

Agricultural Moisture Situation Update

January 31, 2024

Synopsis

January 2024 was an unusual one, with a sharp drop in temperatures that started near the beginning of the month and rapidly descended into a bitter cold snap with several stations recording temperatures dropping below the -40°C mark. The lowest measured temperature was recorded at Keg River AGCM -51.5°C on January 14th. In comparison, the coldest measured temperature (-61.1°C) in Alberta occurred in 1911 on January 11th, measured near Fort Vermillion. The recent cold snap lasted approximately two weeks and by the end of January temperatures rebounded to near record highs in many areas. The City of Edmonton saw temperatures near 12°C at one point, which was close to the record for this area that was set back on January 30, 1931 when temperatures nearly topped 14°C.

January 2024 Precipitation Accumulations

Thankfully the wild swing in temperatures brought with it much needed moisture to many areas (**Map 1**), with three of the four agricultural regions having some lands that received more than 20 mm and upwards of 50 mm was measured at some of the mountain stations in the southern portions of the province. In contrast, much of the North East, and Central Regions, and a relatively small portion of the central Peace Region received lesser amounts, ranging from 5 to 10 mm.

Precipitation accumulations for the month of January were generally near normal or above across much of the Southern Region, most of the Central Region and large parts of the North West and Northern Peace Regions (**Map 2**). Elsewhere, accumulations were below normal; however, January is a relatively dry month with average accumulations (1991-2020) of less than 15 mm across the south half of the province, ranging to nearly 30 mm across the Peace Region (**Map 3**).

February is historically the driest month of the year (**Map 3**), so receiving major shot of moisture in this month is relatively rare. In fact, based on the 1961-2022 period, one in 20-years accumulations will only range as high 20-25 mm across the Special Areas to upwards of 30 to 40 mm in the agricultural areas along the western portions of the province and up as high as 50 to 60 mm throughout parts of the Peace Region (**Map 4**).

Winter Precipitation Accumulations

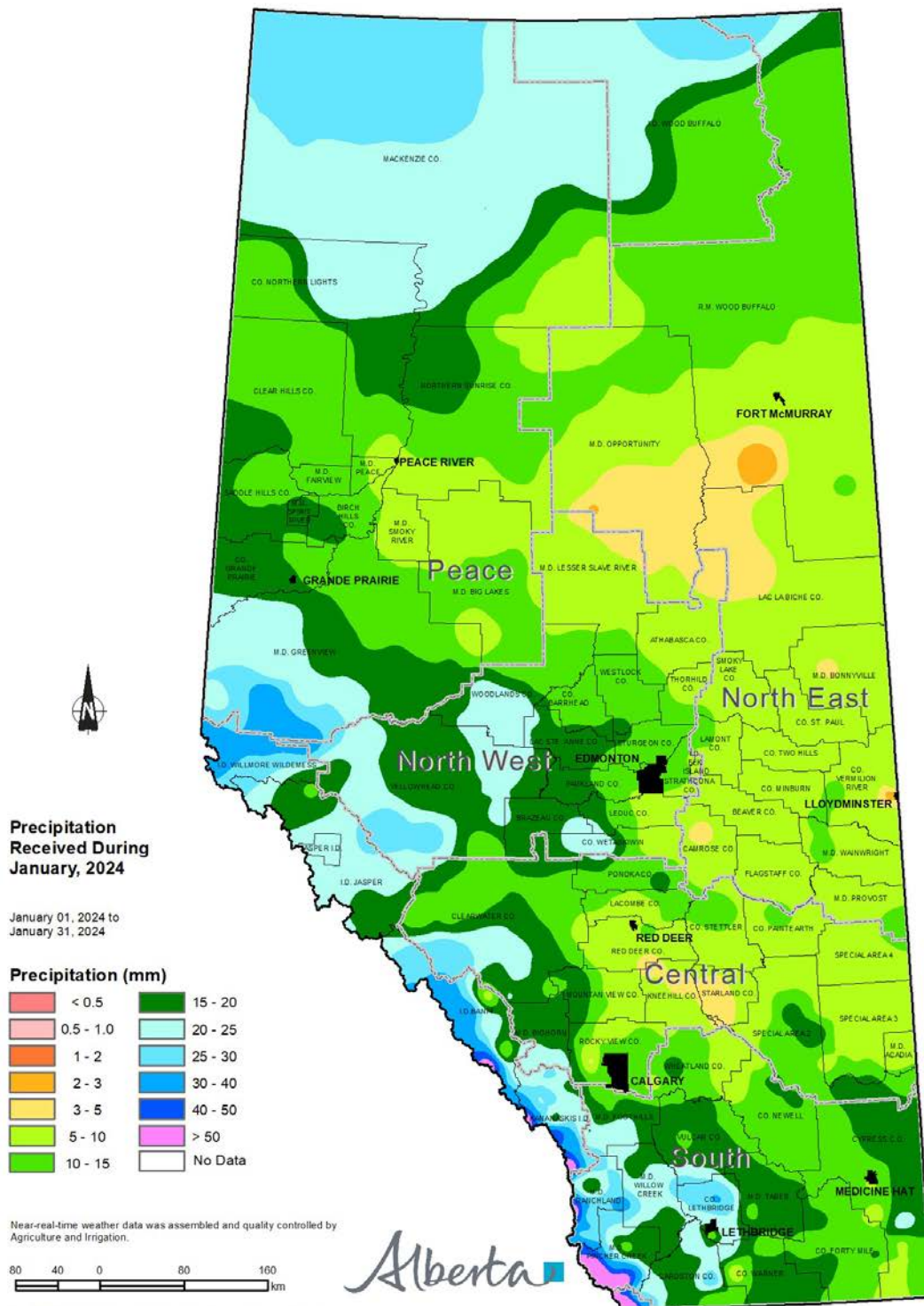
Since November 1, the unofficial start to winter in Alberta, precipitation has been well below average across much of Alberta's agricultural areas (**Map 5**). Large parts of the north-half of the province are estimated to have a winter, thus far, this dry less than once in 50-years. Dry conditions have also persisted across the Central and Southern Regions, ranging from a few widely scattered pockets of near normal to near once in 25-year lows in and around the Jenner area (approx. 200 km east of Calgary). Total Accumulations currently range from less than 10 mm through parts of the North East Region up to over 50 mm along the foothills and 40 to 50 mm through northern and western portions of the Peace Region (**Map 6**). For the drier parts of the North West, North East and Peace Regions this translates to less than 30% of the 1991-2020 average (**Map 7**). Elsewhere most other lands have received precipitation accumulations that have generally not exceeded 70% of the 1991-2020 average.

Perspective

Wild swings in weather patterns are well documented in the meteorological record. **Graphic 1** from Wikipedia shows the all-time Canadian heat and cold records for each of the provinces and territories. Close examination reveals that 70% of both the heat (red outline) and cold (blue outline) records were set prior to 1950, a time beyond most of our living memories. In fact, you would have to be well over 110 years old to remember the 27-year period that spanned 1911 to 1937, when roughly 70% of the all-time Canadian heat records were set along with a surprising 45% of the cold records. And this was during a time were the number of meteorological stations measuring extremes were at a fraction of what they are now.

During the winter 1931, when temperatures reached nearly 14°C on January 30 in Edmonton, the following February remained warm with only one day where the day time high failed to break the 0°C mark. That year the snow packs were at least double what they were in mid-January of this year, melted out completely by Mid-February. A sudden cold snap in March brought nearly 2 feet of fresh snow over a two-week period and winter was back, with day time highs dropping below -30°C on March 11. The first days in May 1931 saw temperatures touch the 35°C mark followed by above average moisture in the central parts of the province in June and August (**Map 7**).

Map 1



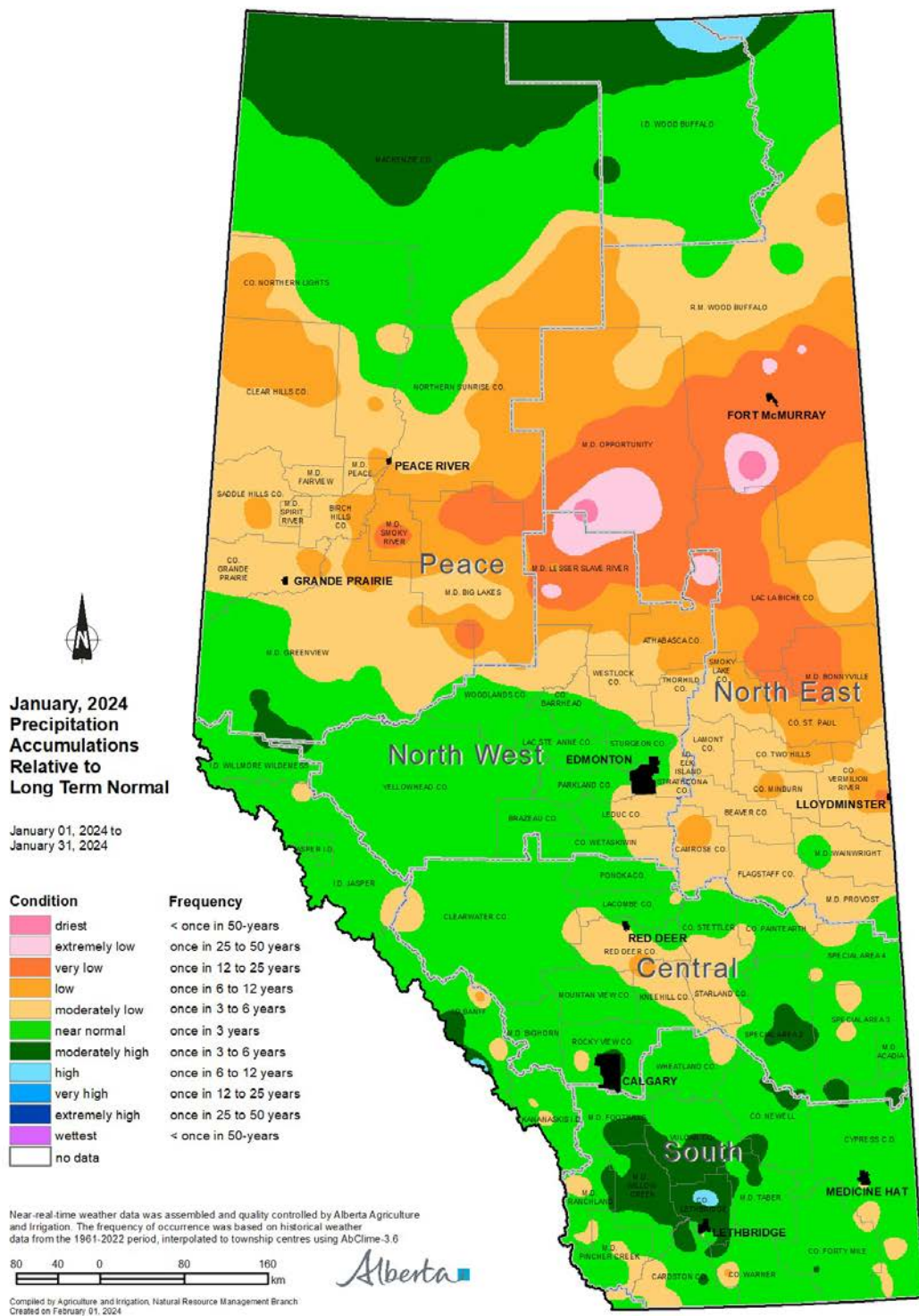
Visit weatherdata.ca for additional maps and meteorological data

<https://open.alberta.ca/publications/moisture-situation-update>

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Map 2



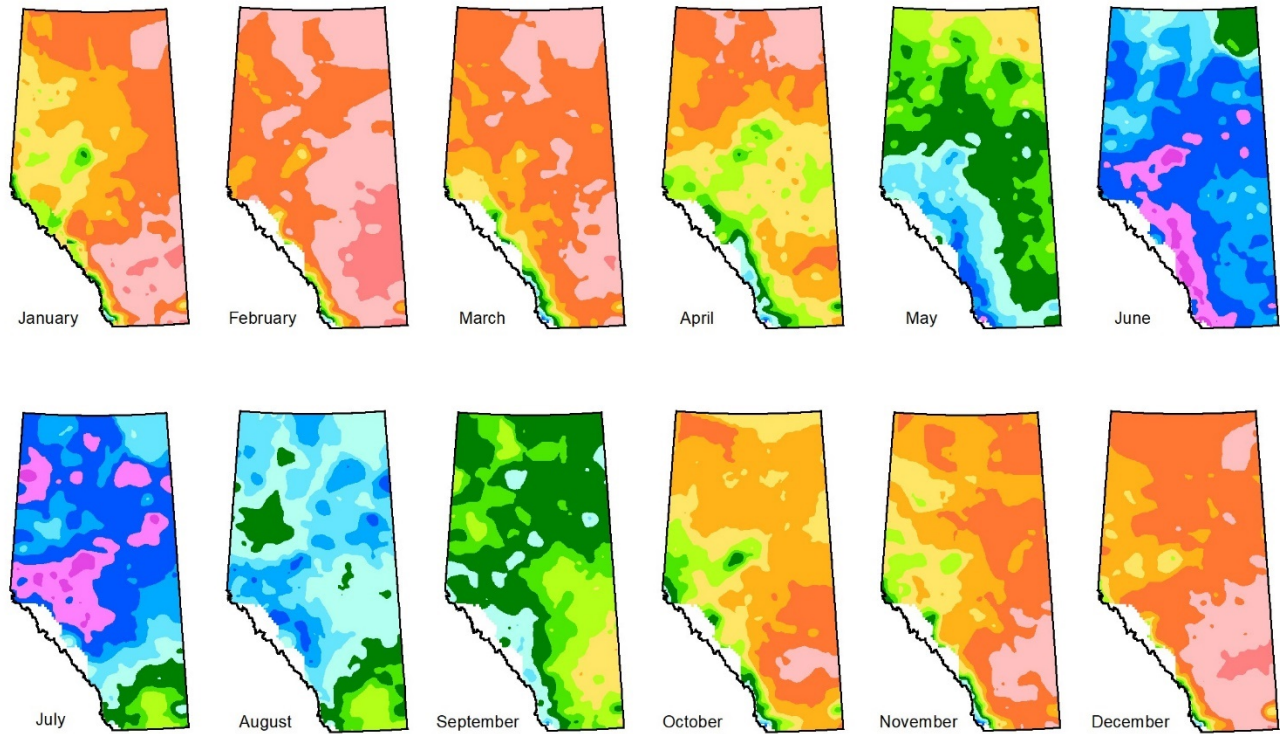
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Map 3



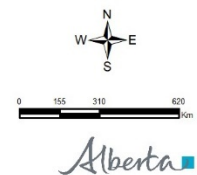
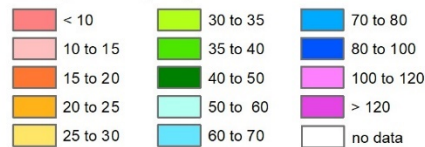
Normal Monthly Precipitation Accumulations

1991-2020

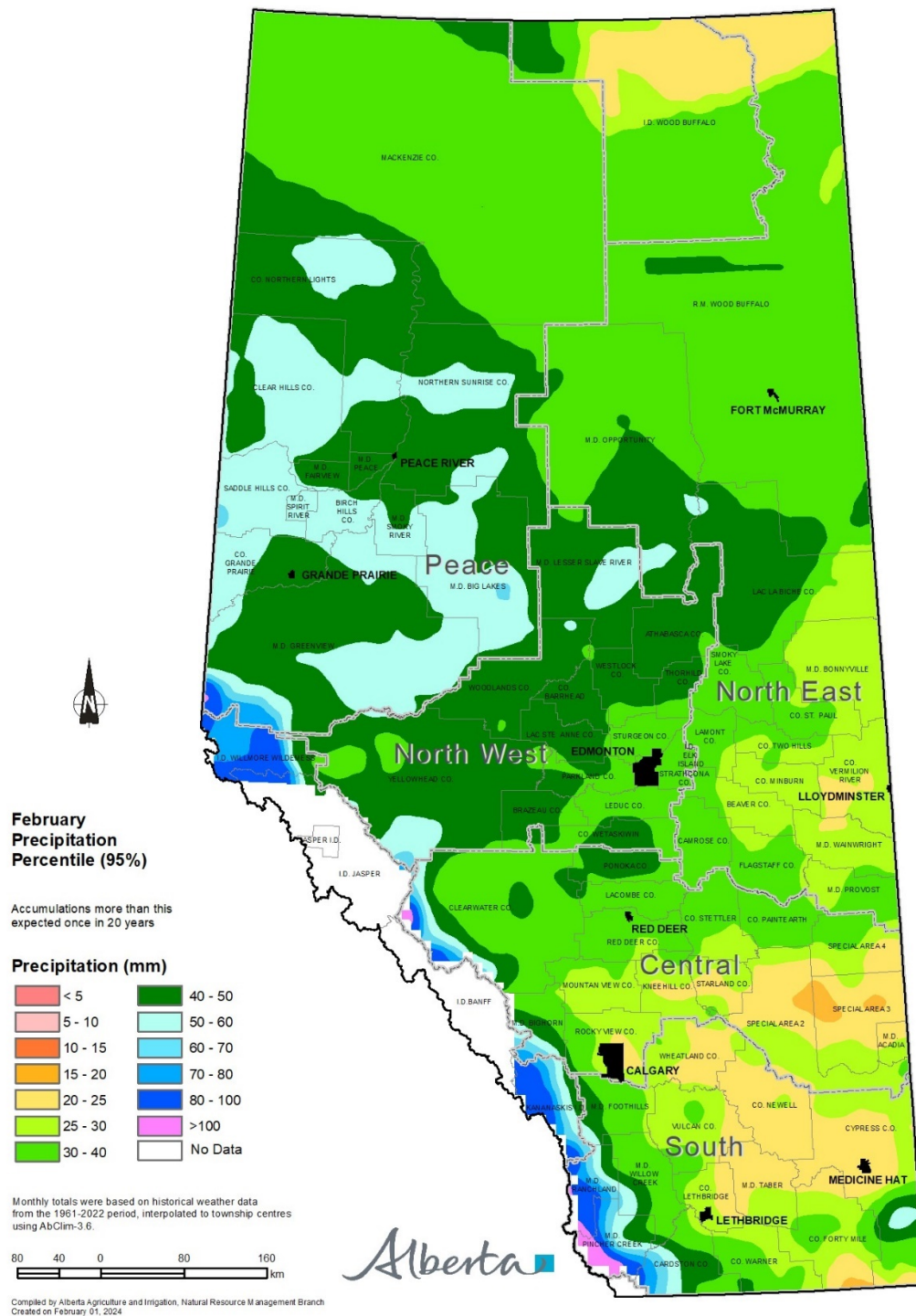
Weather data was assembled and quality controlled by
Agriculture Forestry and Rural Economic Development
then interpolated to township centres using AbClima-3.6

Compiled by Agriculture, Forestry and Rural Economic Development, Natural Resource Management Branch
Created on March 29, 2022

Precipitation (mm)

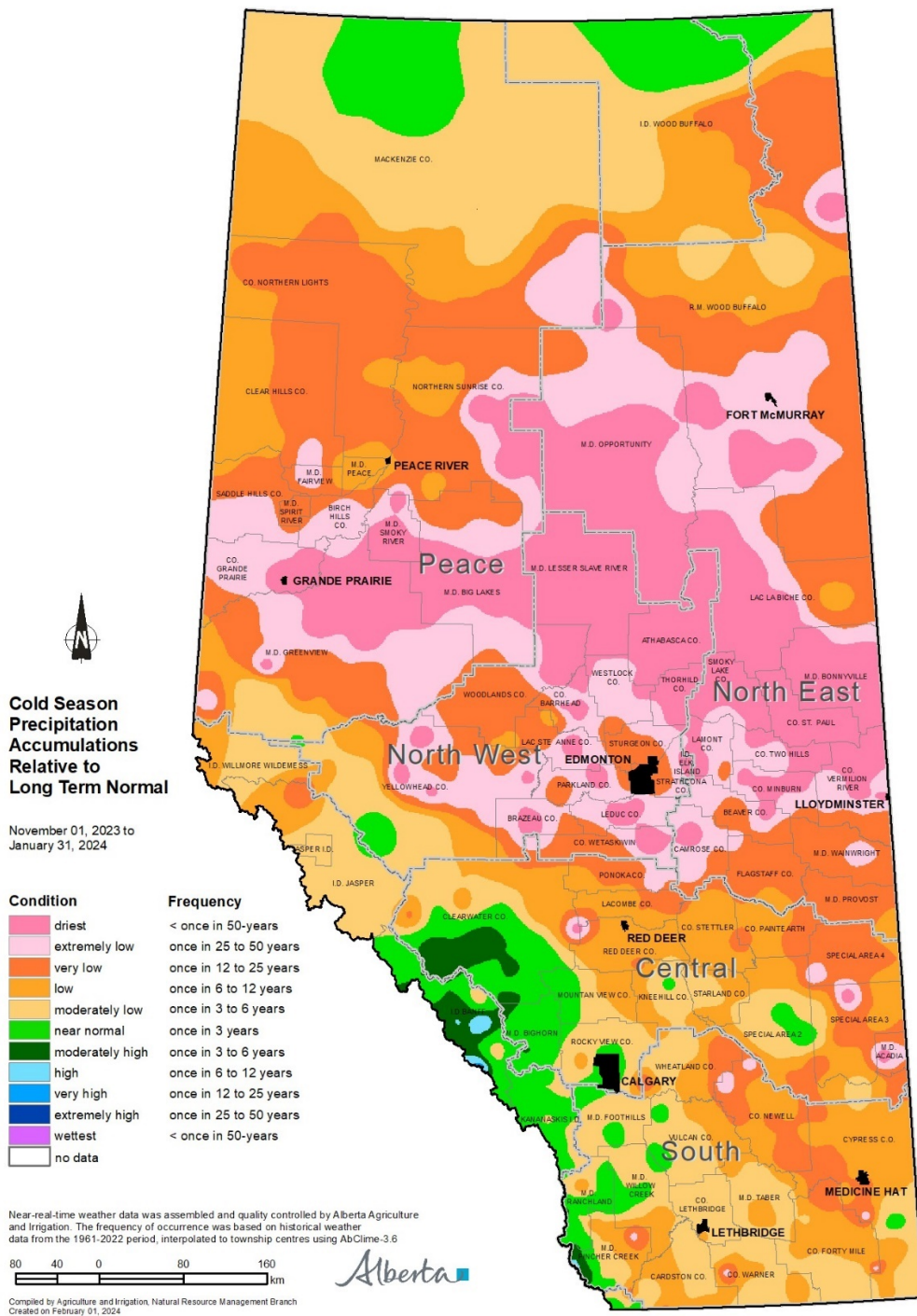


Map 4



Visit weatherdata.ca for additional maps and meteorological data

Map 5



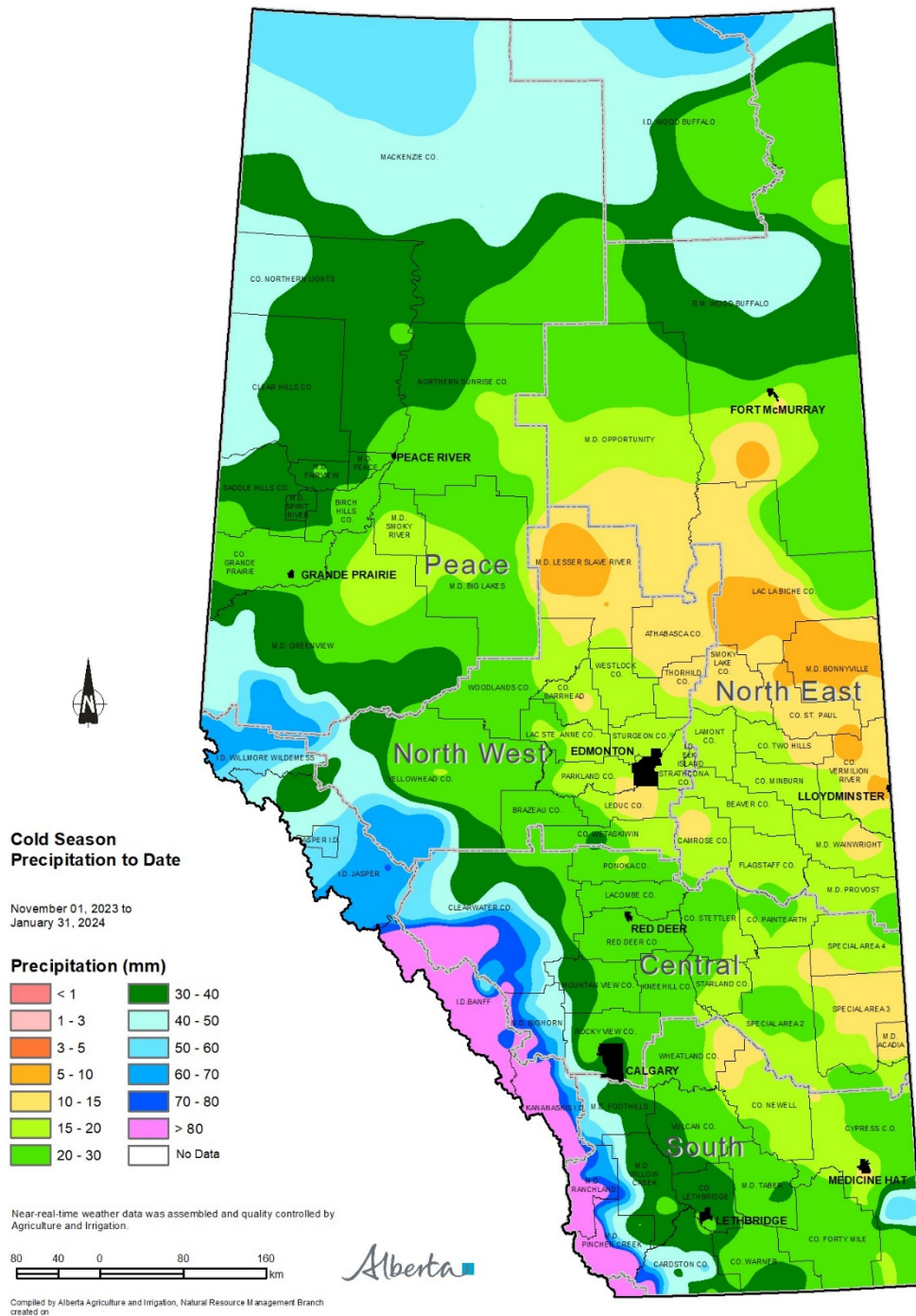
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Map 6



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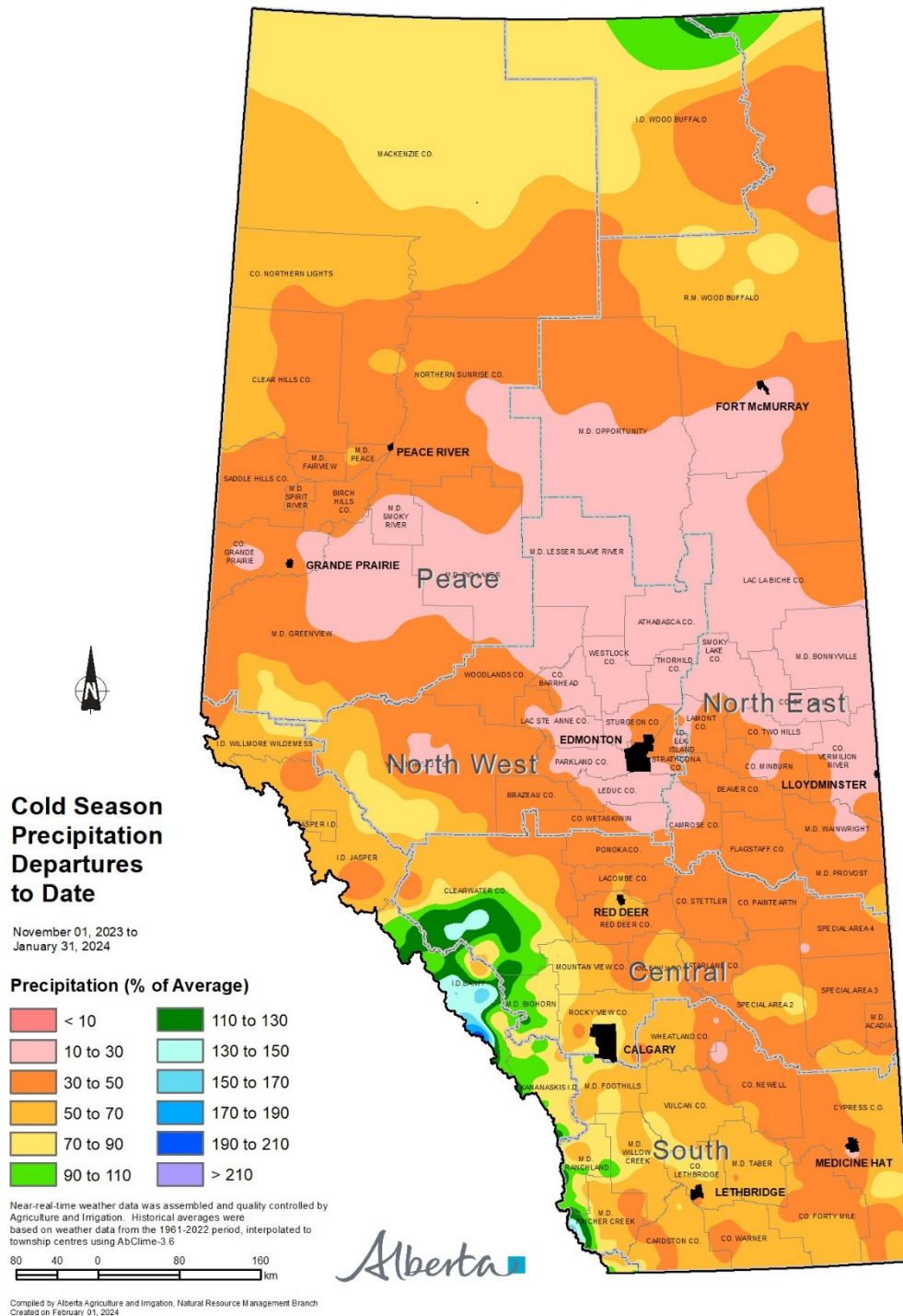
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Map 7



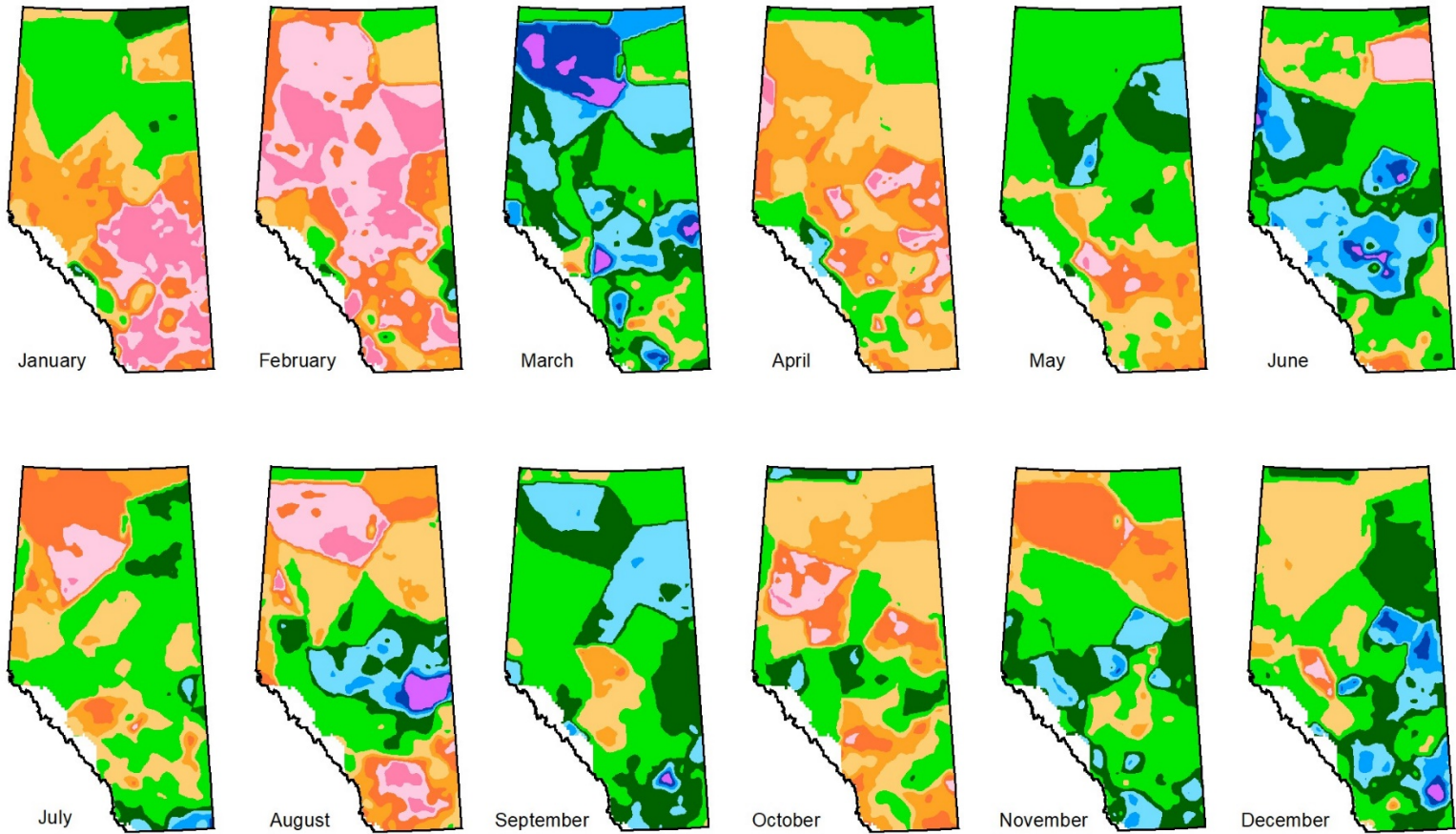
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Map 8

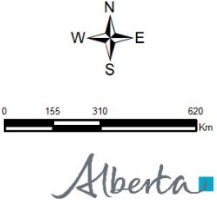


Monthly
Precipitation Accumulations
Relative to Long Term Normal

Year 1931
The frequency of occurrence was calculated using historical weather data from the 1901-2023 period, interpolated to township centres using AbClima-3.6.

Compiled by Agriculture and Irrigation, Natural Resource Management Branch
Created on January 30, 2024

Condition	Frequency		
driest	< once in 50-years	moderately high	once in 3 to 6 years
extremely low	once in 25 to 50 years	high	once in 6 to 12 years
very low	once in 12 to 25 years	very high	once in 12 to 25 years
low	once in 6 to 12 years	extremely high	once in 25 to 50 years
moderately low	once in 3 to 6 years	wettest	< once in 50-years
near normal	once in 3 years	no data	



Graphic 1

Province or Territory	Record high temperature	Date	Place(s)	Record low temperature	Date	Place(s)
Alberta	43.3 °C (110 °F) ^[1]	July 21, 1931	Bassano Dam	-61.1 °C (-78 °F)	January 11, 1911	Fort Vermilion
British Columbia	49.6 °C (121 °F) ^[2]	June 29, 2021	Lytton	-58.9 °C (-74 °F)	January 31, 1947	Smith River
Manitoba	44.4 °C (112 °F)	July 11 and 12, 1936 ^{[3][4]}	Emerson and St. Albans (Treesbank)	-52.8 °C (-63 °F)	January 9, 1899	Norway House
New Brunswick	39.4 °C (103 °F)	August 18, 1935	Nepisiguit Falls, Rexton, and Woodstock	-46.7 °C (-52 °F)	January 18, 1925	Chipman ^[5]
Newfoundland and Labrador	38.3 °C (101 °F)	July 6, 1921	North West River (Labrador)	-51.1 °C (-60 °F)	February 17, 1972	Esquer (Labrador)
Northwest Territories	39.9 °C (104 °F)	June 30, 2021	Fort Smith	-59.4 °C (-75 °F)	January 8, 1936	Fort Resolution
Nova Scotia	38.3 °C (101 °F)	August 19, 1935	Collegeville	-41.1 °C (-42 °F)	January 31, 1920	Upper Stewiacke
Nunavut	34.9 °C (95 °F)	July 15, 1989	Kugluktuk	-57.8 °C (-72 °F)	February 13, 1973	Shepherd Bay
Ontario	42.2 °C (108 °F)	July 20, 1919	Biscotasing	-58.3 °C (-73 °F)	January 23, 1935	Iroquois Falls
		July 11 and 12, 1936	Atikokan			
		July 13, 1936	Fort Frances			
Prince Edward Island	36.7 °C (98 °F)	August 19, 1935	Charlottetown	-37.2 °C (-35 °F)	January 26, 1884	South Kildare
Quebec	40.0 °C (104 °F)	July 6, 1921	Ville-Marie	-54.4 °C (-66 °F)	February 5, 1923	Doucet
Saskatchewan	45.0 °C (113 °F)	July 5, 1937	Yellow Grass and Midale	-56.7 °C (-70 °F)	February 1, 1893	Prince Albert
Yukon	36.5 °C (98 °F)	June 25, 2004	Takhini	-63.0 °C (-81 °F)	February 3, 1947	Snag