



# Upper Assiniboine River

## Medium Carbon Emissions (RCP4.5)

Climate Variable	Season	1981-2010 (Baseline)	2021-2050			2051-2080		
			L	M	H	L	M	H
Mean Temperature	Annual	1.8 °C	3.0 °C	3.5 °C	4.4 °C	4.2 °C	4.7 °C	5.1 °C
	Winter	-15.4 °C	-14.3 °C	-13.2 °C	-12.0 °C	-12.7 °C	-11.6 °C	-10.7 °C
	Spring	1.9 °C	2.8 °C	3.5 °C	4.5 °C	3.8 °C	4.5 °C	5.2 °C
	Summer	17.1 °C	17.9 °C	18.5 °C	19.0 °C	19.0 °C	19.7 °C	20.2 °C
	Fall	3.4 °C	4.4 °C	5.0 °C	5.6 °C	5.6 °C	6.1 °C	6.6 °C
Precipitation	Annual	470.0 mm	465.9 mm	495.1 mm	526.7 mm	469.7 mm	496.7 mm	521.3 mm
	Winter	65.8 mm	66.6 mm	72.2 mm	78.9 mm	67.5 mm	76.7 mm	85.4 mm
	Spring	98.8 mm	97.5 mm	110.0 mm	118.6 mm	99.6 mm	113.9 mm	128.9 mm
	Summer	205.6 mm	187.6 mm	205.5 mm	230.4 mm	179.4 mm	198.1 mm	214.1 mm
	Fall	99.9 mm	95.6 mm	107.4 mm	116.8 mm	97.7 mm	107.9 mm	119.9 mm
Days ≥ 30 °C	Annual	7.7 days	9.1 days	14.5 days	19.6 days	16.5 days	23.4 days	29.4 days
Days ≤ -30 °C	Annual	11.7 days	2.3 days	5.8 days	10.0 days	0.9 days	3.2 days	5.6 days
Frost-Free Period	Annual	114.6 days	117.9 days	128.9 days	142.5 days	126.0 days	137.9 days	149.4 days
Date of First Fall Frost		Sep 15	Sep 14	Sep 22	Sep 30	Sep 18	Sep 26	Oct 05
Date of Last Spring Frost		May 24	May 06	May 16	May 31	May 03	May 11	May 20
5 °C Degree Days	Annual	17356.8	17390.4	17409.1	17423.8	17413.5	17428.6	17440.0
10 °C Degree Days	Annual	806.8	929.0	999.1	1072.1	1089.8	1168.4	1235.0
Freeze-Thaw Cycles	Annual	67.9 cycles	55.0 cycles	64.5 cycles	74.2 cycles	58.3 cycles	67.4 cycles	77.6 cycles
Days Precip ≥ 10 mm	Annual	11.2 days	10.2 days	12.1 days	14.1 days	10.8 days	12.2 days	13.9 days
Days Precip ≥ 20 mm	Annual	3.1 days	2.2 days	3.2 days	4.4 days	2.5 days	3.4 days	4.3 days

## High Carbon Emissions (RCP8.5)

Climate Variable	Season	1981-2010 (Baseline)	2021-2050			2051-2080		
			L	M	H	L	M	H
Mean Temperature	Annual	1.7 °C	3.2 °C	3.9 °C	4.5 °C	5.0 °C	6.1 °C	7.3 °C
	Winter	-15.5 °C	-13.8 °C	-12.6 °C	-11.4 °C	-11.7 °C	-10.1 °C	-8.6 °C
	Spring	1.9 °C	2.9 °C	3.5 °C	4.3 °C	4.2 °C	5.2 °C	6.3 °C
	Summer	17.1 °C	18.4 °C	19.0 °C	19.6 °C	20.1 °C	21.1 °C	22.0 °C
	Fall	3.3 °C	4.5 °C	5.4 °C	6.2 °C	6.5 °C	7.6 °C	8.6 °C
Precipitation	Annual	468.4 mm	467.7 mm	495.8 mm	529.3 mm	470.8 mm	507.6 mm	542.6 mm
	Winter	66.2 mm	65.6 mm	73.2 mm	83.2 mm	68.8 mm	79.7 mm	89.0 mm
	Spring	98.3 mm	96.4 mm	112.7 mm	132.1 mm	110.4 mm	127.0 mm	145.4 mm
	Summer	204.3 mm	184.2 mm	201.9 mm	217.4 mm	172.6 mm	194.0 mm	214.0 mm
	Fall	99.4 mm	96.3 mm	108.0 mm	123.3 mm	90.6 mm	106.8 mm	120.6 mm
Days ≥ 30 °C	Annual	7.7 days	11.3 days	16.8 days	22.5 days	25.0 days	35.3 days	44.3 days
Days ≤ -30 °C	Annual	12.1 days	1.3 days	4.8 days	8.5 days	0.3 days	1.9 days	3.9 days
Frost-Free Period	Annual	114.9 days	118.2 days	131.2 days	148.0 days	133.4 days	146.7 days	161.5 days
Date of First Fall Frost		Sep 15	Sep 14	Sep 23	Oct 02	Sep 21	Sep 30	Oct 08
Date of Last Spring Frost		May 23	May 04	May 15	May 29	Apr 27	May 07	May 17
5 °C Degree Days	Annual	17357.8	17389.6	17411.8	17436.8	17445.0	17470.4	17494.5
10 °C Degree Days	Annual	805.8	985.2	1059.2	1134.6	1234.0	1381.6	1556.4
Freeze-Thaw Cycles	Annual	67.5 cycles	54.7 cycles	64.3 cycles	72.3 cycles	54.9 cycles	63.1 cycles	70.7 cycles
Days Precip ≥ 10 mm	Annual	11.2 days	10.5 days	12.1 days	13.7 days	10.8 days	12.7 days	14.6 days
Days Precip ≥ 20 mm	Annual	3.1 days	2.2 days	3.2 days	4.2 days	2.6 days	3.6 days	4.7 days