.5	175.2	193.6	73.7	32	-0.8	-1.3	827
1997	0.4	12.1	39.2	107.4	161.5	152	196.9	185.7	125.1	33.8	0.7	2	1017
1998	-2.7	-3.5	25.7	126	211	182.7	198.6	214.3	125.6	33	-4.5	-5.8	1100
1999	-4.8	-2.9	14.2	106.6	134.1	172	149.5	140.7	105.2	45.1	3.7	-0.4	863
2000	-4.6	-3.2	34.2	98.1	159.3	176.3	208.9	165.8	91.8	45.3	-4	-4.3	964
2001	-6.8	-1.6	44.9	118.8	195.4	155.4	200.2	233.1	133	40	4.3	-5.9	1111
2002	-4.9	-0.1	0.7	68.9	186	219.5	255	145.1	96.6	23.3	4.1	-6.2	988
2003	-4.9	-3	13.4	84.1	139.8	157.9	212.7	204	99.9	51.7	-5.8	-6.8	943
2004	-3.3	-3.1	44.3	121.3	157.5	189.5	175.3	139.9	84.6	33.2	5.1	-6.2	938
2005	-4.6	-2.4	19.2	109	173.7	128.5	188.1	137.3	83.5	40	2.5	-8.1	867
2006	-11.7	-1.1	2	116	149.5	174.9	231.2	175.9	106.4	29.7	-3.7	-4.9	964
2007	-3.6	-1.7	39.7	88	154.6	175.4	261.1	161.6	104.9	49.9	7.6	-6.2	1031
2008	-4.9	-3	45.1	90.7	177.9	170.6	210	191.9	114.8	52.4	6.7	-4.4	1048
2009	-2.3	-2.1	5.3	109.2	188.3	213.1	227.1	150.3	147.9	22.9	10.9	-3.2	1067
												Average	972

Lake Evaporation, mm

Coronation	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1994	-2.8	-0.1	33	81.8	123.9	136.5	158.5	115.9	73.7	25	-2.2	-8.3	735
1995	-5.4	-3	22	68.2	131.8	152.4	157.2	112.1	73.4	27.6	-2.6	-3.2	731
1996	-2.3	-2.5	2.8	70.2	99.6	129.4	150.3	135.1	54.8	24.8	-0.8	-1.3	660
1997	0.4	12.1	28.7	70.4	120.6	136.3	158.8	130.7	76.3	25.3	0.7	2	762
1998	-2.7	-3.5	24.9	89	152.2	143.7	157.9	138.3	72.6	25.7	-4.5	-5.8	788
1999	-4.8	-2.9	14.2	74.6	106.2	139.4	133.9	118.4	68.7	28.7	3.7	-0.4	680
2000	-4.6	-3.2	31.3	74.7	123.8	141.5	166	122.6	63.1	29.5	-4	-4.3	736
2001	-6.8	-1.6	35.4	81.8	139.5	138.6	158.9	147.2	77.7	27.1	4.3	-5.9	796
2002	-4.9	-0.1	0.7	62.8	127.9	157.6	175.2	112.3	63	21	4.1	-6.2	713
2003	-4.9	-3	13.4	69.4	114.5	137.9	166.1	138.4	63.4	32	-5.8	-6.8	715
2004	-3.3	-3.1	38.8	83.3	120.8	144.4	148	113.1	62.6	25.6	5.1	-6.2	729
2005	-4.6	-2.4	19.2	78.1	131.8	122.9	158	110.4	63	28.8	2.5	-8.1	700
2006	-11.7	-1.1	2	85.6	117.4	145.6	174.7	128.3	67.7	23.8	-3.7	-4.9	724
2007	-3.6	-1.7	33.8	67.7	125	145.6	185.4	120	71.5	32.1	7.6	-6.2	777
2008	-4.9	-3	39.1	72.6	130.2	144.8	163.4	130.1	72.3	31.8	6.7	-4.4	779
2009	-2.3	-2.1	5.3	79.8	137.4	154.5	167.9	115.7	85.2	21.4	9.1	-3.2	769
												Average	737

Edmonton International Airport

Potential Evapotranspiration, mm

Edmonton International	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-1.6	4.1	22.4	90.3	147.7	153.6	170.4	140.8	99.7	16.6	0.9	3.5	848
1998	-2.5	-5.4	19.5	115.9	194.9	139.7	160.9	164.4	100	23.9	1.3	-2.6	910
1999	-3	-0.5	25.1	97.6	139.5	169.8	145.3	132.4	103.6	34.5	3.1	2.5	850
2000	-1	1.5	41.3	92.8	140.8	153.9	150.6	118.5	80.8	28.5	4.4	-1.9	810
2001	3.9	3	50.2	122	185.1	137.7	150.5	152.6	94.3	25.1	1	-4.2	921
2002	-3.9	5.4	3.8	60.6	161.9	210.8	202	122.5	77.7	18.4	8	1.4	869
2003	0.9	-0.8	18.1	75.7	157.8	150.9	170.1	169	83.2	28.5	-2.3	-1.4	850
2004	-1.4	0.6	42.6	116	152.5	164.5	132.6	106.7	62.6	18.8	6.1	-3.3	798
2005	-4.5	2.3	33.1	110.8	168.7	129.4	174.7	107	66.9	22.2	4.5	-5.2	810
2006	-8.5	8.8	3.1	126.9	166.2	173.9	196.4	154.5	89.2	21.8	-6.2	-5.9	920
2007	-3.5	-3.4	27.3	74.8	143.4	156.3	189.8	130.5	90.6	43.9	7	-5.7	851
2008	-4.3	0.6	44.3	89.5	161.2	166.2	180.6	172.3	108.5	44.7	8.6	-4.5	968
2009	-2.2	-2.5	4.6	90.7	173.6	199.8	171	142	123.7	16.2	9.3	-2.8	923
												Average	871

Areal Evapotranspiration, mm

Edmonton International	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-1.6	4.1	21.6	47.5	51.5	96.7	115.4	79.4	16.6	16.6	0.9	0.6	449
1998	-2.5	-5.4	19.5	36.3	60	94.1	109.3	62.9	13.8	15.1	1.3	-2.6	402
1999	-3	-0.5	23	41.4	55.3	79.1	101.2	73.1	17.5	10	3.1	2.1	402
2000	-1	1.5	22.2	26.2	46.2	78.6	121.8	68.8	17.1	13	4.4	-1.9	397
2001	3.9	3	16.9	17.6	29	81	96.4	89.6	27.8	14.9	1	-4.2	377
2002	-3.9	5.4	3.8	49.6	35.8	61.8	75.3	57.8	15.8	16.3	2.4	1.4	322
2003	0.9	-0.8	18.1	36	47.1	77.4	110.1	72.1	15.9	12.5	-2.3	-1.4	386
2004	-1.4	0.6	18.3	21.7	59.3	92.3	123.7	85.1	30.7	18	3.3	-3.3	448
2005	-4.5	2.3	22.9	35.5	62.6	87.5	98.3	85.2	28.2	17.8	4.5	-5.2	435
2006	-8.5	8.8	3.1	28.4	70.6	80.1	126.9	91.7	33.1	20.8	-6.2	-5.9	443
2007	-3.5	-3.4	26.5	47.6	70.3	124.6	148.1	97	29.3	13.2	7	-5.7	551
2008	-4.3	0.6	31.9	57.4	35.4	100.1	118.1	69.6	23.8	10.7	2.2	-4.5	441
2009	-2.2	-2.5	4.6	36.2	47.5	62.1	99.5	75.6	11.7	16.2	2	-2.8	348
												Average	415

Edmonton International Airport

Potential Evaporation, mm

Edmonton International	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-2	4.2	23.7	93.6	149.8	159.8	178.7	146.7	103.8	17.9	0.9	2.7	880
1998	-2.8	-5.9	21.7	118	197.8	145.8	168.5	168.4	109	27.1	0.7	-3.1	945
1999	-3.4	-0.8	26	100.2	142	174.1	152.3	137.6	104.6	38.1	2.8	1.7	875
2000	-1.5	1.1	42.7	93.5	142.3	158.2	159.7	123.2	85.2	32.1	4.2	-2.4	838
2001	3.5	2.7	55.3	121.8	184.5	142.3	156.8	160.1	96.5	28.7	0.6	-4.6	948
2002	-4.3	5.6	3.3	64.4	162.1	212.8	205.7	125.9	84.8	20	7.4	0.9	889
2003	0.3	-1.2	20	77.5	159.4	155	177.8	174.4	89.7	31.6	-2.8	-2	880
2004	-1.8	0.2	46.2	116.3	155.5	170.3	142	113.4	64.6	22.2	5.6	-3.8	831
2005	-4.9	2	34.4	112.8	172	134.8	181.2	113.8	68.6	26.7	3.8	-5.8	839
2006	-8.8	10.8	2.7	128.1	170.4	178.1	206.2	162.4	92	27.5	-6.6	-6.2	957
2007	-3.9	-3.8	29	77.9	147.6	165.6	202.1	138.9	93	51.8	7.3	-6	900
2008	-4.6	0.3	47.4	94	161.3	172.8	189.4	177.4	110.5	51.3	8.6	-4.7	1004
2009	-2.7	-2.9	4.2	92.5	175.2	202.1	177.7	147.6	135	19.4	8.7	-3	954
												Average	903

Lake Evaporation, mm

Edmonton International	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-2	4.2	23	74.9	106.1	132.6	152.1	117.8	63	17.9	0.9	2.5	693
1998	-2.8	-5.9	21.7	82.5	136.3	123.9	143.3	121.6	62	21.3	0.7	-3.1	702
1999	-3.4	-0.8	25.6	75.2	103.9	132.3	131	109.8	66.1	24.1	2.8	1.7	668
2000	-1.5	1.1	34.7	63.9	99.5	123.2	144.8	100	52.9	22.6	4.2	-2.4	643
2001	3.5	2.7	37	75.4	114.1	115.6	130.7	130.5	66.7	21.7	0.6	-4.6	694
2002	-4.3	5.6	3.3	59.8	105.5	144.6	147.1	96	50.7	18.4	5.8	0.9	633
2003	0.3	-1.2	20	59.8	109.4	120.7	149	129.7	53.7	22.3	-2.8	-2	659
2004	-1.8	0.2	33.3	74.3	113.5	136.5	136	102.6	50.4	19.8	5.3	-3.8	666
2005	-4.9	2	30.4	79.2	123.9	114.6	145.3	103.1	51.4	22	3.8	-5.8	665
2006	-8.8	10.8	2.7	84.1	126.8	134.4	172.8	133.1	66.8	23.9	-6.6	-6.2	734
2007	-3.9	-3.8	29	66	114.1	149.6	180.8	122.9	65.6	32.8	7.3	-6	754
2008	-4.6	0.3	42.5	80.4	104.3	141.7	159.6	130.2	72.7	31.3	6.7	-4.7	760
2009	-2.7	-2.9	4.2	68.5	118.6	139.4	143.8	116.8	74.2	19.1	6.4	-3	682
												Average	689

Edmonton City Airport

Potential Evapotranspiration, mm

Edmonton City Airport	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-2.6	5.2	37.4	98.1	157	157	187.4	152.3	96.2	20.8	4.7	5.7	919
1998	-3.7	-1.6	37.2	134.8	207.8	167.4	184.5	186.7	104.3	26	0.4	-2.2	1042
1999	-4.2	2.7	41.7	115.6	143.9	180.4	168	156.4	109.3	36.1	7.3	7.1	964
2000	0.7	10.5	51	105.2	151.5	173	173.9	133.1	84.7	30.9	4.5	-3.7	915
2001	4	4.7	55.5	130.6	199.7	154.2	172.4	193.5	111.8	32.3	10.6	-3.4	1066
2002	-1.5	12.2	21.8	82.7	187.1	218.6	223.3	141.1	83.2	20.2	12.1	2.8	1004
2003	1.6	4.2	31.7	79.7	163.6	163.2	202.2	185.8	89.3	34.5	2.8	2.5	961
2004	-0.8	8.3	45.9	121.2	159.3	191.7	159.3	130.1	75.5	24.9	15.8	0.3	932
2005	-2.2	9.8	42.7	133	183	145.9	189.8	143.8	83.4	30.6	8.5	-2.8	966
2006	-4.8	12	20.4	142	171.5	185.4	227.9	181.2	105.1	26.8	-2.8	3.7	1068
2007	4.9	1.2	57	99.8	154.1	178.6	238.8	151.1	109.9	49.5	9.4	-6.3	1048
2008	-5.4	5.7	60	100.5	172.9	187.9	203.7	185.8	119.5	49.2	11.3	-4.4	1087
2009	0.5	3.7	33.7	105.1	180.9	209.5	189	170.8	132	19	15.6	-4.1	1056
												Average	1002

Areal Evapotranspiration, mm

Edmonton City Airport	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-2.6	5.2	29.9	41.8	45	93.6	101.1	68.7	17.8	13.7	4.4	0	419
1998	-3.7	-1.6	23.1	21.1	53.5	74.5	94.5	49.1	13.1	13.5	0.4	-2.2	335
1999	-4.2	2.7	27.4	27.2	54.5	73.8	86.3	58.9	16	8.8	2.4	0	354
2000	0.7	10.5	15	16	38.5	64.4	107	61.7	16.4	11.2	4.5	-3.7	342
2001	2	4.7	13.1	13	19.8	69.1	81.5	60.5	15.3	9.6	0.5	-3.4	286
2002	-1.5	10.5	20.5	30.2	15.1	63.1	64.1	47.9	14.1	14.6	2	2.8	283
2003	1.6	4.2	24.9	35	46	70.2	87.4	64.8	13.1	8.4	2.8	2.5	361
2004	-0.8	8.3	16.2	19.9	55.4	73.4	105.7	70	20.6	13.1	0	0.3	382
2005	-2.2	9.8	16.1	18.2	52.5	75.1	93.8	56.3	15.6	11.7	0.7	-2.8	345
2006	-4.8	12	20.4	18.3	70	75.8	108.1	75	21.9	16.6	-2.8	3.2	414
2007	4.9	1.2	17.1	25.3	63	107.2	112.2	84.1	15.3	9.7	4.6	-6.3	438
2008	-5.4	5.7	19.1	49.1	28.1	87.5	105.6	65.2	19.3	8.1	2.1	-4.4	380
2009	0.5	3.7	22.4	25.9	46.5	63.3	90.4	56.9	9.9	16.7	0	-4.1	332
												Average	359

Edmonton City Airport

Potential Evaporation, mm

Edmonton City Airport	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-3	5.6	39.8	100.8	158.3	162.8	194.1	157	97.9	21	4.5	4.5	943
1998	-4	-1.8	38.8	135.2	209.8	171.1	190.2	189	113.6	28.7	-0.2	-2.8	1068
1999	-4.6	2.8	44.1	116.6	146.3	184	173.2	159.8	111.8	39.3	6.6	5.9	986
2000	0.1	13.1	57.2	106.9	152.1	175.6	181.2	136.9	90.4	34	4.3	-4.2	948
2001	3.5	4.5	61.8	137.6	197.9	157.3	176.9	197.5	115.9	34.6	9.6	-4	1093
2002	-2	12.3	24	84.2	185	220.7	225.6	143.3	90.4	21.1	11	2	1018
2003	1	4	33.2	81.4	165	166.4	207.3	190.3	96.9	36.1	2.5	1.9	986
2004	-1.3	8.8	51.7	121.3	161.9	195.1	166.5	134.9	76.3	26.9	14.3	-0.3	956
2005	-2.7	10.1	48	133	185.2	149.8	195.7	147.1	90.8	33.9	7.5	-3.4	995
2006	-4.7	15.9	21.8	142	175.6	189	235.4	187.1	106.6	32	-3.2	3.6	1101
2007	4.8	0.8	60.9	100.4	157.4	185.9	246.7	158.1	113.6	57.5	9.5	-6.7	1089
2008	-5.8	6.1	61.8	104.2	172.1	192.9	211.1	190.4	121.1	56.1	11	-4.7	1116
2009	-0.1	3.5	34.8	105.9	182.4	211.8	194.5	174.3	143.7	21.4	14.4	-4.3	1082
												Average	1029

Lake Evaporation, mm

Edmonton City Airport	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-3	5.6	37.2	76.1	107.5	132.7	153.5	118.2	61.7	18.4	4.5	2.1	715
1998	-4	-1.8	33	84.4	139.6	128	147.7	125.9	64	21.6	-0.2	-2.8	735
1999	-4.6	2.8	38.2	77.2	105.8	134.9	134.9	114.8	68.5	24.5	5.3	2.6	705
2000	0.1	13.1	36.4	65	101	125.6	149.1	103.8	54.7	22.9	4.3	-4.2	672
2001	3.5	4.5	37.8	77.8	116.8	117.9	134.2	136.5	69.4	22.6	6	-4	723
2002	-2	12.2	22	61.2	107.8	149.3	152.3	100.5	52.7	18.5	7.5	2	684
2003	1	4	30.7	61.5	111.8	123.3	153.8	134.7	55.5	23.2	2.5	1.9	704
2004	-1.3	8.8	34.1	76.1	115	140.6	140.4	106.8	51.8	20.4	7.9	-0.3	700
2005	-2.7	10.1	32.2	81.8	126.1	116.6	150.8	106.9	53.7	23.1	4.9	-3.4	700
2006	-4.7	15.4	21.8	86.8	129.3	138.1	179.3	138.3	69.2	24.3	-3.2	3.6	798
2007	4.8	0.8	41.2	67.3	115.9	152.1	187.3	126.9	68.5	34.1	8.2	-6.7	800
2008	-5.8	6.1	44.1	81.9	106.6	146.3	165.1	135	76.3	32.5	8	-4.7	791
2009	-0.1	3.5	30.3	70.7	121.9	145	148.4	121.9	77.7	19.3	8	-4.3	742
												Average	728

Edson

Potential Evapotranspiration, mm

Edson	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1992	-1	10.6	67.8	109.2	157.2	189.4	173	158.9	85.1	27.2	0.8	-2.4	976
1993	-1.5	9.7	48.6	109.7	177.2	172.3	152.3	120.4	93.1	23	5.6	-4.7	906
1994	-1.6	-0.1	55.9	117.1	145.9	155.5	160	116.4	100.5	25.3	1.4	-6.8	870
1995	-6.7	3.9	42.9	82.7	160.4	159.6	145.3	100.8	100.2	28.1	-1.2	-1.2	815
1996	-0.1	12.2	33.5	98.6	98.3	149.6	156.5	145.1	61.7	27.1	-0.8	-2.3	779
1997	-1.8	11	40.9	98.2	149.5	156.4	164.2	138.7	83.8	18.9	1.6	2.9	864
1998	-3.4	6.8	37.9	124.9	178.8	138.8	173.4	157.9	87.5	18.1	-3.9	-3.5	913
1999	-5.4	4.6	43.7	106.8	143.2	148.2	154.4	138.4	92.6	35.3	2.1	8.5	872
2000	-1.2	3.1	49.5	101.6	123.7	161.5	165.2	114.3	84.1	27.2	7	2.5	839
2001	7.9	2.2	49.8	100.1	178.8	143.8	137.2	162.4	102.3	30.8	1.9	-4	913
2002	-2.3	12.2	11.8	74	147.3	214.5	208.2	146.1	79.1	20.4	5.7	-7.6	909
2003	-5.6	-1	36.9	76	148.6	175.7	207.6	170	90.7	36.5	6	3.8	945
2004	2.5	10.5	49.1	117.4	136.6	169.9	153.4	119.8	71.8	25.7	9.4	0.3	866
2005	-4	13.3	52.3	136.1	162.8	129.2	169.3	132.6	87.1	31.4	5.7	-6.2	910
2006	-6.6	9.6	13.8	128.2	165.2	188.5	193.3	155.6	101.8	24.6	-1.6	-1.5	971
2007	4.7	-1.1	51.2	98.3	149.6	156.9	210.1	109.5	85	31.6	5.7	-0.2	901
2008	1.8	12.7	54.6	86.6	162.1	155.5	173.2	147.7	90.1	37.1	6.6	-2.3	926
2009	2.9	2.2	36.6	93.6	159.7	186.6	169.6	134	107.3	16.6	6.2	-6.6	909
												Average	894

Areal Evapotranspiration, mm

Edson	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1992	-1	10.6	14.5	33	59.8	85.4	98.5	62.4	18	14.4	0.8	-2.4	394
1993	-1.5	9.7	17.6	31.6	53.4	69.4	78.5	64.4	23.5	17.4	5.6	-4.7	365
1994	-1.6	-0.1	16.5	29.6	56.4	107.3	114.9	86	27.5	17.6	1.4	-6.8	449
1995	-6.7	3.9	22.4	37.7	78.8	110.5	100.6	74.8	30.9	15.3	-1.2	-1.2	466
1996	-0.1	12.2	25.6	39.9	83.4	97.2	101.1	80	31.1	15.7	-0.8	-2.3	483
1997	-1.8	11	21.2	37.2	70.5	94.1	108.8	74.7	29.1	18.8	1.6	2.3	468
1998	-3.4	6.8	20.1	34.9	81	104.3	108.6	70.9	31.5	18.1	-3.9	-3.5	465
1999	-5.4	4.6	22.5	29.4	78.3	102	96.8	74.7	24.6	11.6	2.1	0	441
2000	-1.2	3.1	17.6	41.6	72.6	92.2	106.2	75	24.4	15.5	6.8	2.5	456
2001	2.4	2.2	16.7	35.5	58.2	100.5	115.9	76.4	23.9	14.1	1.9	-4	444
2002	-2.3	12.2	11.8	36.8	61.6	91.2	83.5	65.4	27.6	19.1	4.1	-7.6	403
2003	-5.6	-1	26.3	48	64	83.5	88.5	59	20.4	11.2	6	3.8	404
2004	2.5	10.5	17.2	35.3	71.9	102.5	113.1	77	25.6	16.1	1.9	0.3	474
2005	-4	12.9	14.3	15.8	77.6	107.2	99.7	73.6	18.4	13.4	4.5	-6.2	427
2006	-6.6	9.6	13.8	34.5	78.5	91.2	101.5	61.9	17.1	16.2	-1.6	-1.5	415
2007	4.7	-1.1	16.1	26.2	68.2	104.4	100.1	78.3	26.2	13.5	5.7	-0.2	442
2008	1.8	12.7	17.5	37.5	70.9	102.6	100.8	70.8	29.7	11.6	3.2	-2.3	457
2009	2.9	2.2	25.5	41.2	74.2	90.2	113.8	82.4	26.5	16.6	5	-6.6	474
												Average	440

Edson

Potential Evaporation, mm

Edson	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1992	-1.4	12.1	75.4	110.8	160.2	194.1	179.6	163.1	86.6	31.2	0.1	-2.8	1009
1993	-2	10	52.8	111.1	179.3	175.5	156.7	124.7	94.7	27.3	5.1	-5.2	930
1994	-1.9	-0.5	62.2	118.3	148.5	163.1	168.4	123.3	102.8	30.3	1.1	-7.1	909
1995	-7	3.8	44.4	84.7	165.6	167.4	152.2	106.4	103.1	32.7	-1.7	-1.7	850
1996	-0.4	15.2	35	101	104.2	156.1	163.4	151.4	63.7	31.5	-1.3	-2.6	817
1997	-2.2	13.3	42.1	100.2	153.7	162.5	172	144.3	86	23	1.6	2.3	899
1998	-3.7	7.4	39.2	126.9	184.2	146	181	162.9	90.1	22.5	-4.4	-3.9	948
1999	-5.7	4.7	45.2	107.9	148.4	155.2	160.9	143.9	94.4	39.9	1.9	7.4	904
2000	-1.7	3.1	53.4	104.2	128.3	167.3	172.6	119.9	85.7	31.7	6.7	1.8	873
2001	7.4	1.8	55.8	101.9	181.6	150.7	145.8	168.4	104.2	35.2	1.8	-4.4	950
2002	-2.7	12.8	12.4	76.2	150.6	220.1	213	150.6	81	24.8	5.6	-8	936
2003	-6	-1.4	38.6	79.2	152.1	180.5	213	173.8	91.8	41.3	5.9	3.2	972
2004	1.9	13.6	53.8	119.4	141.1	176.8	161.7	125.5	73.3	30	8.8	-0.2	906
2005	-4.4	15.4	58.2	136.3	167.9	136.8	176.1	138.2	87.9	35.9	5.4	-6.7	947
2006	-7.1	10	15.4	130.2	170.4	194	200.1	159.8	103.1	28.7	-2	-2	1001
2007	4.5	-1.5	57.3	98.9	153.6	164	216.7	115.5	86.9	36.3	5.5	-0.8	937
2008	1.3	14.9	58.1	88.6	166.3	162.5	180.1	152.8	92.5	42.2	6.2	-2.7	963
2009	2.5	1.9	38.2	96.1	164.5	192.2	177.9	140.6	109.6	19.8	6.1	-6.7	943
												Average	927

Lake Evaporation, mm

Edson	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1992	-1.4	12.1	45.5	76.9	116.2	145.9	144.6	119	55.9	22.8	0.1	-2.8	735
1993	-2	10	36.4	76.3	123.1	128.1	122.3	98.8	63.6	22.2	5.1	-5.2	679
1994	-1.9	-0.5	39.6	79.4	108.1	140.3	146.3	108.5	70.1	23.8	1.1	-7.1	708
1995	-7	3.8	35.8	64.8	128.6	144	130.6	94	72.1	24	-1.7	-1.7	687
1996	-0.4	15.1	32.1	75	97.2	131.5	137	121.1	50.2	23.5	-1.3	-2.6	678
1997	-2.2	13.3	33.9	73.5	118	133.2	145.5	114.5	61.5	20.6	1.6	2.3	716
1998	-3.7	7.4	31.5	87	139.5	129.2	149.9	122.6	65.1	20.8	-4.4	-3.9	741
1999	-5.7	4.7	36.3	73.6	119.1	133.3	133.8	114.2	64.1	25.8	1.9	4.3	705
2000	-1.7	3.1	36.9	77.8	105.1	135.1	144.4	101.4	59	23.5	6.7	1.8	693
2001	5.9	1.8	36.6	73.3	127.3	130	134.5	128.7	69.1	24.7	1.8	-4.4	729
2002	-2.7	12.8	12.4	59.9	112.2	163.6	155.5	113.6	58.1	21.7	5.6	-8	705
2003	-6	-1.4	34.6	66.9	114	137.9	158	123.1	60.4	26.4	5.9	3.2	723
2004	1.9	13.6	36.5	83	111.9	145.2	141.7	105.3	52.8	23	6.3	-0.2	721
2005	-4.4	14.4	36.6	82.4	129.3	125.6	143.3	110.8	57.3	24.7	5.4	-6.7	719
2006	-7.1	10	15.4	88.6	130.9	148.9	157	116.9	64.8	22.3	-2	-2	744
2007	4.5	-1.5	37	67.1	116.8	139	165.3	100.7	60.6	25	5.5	-0.8	719
2008	1.3	14.7	39.9	67.1	124.9	137.5	146.0	117.3	65.5	27.1	5.6	-2.7	744
2009	2.5	1.9	33.9	73.1	126.2	148	151.2	116.4	73.4	19.2	6.1	-6.7	745
												Average	716

Fairview

Potential Evapotranspiration, mm

Fairview	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1994	-4.4	-3.3	43	92.1	162.8	183.2	198.2	173.2	98.7	25.8	-1.2	-5	963
1995	-4.5	-2.6	8.4	86	170.7	195.3	186.5	151.1	116.7	25.1	-2.1	-4.9	926
1996	-4.2	-1.7	4.5	87.4	131.7	174.3	182.8	162.7	79.3	21.5	-2.7	-4.8	831
1997	-5.1	1.7	15.2	76	149.6	178.8	193.6	167	97.8	20.2	4.1	-0.5	898
1998	-4.5	0.5	34.8	106.6	190.1	195.5	207.7	184.4	99.9	26.3	1.3	-4.7	1038
1999	-4.7	-0.9	36.5	94.6	146.7	175.6	188.8	179.6	99.8	28.2	3.9	-1.6	947
2000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2002	-4.1	2.1	25.7	56.4	153.3	200.3	161.5	137.5	69.1	13.2	-6	-12.2	797
2003	-78.5	-0.9	7.2	74.7	138.2	172.8	190.4	144.8	79.2	22.4	-4.3	-5.9	740
2004	-3	-2	32.9	102.5	141.7	198.9	155.6	116.6	59.3	17.9	-0.8	-6.2	813
2005	-4.8	3	31.6	112.2	170.7	157.7	170.7	129.5	81.2	22.2	3.3	-8.8	869
2006	-8	3.1	7.2	129.8	176.4	192	185	155.8	93.6	18.4	-3.1	-5.9	944
2007	-4.5	-1.9	10.1	72.1	148.8	168.5	185.1	103.5	76.3	26	-3.3	-6.9	774
2008	-5.1	-1.1	32	78.5	164.3	188.1	215.1	172	83.8	30.8	-3.7	-3.9	951
2009	-2.5	-0.1	12.5	91.9	158.1	193	191.4	178.8	95.8	19.3	5.1	-4.3	939
												Average	888

Areal Evapotranspiration, mm

Fairview	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1994	-4.4	-3.3	21.3	43.7	95.4	88.6	79.9	49.5	14.1	10.5	-1.2	-5	389
1995	-4.5	-2.6	8.4	37.6	94.7	95.6	81	60.4	17.7	12.7	-2.1	-4.9	394
1996	-4.2	-1.7	4.5	37.2	77.8	91.2	80	50.8	14.7	13.5	-2.7	-4.8	356
1997	-5.1	1.7	15.2	43.3	75.3	83	80.2	45.4	13.2	9.8	4.1	-0.5	366
1998	-4.5	0.5	19.3	39.6	89.3	100	81.3	55.1	13.7	5.9	1.3	-4.7	397
1999	-4.7	-0.9	19.8	33.4	76.6	89.3	88.8	54.4	14.6	8.5	3.9	-1.6	382
2000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2002	-4.1	2.1	20.2	36.3	44.3	73.6	90.7	59.8	21.5	13.2	-6	-12.2	339
2003	-78.5	-0.9	7.2	28.7	66.8	78.3	95.7	56.2	16.5	11.4	-4.3	-5.9	271
2004	-3	-2	20.2	26.7	57.1	79.2	102.4	65.9	18.9	14.2	-0.8	-6.2	373
2005	-4.8	3	18.1	21.1	60.2	93.5	94.9	58.8	16	11.1	1.9	-8.8	365
2006	-8	3.1	7.2	14	45.2	76	83.3	55.2	13.2	14.2	-3.1	-5.9	294
2007	-4.5	-1.9	10.1	28.4	58.1	90.1	94.1	67.5	21.9	9.1	-3.3	-6.9	363
2008	-5.1	-1.1	20.7	27.4	44	83.8	77.6	38.7	15.1	5.7	-3.7	-3.9	299
2009	-2.5	-0.1	12.5	25.3	42	73.1	90.1	38.8	13.2	9.5	2.9	-4.3	301
												Average	349

Fairview

Potential Evaporation, mm

Fairview	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1994	-4.4	-3.3	44.9	95.4	170.6	188.9	203	176.3	107.7	26.7	-1.7	-5.2	999
1995	-4.8	-3	9.4	88.4	178.4	201.8	191.6	155.9	118.8	28.2	-2.6	-5	957
1996	-4.1	-2.1	4.1	89.7	137.3	180.4	187.8	166.1	87.3	23	-3.2	-4.8	862
1997	-5.1	1.5	17.4	79	154.8	183.9	198.5	169.6	107.6	19.7	3.5	-1.2	929
1998	-4.5	0.2	38.1	109.5	197	202.5	212.6	188.4	109.6	25.5	0.7	-5	1075
1999	-4.9	-1.3	38.8	96.5	152.2	181.5	194.9	183.4	107.2	28.3	3.4	-2.2	978
2000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2002	-4.5	1.8	29	58.7	155	204.1	167.7	141.8	70.4	13.7	-6.5	-12.5	819
2003	-71.8	-1.3	7.3	75.8	142.5	177.4	197.1	148.6	85.2	22.7	-4.8	-6.4	772
2004	-3.1	-2.4	35.1	103.7	144.9	203.5	163	121.5	63.6	18.2	-1.1	-6.6	840
2005	-4.9	2.9	36.6	112.7	174.2	164	177.4	133.6	87.9	22.3	2.6	-9.3	900
2006	-8.4	2.9	7.3	133.1	178	196.1	190.1	159.7	102.8	19	-3.4	-6.5	971
2007	-5	-2.2	11.6	73.1	152	174.3	191.5	108.6	77.9	25.9	-3.9	-7	797
2008	-5.3	-1.6	33.4	79.4	165.8	193.3	219.7	173.8	92.3	30.1	-4.1	-4	973
2009	-2.9	-0.5	13.9	92.8	159.5	197	197.5	180.7	105.1	18.6	4.2	-4.5	961
												Average	917

Lake Evaporation, mm

Fairview	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1994	-4.4	-3.3	35.8	74.1	140.2	145.3	148.4	120	62.2	19.9	-1.7	-5.2	731
1995	-4.8	-3	9.4	67.1	143.8	155.6	143	114.8	74.7	21	-2.6	-5	714
1996	-4.1	-2.1	4.1	67.6	113.2	142.2	140.5	115.3	51.5	18.9	-3.2	-4.8	639
1997	-5.1	1.5	17.4	64.9	121.2	139.8	146.3	114.3	61.1	15.8	3.5	-1.2	680
1998	-4.5	0.2	29.8	79.7	150.8	158.3	154.2	129.4	62.7	17.2	0.7	-5	774
1999	-4.9	-1.3	31	69.3	120.4	141.8	148.8	126.4	63.2	20.1	3.4	-2.2	716
2000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2002	-4.5	1.8	24.7	50.1	106.1	146.1	134.5	106.2	49.3	13.7	-6.5	-12.5	609
2003	-71.8	-1.3	7.3	55.5	110.2	133.9	153	108.1	52.4	18.6	-4.8	-6.4	555
2004	-3.1	-2.4	29.1	70	106.9	148.5	137.3	98	42.4	17.3	-1.1	-6.6	636
2005	-4.9	2.9	27.3	72.2	124.3	133.9	142.1	101.3	53.3	18.1	2.6	-9.3	664
2006	-8.4	2.9	7.3	78.1	118.8	142.7	142.8	113.8	58.6	17.7	-3.4	-6.5	664
2007	-5	-2.2	11.6	53.9	111	137.9	148.9	91.8	53.7	19.1	-3.9	-7	610
2008	-5.3	-1.6	28.7	57	111.4	145.4	156.7	113.2	54.2	19.7	-4.1	-4	671
2009	-2.9	-0.5	13.9	63.3	107.3	142.4	150.6	117.1	59.8	15	4.2	-4.5	666
												Average	666

Fort McMurray Airport

Potential Evapotranspiration, mm

Ft McMurray Airport	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1994	-1.9	-0.1	56	116	161	172.9	177.3	148.5	96.7	22.2	-3	-4.8	941
1995	-6.6	-0.1	33.9	83	185.3	192.8	162.6	121.3	102.6	16.1	-3.2	-3.9	884
1996	-1.3	0.5	24.8	86.5	114.2	161	148.4	131.8	50.2	11.1	-4.1	-2.7	720
1997	-1	-1	18.8	93.2	145.2	160.1	177.2	125.3	65.8	8.2	-8.6	-10.1	773
1998	-3.4	-7.8	34.4	127.9	179.9	171	187.3	178.4	83.5	24.3	-6.3	-3.7	966
1999	-2.1	2.2	49.6	115.9	139	176.4	172.9	151.8	96.7	25.2	0.6	-4.7	924
2000	-2	4.1	41.7	91.1	129.2	137.5	166.4	110.6	61.2	24.2	-7.4	-3.2	753
2001	-7.1	-0.8	37.9	107.2	153.7	156.2	173.1	165.1	94.3	19.6	0.6	-5.4	894
2002	-2.9	1.4	10.6	76.4	161.4	198.8	176.7	124.9	68	9.5	-6	-10.9	808
2003	-2.8	-0.7	31.8	93	153.2	158.8	187.5	132.1	62.3	15.9	-4.5	-6.7	820
2004	-1.8	-3.1	34.5	99.9	127.7	194.2	207.6	116.8	57.7	19.3	1	-3.5	850
2005	-0.7	-3.4	33.4	108.5	167	141.2	158.8	117.6	68.7	24	-0.9	-9.3	805
2006	-3.1	-0.3	33.8	120.3	141.4	192.7	142.4	126.9	69.8	19.2	0.1	1.8	845
2007	-1.2	-0.2	19.3	89.8	150.9	171.2	201.4	104.2	50.7	24.9	-1.5	-3.9	806
2008	-1.9	-0.7	21.8	76.6	183.6	180.8	157.4	118.2	55.6	21.2	-5.4	-1	806
2009	-0.9	0	16.8	88.6	143	160.4	159.6	116	69.3	11.4	3.3	-1.5	766
												Average	835

Areal Evapotranspiration, mm

Ft McMurray Airport	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1994	-1.9	-0.1	16.3	18.9	38.4	64.6	102.8	38.9	15.9	12.5	-3	-4.8	299
1995	-6.6	-0.1	19.9	16.7	17.6	47.9	61	51.7	12	14.7	-3.2	-3.9	228
1996	-1.3	0.5	20.7	34	33.8	65.9	112.9	87.1	27.9	11.1	-4.1	-2.7	386
1997	-1	-1	18.8	35.5	42.1	84.1	107.8	83	34.1	8.2	-8.6	-10.1	393
1998	-3.4	-7.8	18.6	16.7	61.3	67	80.8	42.3	16.9	8.9	-6.3	-3.7	291
1999	-2.1	2.2	16.6	17.2	50.9	72.1	77.1	51	16.1	10.6	0.6	-4.7	308
2000	-2	4.1	16.2	16.6	47.5	85	105.7	66.7	22.8	10.9	-7.4	-3.2	363
2001	-7.1	-0.8	19.3	24	51.9	63.6	75.6	92.5	22.6	13.8	0.6	-5.4	351
2002	-2.9	1.4	10.6	26.4	22.6	69.9	92.9	59.4	18.7	9.5	-6	-10.9	292
2003	-2.8	-0.7	21	14.5	45.3	63.8	88.5	57.2	28.4	15.7	-4.5	-6.7	320
2004	-1.8	-3.1	18.9	23.9	35	63.5	78.4	54.9	18.5	13	1	-3.5	299
2005	-0.7	-3.4	21.6	28.3	53.7	72.2	113.7	72.4	19.9	10.6	-0.9	-9.3	378
2006	-3.1	-0.3	17.3	10.5	32	71.4	78	54.3	14.9	7.5	0.1	1.8	284
2007	-1.2	-0.2	19.1	15.3	39.8	57.1	76.5	49.4	17.3	3.9	-1.5	-3.9	272
2008	-1.9	-0.7	20.1	27.2	28.9	65.1	75.5	47.1	18.9	7.5	-5.4	-1	281
2009	-0.9	0	16.8	24.3	48	51.8	75.6	44.1	17.7	11.4	3.3	-1.5	291
												Average	315

Fort McMurray Airport

Potential Evaporation, mm

Ft McMurray Airport	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1994	-2.1	-0.4	62.4	116.5	162	175.9	184.8	150.1	101.9	24.1	-3.4	-5.1	967
1995	-6.8	-0.5	36.9	87.6	183.9	193.8	165.4	124.6	113.5	16.8	-3.6	-4.2	907
1996	-1.4	0	28.2	88.6	114.8	164.2	157.2	139.5	52.2	15.2	-4.5	-2.9	751
1997	-1.3	-1.3	21.7	95.5	146.7	165.3	185.3	132.4	69	9.1	-9	-10.4	803
1998	-3.5	-8.2	39.2	128.3	183.6	174.2	192.1	180.7	87.7	24.4	-6.7	-4	988
1999	-2.4	2.1	56.1	116.2	141.5	180.3	177.5	154.9	100.5	26.8	0.4	-5.1	949
2000	-2.3	4	47.7	95	131.3	143.1	174.2	115.7	62.7	25.6	-7.8	-3.4	786
2001	-7.5	-1.1	41	108.3	156.3	159.2	177.3	174.3	96.7	21.2	0.4	-5.6	921
2002	-3.2	1.1	11.3	77.8	160.7	202.4	183.1	129.2	71.3	10.2	-6.4	-11.1	826
2003	-3.1	-1	33.8	100.2	155.1	161.9	193.3	135.9	64.6	17.5	-4.9	-7	846
2004	-1.9	-3.5	38.7	100.8	128.5	197.2	212.3	120.5	63	19.7	1.4	-3.7	873
2005	-1	-3.7	35.1	110.2	169.9	145.2	167.7	123.4	70	24.9	-1.1	-9.7	831
2006	-3.5	-0.8	38.7	129.4	141.6	196.3	146.9	130.4	76.6	18.4	-0.4	0.9	875
2007	-1.7	-0.5	22.2	96	152.1	173.4	205.4	107.1	56.1	23.8	-2.1	-4	828
2008	-2.2	-1.1	25	78.1	183.5	183.7	161.7	120.5	61	20.8	-5.9	-1.2	824
2009	-1.2	-0.4	18.9	89.4	145.3	162	164	118.1	76	12	2.4	-1.7	785
												Average	860

Lake Evaporation, mm

Ft McMurray Airport	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1994	-2.1	-0.4	41.1	73.6	106.6	126.1	149.5	100.1	62.2	19.5	-3.4	-5.1	668
1995	-6.8	-0.5	29.5	53.7	108.6	127.6	118.6	92.8	63.6	16.8	-3.6	-4.2	596
1996	-1.4	0	24.4	65.6	78.6	120.3	139.5	118.4	42.4	15.2	-4.5	-2.9	596
1997	-1.3	-1.3	20.7	70.4	100.2	129.8	152.3	112.3	54.9	9.1	-9	-10.4	628
1998	-3.5	-8.2	29.2	78.9	129.9	126.3	142.6	118.7	55.3	18.3	-6.7	-4	677
1999	-2.4	2.1	37.3	72.4	101.7	132.4	133.1	108.8	62.6	19.9	0.4	-5.1	663
2000	-2.3	4	32.2	58.2	94.5	118.6	145.1	95.2	45.8	19.5	-7.8	-3.4	600
2001	-7.5	-1.1	31.7	71.5	110.3	116.5	131.9	140.6	64.8	18.4	0.4	-5.6	672
2002	-3.2	1.1	11.3	56.1	98.7	143.2	143.9	99	47.3	10.2	-6.4	-11.1	590
2003	-3.1	-1	28.8	58.1	106.5	118.2	147.3	101.3	49.6	17.5	-4.9	-7	611
2004	-1.9	-3.5	29.4	67.2	87	137.8	152.7	92.1	41.5	17.6	1.4	-3.7	618
2005	-1	-3.7	30.4	74.7	118.9	113.1	145.8	102.3	48.3	19.2	-1.1	-9.7	637
2006	-3.5	-0.8	28.1	71	92.1	140.3	116.4	96.9	46	14	-0.4	0.9	601
2007	-1.7	-0.5	20.4	56.7	101.9	121.2	147.4	81.9	36.8	15.2	-2.1	-4	573
2008	-2.2	-1.1	22.3	56.5	114	130.5	123.3	87.7	40.4	15.5	-5.9	-1.2	580
2009	-1.2	-0.4	18.9	61.1	102.7	112.3	124.9	85	47	12	2.4	-1.7	563
												Average	617

Grande Prairie

Potential Evapotranspiration, mm

Grande Prairie	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-4.5	-0.8	17.7	76.6	190.5	171.8	142.5	118.6	109.1	20.7	-2.7	-4.4	835
1996	-2.1	-0.2	10.3	79.8	124.3	159	162.9	145.9	60.7	17.4	-0.5	-2.2	755
1997	-1.5	2.3	26.4	91.3	150.5	173.4	160	127.9	80.7	14.1	-3.9	-2.1	819
1998	-2.6	-2.7	43	128.8	198.9	179.4	183.4	187.6	92.4	16.4	-5	-4	1016
1999	-4.2	-3.2	35.7	97	141.3	161.7	175.2	167.9	87.7	29.9	1.9	0.3	891
2000	-1.9	-0.3	39.8	108.4	135.7	165.5	179.4	105.5	72.7	19.8	0	-4.7	820
2001	-0.9	0.3	42.2	92.9	163.8	151.6	165.2	150.8	93.4	26	0.5	-3.9	882
2002	-2.5	4.8	5.5	60.7	147.5	215.7	200.8	154.7	67.8	14.7	1.2	-4.8	866
2003	-2.7	0.2	13.3	75.6	162.3	185.8	204.2	151.2	82.4	28.1	-0.4	-2	898
2004	-1.5	4.2	41	91.8	151.1	173	159.2	117	62	17.2	2.1	-2.9	814
2005	-3.1	6.3	34.3	116.5	169.2	142.6	166.4	135	85.8	24.9	6	-6.8	877
2006	-7.7	1.4	6	132.9	175	199.2	199.8	180.6	85.1	21.2	-2.4	-6.7	984
2007	-3.6	-2.6	13.7	76.1	141.7	174.8	191.7	99.6	79.5	23.4	0.3	-4.9	790
2008	-4.4	-0.2	40.2	89.9	156.4	192.4	206.1	150.9	86.8	27.3	-0.2	-2	943
2009	-1.4	-0.1	14.5	92	156.8	212.1	165.5	158.2	95.2	12.1	-0.2	-2.5	902
												Average	873

Areal Evapotranspiration, mm

Grande Prairie	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-4.5	-0.8	17.7	35.3	58.2	97.2	105.9	70.7	15.4	14.3	-2.7	-4.4	402
1996	-2.1	-0.2	10.3	40.9	62.9	90.7	99.7	64.9	25.9	15.4	-0.5	-2.2	406
1997	-1.5	2.3	20.1	27.3	48.2	71	98.2	75.2	19.1	14.1	-3.9	-2.1	368
1998	-2.6	-2.7	23.1	19.4	46.3	76.4	87.9	44.4	13.5	12.7	-5	-4	309
1999	-4.2	-3.2	29.6	38.2	37.5	78.8	71.7	37.7	11.5	8.3	1.9	0.3	308
2000	-1.9	-0.3	17.6	23.2	29.2	55.1	78.1	46.8	15	13	0	-4.7	271
2001	-0.9	0.3	17.3	25	37.1	65.1	78.5	54.2	13.7	9.9	0.5	-3.9	297
2002	-2.5	4.8	5.5	28.4	44.5	60.2	56.1	43.7	23.2	14.7	1.2	-4.8	275
2003	-2.7	0.2	13.3	30.2	41.2	66.4	77.5	45.9	14.4	9.5	-0.4	-2	294
2004	-1.5	4.2	16.4	12.4	38.3	71.4	97.8	67.2	19.3	15.4	2.1	-2.9	340
2005	-3.1	6.3	16.6	17.5	55.6	84.4	81.4	52.8	15.2	11.6	1	-6.8	333
2006	-7.7	1.4	6	17.6	42.4	83.1	75.1	40.1	14.4	13.7	-2.4	-6.7	277
2007	-3.6	-2.6	13.7	54.5	56.4	85.9	88.8	63	18.3	11.7	0.3	-4.9	382
2008	-4.4	-0.2	24.9	27.2	45.3	71.3	70.8	47.2	17.8	10.2	-0.2	-2	308
2009	-1.4	-0.1	14.5	42	50.1	73.8	95	59.6	15.3	12.1	-0.2	-2.5	358
												Average	328

Grande Prairie

Potential Evaporation, mm

Grande Prairie	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-4.7	-1.2	20.2	78.5	193.6	178.3	150.2	124	113.8	22.3	-3.1	-4.5	867
1996	-2.2	-0.6	11.5	82.5	128	164.9	169.9	150.7	62.3	18.3	-1	-2.5	782
1997	-1.9	2	29.6	92.3	152.4	177	166.8	133.7	82	13.8	-4.3	-2.7	841
1998	-2.8	-3	45	129.2	200.4	183.5	188.8	189.9	101.1	16.4	-5.3	-4.4	1039
1999	-4.5	-3.7	38.4	99.5	142	166.3	179	169.2	95.3	30.2	1.4	-0.5	913
2000	-2.3	-0.7	45.3	109	135.6	167.3	183.8	107.8	79.4	19.9	-0.3	-5.1	840
2001	-1.3	-0.1	48	93.7	164.4	154.6	169.7	154.1	102.4	25.9	0.1	-4.2	907
2002	-2.9	4.7	5	62	149	217.8	202.7	156.8	69.2	15.7	0.9	-5.4	876
2003	-3.2	-0.3	14.7	76.8	163.4	188.8	208.5	153.5	90.3	28.6	-1	-2.6	918
2004	-1.9	4	46.5	97.9	151.9	176.5	165.8	121.8	65.3	17.8	1.7	-3.5	844
2005	-3.4	6.3	39	116.5	171.9	147.8	171.4	138.2	93.5	25.9	5.2	-7.3	905
2006	-8.1	1.2	5.8	133.1	176.1	204	203.8	182.5	92.9	22.6	-2.6	-7.2	1004
2007	-4.1	-2.9	15.7	80.4	144.6	180	197.2	103.9	81.9	23.8	0	-5.2	815
2008	-4.7	-0.7	42.4	90.8	157.9	195.9	209.7	153.3	89.4	28.2	-0.9	-2.3	959
2009	-1.9	-0.5	16.2	94.9	159	216	171.9	162.4	102.8	12.1	-0.5	-2.7	930
												Average	896

Lake Evaporation, mm

Grande Prairie	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-4.7	-1.2	19.9	60.2	133.9	143.3	132.1	101.8	68.5	19.1	-3.1	-4.5	665
1996	-2.2	-0.6	11.5	65.2	100.3	133.1	140.1	113.4	46.9	17.7	-1	-2.5	622
1997	-1.9	2	25	64.1	106.2	130	137.4	108.9	54.1	13.8	-4.3	-2.7	633
1998	-2.8	-3	36.7	80.5	131.2	135.9	144.1	124.6	57.9	15.6	-5.3	-4.4	711
1999	-4.5	-3.7	36.3	73.4	95.2	128	131.3	109.9	54	20.7	1.4	-0.5	642
2000	-2.3	-0.7	31.7	71.3	87.6	116.7	136.8	80.8	47.6	17.6	-0.3	-5.1	582
2001	-1.3	-0.1	32.9	63.5	107.3	114.7	129.3	109.7	58.6	19.3	0.1	-4.2	630
2002	-2.9	4.7	5	47.9	102.8	146.8	136.4	106.2	49.4	15.7	0.9	-5.4	608
2003	-3.2	-0.3	14.7	56.8	108.9	134.2	150	105.5	52.8	20.5	-1	-2.6	636
2004	-1.9	4	31.6	55.8	101.2	129.6	136.4	98.5	43.9	17.5	1.7	-3.5	615
2005	-3.4	6.3	27.8	72.4	120.4	120.4	131.9	100.6	55.2	19.8	4	-7.3	648
2006	-8.1	1.2	5.8	81.7	116.2	150.5	146	118.7	54.1	19	-2.6	-7.2	675
2007	-4.1	-2.9	15.7	71.3	105.8	138.7	149.1	86.7	53.2	19.1	0	-5.2	627
2008	-4.7	-0.7	36.2	63.2	107.5	140.4	147.5	105.8	57	20.4	-0.9	-2.3	669
2009	-1.9	-0.5	16.2	73	111	153	138.6	117.2	60.4	12.1	-0.5	-2.7	676
												Average	643

High Level

Potential Evapotranspiration, mm

High Level	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-5.5	-0.9	5.4	80.7	195.5	203.4	147.2	115.8	89.1	3.2	-4.4	-4.6	825
1996	-1.8	-2.7	1.7	75.5	142.7	180.3	160	104.2	58.1	3.7	-4	-3.5	714
1997	-2.3	-4.2	3.7	73.5	142.6	165.9	144.3	117.3	59.5	7.2	-7.4	-7.7	692
1998	-1.6	-3.7	27.1	118.8	174.3	170.1	192.7	146.4	72.9	14	-4.3	-4.5	902
1999	-2.4	-2.9	28.2	101.4	145.9	176.2	152.8	138.1	75.9	16.7	-3.4	-2	825
2000	-0.7	3.3	36.2	101.4	157.5	173.6	173.4	105.8	55.1	14.5	-6.3	-2.3	812
2001	-6.9	-1	26.4	99.7	163.7	179.7	174.4	131.7	72.5	17.7	-3.7	-3.5	851
2002	-1.7	1.6	6.1	68.2	157	210.1	173.9	146.4	66	13.2	-1.8	-8.6	830
2003	-2.3	-0.7	8.2	90.4	177.4	180.4	185.9	150.4	68.2	10.5	-5.7	-6.1	857
2004	-2.3	-3.2	26.4	97.5	134.8	213.8	195.3	132.7	63.1	10.3	-7.2	-1.9	859
2005	-0.4	-1.5	27.1	104.3	167.9	166.6	152.4	118.6	64.5	17.2	-4.1	-6.5	806
2006	-3.5	0.3	19.2	116.1	156	167.9	155.2	128.3	74.3	13.8	-2.6	-7.3	818
2007	-5.3	-1	4	91.5	143.1	179.2	160.5	102.3	46.1	12.8	-5.9	-3.7	724
2008	-2.6	0	26.2	85.2	175.2	170.6	160.5	129.6	64.5	19	-6.2	-1.7	820
2009	-1.6	0.2	11.2	91.9	144.4	178.5	159.4	131.9	71.7	9.3	-7.2	-3.1	787
												Average	808

Areal Evapotranspiration, mm

High Level	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-5.5	-0.9	5.4	27.5	50.2	87.8	104.7	65.9	14.5	3.2	-4.4	-4.6	344
1996	-1.8	-2.7	1.7	30.4	57.8	88.9	103.3	76.7	20.8	3.7	-4	-3.5	371
1997	-2.3	-4.2	3.7	36.2	57.1	84.8	107.2	74.9	24.6	7.2	-7.4	-7.7	374
1998	-1.6	-3.7	19.3	19.5	72.2	97.6	92.8	60.2	18.1	9.2	-4.3	-4.5	375
1999	-2.4	-2.9	18.3	16.9	56.4	79.3	87.7	63.6	14.8	8.5	-3.4	-2	335
2000	-0.7	3.3	15.1	16	32.9	70.9	99.1	53.3	19.4	10.6	-6.3	-2.3	311
2001	-6.9	-1	18.5	16.1	44.7	81.2	85.3	59.5	16	8.1	-3.7	-3.5	314
2002	-1.7	1.6	6.1	26.6	44.5	72.1	70.2	40.9	14.5	8.8	-1.8	-8.6	273
2003	-2.3	-0.7	8.2	20.7	39.9	72.1	80.3	48.8	16.7	10.5	-5.7	-6.1	282
2004	-2.3	-3.2	20.3	20.8	49.8	82	88.9	47	16.1	10.3	-7.2	-1.9	321
2005	-0.4	-1.5	20.1	16.7	48.9	93.1	93	64	19.3	9.4	-4.1	-6.5	352
2006	-3.5	0.3	19.1	15.6	58.5	93.6	92.1	65.7	16.4	10.8	-2.6	-7.3	359
2007	-5.3	-1	4	24.8	65.1	85.6	98.8	66.4	28.3	11.3	-5.9	-3.7	368
2008	-2.6	0	19.8	20.1	42.5	100.9	98	64.4	19.4	7.7	-6.2	-1.7	362
2009	-1.6	0.2	11.2	18.5	55.4	88.3	101.6	59.1	15.8	8.7	-7.2	-3.1	347
												Average	339

High Level

Potential Evaporation, mm

High Level	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-5.7	-1.3	5.1	82	198.5	209.5	155.6	121.3	98.6	3.5	-4.6	-4.6	858
1996	-1.8	-2.9	1.2	77.2	146.4	186.5	168	110.7	59.6	4	-4.2	-3.5	741
1997	-2.4	-4.5	3.3	76.4	146.2	171.5	152.5	123.6	61.6	7	-7.8	-7.9	720
1998	-1.7	-4	31.9	119.8	179.7	177.2	199.3	151.2	77	13.8	-4.7	-4.7	935
1999	-2.6	-3.2	33	102.2	149.4	181.3	159.1	143.3	84.7	16.4	-4	-2.5	857
2000	-1	2.9	41.4	108.4	158.3	177.7	180.8	109.5	59.5	14.4	-6.5	-2.5	843
2001	-7.1	-1.4	30.3	103.8	165.9	185	180.2	136.3	81.1	17.2	-4.1	-3.6	884
2002	-2	1.1	5.7	69.6	159.2	214.3	178	148.9	73.3	13	-2.4	-8.7	850
2003	-2.6	-1	8.6	91.1	179	184.7	191.1	153.9	75.6	11	-6	-6.2	879
2004	-2.4	-3.5	29.9	98.3	137.5	219.3	201.6	135.9	70.5	10.7	-7.5	-2.2	888
2005	-0.7	-1.9	30.6	105.1	170.5	173.3	159.2	123.8	67.7	17.3	-4.8	-6.9	833
2006	-3.7	-0.1	22.2	117.4	159.7	174.5	161.7	133.8	82.2	13.8	-2.8	-7.5	851
2007	-5.5	-1.3	3.5	92.7	147.6	184.9	167.6	107.7	48.4	13	-6.3	-3.9	748
2008	-2.8	-0.4	30.2	86.1	177.1	178.2	167.8	134.8	67.3	18.9	-6.5	-1.9	849
2009	-1.9	-0.2	12.2	92.3	147.8	184.6	167.2	136.5	79.7	9.2	-7.5	-3.3	817
												Average	837

Lake Evaporation, mm

High Level	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-5.7	-1.3	5.1	58.8	133.4	156.5	135.1	98.3	57.9	3.5	-4.6	-4.6	632
1996	-1.8	-2.9	1.2	57.5	108.6	144.4	140.9	97.6	43.2	4	-4.2	-3.5	585
1997	-2.4	-4.5	3.3	60.4	107.8	133.9	134.2	103.7	46.2	7	-7.8	-7.9	574
1998	-1.7	-4	25.6	75.8	133.4	143.2	152.7	111.8	50.3	12.6	-4.7	-4.7	690
1999	-2.6	-3.2	25.7	64.3	109.2	136.9	128.6	109	50.2	13.6	-4	-2.5	625
2000	-1	2.9	28.5	64.2	102.6	130.8	145.8	85.4	40.8	13.5	-6.5	-2.5	605
2001	-7.1	-1.4	24.3	63.1	112.5	139.7	138.6	103.1	49	13.7	-4.1	-3.6	628
2002	-2	1.1	5.7	51.7	109.3	151.3	130.2	101	44.3	11.8	-2.4	-8.7	593
2003	-2.6	-1	8.6	60.3	117.4	135.2	142.2	107.7	46.9	11	-6	-6.2	614
2004	-2.4	-3.5	25.5	64.5	99.7	159.3	152.2	96.8	43.6	10.7	-7.5	-2.2	637
2005	-0.7	-1.9	25.9	65.8	117.1	139.2	131.1	98.7	46.1	14.7	-4.8	-6.9	624
2006	-3.7	-0.1	20.4	72	115.5	139.6	131.8	104.9	50.1	13.3	-2.8	-7.5	634
2007	-5.5	-1.3	3.5	63.3	112.4	141.8	138.1	91	40.7	13	-6.3	-3.9	587
2008	-2.8	-0.4	25	57.7	117.4	145.6	138.2	104.7	46.2	14.7	-6.5	-1.9	638
2009	-1.9	-0.2	12.2	60	108.1	143.1	139.7	103.2	48.1	9.2	-7.5	-3.3	611
												Average	618

Jasper

Potential Evapotranspiration, mm

Jasper	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-6.7	7.7	57	100.3	178	192.4	155.7	115	110.8	22.1	-2	-6.1	924
1996	-2.6	11.7	44.4	101.1	126.1	164.5	200.2	186.2	74.6	27	-1.2	-4.7	927
1997	-7.7	8.9	39.6	102.9	140.6	166.6	176.6	153.6	91.4	23.7	4.7	1	902
1998	-2.9	12.9	46.8	118.9	180	167.5	202.3	190.3	115.5	29.6	-0.2	-4	1057
1999	-5.5	12	56.1	108.2	153.8	171	176.6	163.7	105.7	31.5	-2.7	-6.2	964
2000	-2.6	16.2	48.3	106.5	134	190.8	184.4	149.7	88.6	28.2	-2.2	-7	935
2001	-6.1	1.6	50.6	93.8	164.8	162.2	173.1	177.5	106.3	27.5	1.6	-5.5	947
2002	-2.8	11.3	31.1	90.7	144.7	211.5	231.1	156.9	89.7	30.6	8.8	-4.8	999
2003	2	12	48	109.6	160.4	209.3	267.1	225.5	117.2	42.4	8.4	3.7	1206
2004	4.4	10.9	60	122.8	135.1	194.9	192.6	141.5	68.7	23.8	6.1	-4.2	957
2005	-2.6	12.4	52.5	120.5	181.1	148.2	164.1	149.4	70.7	29.3	2.9	-6.5	922
2006	-0.1	11.7	56.1	130	168.9	208.8	242.9	170.9	112.7	35.5	-2	-3	1132
2007	-4.2	9.2	57.7	99.5	177.9	193.6	264.1	151.1	102.2	31.1	-1.8	-7.4	1073
2008	-4.6	10.4	56.9	96.1	157.2	182.7	197.6	178.3	100.1	33.4	7.1	-5.1	1010
2009	-3	10.6	47.4	104.5	164.6	210	209	188.8	130	22.6	3.4	-5.8	1082
												Average	1002

Areal Evapotranspiration, mm

Jasper	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-6.7	7.7	18.8	33.3	80	96.4	101	72.4	24.4	18	-2	-6.1	437
1996	-2.6	11.7	19.4	44.8	77.4	90.7	90.7	62.1	34.9	17	-1.2	-4.7	440
1997	-7.7	8.9	20	43.9	88.9	98.4	101.9	72.6	31.1	16.6	4.7	1	480
1998	-2.9	12.9	17.4	41.9	91.9	99.5	105.8	68.2	21	16.1	-0.2	-4	468
1999	-5.5	12	17.4	37.3	76.3	91	86.3	74.9	23.9	15.3	-2.7	-6.2	420
2000	-2.6	13.9	16.3	41.8	78.2	77.8	105.6	71.3	24.9	17.7	-2.2	-7	436
2001	-6.1	1.6	18.4	42.1	69.8	99.8	100.9	71	22	15.5	1.6	-5.5	431
2002	-2.8	11.3	22.1	35.3	74.4	99.2	86.9	69.6	22.8	16.2	2.7	-4.8	433
2003	2	12	17.5	32.9	57	73.7	59.2	33.5	9.4	9.3	8.4	3.7	319
2004	4.4	10.9	17.5	41.1	82	105.7	106.7	80.4	34	18.3	3.9	-4.2	501
2005	-2.6	12.4	17.9	42.2	83.4	106	106.8	75.3	35.7	16.7	2.9	-6.5	490
2006	-0.1	11.7	18.5	35.7	76	85.6	82.9	66	20.8	15	-2	-3	407
2007	-4.2	9.2	16.7	40.1	73	90	77.6	65.7	18.5	15.3	-1.8	-7.4	393
2008	-4.6	10.4	16.2	35.5	75.8	95.9	98.6	57.6	28.2	14.7	6.2	-5.1	429
2009	-3	10.6	17.5	38.4	79.5	83.6	99.6	58.4	14.6	18.3	3.4	-5.8	415
												Average	433

Jasper

Potential Evaporation, mm

Jasper	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-7	8.1	58.3	101.7	183.3	198.5	162.5	120.3	112.7	26.3	-2.4	-6.4	956
1996	-2.9	15.1	45.9	104.1	131.1	170.1	205.8	190.4	77.3	31.7	-1.7	-4.9	962
1997	-7.9	10.2	40.7	105.8	146.9	173	183.6	158.9	93.9	27.6	4.7	0.6	938
1998	-3.3	15.5	51.5	121.6	186.6	174	209.5	195.3	117.1	34.8	-0.7	-4.5	1097
1999	-6	13.8	59.4	110.2	158.7	176.6	181.9	169.4	107.5	36.6	-2.8	-6.7	999
2000	-3.1	19.8	54.2	109.1	139.1	194.9	191.8	154.9	90.2	33.7	-2.5	-7.4	975
2001	-6.5	1.3	52.9	96.3	168.8	168.8	179.9	182.8	107.8	31.6	1.6	-5.9	979
2002	-3.3	12	31.8	92.3	149.3	217.8	236.2	161.9	91	35.6	8.4	-5.3	1028
2003	1.7	13.8	52.8	111.1	163	212.8	268.9	226.4	127.2	47.2	8.1	3.2	1236
2004	3.8	15.1	66.9	125.5	140.6	202	200	147.7	71.2	28.6	5.8	-4.7	1003
2005	-3.1	15.8	58.4	123.3	186.7	155.5	171.7	155.2	73.4	34.7	2.9	-7	968
2006	-0.3	13.2	57.7	132	173.7	213.5	247.4	175.6	114.2	41.3	-2.6	-3.4	1162
2007	-4.7	9.8	64.1	101.8	182.3	199	268.1	155.7	103.1	36.2	-2.1	-7.7	1106
2008	-5	13.4	62.8	97.8	161.9	188.8	204.2	181.9	102.4	38.7	6.8	-5.4	1048
2009	-3.5	13.2	52.1	106.7	169.9	214.6	215.6	192.6	133.4	26.8	3.3	-6	1119
												Average	1038

Lake Evaporation, mm

Jasper	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1995	-7	8.1	41.8	72	139.3	154.2	136.5	100.4	74.1	21.9	-2.4	-6.4	733
1996	-2.9	15.1	34.8	79.1	109.2	136	155.2	133.9	59.6	24.2	-1.7	-4.9	738
1997	-7.9	10.2	32.3	79.9	123.3	141.4	148.7	121.7	66.9	21.9	4.7	0.6	744
1998	-3.3	14.8	35.2	87.5	146.4	142.3	164.3	139.5	74.7	25.4	-0.7	-4.5	822
1999	-6	13.8	40.6	78.8	124	139.8	140.2	128.4	71	26	-2.8	-6.7	747
2000	-3.1	16.7	35.4	80.6	113.9	143.5	154.9	119	61.7	25.6	-2.5	-7.4	738
2001	-6.5	1.3	37.9	73.4	126	139.7	145.9	134.1	70.1	23.4	1.6	-5.9	741
2002	-3.3	12	28.3	68	117.8	166.3	170.1	121.9	61.1	25.9	6.7	-5.3	770
2003	1.7	13.8	35.9	77.1	116.7	151.1	174.5	139.6	69.2	28.5	8.1	3.2	819
2004	3.8	15.1	42.5	89.3	116.6	160.8	159.7	119.2	55.7	23.3	5.7	-4.7	787
2005	-3.1	15.2	38.4	88.8	142.6	135.3	144.6	121.2	57.9	25.7	2.9	-7	763
2006	-0.3	13.2	41.1	90.2	131.8	157.1	174.1	127.9	73	28.2	-2.6	-3.4	830
2007	-4.7	9.8	40.7	75.6	135.3	151.4	182.8	116.6	65.7	25.7	-2.1	-7.7	789
2008	-5	13.4	40.4	71.2	125.1	148.9	158.4	126.9	70.3	26.7	6.8	-5.4	778
2009	-3.5	13.2	35.5	77.5	131.9	157.1	164.9	133.3	79.3	22.3	3.3	-6	809
												Average	774

Lacombe

Potential Evapotranspiration, mm

Lacombe	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1993	-5	-1.2	38.8	86.2	148.2	154.4	157.9	141.6	92.7	37.3	1.8	-1.6	851
1994	-3.8	-0.3	56.8	125.8	167.1	162.5	173.5	129.1	103.9	31.8	4.9	-5	946
1995	-6.1	0.1	41.6	83.7	159.8	167.2	147.7	110.5	110.6	32.5	-3.2	-5.1	839
1996	-2.9	0.4	7.3	86.8	110.9	154.8	156.3	156.8	71.2	27.9	-3.2	-4.5	762
1997	-3.4	-0.3	14.9	87.4	155.5	151.2	176.4	142.4	97.6	23.6	3.1	3.6	852
1998	-3.8	-1.4	35.2	121.4	192.5	148.4	162.5	164.3	103.3	25.4	-2.5	-5.6	940
1999	-5.5	-0.7	14.2	91.9	141.2	149.9	138.1	118.8	92	39.1	-3.3	-0.1	776
2000	-5.2	-2.2	40.1	93.3	140.9	156.1	157.7	128.3	83.8	34.7	0.5	-6.8	821
2001	-1.3	-1.1	50.7	118.5	183.4	139.3	153.8	165.9	106.9	36.3	3.8	-5.6	951
2002	-4.9	4.4	2.8	60.8	156.7	209.3	209.5	131.2	78.6	22	4.8	-5.7	870
2003	-5.3	-3.3	15.3	73.7	142.8	164.2	202.7	172.6	90	40.7	-3.9	-4.7	885
2004	-4.3	-0.8	45.6	116.8	139.9	157	148.8	115.8	67.3	26.9	6.9	-5.5	814
2005	-6.1	3.5	39	113.6	173.1	122.5	159.3	121	71.2	30.5	3.5	-5.4	826
2006	-6.4	4.5	4.8	120	169.4	163.8	175.9	134.8	80.9	19.2	-1.5	-3.4	862
2007	-2.5	-3	42.9	74.8	141.5	154	185.6	111.7	78.4	37	5.4	-5.6	820
2008	-4.7	-0.8	44.3	82.1	159.7	146.3	159.7	143.8	90.6	42.6	5.8	-5.6	864
2009	-2.5	-1.2	18	95.9	169.4	181.8	169.6	123.6	132.5	16.1	10.3	-5.1	908
												Average	858

Areal Evapotranspiration, mm

Lacombe	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1993	-5	-1.2	23.1	51.4	98.7	104.8	100.4	74.2	30	16.4	1.8	-1.6	493
1994	-3.8	-0.3	20.2	33.6	67.7	102.9	113	70.6	29	15.4	4.9	-5	448
1995	-6.1	0.1	26.8	45.3	77.8	104.9	114.8	81	30	16.2	-3.2	-5.1	483
1996	-2.9	0.4	7.3	47.3	82.8	97.1	115.6	80.8	29.2	17.4	-3.2	-4.5	467
1997	-3.4	-0.3	14.9	46.6	70.4	107	118.6	91.2	32.9	19.2	3.1	3.1	503
1998	-3.8	-1.4	28.5	41.9	77	108.9	124.6	76.6	24.7	19.6	-2.5	-5.6	489
1999	-5.5	-0.7	14.2	45.2	79.3	109.6	114.6	96.9	33.1	13.1	-3.3	-0.1	496
2000	-5.2	-2.2	25.6	48.7	78.8	104.6	130	87.7	34.8	16.4	0.5	-6.8	513
2001	-1.3	-1.1	20.6	38.5	71.6	109.9	128.8	98	32.5	14.4	3.8	-5.6	510
2002	-4.9	4.4	2.8	53.5	75	101.3	105	84.2	36.9	21.4	4.8	-5.7	479
2003	-5.3	-3.3	15.3	53.5	74	98.2	119.6	78.2	28.4	14.6	-3.9	-4.7	465
2004	-4.3	-0.8	25.2	40.5	80.7	106.4	127	93.4	42.7	18.6	4.7	-5.5	529
2005	-6.1	3.5	28.4	42.2	77	110.1	123.2	86.6	40.8	18.3	3.5	-5.4	522
2006	-6.4	4.5	4.8	42.2	75.7	99.1	126	89.1	40.6	19.2	-1.5	-3.4	490
2007	-2.5	-3	24.4	46.9	85.9	108.9	128	89.5	40.5	15.3	5.4	-5.6	534
2008	-4.7	-0.8	25.3	50.8	81.9	114.8	123.4	88.7	38.9	12.9	4.6	-5.6	530
2009	-2.5	-1.2	18	49.6	80.1	100.0	125.6	93.6	20.8	16.1	3.6	-5.1	499
												Average	497

Lacombe

Potential Evaporation, mm

Lacombe	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1993	-5.2	-1.6	40.2	89.8	155.5	161.5	164.7	147	95	44.3	1.6	-2	891
1994	-4.1	-0.6	60.4	127.5	170.8	169.3	181.5	133.8	106.2	36.9	5	-5.5	981
1995	-6.4	-0.3	43.6	86.5	164.7	174.2	156.1	116.7	113.3	38	-3.7	-5.3	877
1996	-3	0	7.7	89.9	116.6	161	164.7	163	73	32.9	-3.5	-4.7	798
1997	-3.7	-0.5	16.5	90.4	159.6	158.4	185.1	149.9	100.4	28.5	3.4	3.1	891
1998	-3.9	-1.7	37.3	124.1	197.2	156	171.7	169.9	105	31.1	-3	-6	978
1999	-5.8	-1	16.2	94.8	146.3	157.6	146.5	126.7	94.8	44.9	-3.5	-0.3	817
2000	-5.5	-2.6	41.9	96.7	146	163.2	167.7	135.2	86.6	41	0.4	-7	864
2001	-1.4	-1.6	52.2	120.8	187.6	147.1	163.6	174.4	109.9	41.8	4.1	-6	993
2002	-5.3	4.5	2.3	65	161.4	215.8	216.5	137.8	81.6	27.1	5	-6.1	906
2003	-5.6	-3.7	16.9	77.5	147.3	170.5	211.5	178.5	92	47.7	-4.4	-5.2	923
2004	-4.6	-1.2	47.6	119.3	145.2	164.2	158.5	123.4	70.9	32.2	6.8	-5.9	856
2005	-6.4	3.5	41.3	116.3	178	130.4	168.6	127.9	74.7	36.7	3.7	-5.9	869
2006	-6.8	4.5	4.5	122.7	174.1	170	185.3	141.9	84.4	24	-2	-3.9	899
2007	-2.9	-3.4	44.7	77.7	147.4	161.5	195.1	118.8	81.9	43.5	5.5	-6	864
2008	-5.1	-1.2	46.3	85.6	165.1	154.5	169	150.9	94.1	49.2	5.8	-5.8	908
2009	-2.9	-1.6	19.9	99.4	174.7	188.3	179.1	131.3	134.3	19.9	10.3	-5.3	947
												Average	898

Lake Evaporation, mm

Lacombe	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1993	-5.2	-1.6	33.7	74.3	132.3	137.9	137.6	115.9	67	30.5	1.6	-2	722
1994	-4.1	-0.6	42.1	86.5	125.7	141.1	152.3	106.5	72.5	26.2	5	-5.5	748
1995	-6.4	-0.3	37.5	69.6	127.5	144.6	139.5	102.6	77.3	27.1	-3.7	-5.3	710
1996	-3	0	7.7	72.4	103.5	133.8	144.6	127.7	54.2	25.1	-3.5	-4.7	658
1997	-3.7	-0.5	16.5	72.5	121	137	157.3	125.6	71.3	23.6	3.4	3.1	727
1998	-3.9	-1.7	34.8	88.7	144.5	136.8	152.4	129.2	69.7	25.2	-3	-6	767
1999	-5.8	-1	16.2	74	118.1	138.2	134.4	115.5	68.4	29.2	-3.5	-0.3	683
2000	-5.5	-2.6	35.9	77	117.7	138.8	153.1	115.8	64.7	28.7	0.4	-7	717
2001	-1.4	-1.6	39.2	85.4	137	132.5	150.4	142.5	76.5	28.2	4.1	-6	787
2002	-5.3	4.5	2.3	62	124.6	165.8	167.6	115.7	62.9	24	5	-6.1	723
2003	-5.6	-3.7	16.9	68.5	116.1	139.4	172.2	134.8	64.5	31.3	-4.4	-5.2	725
2004	-4.6	-1.2	38.9	85.4	118.4	140.1	146.7	112.2	59.9	25.3	6.8	-5.9	722
2005	-6.4	3.5	37	84.5	134.3	123.3	150.5	111.5	61.1	27.5	3.7	-5.9	725
2006	-6.8	4.5	4.5	88	131.3	139.3	160.7	120.3	66.3	22.3	-2	-3.9	725
2007	-2.9	-3.4	36.9	65.5	121.8	139.5	166.7	107.8	65	29.5	5.5	-6	726
2008	-5.1	-1.2	38.3	72	129.5	138.8	150.8	124.9	71	31.3	5.8	-5.8	750
2009	-2.9	-1.6	19.9	79	134.5	150.4	157.4	116.6	84.1	19.8	8.2	-5.3	760
												Average	728

Lethbridge

Potential Evapotranspiration, mm

Lethbridge	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	0.7	16.1	57.5	111.3	160.1	172.8	213.8	194.3	129.9	46.3	12.4	12.5	1128
1998	-0.1	22.3	44.5	125.8	189	132.9	196.2	236.7	148.8	51.7	12	6.2	1166
1999	4	26.2	70.4	119.8	164.2	183.9	193.9	184	129.8	48	20	18.2	1162
2000	2.9	15.5	66.8	120.9	188.9	199.1	265.3	207.3	105.2	43	9.6	1.6	1226
2001	13.7	5.9	70.6	119.3	218	186.4	232.9	273.5	143.2	47.5	24.3	8.1	1343
2002	11	18.4	5.5	91.1	150.2	180.3	217.7	131	97.1	25.8	25.6	13.2	967
2003	10.4	5.4	56.9	98.5	163.6	186	260	238.6	109.3	50	6.7	10.4	1196
2004	6	20.5	91.1	154.3	159.3	181.2	220.6	173.3	119.8	54.2	22.5	8.4	1211
2005	5.5	29	76.1	124.2	187.8	133.4	211.2	157.5	99.2	40.5	20.1	8.4	1093
2006	18.6	23	51.5	138.4	206.2	186.1	264.8	234.2	134.7	42.5	13	16.4	1329
2007	13.8	10.3	89.8	103	174	220.4	294.2	211.7	128	68.3	23.4	5.9	1343
2008	8.8	22.9	85.3	131.2	165.2	197.5	216.5	215.1	126.1	65.2	25.4	-0.9	1258
2009	8.8	20.9	63.7	126.2	185.8	202.2	187.5	180.5	175.9	35.3	29.2	-1.1	1215
												Average	1203

Areal Evapotranspiration, mm

Lethbridge	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	0.7	13.9	27.1	47.4	59.8	96.2	97.5	48.8	7.2	10.2	6.4	0	415
1998	-0.1	12.4	36.4	38.4	78.6	96.5	121.9	55.3	11.6	9.4	7.8	6.2	474
1999	4	10.8	17.7	28.2	51.2	88.4	81.2	50.6	12	8.9	0.1	0	353
2000	2.9	15.5	17.3	17.5	24.7	58.8	40.8	16	13.6	10.4	7.8	1.6	227
2001	0.9	5.9	15.6	37.8	25.2	56.7	45.6	9.5	7.6	6.7	0	5.5	217
2002	4.6	10.8	5.5	45.4	66.3	113.8	95.2	70.2	17.6	16.3	0	0	446
2003	5.1	5.4	21.6	33.3	63.3	66.3	56.4	39.9	10.3	6.6	6.7	0.2	315
2004	6	14	15.3	41.1	79.3	113.8	113.2	82.4	22.2	12.5	3.5	2.8	506
2005	5.5	11.3	18	38.8	67	99.8	99.3	63.7	16.6	13.2	0	3.4	437
2006	0	12.4	36.3	38.7	61.9	94.8	103.6	51.2	12.1	14.2	7.6	0	433
2007	2.5	10.3	13.6	41.3	68.7	91.8	95	60.3	18.4	7.9	2.9	5.9	419
2008	8.8	16.5	15.9	43.5	52.3	97	121	58.1	31.2	7.5	0	-0.9	451
2009	8.8	17.6	34.5	48.4	79.4	102.9	126.7	60.2	7.9	14.9	0	-1.1	500
												Average	399

Lethbridge

Potential Evaporation, mm

Lethbridge	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	0.2	19.6	59.5	114.2	162.5	178.3	219.4	196	138.4	50.6	12.3	11.5	1163
1998	-0.7	26.7	47.6	127.6	193.4	138.8	204.5	239.5	157.8	56.7	11.4	5.6	1209
1999	3.7	29.4	76.8	120.3	165.7	188.6	197.8	185.8	138.7	52.1	18.4	16.1	1193
2000	2.2	19.2	73.5	120.2	187.3	200.4	264.2	205.1	113.1	46.7	9.2	0.9	1242
2001	12.7	5.7	77.3	121.1	216.2	187.6	232.5	270.8	153.8	50.5	22.2	7.2	1358
2002	10.2	20	4.9	93.6	153.5	187.8	222.9	135.3	98.4	28.8	23.6	11.7	991
2003	9.5	5.4	58.1	99.6	166.4	188.2	260.7	239.4	116.8	53.2	6.6	9.3	1213
2004	5.8	24.6	100.2	156.7	164	188.8	228	179.1	120.8	61.2	22	8	1259
2005	5.6	34.3	81	126.1	191	139.7	217	161.1	101.9	45	18.3	7.3	1128
2006	17.8	26.9	54.8	140.3	208.6	191.3	271	236.5	143.6	47.8	12.9	15	1367
2007	13.1	13	98.7	105.1	177.3	225.1	299.1	215	128.6	76.1	22.4	5.7	1379
2008	8.9	28.3	94.1	133.7	166.8	203.1	224.9	218.1	128.5	72.2	24.2	-1.5	1301
2009	9	26.5	67	129.3	190.4	208.4	196.6	183.5	191	39.6	28.1	-1.6	1268
												Average	1236

Lake Evaporation, mm

Lethbridge	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	0.2	16.6	46.5	86	116.8	142.2	165.2	129.4	73.6	30.6	10.4	6.4	824
1998	-0.7	19.5	44.5	88.4	142.9	121	168.5	156.6	87.1	33.3	10.4	5.6	877
1999	3.7	20.1	48.1	79.5	114.5	144.4	145.6	124.6	77	30.8	10.4	7.2	806
2000	2.2	17.9	45.8	73.9	113.1	136.2	161.7	118.1	63.9	28.7	9.1	0.9	772
2001	7.8	5.7	46.9	84.8	129.1	128.1	146.7	151.1	81.6	28.9	11.4	6.9	829
2002	8.1	15.7	4.9	73.5	115.5	156.1	165.6	106.8	61.4	22.4	11.8	6.2	748
2003	7.9	5.4	42.9	70.3	120.9	133	167.4	148.8	64.2	30.2	6.6	5.6	803
2004	5.8	19.2	58.8	106.4	127.7	157	177.6	136.8	76.9	37.2	14.4	6.5	924
2005	5.6	22.9	51.6	87.9	136.2	123.1	164.7	117.8	62.1	29.2	10	6	817
2006	10.5	19.7	48.5	95.7	143	148.4	196.1	153.1	79.6	31.2	11.2	8	945
2007	8.9	13	56.9	77.5	129.2	165.6	206.9	145.7	79.4	42.5	14.1	5.7	945
2008	8.9	22.4	55.8	95.1	115.3	156.4	179.8	146.3	85.7	40.4	13.2	-1.5	918
2009	9	22	54.6	94.7	142.1	162.4	166.9	128.2	100.6	27.3	15.3	-1.6	922
												Average	856

Medicine Hat

Potential Evapotranspiration, mm

Medicine Hat	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-4	2.6	49.8	115.2	176.4	190.3	235.1	213.9	148	47.7	11.5	10.7	1197
1998	-0.7	18.3	47.5	146.6	219.4	184.6	241	256.2	140.4	52	16.6	5.5	1327
1999	-0.8	18.2	67.8	127.3	157.1	183.5	204	198	125	51.7	18.6	4.9	1155
2000	-3.7	4.1	59.7	129.3	200.7	197.8	278	232.6	123.4	50.9	7.3	-2.2	1278
2001	6.2	4.4	68.8	138.4	233.2	213.1	270.4	273.7	144.3	49.8	19.4	-3.6	1418
2002	1.2	15	2.6	102.9	176.3	177.9	230.6	144.5	106.5	30.6	17	6.1	1011
2003	2.4	3.4	51.7	106.7	161.3	178.2	261.9	259.9	116.5	55.7	2.4	5.7	1206
2004	-1.6	6.4	67.6	147.2	158.5	193.6	232.2	159.2	108.9	41.1	17.3	5.8	1136
2005	2.9	22.4	63.9	133.1	195.6	154.4	236.2	180.2	119.1	47.7	15.1	1	1172
2006	3.7	12.4	43.8	141.1	186	185.6	279.7	246.7	129.6	37.1	9.5	5.3	1281
2007	5.9	0.4	75.4	94.4	172.1	208.7	304.7	224.5	122	52	14.9	-3.7	1271
2008	0	-0.7	59.9	104.2	167	190.4	238.7	231.8	121.3	55.7	18.3	-4.4	1182
2009	-1.8	-0.1	44.2	132.5	197	206.3	215.8	183.6	164.5	30.2	19.9	-4.1	1188
												Average	1217

Areal Evapotranspiration, mm

Medicine Hat	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-4	2.6	25.5	30.4	54.7	81.6	75.5	38.5	8.8	9.8	5.6	0	329
1998	-0.7	11.7	18.6	18.7	44.1	61	64.9	12.4	7.3	8.6	3.7	5.5	256
1999	-0.8	10	17.7	25	56.4	83.8	86.1	51.6	12	9.2	1.8	1.5	354
2000	-3.7	4.1	17	29.1	45	75.3	51.3	19.1	11.2	9.5	7.3	-2.2	263
2001	6.2	4.4	11.9	12.6	27.3	66.6	61.1	5.7	6.4	9.5	1.6	-3.6	210
2002	1.2	14.3	2.6	31.5	52.6	84	82.2	65.8	19.5	18.1	3.5	3	378
2003	2.4	3.4	18.6	38.4	56.3	84.4	69.2	12.8	12.4	8.4	2.4	4	313
2004	-1.6	6.4	15.2	22.2	59.1	73	73.6	65.1	17.1	13.9	4	5.3	353
2005	2.9	11.1	15.1	23.7	51.9	99.9	79.7	50.5	15.9	12.6	5.3	1	370
2006	3.7	12.4	25.4	23.7	57.5	86.8	66.6	19.2	10.9	14.7	9.3	3	333
2007	5.9	0.4	16	39.2	63.4	88.4	53.6	28.9	12.7	9.3	3.7	-3.7	318
2008	0	-0.7	19.6	34.6	65	85.3	80.2	30.7	15.6	8.5	2.3	-4.4	337
2009	-1.8	-0.1	28.6	24	57.8	73.7	75.9	53	5.6	16.7	1.7	-4.1	331
												Average	319

Medicine Hat

Potential Evaporation, mm

Medicine Hat	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-4.4	2.8	51.6	118.6	181.8	197.9	242.6	218.4	166.5	56	11.8	10.1	1254
1998	-1.2	23.2	50.8	149.1	223.8	189.7	246.8	257.7	156.8	60.7	16	5.4	1379
1999	-1.3	20.9	76	130.2	162.4	191.5	212.7	203.9	137.2	60.7	18.6	4.6	1217
2000	-4.1	4.2	69.1	132.9	205.1	204.8	282.7	234.8	138.3	59.9	7.5	-2.7	1333
2001	6.3	4	78.1	147.5	235.6	219.1	276.3	282.7	161.1	58.5	19.1	-4	1484
2002	0.9	20	1.9	106.1	181.5	185.7	238.8	151.5	109.5	35.3	16.9	6.1	1054
2003	2.1	3.1	54.6	111	166.7	186.1	268.8	261.3	129	65.4	2.1	5.4	1256
2004	-2.1	6.6	77.9	150.2	164.3	200.4	239.3	166.4	111.5	49.7	17.3	5.6	1187
2005	2.5	28.1	73.3	135.9	200.8	161.6	244.2	185.9	122.4	57.6	15.2	0.7	1228
2006	3.9	15.7	45.5	144.1	191.7	193.8	286.3	249.3	145	44.9	9.6	5	1335
2007	6	0	86.2	98.6	178.4	217.4	309.5	228	132.8	61.2	15	-4.2	1329
2008	-0.4	-1.1	65.4	107.9	173.5	198.6	246.9	235.8	125.2	65.6	18.3	-4.7	1231
2009	-2.3	-0.5	46.2	135.5	203.1	213.2	223.1	189.6	184.9	34.5	19.7	-4.4	1243
												Average	1271

Lake Evaporation, mm

Medicine Hat	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1997	-4.4	2.8	41.2	81.5	127.2	148	169.8	139	88.9	33.3	10.1	6.3	844
1998	-1.2	17.6	37.4	92.4	145.2	133.6	166.3	147.7	83.2	35.2	11.2	5.4	874
1999	-1.3	16.2	49	85.1	117.4	146	158.8	137.4	77.6	35.5	12.1	4.2	838
2000	-4.1	4.2	43.6	88.8	135.5	149.2	179.7	138.5	76.1	35.2	7.5	-2.7	852
2001	6.3	4	45.8	84.4	143.5	152.6	181.1	154	84.9	34.5	12.1	-4	899
2002	0.9	17	1.9	75.1	126.5	142.5	170.6	115.5	70.7	26.6	11.8	5.7	765
2003	2.1	3.1	39.9	80.8	119.7	143	181	149.6	72.7	37.4	2.1	5.4	837
2004	-2.1	6.6	47.3	95	119.9	145.7	166.8	123.4	70.6	32.1	12.4	5.6	823
2005	2.5	19.7	44.9	87.6	136.7	135.6	172.7	127.2	76	35.5	11.8	0.7	851
2006	3.9	15.7	37.6	92	133.8	148.3	189.2	146.8	79.5	30	9.6	4.9	891
2007	6	0	52.6	74.4	129.5	162.4	195.2	139.7	76.1	35.7	10.9	-4.2	878
2008	-0.4	-1.1	45.2	77.7	127.7	150.6	174.7	145.1	77.2	37.6	12.1	-4.7	842
2009	-2.3	-0.5	39.7	87.7	141.1	153.3	159.1	130.4	96.6	25.5	12.5	-4.4	839
												Average	849

Peace River

Potential Evapotranspiration, mm

Peace River	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1991	-3	-0.5	24.9	122.8	174.8	149.2	176.5	158.5	72.2	16.7	-7.2	-6.1	879
1992	-7.7	-2	39.9	101.6	155.9	162.4	154.8	146.4	60.4	19.5	-1.9	-3.3	826
1993	-4	-0.1	40.7	96.1	166.3	180.3	133.7	114.1	81.7	20.6	-1.9	-6.8	821
1994	-2.5	-0.8	34.8	106	169.5	167.6	155.4	142.7	85.9	18.9	-4.2	-5.8	868
1995	-5.5	-1	19.4	80.2	185.5	194.1	153.8	122.2	105.8	18.8	-2.7	-4.1	867
1996	-1.9	-1.4	10.6	75.2	130.7	147.3	141	120.8	63.1	13.3	-1.9	-3.4	693
1997	-2.7	-1.2	10.9	75.6	139.7	159.2	158.4	127.4	80.2	17.1	1.7	-6.2	760
1998	-1.7	2.4	33.5	126.4	215.9	201	216.1	205.5	93.5	25.8	0.2	-1.6	1117
1999	-1.3	2.6	36.2	102.4	162.3	175.8	187	188.8	91.4	25.9	-1.9	-2.6	967
2000	-1.9	0.7	34.6	108.1	134.9	158	161	102.4	68.9	21.9	-1.8	-3.5	783
2001	1	2	35.3	102.1	185.7	164.8	155	153.5	91	21.8	-2.5	-4.4	905
2002	-3.3	7.6	16.5	68.6	169.7	215.9	178.7	152.6	68.7	16	-1.9	-7.6	882
2003	-3.4	-2.1	6.5	76.2	163.9	160.9	186.8	147.7	79	21.8	-4.1	-5.1	828
2004	-2.2	4.5	33.9	107.3	136.9	197.1	163.1	118.6	65	19.7	-2.3	-4	838
2005	-3	0.4	30.4	117	172.9	181.5	173.3	135.2	81	26.6	3.9	-8.5	911
2006	-6.9	4.3	26.8	136.6	177.2	178.1	181.7	155.8	90.9	18.4	-2.2	-3.7	957
2007	2	-2.1	15.4	81.1	145	166.1	181.8	103.4	70.3	24.8	-2.9	-6	779
2008	-3.6	0.3	26.2	76.8	169.4	174.6	191.7	164.3	77.8	26.4	-4.6	-2.5	897
2009	-1.4	1.9	14.4	101.3	154.6	189.7	173.6	157.4	94.5	15.7	2.5	-3.3	901
												Average	867

Areal Evapotranspiration, mm

Peace River	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1991	-3	-0.5	20.5	21.1	56.3	89.4	101.1	58.6	21.2	15.7	-7.2	-6.1	367
1992	-7.7	-2	17.3	27.1	53.6	96.6	101.7	54.3	19.4	11.9	-1.9	-3.3	367
1993	-4	-0.1	14.9	29.7	52.6	79.9	95.3	77.3	17.6	13.4	-1.9	-6.8	368
1994	-2.5	-0.8	17.6	20.4	54.5	73.5	96.9	67.9	16.3	12.5	-4.2	-5.8	346
1995	-5.5	-1	19.4	28.6	49.2	77	92.5	64.3	12.4	13.1	-2.7	-4.1	343
1996	-1.9	-1.4	10.6	33.7	51.3	84	99	69.1	22.4	13.3	-1.9	-3.4	375
1997	-2.7	-1.2	10.9	32.3	58.9	80.1	98.9	66.9	17.8	11.6	1.7	-6.2	369
1998	-1.7	2.4	16	13.6	40.9	68.3	60.1	19	9.1	6.5	0.2	-1.6	233
1999	-1.3	2.6	16.1	15.7	43.8	65.1	70.6	30.2	12.2	8	-1.9	-2.6	259
2000	-1.9	0.7	16.7	19	47.2	75	82.8	63.5	18.4	11	-1.8	-3.5	327
2001	1	2	15.4	16.1	32.8	68.6	94.7	61.1	15.1	10.7	-2.5	-4.4	311
2002	-3.3	7.6	16.5	21.8	36.1	66.7	73.9	44.4	18.2	14.7	-1.9	-7.6	287
2003	-3.4	-2.1	6.5	30.3	39.7	70.8	88.8	50.8	15.5	11.1	-4.1	-5.1	299
2004	-2.2	4.5	19	24.7	58.9	71.2	96.6	55.8	14.1	12.3	-2.3	-4	349
2005	-3	0.4	17.6	15.9	55.5	59.8	87.8	47.6	14.9	9.4	1.7	-8.5	299
2006	-6.9	4.3	20.0	14.0	40.4	86.2	85.6	51	14.8	12.8	-2.2	-3.7	316
2007	2	-2.1	15.4	22.6	63.5	86.9	97.6	65	26	9.1	-2.9	-6	377
2008	-3.6	0.3	21	26.7	38.7	81.9	80.8	41.9	18.7	8.9	-4.6	-2.5	308
2009	-1.4	1.9	14.4	19	50.6	78	102.2	59.4	17.4	12.6	2.5	-3.3	353
												Average	329

Peace River

Potential Evaporation, mm

Peace River	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1991	-3.4	-0.8	27.8	123.5	177.8	155	183.8	162.5	73.6	17.8	-7.5	-6.5	904
1992	-8.1	-2.5	45.1	102.9	158.6	169	162.3	150.1	63.3	19.6	-2.6	-3.5	854
1993	-4.2	-0.5	46.2	97.6	168.8	185	140.4	120.4	85.2	22	-2.4	-7.4	851
1994	-2.7	-1	40.2	106.4	172.3	171.5	162	147.8	92.1	19.2	-4.7	-6	897
1995	-5.7	-1.5	22.3	81.4	187.7	198.3	160.1	127.1	116.9	19.2	-3.1	-4.3	898
1996	-2	-1.9	11.8	77	133.2	152.6	148.1	126	64.5	13.9	-2.3	-3.5	717
1997	-2.9	-1.7	12.3	77.2	143	164	165.3	132.3	84.2	16.9	1.3	-6.8	785
1998	-2	2.1	37.9	131.4	217	204.3	218.4	205	101.7	25.1	-0.4	-2.1	1138
1999	-1.7	2.3	40.9	105.3	163.9	178.9	190.9	189.6	100.4	25.6	-2.3	-3.2	991
2000	-2.3	0.3	39.6	108.4	136.9	162.3	166.1	106.9	72.9	21.9	-2.3	-3.8	807
2001	0.5	1.5	39.7	104.8	186	168.2	161.5	157.9	98.7	21.8	-3	-4.6	933
2002	-3.6	7.6	17.9	69.3	170.4	219	182.8	155	72.8	16.3	-2.3	-8.1	897
2003	-3.8	-2.5	6.3	77.5	165	164.7	192.6	150.9	87.1	22.1	-4.6	-5.6	850
2004	-2.4	4.3	38	108.3	140.3	200.7	169.7	122.3	71	19.6	-2.8	-4.5	865
2005	-3.2	0	35.2	117.4	175.8	183.9	179.2	138	89.3	27	3.2	-8.9	937
2006	-7.2	4	30.2	139.1	178.3	183.4	187.0	159.1	99.7	18.5	-2.5	-4.3	985
2007	1.5	-2.4	17.7	81.5	148.8	171.5	188.5	108.1	72.4	24.7	-3.4	-6.2	803
2008	-3.9	-0.2	28.2	77.7	170.3	179.6	196.7	166.4	80	26.4	-5.1	-2.7	913
2009	-1.8	1.4	16.1	101.5	157	194.3	181.1	161.8	97.9	15.5	2	-3.6	923
												Average	892

Lake Evaporation, mm

Peace River	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1991	-3.4	-0.8	24.4	78.3	124.2	126.8	148.5	116.6	50.9	17.5	-7.5	-6.5	669
1992	-8.1	-2.5	31.3	69.8	112.6	138	137	108	43.3	16.9	-2.6	-3.5	640
1993	-4.2	-0.5	30.7	68.1	117.3	138.8	121.8	103	54.4	18.8	-2.4	-7.4	638
1994	-2.7	-1	28.9	68.4	120.3	128.1	134	113.2	56	17.1	-4.7	-6	652
1995	-5.7	-1.5	20.9	58.6	126.2	144.5	131.2	100.5	65.5	17.5	-3.1	-4.3	650
1996	-2	-1.9	11.8	58.7	97.5	123.1	127.8	101.8	46.5	13.9	-2.3	-3.5	571
1997	-2.9	-1.7	12.3	58.3	106.4	127.3	137	104.2	53.5	15.2	1.3	-6.8	604
1998	-2	2.1	27	76.1	137.9	143.5	146.8	120.5	56.1	17.3	-0.4	-2.1	723
1999	-1.7	2.3	28.6	63.7	110.7	128.3	137.6	117.7	56.9	18.4	-2.3	-3.2	657
2000	-2.3	0.3	28.2	69	97.5	124	129.6	88.8	47.5	17.8	-2.3	-3.8	594
2001	0.5	1.5	27.6	63.9	117.4	124	132.8	115.4	58.4	17.6	-3	-4.6	652
2002	-3.6	7.6	17.9	48.8	110.7	150.8	134.4	105.8	47.4	16.3	-2.3	-8.1	626
2003	-3.8	-2.5	6.3	57.3	109.2	123.2	147	106.6	51.8	18.1	-4.6	-5.6	603
2004	-2.4	4.3	29	71.7	105.3	143	138.1	93.4	42.9	17.1	-2.8	-4.5	635
2005	-3.2	0	26.3	72.1	122.9	128.4	139.5	98.1	52.6	19.7	3.2	-8.9	651
2006	-7.2	4	25.3	82.1	116.6	140.7	142.3	111.4	58.1	16.9	-2.5	-4.3	683
2007	1.5	-2.4	17.7	55.7	111.9	134.7	148.8	90.2	52.8	18.5	-3.4	-6.2	620
2008	-3.9	-0.2	25.5	55.7	111.3	136.7	145.5	110.7	52.6	19.4	-5.1	-2.7	646
2009	-1.8	1.4	16.1	65.1	110.3	143.1	147.4	116.9	61.2	15	2	-3.6	673
												Average	641

Slave Lake

Potential Evapotranspiration, mm

Slave Lake	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1993	-3.5	1.1	40	78.2	138.5	150.3	145.7	130.4	78.9	22.8	3.1	-1.9	784
1994	-2	-1.6	40.1	83.1	131.3	144.3	138.9	122.4	85.3	19.6	-2.8	-6.2	752
1995	-5.5	-1.6	31.5	71.4	158.8	162.8	127.9	95.1	94.9	18.8	-1	-7.8	745
1996	-2	-0.3	13.8	72.3	107.8	136	128.4	104.5	49.6	14.3	-0.5	-2.6	621
1997	-0.4	7	32.5	86	129.7	130.2	151.1	116.7	67.7	12.8	1.4	-2.7	732
1998	-3	-4.6	30.8	103.7	176.1	147.3	155.9	156.3	80.6	21.5	-2.7	-3.8	858
1999	-3	-0.8	34.9	94	140	156.1	146.8	146	80	27.7	2.3	-3.7	820
2000	-2.6	1.2	40.4	100.2	132	154.7	150.4	104.6	67.9	26.7	5.1	-1.5	779
2001	3	5.4	39.9	101.9	152.6	144.4	151.8	150.2	87.7	20	0.9	-6.6	851
2002	-4.1	5.8	5.5	61.8	158	185.1	165	118.6	63.9	14.8	0.6	-8.2	767
2003	-3.7	-2.9	14.3	77.7	127.5	143.3	156.9	131.1	74.5	20.2	-4.9	-5.9	728
2004	-3.1	0.6	34.5	87.6	120.7	174.2	135.4	99.2	56.9	17.5	6	-4	726
2005	-3.4	-1.3	32.2	91.9	147.4	124.4	141.7	106.1	64.3	21.2	3.5	-4.7	723
2006	-4.9	3.5	13.4	118.2	128.8	150.6	154.7	123.7	81.4	16.5	-1.5	-5	779
2007	-4.1	-2.2	30.9	71.9	128.1	143.2	173.7	92.6	65.5	27	3	-4.4	725
2008	-4.2	-1.5	31	57.3	142.4	141.5	162	119.7	62.7	29.2	-0.1	-2.9	737
2009	-2.2	-1.2	23.2	83.3	134.8	156.7	134.4	120.5	80.4	11.6	6.7	-2.6	746
												Average	757

Areal Evapotranspiration, mm

Slave Lake	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1993	-3.5	1.1	18.3	42.8	92.7	100	83.8	56.8	18.1	12.9	3.1	-1.9	424
1994	-2	-1.6	18.2	47	84.7	89.8	106	70.1	21.3	13.4	-2.8	-6.2	438
1995	-5.5	-1.6	21.3	36.9	68.5	92.2	100	65.5	18.1	14.5	-1	-7.8	401
1996	-2	-0.3	13.8	35.5	61.3	88.3	100.6	78.5	27.4	14.3	-0.5	-2.6	414
1997	-0.4	7	19.1	29.8	70.7	91.1	95.1	76.8	27.2	12.8	1.4	-2.7	428
1998	-3	-4.6	21.4	31.9	83	101.2	102.2	58.4	22.9	11.2	-2.7	-3.8	418
1999	-3	-0.8	18.1	27.7	62	78.5	98.3	67.3	20.6	8.4	2.3	-3.7	376
2000	-2.6	1.2	15.6	20.2	53.4	71	87.8	64	20.3	8.2	4.6	-1.5	342
2001	3	5.4	15.4	16.5	47.5	77.6	84.3	58.1	16.5	11.9	0.9	-6.6	331
2002	-4.1	5.8	5.5	35	40.2	84.2	76.1	66.3	21.4	14.8	0.6	-8.2	338
2003	-3.7	-2.9	14.3	34.7	62	92.3	98.1	60.6	16.9	14.5	-4.9	-5.9	376
2004	-3.1	0.6	20.3	31.5	58.3	91.2	108.7	76.4	21.8	14.4	0.4	-4	417
2005	-3.4	-1.3	19.3	28.6	71.2	106.4	101.6	70.7	25.4	13.8	2.4	-4.7	430
2006	-4.9	3.5	13.4	24.3	69.3	91.9	102	72.8	18.2	14	-1.5	-5	398
2007	-4.1	-2.2	20.8	29.1	67.2	91.4	96.3	68.1	25.3	9.1	3	-4.4	400
2008	-4.2	-1.5	24	36.7	62.6	97.1	95.8	67	32.3	8.2	-0.1	-2.9	415
2009	-2.2	-1.2	20.2	28.0	64.5	94.5	116.7	79.1	29.1	11.6	0.4	-2.6	438
												Average	399

Slave Lake

Potential Evaporation, mm

Slave Lake	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1993	-3.8	0.6	44.3	81.1	145.7	157.3	151	134	81.7	24.3	2.7	-2.5	816
1994	-2.3	-1.8	44.6	86.6	137.5	150.2	146.5	127.5	86.7	19.9	-3.3	-6.3	786
1995	-5.7	-2	32.7	73.5	163.2	168.8	135	99.7	96.2	19.7	-1.5	-7.6	772
1996	-2.2	-0.7	15.5	74.2	111.4	141.7	135.5	110.5	51.3	14.9	-1	-2.8	648
1997	-0.8	7.2	36.6	87.2	134.3	136.2	157.5	122.6	69.5	13.1	1	-3.3	761
1998	-3.2	-5	32.1	105.5	182.1	154.4	162.9	160.1	82.3	21.4	-3.2	-4.2	885
1999	-3.4	-1.2	40	95.2	143.6	160.6	153.7	150.9	81.3	27.3	1.8	-4.2	846
2000	-3	0.8	45.4	100.4	134.6	158.4	156	109	68.9	26.2	4.5	-2	799
2001	2.4	5.1	44.8	104.3	154.5	148.9	157	154	92.5	20	0.6	-6.7	877
2002	-4.4	5.9	5	63.9	159.1	190.2	169.2	123.4	65	15.2	0.3	-8.6	784
2003	-4.1	-3.3	15.9	79.5	131.1	149.5	163.6	135	80.5	21.8	-5.4	-6.3	758
2004	-3.3	0.2	36.2	89.2	123.9	180.1	143.2	105	57.9	17.7	5.2	-4.5	751
2005	-3.7	-1.7	36.2	93.1	152	132.1	149	111.4	66	22.7	2.9	-5.3	755
2006	-5.4	3.2	15.6	119.2	133.2	156.5	161.8	129.2	84.6	16.6	-1.9	-5.5	807
2007	-4.6	-2.6	32.4	73	132.3	149.2	180	97.4	67.2	26.8	2.5	-4.7	749
2008	-4.5	-1.9	32.6	59.6	146	148.1	168.4	124.3	65.3	29.1	-0.5	-3.2	763
2009	-2.6	-1.6	26.2	84.3	138.7	163.1	143.4	126.8	82.7	12	6	-2.9	776
												Average	784

Lake Evaporation, mm

Slave Lake	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1993	-3.8	0.6	32.2	65.4	124.4	133.5	121.9	100.1	52.8	19.6	2.7	-2.5	647
1994	-2.3	-1.8	32.3	70.6	116	124.4	129.9	103.1	58.1	17.9	-3.3	-6.3	639
1995	-5.7	-2	28.7	58.3	122.3	135.7	120.9	85.7	61.8	18.1	-1.5	-7.6	615
1996	-2.2	-0.7	15.5	58	90.4	119.2	121.5	97.8	41.5	14.9	-1	-2.8	552
1997	-0.8	7.2	28	62.6	107.4	117.3	130.6	103.6	51.5	13.1	1	-3.3	618
1998	-3.2	-5	28.4	73.6	139.5	132.1	137	115	56.5	17.6	-3.2	-4.2	684
1999	-3.4	-1.2	29.1	65.7	108.3	124.8	130.4	114.5	54.8	19.4	1.8	-4.2	640
2000	-3	0.8	30.6	65.1	99.3	119.9	126.2	90	47.7	18.6	4.5	-2	598
2001	2.4	5.1	30.3	63.9	107.1	117.8	125.1	111.6	56.9	17.1	0.6	-6.7	631
2002	-4.4	5.9	5	52.4	106.3	143.6	127.8	99	46.1	15.2	0.3	-8.6	589
2003	-4.1	-3.3	15.9	60.6	101.5	125.4	135.5	102.4	49.7	19.1	-5.4	-6.3	591
2004	-3.3	0.2	29.9	64.4	95.9	141.5	129.4	93.9	42.4	17.1	3.7	-4.5	611
2005	-3.7	-1.7	28.2	65	117.5	122.7	129.4	94.7	48.7	19.1	2.9	-5.3	618
2006	-5.4	3.2	15.6	77.4	105.9	128.6	136.2	105.3	54.1	16.3	-1.9	-5.5	630
2007	-4.6	-2.6	28.1	54.1	104.6	124.6	143.2	85.7	49.3	19.5	2.5	-4.7	600
2008	-4.5	-1.9	30.1	50.7	109.8	126.7	137	99.6	51.7	20.3	-0.5	-3.2	616
2009	-2.6	-1.6	22.9	59.9	107.1	134.0	133.6	107.2	59.7	12	4.2	-2.9	634
												Average	618

Suffield

Potential Evapotranspiration, mm

Suffield	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1993	-1.9	5.8	56	118.7	186.5	196.5	198.4	187.8	112.9	45.8	10.8	6.8	1124
1994	-1	-1.1	71.7	148.1	188.4	204.1	261.1	231.5	157.2	37.1	14.7	5.4	1317
1995	-4.4	15.4	68.7	109.4	181.8	228.8	228.8	196	128.9	42.7	4.4	-4.1	1196
1996	-2.6	13.4	40.6	123.6	144.9	225.6	252.1	284.1	94	43.7	-2.7	-7.5	1209
1997	-1.5	10.2	46.2	123.7	199.2	205.9	259.2	214.8	145.6	47.8	14.2	5.4	1271
1998	-2.7	17.8	38.9	150.4	211	178.5	222.4	264	138.9	52.4	12.8	3.2	1288
1999	-4.8	13.9	70.1	126.3	167.5	184.5	218.2	208.6	132.4	54.7	21.7	4.8	1198
2000	-2.7	4.9	64.2	118.8	210	197.2	252.9	238	123.2	46.4	8.8	-2.9	1259
2001	6	-0.7	65.8	120.7	235.1	200.2	237.7	283.5	133.5	34.8	20.1	-0.8	1336
2002	3.3	17.6	4.5	105.3	176.5	188.8	238.5	145.3	101.3	28	17	7.7	1034
2003	3.6	2.8	51.7	102.1	130.7	173.3	247.6	235.7	115.7	49.9	-2.9	-0.9	1109
2004	-1.6	0.9	64.8	127.4	122.8	186.4	206.2	146.7	106.7	39.5	21.3	2.1	1023
2005	-3.8	20.1	67	137.7	197	158.1	226.8	167.2	117.3	43.8	15.3	-0.9	1146
2006	7.8	8.1	43.4	140	175.9	180.8	275.4	234.2	122	35.8	7.2	7.1	1238
2007	6.7	-0.6	64	97.5	154.3	205.8	303.7	215.6	116.9	51.6	11.3	-2.5	1224
2008	-2.2	-2	58.4	125	136.9	166.1	215.1	225.8	118.2	52.8	17.3	-1.1	1110
2009	-1.9	-0.2	17.2	121.8	184.1	195.5	190.4	163.6	161	26	23	-3.1	1077
												Average	1186

Areal Evapotranspiration, mm

Suffield	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1993	-1.9	5.8	16	35.6	68.9	71.5	56.4	36.3	12.2	9.8	6.2	2.3	319
1994	-1	-1.1	13.1	18.9	51.8	75.3	64.8	31.8	5.3	13.4	2.9	4.9	280
1995	-4.4	13.1	16	30.6	61.6	70.1	78.4	49.7	11.4	11.5	4.4	-4.1	338
1996	-2.6	13.4	18.4	27.3	68.4	75.1	87.2	19.4	21.9	12	-2.7	-7.5	330
1997	-1.5	10.2	24.9	23.7	43.4	76.7	66.8	42.8	9.7	9.1	5.7	3.2	315
1998	-2.7	11.9	28.2	25.8	63.8	89.3	90.8	10.3	10.5	8.7	5.8	3.2	346
1999	-4.8	13.9	16.8	29.7	59.5	92.6	85.9	46.1	9.2	8.3	0	1.5	359
2000	-2.7	4.9	15.5	35.9	49.8	82.3	71.2	21.1	11.3	10.7	8.8	-2.9	306
2001	6	-0.7	16.2	33.5	34.3	82.7	79	5.3	11.1	22.5	0.3	-0.8	289
2002	3.3	10.8	4.5	29.1	53	74	82.4	70.2	20.4	20.2	1.2	0	369
2003	3.6	2.8	18.5	39.1	77.8	98.6	82.8	29.7	12.9	10.6	-2.9	-0.9	373
2004	-1.6	0.9	15.3	40	87.5	90.9	96.8	73	20.8	14	0	2.1	440
2005	-3.8	12.1	17.1	28.8	66.8	92	93.6	60.2	14.3	13	4.4	-0.9	398
2006	5.8	8.1	24.8	25.7	69.6	101.9	86.1	38.4	17.5	16.9	7.2	0	402
2007	6.7	-0.6	19.3	41.8	86.2	93.3	64.6	44.2	21.2	9.8	7.3	-2.5	391
2008	-2.2	-2	19.7	41.5	57.3	81.8	78.3	19.3	15.1	6.6	1.2	-1.1	316
2009	-1.9	-0.2	17.2	20.0	32.8	52.9	67.2	44.4	6.5	18.1	0	-3.1	254
												Average	343

Suffield

Potential Evaporation, mm

Suffield	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1993	-2.3	5.7	66.2	124.5	196.1	205.3	205.4	193.8	127.3	55.5	11	6.6	1195
1994	-1.5	-1.5	84.6	152.2	195.5	213.3	270.2	237.8	180.6	46.1	14.8	5.3	1397
1995	-4.9	20.8	81.6	114	190.2	237.8	239.2	204.4	144.3	52.5	4.4	-4.4	1280
1996	-3	17.2	45.9	128.3	153.6	235.2	264	289.7	97.9	54.1	-3.2	-7.9	1272
1997	-2	13.6	47.8	127.8	205.3	215.2	268.4	222.2	165.8	57.7	14.6	5.2	1342
1998	-3.2	24.3	40.7	155.7	220.2	189.2	234.2	267.8	157.9	63.7	12.2	3	1366
1999	-5.3	17.7	81.1	131.5	175.4	195.9	229.5	216.2	152.5	66.6	21.6	4.4	1287
2000	-3.2	5.1	76.1	124.7	217.4	207.6	263	243	139.8	57	8.9	-3.3	1336
2001	6.1	-1.1	78.4	126.2	240.8	210.6	248.6	295.7	149.4	39.8	20	-1.3	1413
2002	3.2	22	4	109.6	183.7	197.5	249.5	153.4	105.7	33.1	17.2	7.7	1087
2003	3.4	2.5	55.5	107.9	140.5	185.2	259.3	241.9	128.3	61.8	-3.3	-1.3	1182
2004	-2.1	0.5	76.9	134.3	131.6	197.7	218.8	154.3	111.5	49.7	21.2	1.9	1096
2005	-4.2	27.7	77.5	143.1	206.6	168.7	239.3	176.3	126.5	55.1	15.5	-1.3	1231
2006	7.6	9	45.1	144.9	185.2	193	287.5	241.8	126.8	41.3	7.4	7	1297
2007	6.8	-1	70.6	103.5	165.6	217.5	312.8	223.5	122.3	63.4	12.1	-3	1294
2008	-2.8	-2.5	64.9	132.1	143.7	175.5	225.1	230	125.7	62.8	16.8	-1.5	1170
2009	-2.4	-0.6	18.8	125.3	188.4	201.5	198.2	169.7	185.4	30.1	22.6	-3.3	1134
												Average	1258

Lake Evaporation, mm

Suffield	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1993	-2.3	5.7	41.7	88.3	143.8	149.2	141.5	125.9	72.3	33.1	9.8	5.5	815
1994	-1.5	-1.5	49.7	95.5	134.4	155.1	181.4	148	94.4	30	10.4	5.3	901
1995	-4.9	16.9	49.8	79.9	136.8	166.4	171	138.9	81.4	32.4	4.4	-4.4	869
1996	-3	16.4	34	86.1	120	167.3	189	170.5	66.1	33.5	-3.2	-7.9	869
1997	-2	13.6	38.7	84.3	135.8	156.6	181.2	144.7	90.2	33.9	11.8	5.2	894
1998	-3.2	18.4	36.4	100.7	154.4	148.5	174	153.7	86.4	36.8	10	3	919
1999	-5.3	16.2	51.2	89.3	127.4	154.4	169.5	142.8	82.2	38.1	12.3	4.1	882
2000	-3.2	5.1	46.6	88.7	146.3	156.1	181.3	145.5	77.8	34.4	8.9	-3.3	884
2001	6.1	-1.1	48.2	88.3	151.7	157.9	177	162.3	84	32.1	12.2	-1.3	917
2002	3.2	16.8	4	76.8	129.4	145.5	178.4	119.2	69.9	26.5	11.2	4.7	786
2003	3.4	2.5	41	80.3	117.3	150.9	184.9	149.3	74.3	36.8	-3.3	-1.3	836
2004	-2.1	0.5	46.9	96.4	116.1	154.6	169	120.5	73.6	32.2	12.5	1.9	822
2005	-4.2	20	49.4	95.4	148.8	138.5	178.5	128.2	75.9	34.5	11.7	-1.3	875
2006	7.6	9	37.1	94.5	137.7	156.6	201.4	153.7	80.5	29.1	7.4	4.2	919
2007	6.8	-1	48.8	79.2	135.1	166.5	204.1	146.5	80.1	37.2	11.2	-3	912
2008	-2.8	-2.5	45.5	96.2	108	136.9	162.8	137.1	76.8	35.3	10.7	-1.5	803
2009	-2.4	-0.6	18.8	80.7	120.9	137.1	142.1	115.8	97.4	23.9	12.2	-3.3	743
												Average	861

Vauxhall

Potential Evapotranspiration, mm

Vauxhall	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1991	-4.4	18.1	51	100.1	137.3	167.6	207.6	190.4	113.7	40.2	7.6	3.7	1033
1992	7.6	16.9	72.1	102.7	149.9	170.4	175.2	167.2	97.5	37.9	8.6	-4.5	1002
1993	-6	-1.9	56.8	97.8	158.8	160.5	160	158.7	104.9	37	7.4	3.7	938
1994	-2.2	-2.7	73.7	126	176.8	179.5	227.2	192.8	143	35.2	10.5	5.1	1165
1995	-5.3	13.4	58.4	91.6	143	174.3	179.9	170.5	107.2	33.9	4.2	-5.3	966
1996	-0.9	6.5	25.2	99.8	114.5	199.5	218.2	219.2	92.9	43.2	-1.6	-4	1013
1997	-2.6	4.9	49.9	110.2	164.7	173.7	205.7	181.9	117.2	37.7	9.3	7.7	1060
1998	-5.2	17.2	21.2	115.5	189.7	135.9	196	218.9	130.4	39.5	6.8	-1.4	1065
1999	-3.9	20.6	62.7	115.7	147.5	161.7	168.1	152.9	117.7	38.2	12.7	4.9	999
2000	-3	-3.4	58.6	103.4	167.5	162.1	222.3	175.7	93.8	34.7	4.8	-4.5	1012
2001	2.8	-2.3	60.3	105.7	198.7	162	193.6	232.5	128.9	34.7	15.3	-5.6	1127
2002	-2.5	13.1	-0.5	83.1	138.1	166.5	183.6	113.8	80.9	25.5	8.3	-0.1	810
2003	-1.6	-3.4	23.8	76.3	134.2	147	196	189.8	93.9	35.4	-5.8	-2.9	883
2004	-7.4	-9.1	67	130.3	139	155.9	178.8	141.8	85.7	41.2	11.7	-8.2	927
2005	-8.4	22.6	66.7	122.9	181.9	127.6	195.7	147.2	92.7	36.4	12.4	2.7	1000
2006	5.4	16.1	19.1	121	180.5	168.8	235.2	206.3	118.3	35.3	8.2	8	1122
2007	7.2	0.6	76.3	93.1	160.6	192.1	266.9	190.7	111.2	57.5	14.5	-4.2	1167
2008	0.4	3	73.4	117.6	150.4	171	199	198.8	105.2	52.8	14.7	-2.9	1083
2009	-1.2	-0.1	51.6	129.9	192.3	207.1	191.3	166	160.1	31.7	21.3	-4.2	1146
												Average	1027

Areal Evapotranspiration, mm

Vauxhall	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1991	-4.4	12.1	34.3	45	59.5	77.2	104.3	56.4	16.4	16.9	7.6	3.7	429
1992	3.1	16.1	21.6	38.5	78.6	65.6	72.3	60.1	16.5	13.6	7.1	-4.5	389
1993	-6	-1.9	19.9	43.8	79.3	71.8	59.5	52.3	16.9	13.5	7.4	3.7	360
1994	-2.2	-2.7	18.9	19.7	49.7	94.6	86.2	30.6	8.2	14.1	5.8	5.1	328
1995	-5.3	13.4	18.8	31.1	57.3	67.1	100.2	60.5	13.9	14.5	4.2	-5.3	370
1996	-0.9	6.5	24.7	33.4	58.1	52.1	86.4	30.2	18.5	14	-1.6	-4	317
1997	-2.6	4.9	33	39.7	47	88.7	94.8	50.6	10.1	12.3	7.8	0.5	387
1998	-5.2	15.4	21.2	41	69.3	99.1	116.7	62.5	17.8	14.4	6.8	-1.4	458
1999	-3.9	11.8	18.7	25.6	59.6	107.5	101.8	81.9	15.6	12	4.1	0.9	436
2000	-3	-3.4	24.2	28	39.6	88.3	74.9	37.1	17.8	15.1	4.8	-4.5	319
2001	2.8	-2.3	24	44.7	35.2	74.9	78.4	38.8	12.4	12.3	1.8	-5.6	317
2002	-2.5	13.1	-0.5	50.6	71.7	131.4	131.2	89.4	32.2	25.5	7.8	-0.1	550
2003	-1.6	-3.4	23.8	55.6	91.5	110.4	108.2	77.2	19.9	12.9	-5.8	-2.9	486
2004	-7.4	-9.1	36.3	54.8	103.2	148	163.6	115.6	52.9	21.8	10	-8.2	682
2005	-8.4	12.7	19.6	33.2	62	110.2	104.4	64.7	18.1	15.1	4.7	2.7	439
2006	5.4	16.1	19.1	45.4	74.6	112.3	118.1	62	15.5	18	8.2	0	495
2007	7.2	0.6	16.1	41.0	69.6	104.9	102.4	64.7	21.8	9.8	4.1	-4.2	438
2008	0.4	3	18.1	43.6	55.7	110	123.3	59.8	47.5	10.6	5.2	-2.9	474
2009	-1.2	-0.1	40.3	33.1	57.5	83	107.4	60.6	8.7	16.7	1.4	-4.2	403
												Average	425

Vauxhall

Potential Evaporation, mm

Vauxhall	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1991	-4.8	19.3	54.1	106.6	144.3	176.5	221.2	199	118.3	49.3	7.9	3.3	1095
1992	7.1	21.4	76	108.2	159.9	177.5	183.7	176.1	103.4	47.1	8.3	-4.9	1064
1993	-6.2	-2.4	61.7	104	169.1	168.6	166.6	166.1	109.1	45.8	7.5	3.2	993
1994	-2.6	-3	80	129.4	183.1	190.8	238.4	197.6	164.3	43.4	10.8	4.7	1237
1995	-5.8	17.8	61.9	95.6	149.9	181.7	192.2	179.5	118.6	41.4	4.3	-5.5	1032
1996	-1.2	6.7	25.9	104.5	120.4	205.3	229.4	224.9	95.9	54.3	-2.1	-4.2	1060
1997	-2.9	5.5	52.7	116.3	170.5	184	217.8	189.4	133.2	46	9.4	7.5	1129
1998	-5.5	22	21.9	121.8	199.1	142	209	229.6	135.4	48.2	6.7	-1.9	1128
1999	-4.3	25.2	70.5	119.7	154.8	172.4	178.4	158.7	123.3	46.4	11.8	4.1	1061
2000	-3.4	-3.9	59.9	107.3	172.3	172.3	231.6	180.9	97.5	40.1	4.8	-4.8	1055
2001	2.7	-2.7	61.8	112.3	203.4	170.3	202.8	239.8	142.3	42	14.5	-5.9	1183
2002	-3.1	15.2	-1	88.3	147	176	193	120.4	82.7	25.8	8	-0.9	851
2003	-2.1	-3.7	24.7	80.1	141.6	154.3	209.6	201.7	96	43.2	-6.1	-3.6	936
2004	-7.6	-9.6	70.5	139.6	147.3	167.5	192.1	151.7	90.5	46.7	12.3	-8.7	992
2005	-8.7	31.3	72.4	128.3	190.3	135	208.9	156	95.4	41.3	11.1	1.9	1063
2006	5.9	20.5	19.7	128.3	190.5	177.4	251.3	216.7	124.5	41	8.5	7.9	1192
2007	7.2	0.2	88.1	98.7	169.5	205.1	281.1	201	116.2	71	15.1	-4.6	1249
2008	0.1	3	81.9	124.5	157.1	184.4	215.2	208.6	109.7	65.2	14.6	-3.4	1161
2009	-1.6	-0.3	55.5	135.6	200.4	217.5	204.9	174.7	180.9	36.2	21.7	-4.6	1221
												Average	1090

Lake Evaporation, mm

Vauxhall	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1991	-4.8	16.7	47.1	82.7	109.6	135.5	174.4	138.3	74.7	33.5	7.9	3.3	819
1992	6	18.6	54.3	80	128.2	129.8	137	128	65.2	30.6	8.3	-4.9	781
1993	-6.2	-2.4	42.9	80.5	133.6	128.4	121.1	118.3	69.8	29.9	7.5	3.2	727
1994	-2.6	-3	54.5	82.5	126.3	152.2	174.2	124.5	87.6	29	9.5	4.7	839
1995	-5.8	15.9	45.3	69.3	111.6	133.1	155.5	130.1	69.4	28.1	4.3	-5.5	751
1996	-1.2	6.7	25.9	75.3	95.2	138.7	169.4	140	63	34.6	-2.1	-4.2	741
1997	-2.9	5.5	45.7	86	118	145.2	167.2	130.2	72.7	29.4	9.4	5.3	812
1998	-5.5	18.6	21.9	89.2	145.3	123.9	171.6	159	85.3	31.6	6.7	-1.9	846
1999	-4.3	19.2	47.5	80.2	115.8	147.2	147.5	125.2	76.8	29.5	8.9	3.3	797
2000	-3.4	-3.9	45	74.2	115.2	138.7	164.5	118.3	62.7	27.6	4.8	-4.8	739
2001	2.7	-2.7	46.1	86	130.4	130.7	150	152.6	81.4	27.3	9.5	-5.9	808
2002	-3.1	14.7	-1	74.5	117.7	158.1	166.9	108.1	60.6	25.8	8	-0.9	729
2003	-2.1	-3.7	24.7	70.6	121.9	135.9	169	150.6	62.9	28.3	-6.1	-3.6	748
2004	-7.6	-9.6	57.2	107.1	130.5	161.9	182.5	138.1	75.6	35.6	12.3	-8.7	875
2005	-8.7	22.3	50.5	89.1	137.1	125.5	166.9	118.7	61.8	28.3	8.6	1.9	802
2006	5.9	18.6	19.7	95.4	143.2	150.1	197.5	152	76.9	29.5	8.5	5.4	903
2007	7.2	0.2	54.5	76.2	128.9	165.4	206.1	144.4	76.8	41.1	11.3	-4.6	908
2008	0.1	3	53.9	93.1	114.8	156.6	180.4	146.1	83.7	38.5	11.2	-3.4	878
2009	-1.6	-0.3	51.2	93.7	140.8	161.9	166.5	127.1	98.3	26.4	13.9	-4.6	873
												Average	809

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Technical Report:

Evaporation and Evapotranspiration Methods

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Table of Contents

TABLES

FIGURES

APPENDICES

APPENDIX A
Documentation of Morton Models

1.0 INTRODUCTION

Evapotranspiration constitutes an important component of the water fluxes in the hydrosphere and atmosphere. It involves complex interactions between water and energy fluxes. The rate of evapotranspiration is affected by the complex spatial variations in climate, terrain features, and vegetation cover, which complicate the estimation of evapotranspiration at a river basin scale. Regional evapotranspiration estimation is further complicated by complex temporal variations, including the diurnal and seasonal variability of evaporative fluxes.

A knowledge of the magnitude and variation of evaporative losses is required in water resources planning and management, design of reservoirs, assessment of irrigation efficiency of existing projects, evaluation of future drainage requirements, quantification of deep percolation losses under existing water management practices, water supply requirements of proposed irrigation projects, and preparation of river forecasts, to name but a few.

Depending on available meteorological data, several methods can be used to estimate evaporation and evapotranspiration for a single land-use class or an assumed representative land cover of uniform distribution over the scale of interest. However, different evapotranspiration models are based on different conceptual rates, such as potential, wet environment and reference crops, etc. Several terms are usually used in describing evapotranspiration in the literature:

1) The term *free water evaporation* E is used for the amount of evaporation from open/free water surface, i.e., the water is returned to the atmosphere from lakes and reservoirs and, in some cases, from river channels in a river catchment (e.g. Peterson *et al*., 1995).

2) The term *actual evapotranspiration* ETa describes all the processes by which liquid water at or near the land surface becomes atmospheric water vapour under natural conditions (e.g. Morton, 1983).

3) The term *potential evapotranspiration* ETp is water loss that will occur if at no time is there a deficiency of water in the soil for use by vegetation (Thornthwaite, 1944). The concept of potential evapotranspiration was introduced to study the evaporative demand of the atmosphere independently of soil factors. For a given vegetation type, the only factors affecting ETp are climatic parameters. Consequently, ETp is a climatic parameter and can be computed from weather data.

4) The term *equilibrium evapotranspiration* Ee, or *wet-surface evapotranspiration* Ew, represents a lower limit to evaporation from wet soil-plant surfaces.

5) The term *reference evapotranspiration* ETo is a measure of the total quantity of water that the reference crop requires to avoid any water deficit and therefore would be expected to achieve maximum growth. The reference crop closely resembles an extensive surface of green grass of uniform height, actively growing, completely shading the ground and with adequate water (Allen et al., 1998).

This report provides a review of several methods that are available in the literature for estimation of evaporation and evapotranspiration, meteorological data required as an input to apply specific methods, and comparison of common methods that are mostly applied in Canada to the Morton model, which is widely used by Alberta Environment (AENV) to estimate evaporation and evapotranspiration rates for Alberta

1.1 Scope of Work

The scope of the work for this report included the following tasks:

- Review the approach and required data inputs of the methods for estimating evaporation and evapotranspiration.
- Discuss the applicability of various methods based on climate data availability and regional distribution of climate stations in Alberta.
- Apply a few common methods at three stations in Alberta using two years of climate data (wet and dry year).
- Apply a few common methods to estimate evaporation at one station in Saskatchewan (i.e., lake evaporation) and compare the results to recorded evaporation using the eddy covariance approach.
- Prepare a step-by-step description of the Morton's approach, including equations used for estimating evaporation and evapotranspiration.

2.0 REVIEW OF EVAPOTRANSPIRATION MODELS

Several methods are available for the estimation of evaporation from water surfaces and evapotranspiration from soil-plant surfaces. Table 1 provides a summary of some of the most common methods used to estimate evaporation and evapotranspiration. Table 2 provides a list of the input data required to estimate evaporation and evapotranspiration when using the various methods provided in Table 1. The methods summarized in Table 1 can be classified into five broad categories: (1) combination (energy-mass balance) methods, (2) radiation-based, (3) temperature-based, (4) mass-transfer method, and (5) complementary relationship approach.

The energy consumed during evapotranspiration can be traced to solar radiation. Brutsaert (1982) states the energy balance equation for vegetation or water bodies as:

$$\Delta Q/\Delta t = Rn - G - \lambda E - H + LpFp + Ah \qquad (1)$$

Where: Q is the energy stored in the soil-plant system, Rn is the net radiation, G is the soil heat flux, λ is the latent heat of vaporisation, H is the sensible heat flux, Lp is the thermal conversion factor for fixation of carbon dioxide, Fp is the flux of CO2, and Ah is the energy advection into the soil-plant system from water flow.

Depending on the application, several terms can normally be discounted as being negligible (Brutsaert, 1982):

- On a daily basis, for thin layers of water or soil and for small canopies, the rate of change of stored energy term can be omitted. However, it is sometimes required in the case of tall vegetation, especially around sunrise and sunset.
- The energy advection term Ah represents the change in energy flux from precipitation or irrigation. It is likely to be negligible unless a whole lake or snow is being considered – the magnitude of the term depends on the temperature difference between the incident water and the evaporating surface.
- Under favourable conditions, LpFp can be of the order of 5% of the net radiation, but it is usually closer to 1%. This term is normally neglected unless its determination is the main objective.

Hence in most situations, equation (1) can be written as:

$$Rn - G = \lambda E + H \qquad (2)$$

Equation (2) is the starting point for the majority of the methods described in this report.

Table 1: Inventory of Evaporation and Evapotranspiration Models

Model	Areal/Actual Evapotranspiration	Potential Evapotranspiration	Wet Environment/ Equilibrium Evaporation	Lake Evaporation	Lake Potential Evaporation	Reference Evapotranspiration
	Combination (energy-mass balance) methods					
Penman Combination Equation (Penman, 1948)		✓				
Penman-Monteith (Monteith, 1965)	✓			✓		
FAO Penman-Monteith equation						✓
	Radiation-Based Methods					
Jensen and Haise (1963)		✓				
Makkink method (1957)		✓				
Hargreaves method (1975)		✓				
Priestley – Taylor method (1972)		✓				
	Temperature-Based Methods					
Blaney-Criddle Method (1950)		✓				
Hargreaves method (1982, 1985)		✓				
Thornthwaite Method (1948)		✓				
	Mass-Transfer Based Methods					
Rohwer (1931)				✓		
Meyer A.F. (1942)				✓		
Granger and Hedstrom (2010)				✓		
	Complementary Relationship Methods					
Advection-Aridity (Brutsaert and Stricker, 1979)	✓	✓	✓			
Granger and Gray (1989)	✓	✓	✓			
Morton Model (1983)	✓	✓	✓	✓	✓	

Table 2: Required Input Data to estimate Evaporation and Evapotranspiration

Model	Air Temperature	Wind Speed	Solar Radiation or Sunshine Hour or Net Radiation	Dew Point Temperature or Relative Humidity	Water Temperature	Other Inputs
	Combination (energy-mass balance) methods					
Penman Combination Equation (Penman, 1948)	✓	✓	✓	✓		
Penman-Monteith (Monteith, 1965)	✓	✓	✓	✓	✓	aerodynamic and bulk resistance
FAO Penman-Monteith equation	✓	✓	✓	✓		
	Radiation-Based Methods					
Jensen and Haise (1963)	✓		✓			
Makkink method (1957)			✓			
Hargreaves method (1975)	✓		✓			
Priestley – Taylor method (1972)			✓			
	Temperature-Based Methods					
Blaney-Criddle Method (1950)	✓					
Hargreaves method (1982, 1985)	✓					
Thornthwaite Method (1948)	✓					
	Mass-Transfer Based Methods					
Rohwer (1931)	✓	✓		✓		
Meyer A.F. (1942)	✓	✓		✓	✓	Altitude
Granger and Hedstrom (2010)	✓	✓		✓	✓	Fetch distance
	Complementary Relationship Methods					
Advection-Aridity (Brutsaert and Stricker, 1979)	✓	✓	✓	✓		
Granger and Gray (1989)	✓	✓	✓	✓		
Morton Model (1983)	✓		✓	✓		

2.1 Combination Methods

Penman Combination Equation:

The Penman combination method (Penman, 1948) was derived by combining the energy budget (i.e., Equation (2)) and water vapour transfer as follows:

$$Rn - G = \lambda E\ (1 + H/\lambda E) = \lambda E\ (1+\beta) \quad (3)$$

$$\lambda E = (Rn - G)/(1+\beta) \quad (4)$$

Where: β is the ratio of sensible heat to latent heat, referred to as the Bowen ratio (Bowen, 1926). The Bowen ratio, β, is defined as follows:

$$\beta = \gamma\ (T_s - T_a)/(e_s - e_a) \quad (5)$$

Where: γ is the psychrometric constant, T_s is evaporating surface temperature, T_a is air temperature, e_s actual vapour pressure of air near the evaporating surface (at temperature T_s), and e_a is actual vapour pressure of air (at dew point temperature).

The evaporating surface temperature is required to calculate the saturated vapour pressure at the surface. To overcome the requirement of evaporating surface temperature, Penman assumed saturation near the surface and considered Delton mass transfer equation as follows:

$$\lambda E = f(u)\ (e_s^o - e_a) \quad (6)$$

Penman also defined a new mass transfer equation as follows:

$$\lambda Ea = f(u)\ (e_a^o - e_a) \quad (7)$$

Where: $f(u)$ is a wind function e_s^o saturated vapour pressure of air near the evaporating surface (at temperature T_s), and e_a^o is saturated vapour pressure of air (at dew point temperature). Combining equations (4), (6) and (7), the Penman combination equation is defined as follows:

$$\lambda E = \{\Delta(Rn - G) + \gamma f(u)\ (e_a^o - e_a)\} / (\Delta+\gamma) \quad (8)$$

Where: Δ is slope of saturated vapour pressure curve, calculated at the air temperature.

The Penman combination method is used to calculate potential evapotranspiration (ETp) since it is dependent on climatic parameters and assumes saturation near the evaporated surface. Required input data to estimate ETp using Penman combination method include:

- Incident solar radiation or sunshine hours and cloud cover (from which incident solar radiation can be estimated);
- Mean air temperature;
- Mean dewpoint temperature (or dry and wet bulb temperature) or relative humidity; and
- Mean wind speed at a standard height (for the wind function).

Penman- Monteith Combination Equation:

By introducing a canopy resistance to the Penman combination equation to describe the influence of plants on the water fluxes through the roots, stems and leaves, Monteith (1965) introduced the Penman-Monteith (P-M) equation for estimating actual evapotranspiration (ET). The equation that assumes the exchange of sensible and latent heat fluxes between the canopy and the atmosphere is given as follows:

$$\lambda E = \{\Delta(Rn - G) + \gamma f(u) (e_a^o - e_a)\} / \{\Delta + \gamma (r_s/r_a)\} \quad (9)$$

Where: r_s is bulk surface resistance and r_a is aerodynamic resistance.

In addition to meteorological data (air temperature, dewpoint temperature, incident solar radiation and wind speed), estimates of the aerodynamic and bulk resistance are required to estimate ET using the P-M combination method. Unfortunately, it is not possible to directly measure the resistance terms. Hence, the use of P-M combination equation is mainly restricted to research studies in which the resistance terms are derived as functions of canopy characteristics and wind profile.

In addition to difficulties with estimation of the resistance terms, the P-M equation does not consider the effect of advection appropriately since the research is established in humid climates. In more arid climates, the air temperature is likely to be higher than the evaporating surface temperature, and a significant proportion of latent heat is likely to come from sensible heat transfer. Hence, the advection effects need to be considered in arid climates.

FAO56 Penman- Monteith Combination Equation:

The Food and Agricultural Organization (FAO) Penman-Monteith equation is derived from the Penman-Monteith equation by calculating appropriate values for the aerodynamic and surface resistances for the reference crop (Allen et al., 1998). It is a practical use of the P-M combination method for a single crop, and therefore has the same assumptions and limitations.

For the FAO56 P-M combination method, the aerodynamic resistance is calculated assuming a reference crop with a constant height of 0.12 m and a standardized measurement of climate parameters (such as wind speed) at height of 2.0 m. The aerodynamic resistance, r_a, is then provided as follows:

$$r_a = 208/u_2 \quad (10)$$

Where: u2 is the wind speed (m/s) measured at a height of 2 m.

The bulk resistance r_s = 70 s/m and is assumed to be constant for the reference crop.

2.2 Radiation-based Methods

The radiation-based approach has had wide application in the estimation of lake evaporation (E) and potential evapotranspiration (ETp) of land areas. Many empirical formulae have been derived based on this approach (Jensen et al., 1990; Singh, 1989). Most radiation-based equations take this form:

$$\lambda E = C_r(wRs) \quad or \quad \lambda E = C_r(wRn) \quad (11)$$

Where: *Rs* is the total solar radiation, *w* is the temperature and altitude-dependent weighting factor and C_r is a coefficient depending on the relative humidity and wind speed.

A comparison of eight radiation-based methods was performed by Xu and Singh (2000) using meteorological data from the Changins station in Switzerland: the Turc (1961), Makkink (1957), Jensen and Haise (1963), Hargreaves (1975), Doorenbos and Pruitt (1977), McGuinness and Bordne (1972), Abtew (1996) and Priestley and Taylor (1972) equations. The study concluded that with properly determined coefficients, the Makkink and Priestley-Taylor methods provide better results in the study region. Detail equations for four of these methods are provided below.

Jensen and Haise Method

Jensen and Haise (1963) evaluated 3000 observations of potential evapotranspiration as determined by soil sampling procedures over a 35-year period, and developed the following relation:

$$\lambda ETp = C_t(Ta - Tx)R_s \quad (12)$$

Where: R_s is solar radiation in equivalent millimetres of evaporation per day, λ (in calories per gram), C_t (temperature constant) = 0.025, and Tx = -3 when Ta is in degrees Celsius. These coefficients were considered to be constant for a given area.

Makkink Method

Makkink (1957) estimated potential evapotranspiration in millimetres per day over 10-day periods for grassed lands under cool climatic conditions of the Netherlands as:

$$ETp = 0.61\ (\Delta/(\Delta+\gamma)Rs/\lambda + 0.12 \quad (13)$$

Where: R_s is solar radiation in cal cm^{-2} day^{-1}, λ is in calories per gram, γ is the psycrometric constant in mb/^{o}C.

Hargreaves Method

Hargreaves (1975) proposed an equation for calculating potential evapotranspiration, ETp (in mm/day). The Hargreaves method was derived from 8 years of cool season Alta fescue grass lysimeter data from Davis, California. The equation is written as:

$$ETp = 0.0135\ Rs(Ta+17.8) \quad (14)$$

Where: Rs is the incidence solar radiation in equivalent evapotranspiration units.

Priestley–Taylor Method

Priestley and Taylor (1972) proposed a simplified version of the Penman combination equation for use when surface areas generally were wet, which is a condition required for potential evapotranspiration, ETp. The aerodynamic component was deleted and the energy component was multiplied by a coefficient, $\alpha = 1.26$, when the general surrounding areas were wet or under humid conditions.

$$ETp = \alpha\ ((\Delta/(\Delta+\gamma)Rn/\lambda \quad (15)$$

Where: Rn is the net radiation (cal cm^{-2} day^{-1}) and ETp is in millimetres per day.

2.3 Temperature-based Methods

The temperature-based methods are those evapotranspiration estimation methods that require only air temperature as an input variable. The temperature-based methods are some of the earliest methods for estimating evapotranspiration (Jensen *et al.*, 1990) and have the following form:

$$ETp = c(Ta)^n \quad \textbf{or} \quad ETp = c_1 d_1 Ta(c_2 - c_3 h) \qquad (16)$$

Where: h is a humidity term, c_1, c_2, c_3 and c and n are constants, and d_1 is day-length.

Due to the wide-ranging inconsistency in meteorological data collection procedures and standards, many different evapotranspiration equations, which have more or less the same model form, have been used by different authors. Performance of the empirical equations usually varies from locations. Xu and Singh (2001) evaluated and compared seven temperature-based potential evapotranspiration equations: Thornthwaite (1948), Linacre (1977), Blaney and Criddle (1950), Hargreaves (1975), Kharrufa (1985), Hamon (1961), and Romanenko (1961) methods. Xu and Singh (2001) used meteorological data from two stations (Rawson Lake and Atikokan) in northwestern Ontario, Canada and concluded that with locally determined constants, the Blaney-Criddle and Hargreaves methods provided better results than others. These two methods are described for this study.

Blaney-Criddle Method

The Blaney and Criddle (1950) procedure for estimating evapotranspiration is well known in the western USA and has been used extensively elsewhere also (Singh, 1989). The usual form of the Blaney–Criddle equation converted to metric units is written as:

$$ETp = kp(0.46Ta + 8.13) \qquad (17)$$

Where: p is percentage of total daytime hours for the used period (daily or monthly) out of total daytime hours of the year (365 x 12), k is monthly consumptive use coefficient, depending on vegetation type, location and season and for the growing season (May to October) and varies from 0.5 for orange trees to 1.2 for dense natural vegetation. Following the recommendation of Blaney and Criddle (1950), in the first stage of the comparative study, values of 0.85 are used for the growing season (April to September) and 0.45 for the non-growing season (October to March).

Hargreaves Method

Hargreaves and Samni (1982, 1985) proposed several equations for calculating potential evapotranspiration, ETp (in mm/day). The Hargreaves method was derived from 8 years of cool season Alta fescue grass lysimeter data from Davis, California. One of the equations is written as:

$$ETp = 0.0023\, Ra(Ta+17.8)TD^{0.5} \qquad (14)$$

Where: Ra is the extraterrestrial radiation in equivalent evapotranspiration units, and TD is the difference between maximum and minimum daily temperature.

2.4 Mass-Transfer based Methods

The mass-transfer method is one of the oldest methods (Dalton, 1802; Meyer, 1915; Penman, 1948) and is still an attractive method for estimating free water surface evaporation (E) because of its simplicity and reasonable accuracy. The mass-transfer methods are based on the Dalton equation, which for free water surface can be written as:

$$E = C\,(e_s^{o} - e_a) \qquad (15)$$

Where: C is an empirically determined constant involving some function of windiness.

Singh and Xu (1997) evaluated and compared 13 mass-transfer based evaporation equations. All 13 mass-transfer based equations gave almost equally good results, provided that the constant values were locally calibrated. Singh and Xu (1997) also found that evaporation estimates were particularly sensitive to vapour pressure gradient, less sensitive to wind speed and most insensitive to temperature.

In this report, three mass-transfer equations including the Meyer method that is commonly used by Prairie Farm Rehabilitation Association (PFRA) to calculate gross evaporation for operational purposes are presented below.

Rohwer Method

Rohwer (1931) developed the following the mass transfer equation to estimate evaporation from free water surfaces.

$$E = 0.44\,(1+0.27u)\,(e_s^{o} - ea) \qquad (16)$$

Where: u is wind speed in m/s and e_s^{o} and e_a are in mmHg.

Meyer Method

Meyer formula, which is used by PFRA to calculate gross evaporation from small to moderate sized water bodies in the Canadian Prairies for operational purposes, is presented as follows:

$$E_G = CK(e_s^{o} - e_a)(1 + 6.2139\times10^{-2}u)(1 + 3.28084\times10^{-5}A) \qquad (17)$$

Where: E_G is monthly gross evaporation, in millimetres, at the meteorological station, C is an empirical coefficient dependent upon the observation times for vapour pressure determination and upon the size and character of the water body, K is a metric conversion factor of 0.750062, e_s^{o} is saturated monthly mean vapour pressure, in millibars, corresponding to the estimated monthly mean water temperature at the surface of a hypothetical open body of water at the station site, e_a is actual monthly mean vapour pressure, in millibars, in the atmosphere at 7.62 metres above the ground level at the station, u is monthly mean wind speed, in kilometres per hour, at 7.62 metres above the ground level at the station, and A is elevation, in metres above mean sea level, of ground level at the station.

Meyer (1942) specified that a coefficient of 11 should be used for monthly evaporation from small lakes and reservoirs when the actual vapour pressure in the air is determined from the mean of the morning and evening relative humidity measured about 25 feet (7.62 metres) above the surface of the ground. More recent analyses conducted by PFRA (1988, 1994) have indicated that gross evaporation calculations are sensitive to both the data type (relative humidity or dew point temperature) and the frequency of observation (two, three or four

observations per day) used to determine actual vapour pressure, and have concluded that the empirical coefficient in the Meyer formula must be adjusted accordingly.

Water temperature is estimated using the following air/water temperature relationship:

$$T_s = 0.60T_a + B \quad (18)$$

Where: T_s is monthly mean surface water temperature, in ^oC, T_a is monthly mean air temperature, in ^oC, based on the average of the daily mean air temperatures, and B is intercept value corresponding to the month under consideration as shown in Table 3.

Table 3: Coefficient used to Derive Monthly Water Temperature from Air Temperature

Month	Coefficient, B
January	-3.0°C
February	-2.8°C
March	-1.4°C
April	2.0°C
May	7.3°C
June	8.8°C
July	10.0°C
August	9.6°C
September	7.1°C
October	3.0°C
November	-1.2°C
December	-2.6°C

If the estimated monthly mean surface water temperature is less than 0^oC, the gross evaporation for the month under consideration is arbitrarily set to zero.

The actual monthly mean vapour pressure, e_a (at a height of 7.62 metres above the ground level as required for Equation 18), is derived from vapour pressure (e_{ap}) determined at a height of 1.22 metres above the ground level using the following relationship:

$$e_a = e_{ap}(0.094\log_{10}e_{apm} + 0.8559) \quad (19)$$

Where: e_a is actual monthly mean vapour pressure, in millibars, in the atmosphere at 7.62 metres above ground level, e_{ap} is monthly mean vapour pressure, in millibars, derived from meteorological observations assumed to be at the 1.22-metre level, and e_{apm} is mean of the April to October values of e_{ap} for the calendar year (thus, e_{apm} varies for each calendar year).

Wind speed, u is determined at the 7.62-metre level using the following relationship:

$$u = u_r(7.62/H_{ag})^{0.25} \quad (20)$$

Where: u is monthly mean wind speed, in kilometres per hour, at 7.62 metres above ground level, u_r is recorded monthly mean wind speed, in kilometres per hour, at the meteorological station, and H_{ag} is height above ground, in metres, of the anemometer with which u_r observations were obtained.

Granger and Hedstrom Method

Granger and Hedstrom (2010a, 2010b) developed a mass-transfer based equation to estimate open water evaporation on three small to medium sized lakes in Western and Northern Canada. Lake evaporation was measured directly using eddy covariance equipment. Profiles of wind speed, air temperature and humidity were also obtained over the water surfaces. Similar measurements of wind speed, air temperature and humidity were made over the upwind land surface. Then, relationships were developed between the hourly rates of lake evaporation and those significant parameters (wind speed, land-water temperature and humidity contrasts, and the downwind distance from shore). The mass-transfer relationship established by Granger and Hedstrom (2010a, 2010b) is expressed as follows:

$$E = a * u_{water} \quad (21)$$

Where: E is expressed as an energy flux (w/m^2), u_{water} is the wind speed measured at 2 m above the water surface measured (m/s), a is a coefficient determined as a function of the horizontal gradients (land-water contrast) of temperature and vapour pressure, and the fetch distance over the open water.

The coefficient, a, is expressed as follows:

$$a = b + m*\delta T + n*\delta e \quad (22)$$
$$\delta T = Ta - Ts \; - \quad in \; ^oC$$
$$\delta e = e_s^o - e_a \; - \quad in \; kPa$$
$$u_{water} = u_{land}*(d + c(Ta-Ts))$$

For stable conditions over the water, i.e., $Ta > Ts$:

$$b = 3.395 + 0.0008X$$
$$m = -4.584 + 0.420* ln(X) \quad (23)$$
$$n = 20.256 - 0.0011X$$
$$d = 1.0 + 0.0001247X$$
$$c = -0.0125 - 4.87*10^{-6}X$$

For unstable conditions over the water, i.e., $Ta < Ts$:

$$b = 2.373 + 0.0002X$$
$$m = -1.758 + 0.0904* ln(X) \quad (23)$$
$$n = 26.525 - 0.0008X$$
$$d = 1.0 + 0.0001247X$$
$$c = -0.0125 - 2.33*10^{-5}X$$

Where: X is fetch distance (m).

2.5 Complementary Relationship Methods

Based on an energy balance analysis, Bouchet (1963a, 1963b) demonstrated that as a surface dried from initially moist conditions, the potential evapotranspiration increased while the actual evapotranspiration was decreasing. The relationship that Bouchet derived is known as the complementary relationship between actual and potential evapotranspiration. The complementary relationship indicates that as the surface dries the decrease in actual evapotranspiration is accompanied by an equal increase in the potential evapotranspiration since the air in contact with the surface become hotter and drier.

When the soil-plant surface is dry (at wilting point, arid conditions), there is no water to evaporate. Under such condition, ET is zero and ETP will have a maximum value ETP_{max}.

$$ETP = ETP_{max} \text{ when } ET=0 \text{ (arid condition)} \quad (24)$$

When the soil-plant surface is completely wet, the overlying air is completely saturated and under this (advection free) condition, ET is at its maximum value and ETP is at its minimum value.

$$ET = ET_{max} = ETP = ETP_{min} = Ew = Ee = (Rn-G)/(\Delta+\gamma) \quad (25)$$

Morton (1978) referred the condition of Equation (25) as the wet condition evaporation, and Slatyer and McIlroy (1967) referred it as an equilibrium or advection-free evapotranspiration.

With the two boundary conditions (Equations (24) and (25)), Bouchet (1963a, 1963b) arrived at the following complementary relationship between ET and ETP:

$$ET + ETP = 2Ew = 2Ee \quad (26)$$

Subsequently, the complementary relationship has formed the basis for the development of some evapotranspiration models (Brutsaert and Stricker, 1979; Morton, 1983; Fortin and Seguin, 1975; Granger and Gray, 1989). Some of the common the evapotranspiration models developed based on the complementary relationship are summarized in this report.

Advection – Aridity Approach

In the advection-Aridity (AA) model (Brutsaert and Stricker, 1979), the ETP is calculated by combining the energy budget and water vapour transfer in the Penman (1948) equation as follows:

$$ETP = \Delta/(\Delta+\gamma)*Rn/\lambda + \gamma/(\Delta+\gamma)*f(u)*(e_s^o-e_a) \quad (27)$$
$$f(u) = 0.0026(1 + 0.542u)$$

The AA model calculates Ew using the Priestly and Taylor (1972) evapotranspiration equation as follows:

$$Ew = \alpha\ (\Delta/(\Delta+\gamma)*Rn/\lambda) \quad (28)$$

Substituting equations (27) and (28) into equation (26) results in the expression for ET as follows:

$$ET = (2\ \alpha - 1)\ *\ \Delta/(\Delta+\gamma)*Rn/\lambda + \gamma/(\Delta+\gamma)*f(u)*(e_s^o-e_a) \quad (29)$$

Granger – Gray Approach

Granger and Gray (G-G) (1989) showed that an equation similar to Penman could also be derived following the approach of Bouchet's complementary relationship. G-G derived a modified form of Penman equation for estimating the actual evapotranspiration from different non-saturated land covers as follows:

$$ET = \Delta G/(\Delta G+\gamma)*Rn/\lambda + \gamma G/(\Delta G+\gamma)*Ea \quad (30)$$
$$Ea = f(u)*(e_s^o-e_a)$$

Where: $G = ET/ETP$ is a dimensionless relative evapotranspiration and Ea is relative drying power of air.

G-G showed that the relative evaporation, *G* is a unique parameter for each set of atmospheric and surface conditions. Based on daily estimated values of actual evapotranspiration from water balance, G-G showed that there exists a unique relationship between *G* and a parameter that they called the relative drying power *D*, given as:

$$D = Ea/(Ea+Rn)$$
$$G = 1/(1 + 0.028*\exp(8.045D)) \quad (31)$$

Later Granger (1998) modified the relative evaporation equation as follows:

$$G = 1/(0.793 + 0.20*\exp(4.902D)) + 0.006D \quad (32)$$

Morton's CRAE Model

Morton (1969, 1978, and 1983) applied Bouchet's complementary relationship and Penman's model to develop a model to estimate the actual areal evapotranspiration and potential evapotranspiration. To calculate ETP in the CRAE model, Morton (1983) decomposed the Penman equation into two separate parts describing the energy balance and vapour transfer process. A refinement was developed by using an 'equilibrium temperature' *Tp*, which is defined as the temperature at which Morton's (1983) energy budget method and mass transfer method for a moist surface and plants yields the same result for ETP. The energy balance and vapour transfer equations are as follows:

$$ETP = R_T - [\gamma f_T + 4\varepsilon\sigma(T_P+273)^3]*(T_P-Ta) \quad (33)$$
$$ETP = f_T\,(e_p - e_d) \quad (34)$$

In which ETP is the potential evapotranspiration in the units of latent heat, *Tp* and *Ta* (°C) are the equilibrium temperature and air temperature respectively, R_T is the net radiation for soil–plant surfaces at the air temperature, γ is the psychrometric constant, σ is the Stefan–Boltzmann constant, ε is the surface emissivity, f_T is the vapour transfer coefficient, *ep* is the saturation vapour pressure at *Tp*, and *ed* is the saturation vapour pressure at the dew-point temperature. The potential evapotranspiration estimate is obtained by using in Equation (33) the value of *Tp* obtained by an iterative process (Morton, 1983).

In calculating the wet-environment evapotranspiration, Morton (1983) modified the Priestley–Taylor equation to account for the temperature dependence of both the net radiation term and the slope of the saturated vapour pressure curve Δ. The Priestley–Taylor factor α is replaced by a smaller factor *b2* = 1.20, while the addition of *b1* = 14 Wm^{-2} (or 0.49 mm day^{-1}) accounts for large-scale advection during seasons of low or negative net radiation and represents the minimum energy available for *Ew* but becomes insignificant during periods of high net radiation:

$$Ew = b1 + b2*\Delta p/(\Delta p + \gamma)*R_{Tp} \quad \textbf{or} \quad Ew = b1 + b2*\Delta p/(\Delta p + \gamma)*[Rn - 4\varepsilon\sigma(T_P)^3]*(T_P-Ta)] \quad (35)$$

Where: Δp and R_{Tp} are respectively the slope of the saturated vapour pressure curve and the net available energy adjusted to the equilibrium temperature *Tp*. Other symbols are as defined previously. Actual evapotranspiration is calculated as follows:

$$ET = 2Ew - ETP \quad (36)$$

A step-by-step description of the Morton's model is provided in Appendix A.

3.0 MODELS APPLICATION

As part of this study, Morton's, Granger and Gray (G-G), Priestley–Taylor (P-T), and FAO56 Penman-Monteith or Standard Grass (STD-Grass) methods were used to estimate actual evapotranspiration and potential evapotranspiration and lake evaporation at three stations in Alberta. Morton's, Granger and Hedstrom (G-H) and Meyer methods were also applied to estimate lake evaporation for the three stations in Alberta and one station in Saskatchewan. The locations, elevations and period of simulation for these stations are provided in Table 4.

Table 4: Locations of stations used to estimate simulate Evapotranspiration

Station	Location		Elevation	Period of simulation
	Latitude	Longitude	(m)	
Manning (Alberta)	56°58'26" N	117°27'3" W	457	2009-2010
Masinasin (Alberta)	49°08'12" N	111°39'6" W	947.9	2009-2010
Olds College (Alberta)	51°45'31" N	114°05'3" W	1040.3	2009-2010
Crean Lake (Saskatchewan)	54° 4' 60" N	106°10'0" W	537	2006-2009

3.1 Evapotranspiration for Alberta Stations

Potential and actual (areal) evapotranspiration were computed at three stations in Alberta (i.e., Manning, Masinasin and Olds College stations) using Morton, G-G, STD-Grass) and P-T methods. The results of model simulation using P-T and STD-Grass methods were provided by Alberta Environment and Alberta Agriculture. Figures 1 to 3 show comparisons of monthly evapotranspiration estimates at Manning, Masinasin and Olds College stations, respectively.

The results indicate the following:

- The STD-Grass and G-G methods yield higher potential evapotranspiration (ETP) in the fall and winter months (September to February).
- Morton method generally results in higher ETP in the summer (June to August) compared to the STD-Grass and G-G methods, except for Masinasin station.
- For the Masinasin station, the G-G method provides relatively higher ETP compared to the Morton and STD-Grass methods.
- In general, the Morton method provides slightly lower actual evapotranspiration (ET) compared to G-G and P-T methods.
- The P-T method provides slightly higher ET compared to the Morton and G-G methods.

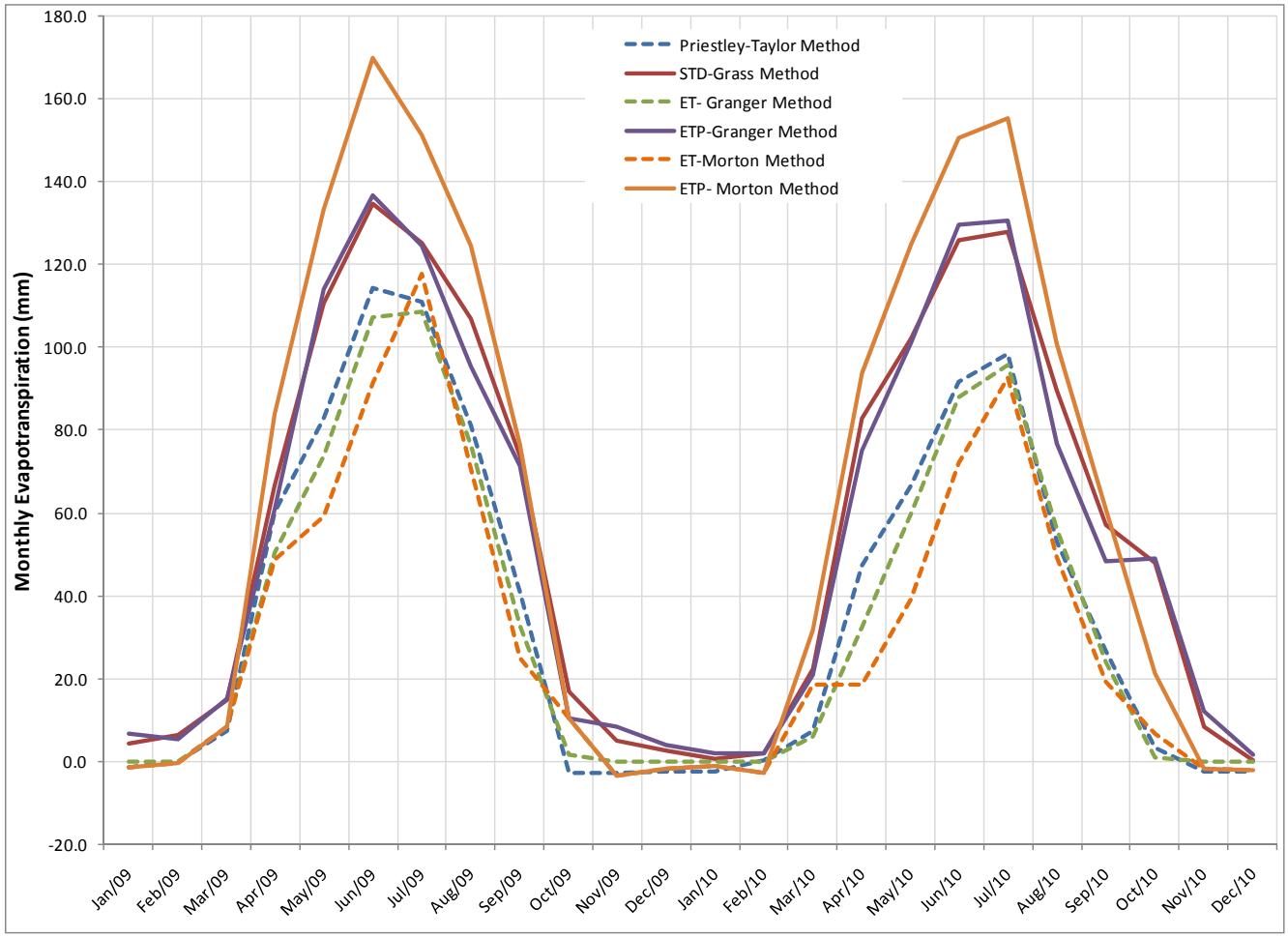

Figure 1: Comparison of Evapotranspiration Estimates for Manning Station

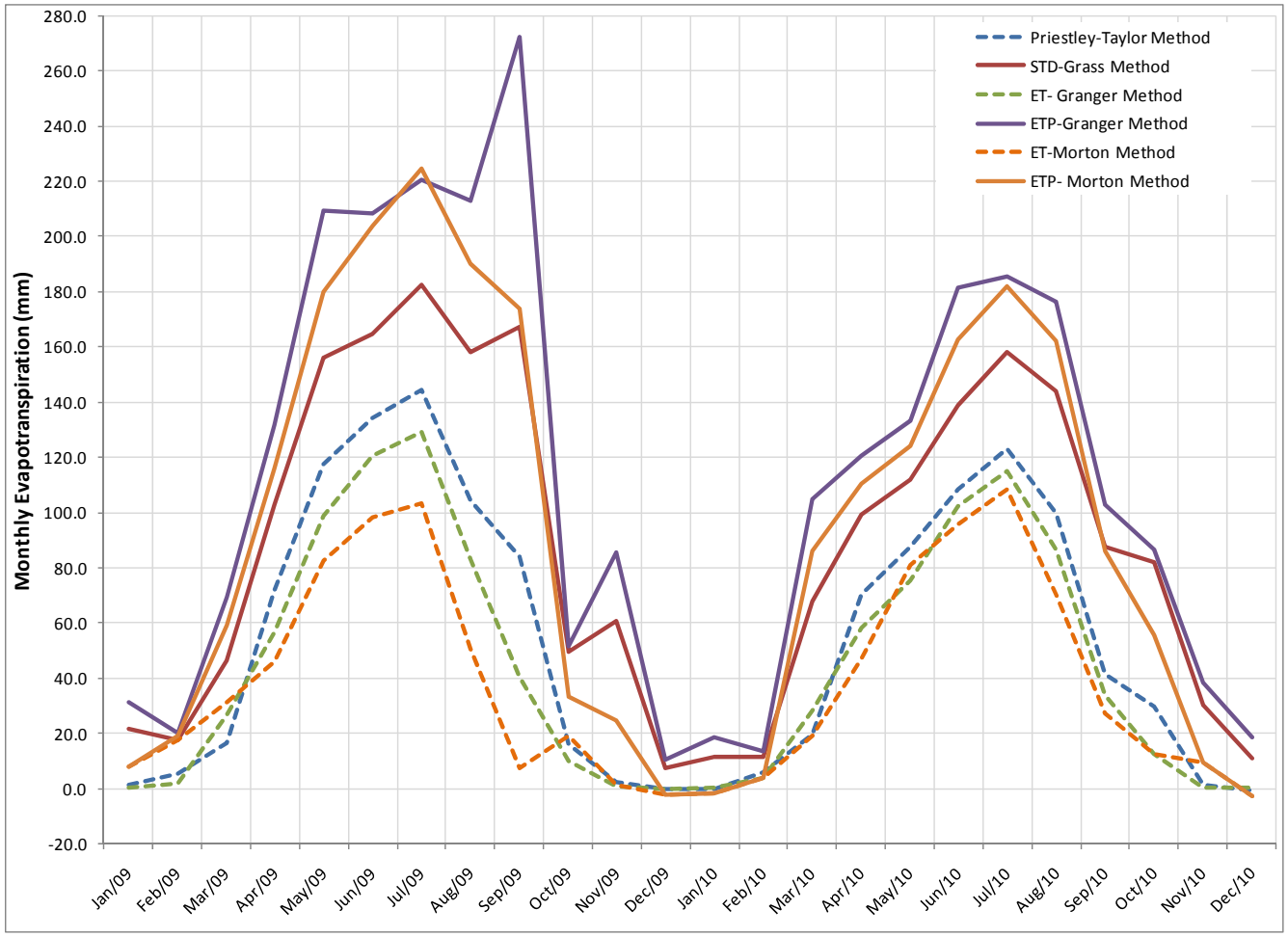

Figure 2: Comparison of Evapotranspiration Estimates for Masinasin Station

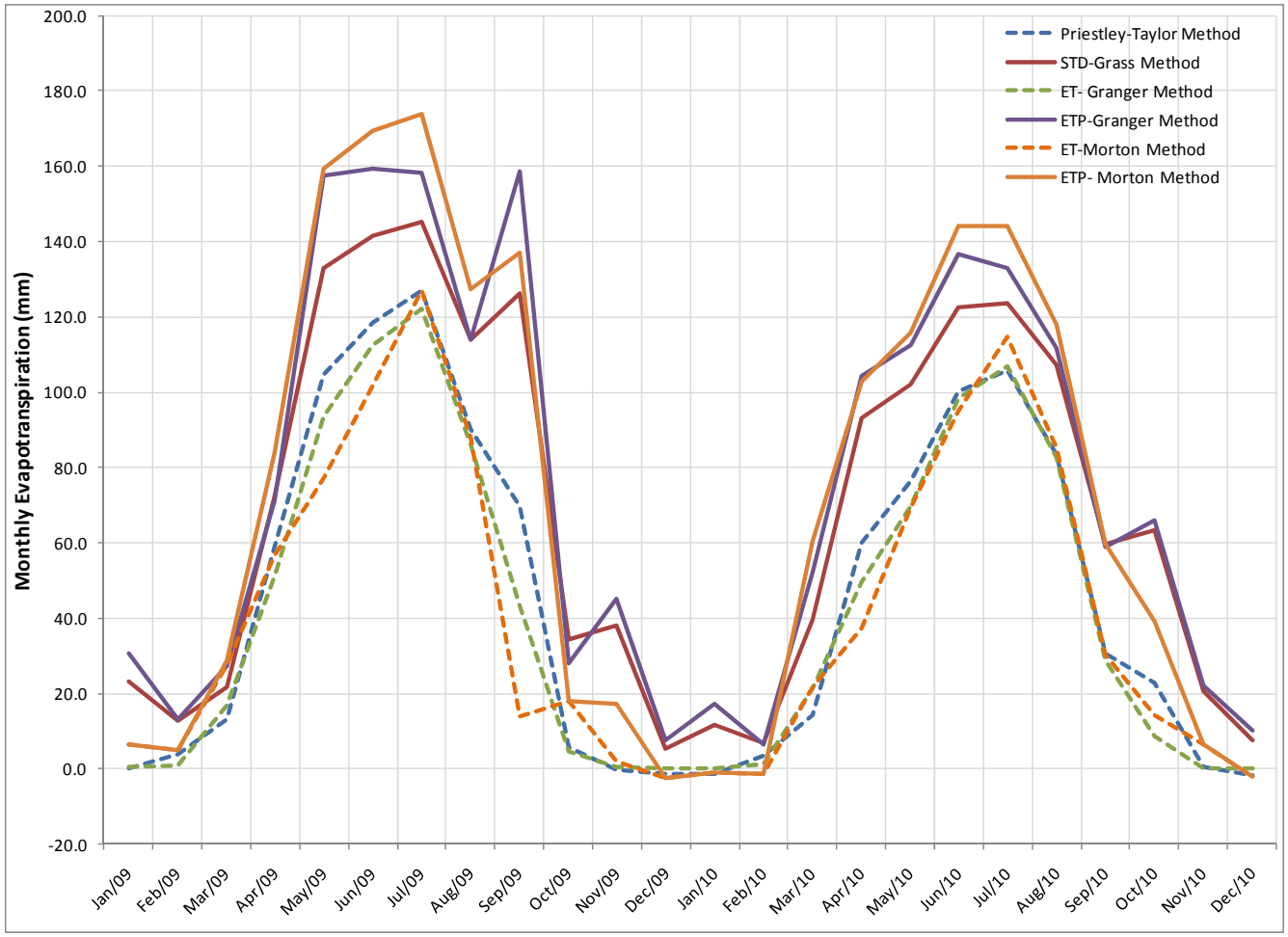

Figure 3: Comparison of Evapotranspiration Estimates for Olds College Station

3.2 Evaporation for Alberta Stations

Lake evaporation was also estimated for the three stations in Alberta using the Morton, G-H and Meyer methods. Figures 4 to 6 show comparisons of monthly lake evaporation estimates. The results indicate the following:

- Monthly lake evaporation (E) estimated by all the three methods are comparable.
- Monthly lake evaporation rates estimated by Meyer and G-H methods are slightly higher for the month of October.
- The Meyer method provides relatively high lake evaporation rates for Masinasin and Olds College stations in late summer (July and August).

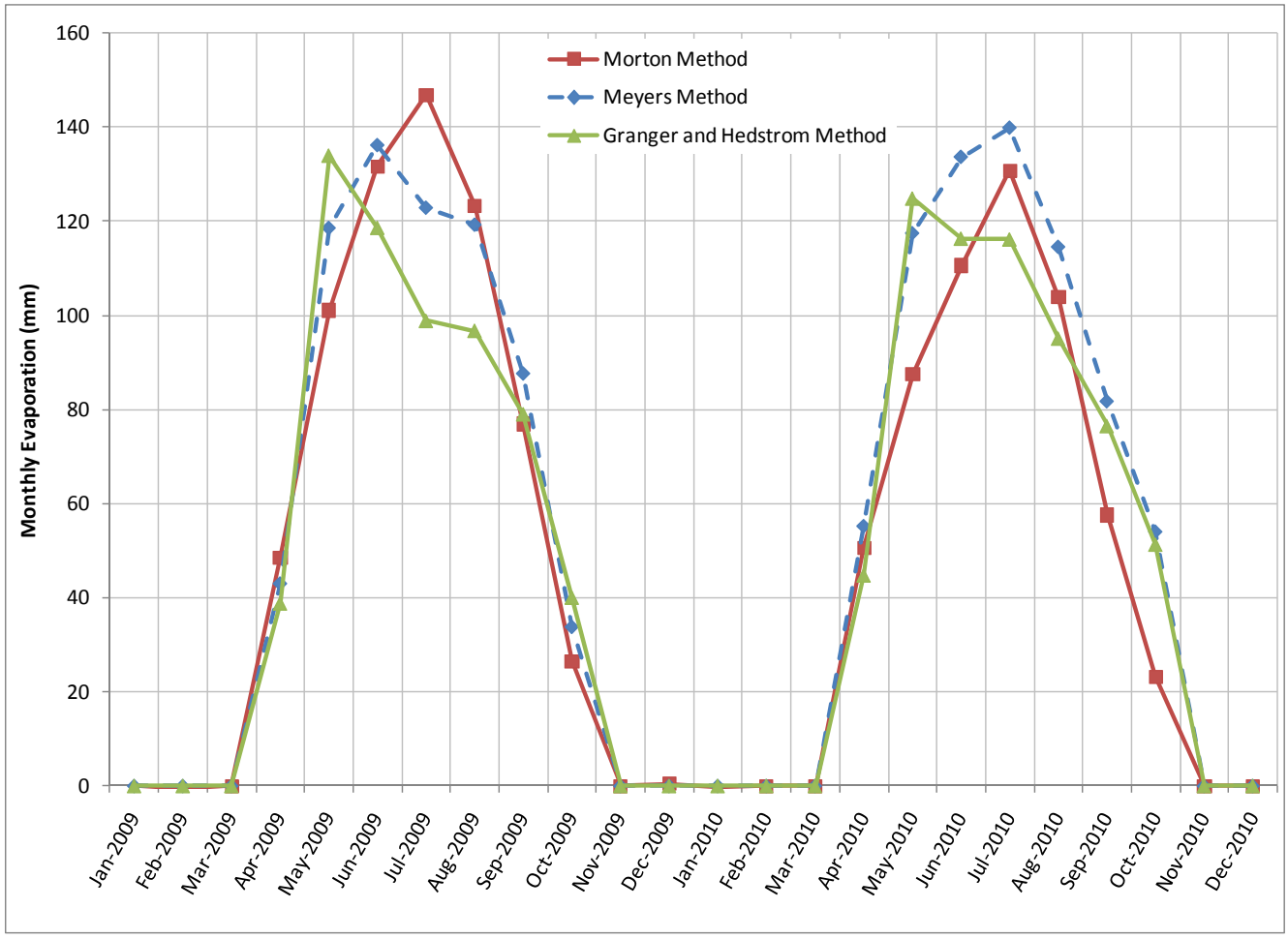

Figure 4: Comparison of Evaporation Estimates for Manning Station

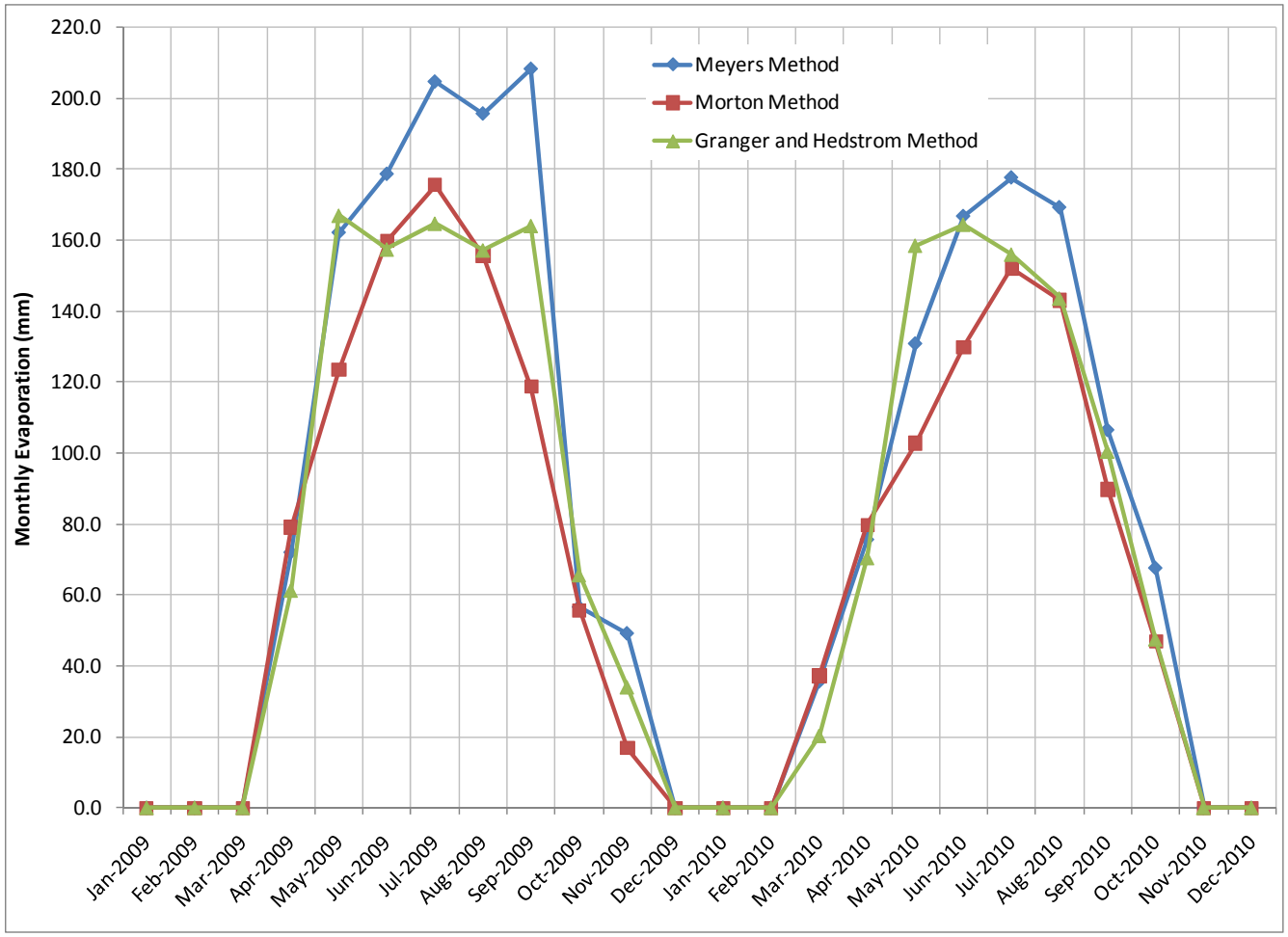

Figure 5: Comparison of Evaporation Estimates for Masinasin Station

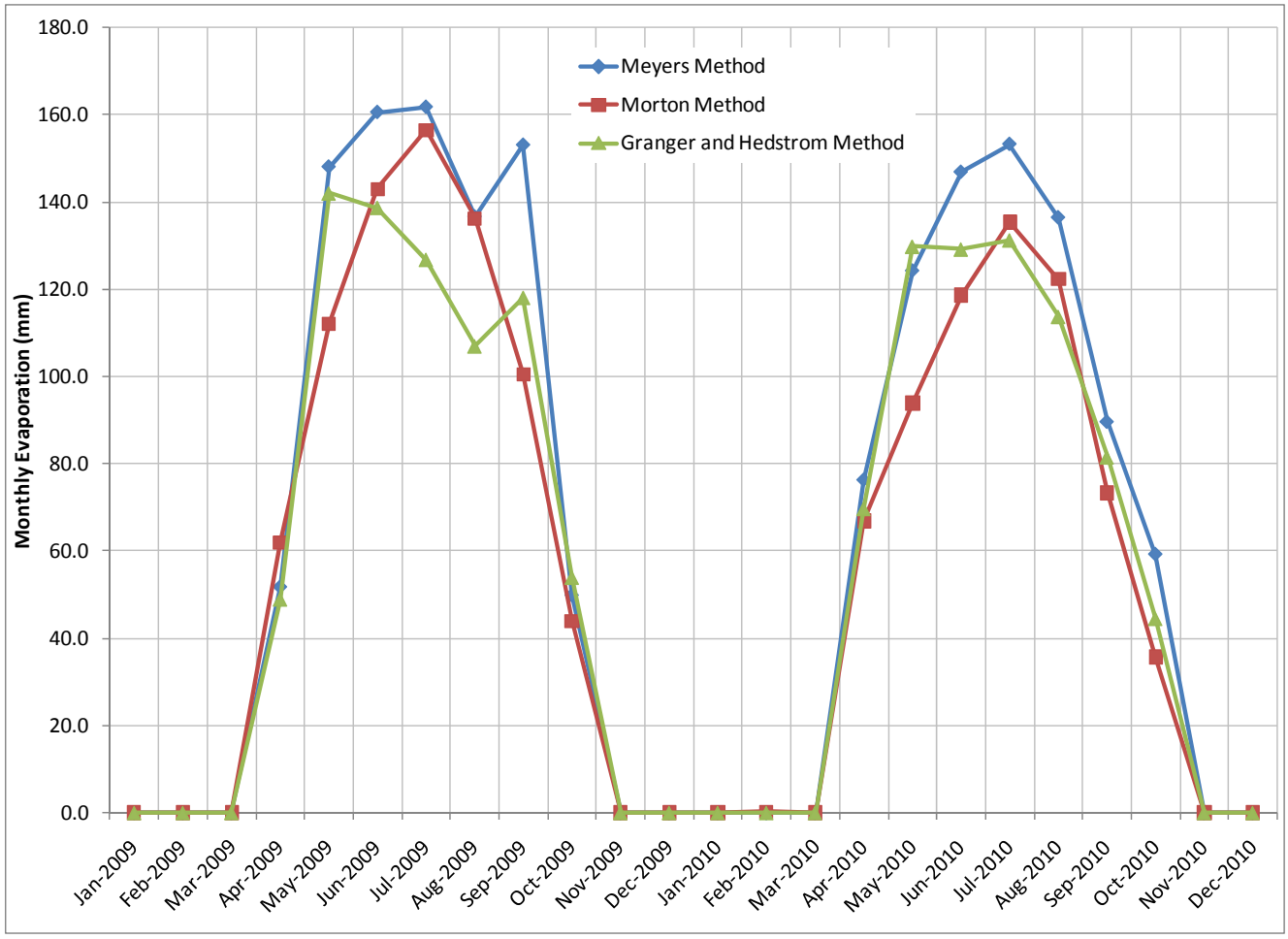

Figure 6: Comparison of Evaporation Estimates for Olds College Station

3.3 Evaporation for Crean Lake

The estimated lake evaporation for Crean Lake (i.e., station in Saskatchewan) using the Morton, G-H and Meyer methods are compared to lake evaporation measured directly using eddy covariance equipment. Figure 7 shows the comparison of estimated monthly lake evaporation for Crean Lake and evaporation measured using eddy-covariance approach. The results show that the modeled monthly evaporation values using all three methods are consistent with the observed values for the months of July, August and September, with the exception of evaporation estimated using G-H and Meyer for the month of July 2009. The lake evaporation estimated using G-H and Meyer for July 2009 is significantly less than measured lake evaporation and evaporation estimated using Morton method since measured water surface temperature (which is an input parameter G-H and Meyer) is significantly less than air temperature.

The Morton method accounts for the effect of sub-surface heat storage in deep lakes by applying a time delay. Evaporation at the end of the current month is a function of evaporation at the end of the preceding month. Since meteorological data measured at Crean Lake is discontinuous, with most data from June to October, there are some uncertainties associated with evaporation estimated using the Morton model. Complete data is not

available to account for the effect of heat storage during preceding months (e.g., no evaporation value for month of May to calculate a correct evaporation value for the month of June).

Figure 8 provides a scatter plot of lake evaporation estimates for Crean Lake using the Morton, G-H and Meyer methods compared to lake evaporation measured directly using an eddy covariance instrument. The scatter plot shows that the lake evaporation estimated using all the three models are in general slightly higher than the measured values. This may be due to some uncertainties associated with the discontinuous input meteorological data. For example, the actual monthly mean vapour pressure that is required in the Meyer model needs correction using the mean monthly vapour pressure of the April to October as described in Equation 19. However, meteorological data for the month of April was missing for most years and this may explain some of the divergence from the measured values.

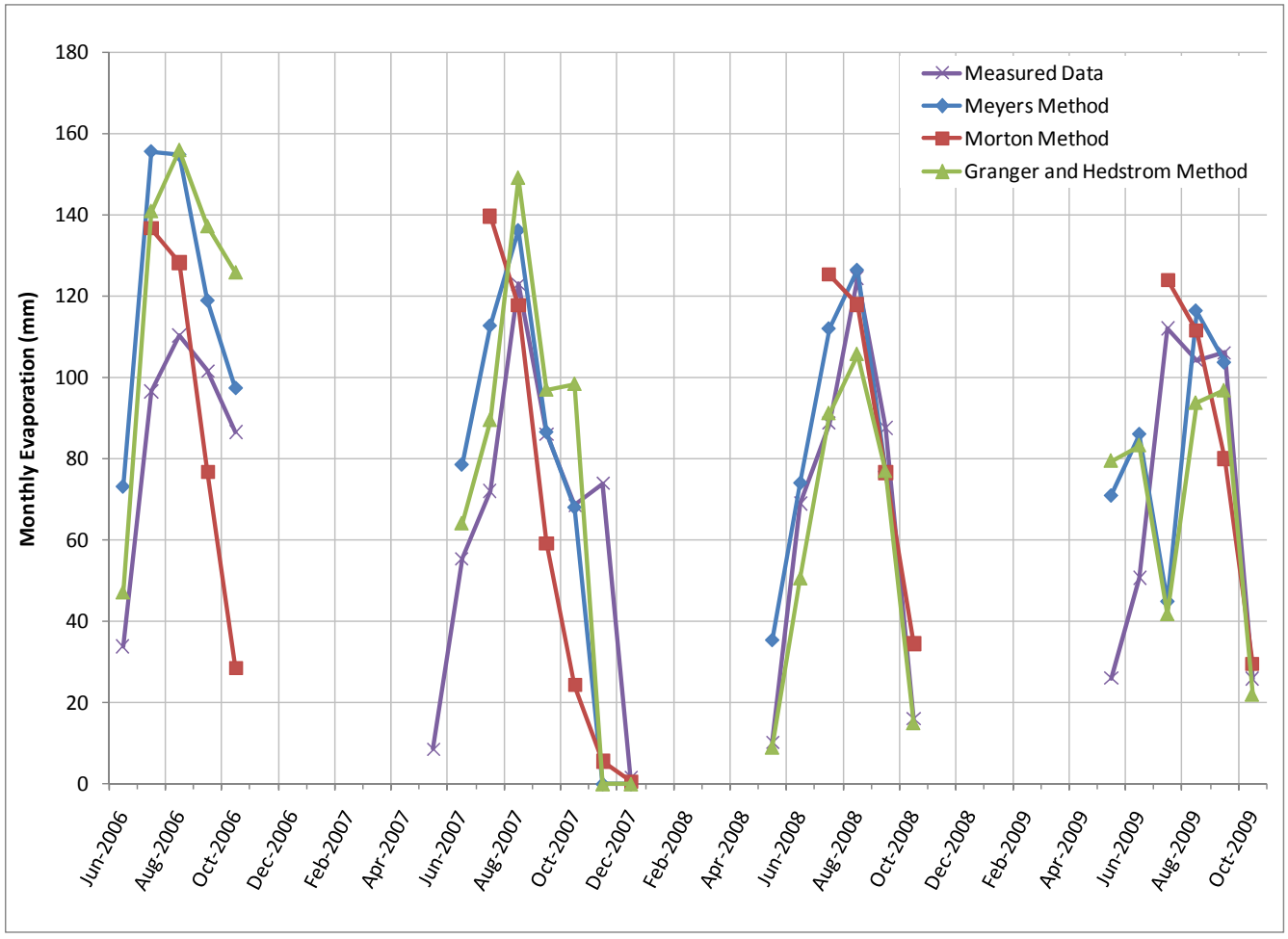

Figure 7: Comparison of Evaporation Estimates for Crean Lake Station

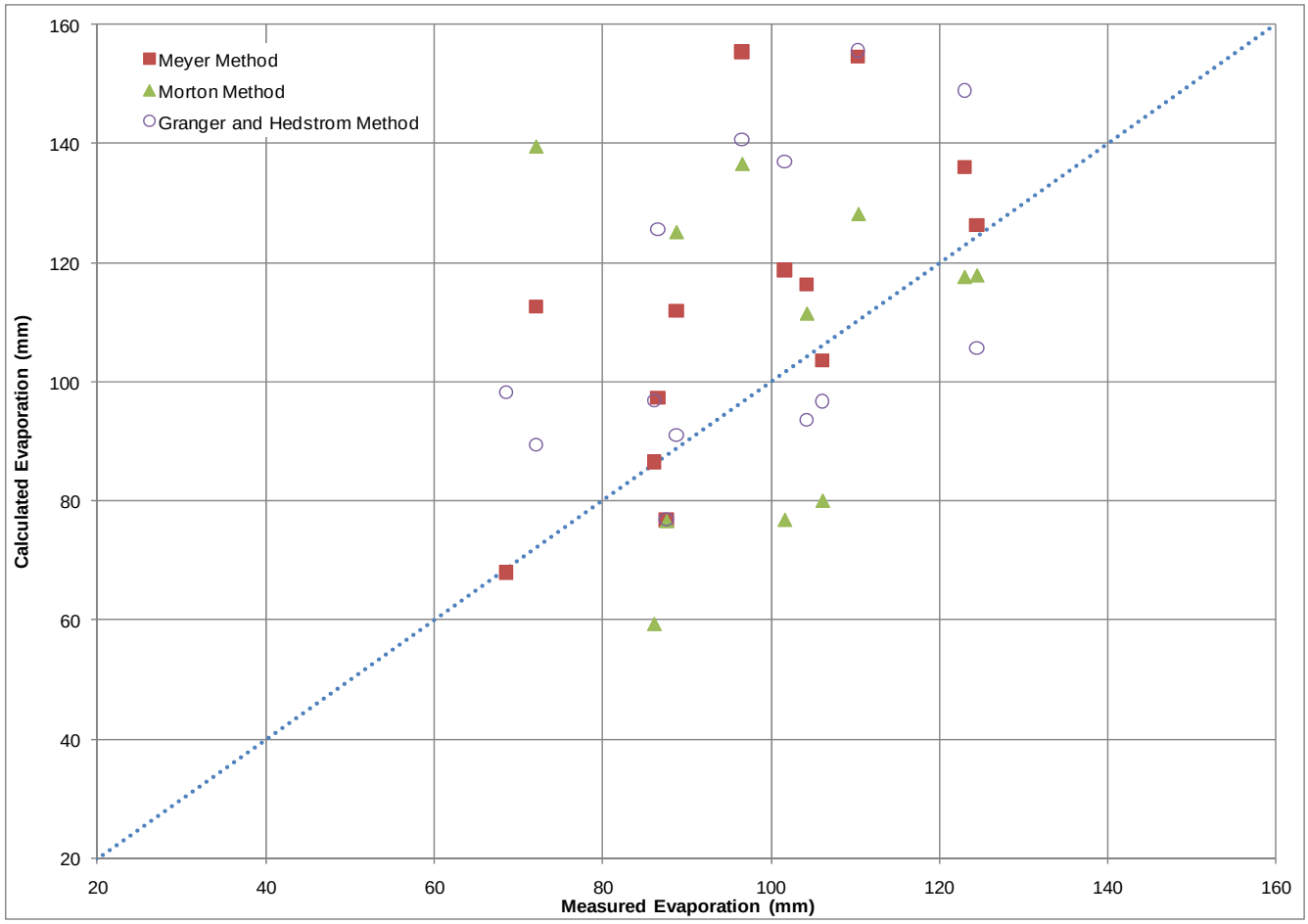

Figure 8: Scatter Plot of Comparison of Evaporation Estimates for Crean Lake Station

4.0 SUMMARY AND CONCLUSIONS

Several methods that can be used to calculate evaporation and evapotranspiration rates have been reviewed. Some of the more common methods used in Canada were compared with the Morton model. The Morton model uses air temperature, dew point temperature (or relative humidity) and solar radiation (or sunshine hours) as inputs and is widely used by Alberta Environment (AENV) to estimate monthly evaporation and evapotranspiration rates.

Evapotranspiration (potential and areal) values estimated using the Morton model were compared with the evapotranspiration estimates using the Granger and Gray approach, Priestley-Taylor method, and Standard Grass method. Lake evaporation values estimated using the Morton Model were also compared with the results generated using the Granger and Hedstrom and Meyer methods. In general, the results indicate that the Morton method compares favourably with the other methods for estimation of monthly and annual evaporation and evapotranspiration values for all locations in Alberta.

The Morton model can also be used to generate evapotranspiration values for shorter time intervals (such as weekly) but is not recommended for time intervals of 3 days or less (Morton, 1983). The energy balance methods such as Penman-Monteith model or the two-source model (Shuttleworth and Gurney, 1990) are likely the most comprehensive evapotranspiration models to use for estimation of evaporation and evapotranspiration values for short intervals such as hourly and daily. However, such models require comprehensive input data that are generally not available at all locations in Alberta to enable calculation of historic evapotranspiration values.

Recently, Alberta Environment and Alberta Agriculture have initiated comprehensive meteorological stations throughout the province to measure climate parameters that can be used as inputs to the most comprehensive evapotranspiration models. Hence, for future work, more sophisticated models, such as the energy balance model, are worth further investigation and could be used to generate relatively accurate estimates of evapotranspiration and evaporation data for shorter time intervals, such as daily.

Report Signature Page

We trust the above meets your present requirements. If you have any questions or require additional details, please contact the undersigned.

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APPENDIX A

Documentation of Morton Models

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Golder Associates

DOCUMENTATION OF COMPLEMENTARY RELATIONSHIP MODELS

SEQUENTIAL OPERATIONS

A. For each station:

1) Assemble input: Φ = latitude in **degrees** (negative in southern hemisphere); H = altitude above sea level in **metres**; PA = average annual precipitation in **millimetres**.

2) Compute the ratio of atmospheric pressure at the station to that at sea level (p/p_s) with the pressure correction equation for the standard atmosphere:

$$p/p_s = [(288 - 0.0065H)/288]^{5.256} \quad (1)$$

3) Estimate the zenith value of the dry-season snow-free clear-sky albedo (a_{zd}) from:

$$a_{zd} = 0.26 - 0.00012 P_A (p/ps)^{0.5} [1 + /\Phi /42[+ (\Phi /42)^2] \quad (2)$$

$$0.11 < a_{zd} < 0.17 \quad (2a)$$

B. For each month:

1) Assemble input: T = average of maximum and minimum air temperatures in **degrees Celsius**; T_D --average dew-point temperature in **degrees Celsius**; S = ratio of observed to maximum possible sunshine duration; i = month number beginning with 1 in January and ending with 12 in December; and n = number of days in the month.

2) Compute v_D, the saturation vapour pressure at T_D in **millibar**; v, the saturation vapour pressure at T in **millibar**; and Δ, the slope of the saturation vapour pressure curve at T in **millibar °C^{-1}**.

$$v_D = 6.11 \exp [17.27 T_D/(T_D + 237.3)] \quad (3)$$

$$v = 6.11 \exp [\alpha T/(T + \beta)] \quad (4)$$

$$\Delta = dv/dT = \alpha\beta v/(T + \beta)^2 \quad (5)$$

in which α and β are 17.27 and 237.3°C, respectively, when T >= 0°C, or 21.88 and 265.5°C, respectively, when T<0°C.

3) Compute various angles and functions leading up to an estimate of the extra-atmospheric global radiation (G_E) **in W m-2** :

$$\theta = 23.2 \sin (29.5i - 94) \quad (6)$$

$$\cos Z = \cos (\Phi - \theta) \quad (7)$$

$$\cos Z >= 0.001 \quad (7a)$$

$$\cos \omega = 1 - \cos Z/(\cos \Phi - \cos \theta) \quad (8)$$

$$\cos \omega >= 1 \quad (8a)$$

$$\cos z = \cos Z + [(180/\pi) \sin \omega / \omega - 1] \cos \Phi \bullet \cos \theta \quad (9)$$

$$\eta = 1 + (1/60) \sin (29.5i - 106) \quad (10)$$

$$G_E = (1354/\eta^2)(\omega /180) \cos z \quad (11)$$

in which θ is the declination of the sun in **degrees**; ω is the number of **degrees** the earth rotates between sunrise and noon; Z and z are the noon and average angular zenith distances of the sun, respectively; and η is the radius vector of the sun.

4) Estimate the zenith value of snow-free clear-sky albedo (a_{zz}), the zenith value of clear-sky albedo (a_z) and the clear-sky albedo (a_o):

$$a_{zz} = a_{zd} \quad (12)$$

$$0.11 <= a_{zz} <= 0.5 (0.91 - v_D/v) \quad (12a)$$

$$c_o = v - v_D \quad (13)$$

$$0 <= c_o <= 1 \quad (13a)$$

$$a_z = a_{zz} + (1 - c_o^2)(0.34 - a_{zz}) \quad (14)$$

$$a_o = a_z\ [\exp(1.08) - (2.16\cos Z/\pi + \sin Z)\exp(0.012Z)]\ /[1.473(1 - \sin Z)] \quad (15)$$

5) Estimate precipitable water vapour (W) in millimetres and a turbidity coefficient (j):

$$W = v_D/(0.49 + T/129) \quad (16)$$

$$c_1 = 21 - T \quad (17)$$

$$0 <= c_1 <= 5 \quad (17a)$$

$$j = (0.5 + 2.5\cos^2 z)\exp[c_1 (p/p_s - 1)] \quad (18)$$

6) Compute the transmittancy of clear skies to direct beam solar radiation (τ) from an equation formulated by **Brooks (1960):**

$$\tau = \exp[-O.089(p/ps/\cos z)^{0.75} -- 0.083\ (j/\cos z)^{0.90} - 0.029(W/\cos z)^{0.60}\ ] \quad (19)$$

7) Estimate the part of τ that is the result of absorption (τ_a):

$$\tau_a = \exp[-0.0415(j/\cos z)^{0.90} -- (0.0029)^{0.50}\ (W/\cos z)^{0.30}] \quad (20)$$

$$\tau_a >= \exp[-0.0415(j/\cos z)^{0.90} - 0.029(W/\cos z)^{0.60}] \quad (20a)$$

8) Compute the clear-sky global radiation (G_o) in W m-2, using the equation formulated by Brooks (1960); and then estimate the incident global radiation (G) in W m-2:

$$G_o = G_E\tau[1 + (1 - \tau/\tau_a)(1 + a_o\tau)] \quad (21)$$

$$G = SG_o + (0.08 + 0.30S)(1 - S)G_E \quad (22)$$

9) Estimate the average albedo (a) from:

$$a = a_o\ [S + (1 - S)(1 - Z/330)] \quad (23)$$

10) Estimate the proportional increase in atmospheric radiation due to clouds (ρ) :

$$c_2 = 10(v_D/v - s - 0.42) \quad (24)$$

$$0 <= c_2 <= 1.0 \quad (24a)$$

$$\rho = 0.18[(1 - c_2)(1 - s)^2 + c_2(1 - s)^{0.5}\ ]ps/p \quad (25)$$

11) Calculate the net long-wave radiation loss for soil--plant surfaces at air temperature (B) in W m-2:

$$B = \varepsilon\sigma(T + 273)^4[1 - (0.71 + 0.007v_D\, p/p_s)(1 + \rho)] \quad (26)$$

$$B >= O.05\ \varepsilon\sigma\ (T + 273)^4 \quad (26a)$$

In which ε is the emissivity and σ is the Stefan--Boltzmann constant. With a land surface emissivity of 0.92, $\varepsilon\sigma$ is 5.22 x10^{-8}W m-2 K-4.

12) Estimate the net radiation for soil--plant surfaces at air temperature (R_T) in W m-2, the stability factor (ζ), the vapour transfer coefficient (f_T)and the heat transfer coefficient (λ):

$$R_T = (1 - a)G - B \quad (27)$$

$$R_{TC} = R_T \quad (28)$$

$$R_{Tc} >= 0 \quad (28a)$$

$$1/\zeta = 0.28(1 + v_D/v) + \Delta R_{TC}/[\gamma p(p_s/p)^{0.5}\ b_o f_z(v - v_D)] \quad (29)$$

$$1/\zeta <= 1 \quad (29a)$$

$$f'_T = (p_s/p)^{0.5} f_z/\zeta \quad (30)$$

$$\lambda = \gamma p + 4\ \varepsilon\sigma\ (T + 273)^3/f_T \quad (31)$$

in which b_0 = 1.00 for the CRAE model, $\gamma p = (\gamma p_s)(p/p_s)$. f_z and γp_s are 28.0 Wm-2mbar-1 and 0.66 millibar°C-1 , respectively, when T>= 0°C or 28.0 x 1.15 Wm-2 millibar-1 and 0.66/1.15 millibar °C-1 when T< 0°C.

13) Choose initial values of T'_P, v'_P and Δ'_P equal to T, v and Δ and estimate the final values from the following quickly converging iterative solution of the vapour transfer and energy-balance equations:

$$[\delta T_P] = [R_T/f_T + v_D - v'_P + \lambda(T - T'_P)]/(\Delta'_P + \lambda) \quad (32)$$

$TP = T'_P + [\delta T_P]$ (33)

$Vp = 6.11 \exp [(\alpha Tp/(Tp + \beta)]$ (34)

$\Delta_P = \alpha\beta v_P/(T_P + \beta)^2$ (35)

Eqs. 32 to 35 are repeated setting T'_P, v'_P **and** Δ'_P equal to the values of T_P, v_P *and* Δ_P derived from the preceding iteration until $[\delta T_P] <= 0.01^oC$. The purpose is to estimate the potential evapotranspiration equilibrium temperature (T_P) from a solution of the vapour transfer and energy-balance equations for a small moist surface.

14) Estimate the potential evapotranspiration (E_{TP}), the net radiation for soil--plant surfaces at the equilibrium temperature (R_{TP}) and the wet environment areal evapotranspiration (E_{TW}):

$E_{TP} = R_T - \lambda f_T(T_P - T)$ (36)

$R_{TP} = E_{TP} + \gamma p f_T (T_P - - T)$ (37)

$E_{TW} = b_1 + b_2(1 + \gamma p/\Delta_P)^{-1} R_{TP}$ (38)

$1/2E_{TP} <= E_{TW} <= E_{TP}$ (38a)

in which the constants b_1 and b_2 are 14 **W m-2** and 1.20, respectively, for the CRAE model.

15) Estimate the areal evapotranspiration, E_T, from the complementary relationship:

$E_T = 2E_{TW} - E_{WP}$ (39)

16) Convert the net radiation for soil--plant surfaces at air temperature (R_T), the potential evapotranspiration (E_{TP}) and the areal evapotranspiration (E_T) from the power units of **W m-2** to the evaporation units of **millimetres** of depth by dividing by the latent heat of vaporization or sublimation and multiplying by the number of days. The latent heat of vaporization (for T>=0°C) is 28.5**W-days per kilogram** and the latent heat of sublimation (for T < 0°C) is 28.5 × 1.15 **W-days per kilogram**.

C. Options

The sequential operations outlined above provide monthly estimates of areal evapotranspiration from monthly values of ***dew-point temperature, air temperature and ratio of observed to maximum possible sunshine duration***. The minor changes required for a number of input options, shorter time period options and for a shallow-lake evaporation option are outlined below.

C.1. Altitude input option

If the average atmospheric pressure (p) is known it can be divided by the average sea-level value (p_s) of 1013**millibar** thereby rendering eq. 1 superfluous.

C.2. Humidity input options

The humidity input is normally the average dew-point temperature and this is used to estimate the average vapour pressure from eq. 3. The relationship is non-linear so the result is somewhat less than the average of the vapour pressures that were used to estimate the individual values of dew point. The difference can be significant when the averages include the effects of frequent weather changes. However, the models have been calibrated and tested with dew-point temperature inputs despite this inconsistency because:

1) dew points are published more frequently than vapour pressures; and
2) the resultant vapour pressures are compatible with the saturation vapour pressures estimated from eq.4, using average air temperatures. Therefore, the use of average vapour pressure inputs requires a relatively small correction factor that may be estimated from:

$[\delta v_D] = 0.71 v_o^{0.25} ([\delta v_1] v_2/v_1)^{0.25} [\delta v_2]^{0.50}$ (40)

in which $[\delta v_1] v_2/v_1 >= 0.5[\delta v_2]$ *and* $[\delta v_1] v_2/v_1 <= 1.5 [\delta v_2]$

In eq.40 $[\delta v_D]$ is the correction to be subtracted from the average vapour pressure input; v_0 is the saturation vapour pressure at 0°C (6.11 **millibar**); v_1 is the saturation vapour pressure at the average maximum air temperature; v_2 is the

saturation vapour pressure at the average minimum air temperature; $[\delta v_1]$ is the difference between the average of the saturation vapour pressures at the maximum air temperatures and v_1 ; and $[\delta v_2]$ is the difference between the average of the saturation vapour pressures at the minimum air temperatures and $v2$. The equation is dimensionally consistent.

C.3. Temperature input options

Equations for converting air and dew-point temperatures from Fahrenheit (or other units) to Celsius units can be included in the model before implementing eq.3.

C.4. Insolation input options

If global radiation observations are available they can be used as input instead of the ratio of observed to maximum possible sunshine duration. This is done by using the observed global radiation (in W m^{-2}) to replace the results of eq.22 and to provide the estimates of the sunshine duration ratio that are required in further computations. The conversion to W m^{-2} requires that cal. cm^{-2} day^{-1} (langleys per day or Ly day^{-1}) be divided by 2.064 and that MJ m^{-2} day^{-1} be divided by 0.0864. The estimates of the sunshine duration ratio are estimated from:

$$S = 0.53G/(G_o - 0.47G) \quad (41)$$

$$0 <= S <= 1.0 \quad (41a)$$

C.5. Shorter time-period options

The complementary relationship models cannot be used to provide daily estimates because of subsurface heat storage changes and because of the lag times associated with the change in storage of heat and water vapour in the atmospheric boundary layer after changes in surface conditions or the passage of frontal systems. There is every probability that the time periods could be shortened to **5 days** without problems but for intervals of **3 days** or less the results would always be suspect.

It is convenient to retain the monthly structure when estimating areal evapotranspiration from past records and this can be done quite simply. Let m equal the number of time periods in each month such that the first $(m - 1)$ periods have the same number of days and the last period has the number of days required to complete the month. To avoid large absolute and percentage variations in the lengths of the last periods, m should be restricted to **2, 3, 5** and **6**. If I is the period number, with $I = 1$ for the first period in January and $I=12m$ for the last period in December, the fractional month number, i, to be used in eqs. 6 and 10 is:

$$i = [I + 0.5(m - 1)]/m \quad (42)$$

and the constant 23.2° in eq. 6 is changed to 23.4°.

For real-time estimates of areal evapotranspiration it may be convenient to use weekly periods or some other time period that does not fit into the monthly structure. All that is needed is the procedure set out above with I equal to the number of days from the beginning of the calendar year to the middle day of the period (using a February of 28.5 days) and with m equal to $29.5 + I/270$ or 30.4, whichever is smaller. As before, the constant 23.2^o in eq.6 is replaced by 23.4°.

C.6. Lake Evaporation option

C.6.1 Shallow Lake Evaporation option

Shallow-lake evaporation may be estimated from routine climatological observations in the land environment if the sequential operations described above are subjected to the following minor modifications.

1) The zenith value of snow-free clear-sky albedo (a_{zz}) in eq.14 is assumed constant at 0.05. This change permits the deletion of eqs. 2 and 12 and their constraints.
2) The emissivity (ε) in eqs.26 and 31 and in constraint (26a) is assumed to be 0.97 so that the value of $\varepsilon\sigma$ is $5.5 \cdot 10^{-8}$ W m^{-2} K^{-4}.
3) The value of the constant f_z in eqs.29 and 30 is 25.0Wm-2 millibar-1 with T>= 0°C and 25.0 × 1.15 Wm^{-2} $millibar^{-1}$ with T< 0°C.
4) The value of b_0 in eq.29 is 28/25 or 1.12.
5) The values of b_1 and b_2 in eq.38 are 13Wm-2 and 1.12, respectively.

6) The output symbols R_T, E_{TP} and E_{TW} in eqs.27, 36 and 38 and in constraints (38a) are changed to R_W (net radiation for water surface at air temperature), E_P (potential evaporation) and E_W (shallow-lake evaporation), respectively.
7) Because eq.38 and its constraints provide the estimate of shallowlake evaporation, eq.39 is deleted.

C.6.2 Deep Lake Evaporation option

Deep-Lake Evaporation requires taking into account the effects of seasonal changes in subsurface heat storage.

- Calculate the shallow-lake Evaporation (E_W) by taking into account a time delay (t) as follows:

$$E_W^t = E_W^{[t]} + (t - [t])(E_W^{(t+1)} - E_W^{[t]}) \quad (43)$$

E_W is estimates of shallow-lake evaporation and the superscriptions refer to the delay time or the number of months backword it is necessary to go to obtain a value of E_W for the computations of the current month.

- Use the following equations to calculate the correction for Deep-Lake Evaporation:

$$\delta E_{LE} = \{E_W^t - 0.5(E_{LB}+E_{LE}^*) + k.E_{LB}[1+7\exp(-E_{LB}/12)] - k E_{LE}^* [1+7\exp(-E_{LE}^*/12)]\}/\{0.5+k+7k(1-E_{LE}^*/12)\exp(-E_{LE}^*/12)\} \quad (44)$$

$$E_{LE} = \delta E_{LE} + E_{LE}^* \quad (45)$$

E_{LB} – is the deep-lake evaporation at the end of the preceding month;
E_{LE} – is the deep-lake evaporation at the end of the current month;
E_{LE}^* - is a trail value of ELE;
δE_{LE} – is the estimated corrections
Equation 44 and 45 are repeated until $/\delta E_{LE}/ \leq 0.01$ mm/month. The initial value of E_{LE}^* is E_{LB} and subsequent values are those estimated from equation 45.

- The monthly value of deep-lake evaporation is estimated from:

$$E_L = 0.5(E_{LB} + E_{LE}) \quad (46)$$

- The routing constant k and the delay time t (both in months are estimated from:

$$K = d[0.04 + 0.11/\{1+(1/16*d)^2\}] \quad (47)$$
$$t = 0.50k \quad (48)$$
$$d = d_A/(1+0.00003s) \quad (49)$$

d_A (m) average depth of the lake.

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