

1 **Regional scenarios of change over Canada: future climate projections**

2
3 Zilefac E. Asonq¹, Mohamed Elshamy¹, Daniel Princz^{1,3}, Howard S. Wheeler¹, John W. Pomeroy^{2,1}, Al
4 Pietroniro^{1,2,3}, and Alex Cannon⁴

5
6 ¹*Global Institute for Water Security, University of Saskatchewan, 11 Innovation Blvd, Saskatoon, SK, Canada S7N*
7 *3H5*

8
9 ²*Centre for Hydrology, University of Saskatchewan, 121 Research Drive, Saskatoon, SK, Canada S7N 3C8*

10
11
12 ³*Environment and Climate Change Canada, 11 Innovation Blvd, Saskatoon, SK, Canada S7N 3H5*

13
14
15 ⁴*Climate Research Division, Environment and Climate Change Canada, BC V8W 2Y2, Victoria, Canada*

16
17
18
19
20
21
22 ***Corresponding author:**

23 Phone: +1 306 491 9565

24 Email: elvis.asonq@usask.ca

25

26

27

28

29

30

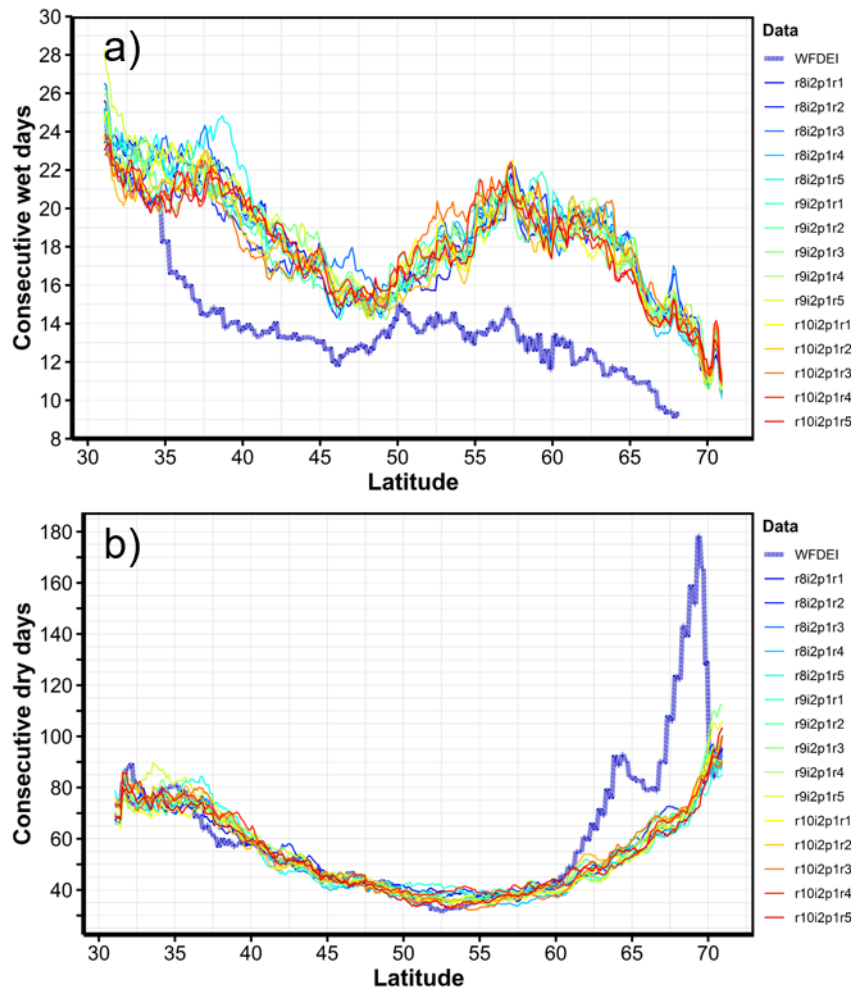
31

32

33
 34
 35
 36
 37
 38
 39
 40
 41
 42
 43
 44
 45
 46
 47
 48
 49

Table S1: Mean (mm) of the probability distributions of maximum 5-day precipitation (RX5day) for winter (DJF), spring (MAM), summer (JJA), and autumn (SON) during the 2021–2050 (2030s) and 2071–2100 (2080s) relative to 1979–2008 (1990s) over the Mackenzie (MRB) and Saskatchewan (SRB) River basins. The values can be converted to percentages by using the formula (future-historical/historical*100)

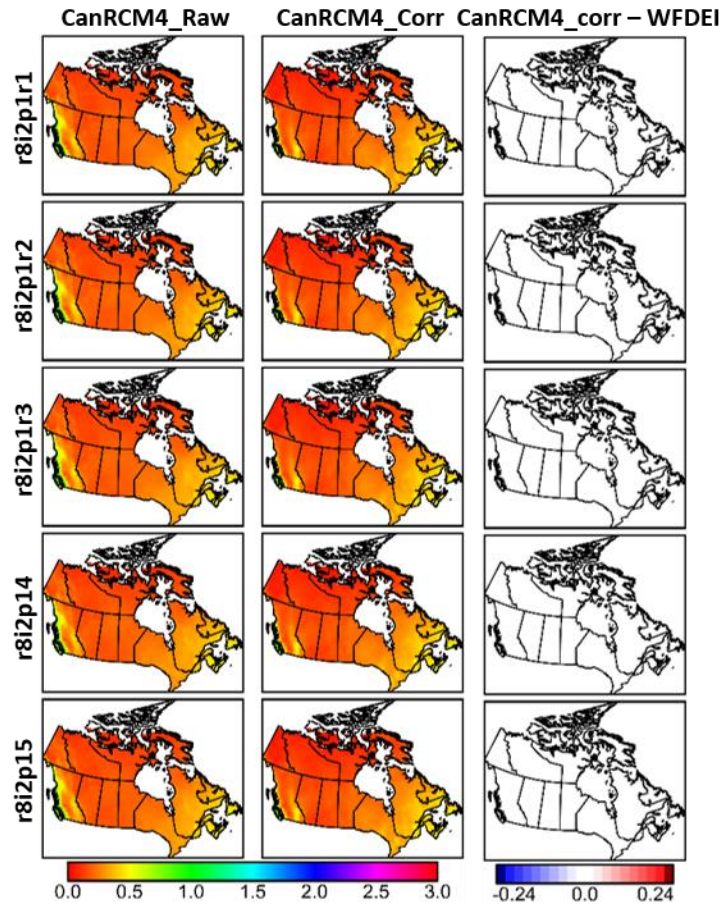
	MRB						SRB					
	1990s		2030s		2080s		1990s		2030s		2080s	
	<i>raw</i>	<i>corr</i>	<i>raw</i>	<i>corr</i>	<i>raw</i>	<i>corr</i>	<i>raw</i>	<i>corr</i>	<i>raw</i>	<i>corr</i>	<i>raw</i>	<i>corr</i>
DJF	5.2	4.9	5.8	5.6	6.8	6.5	5.2	5.3	6.0	6.2	7.6	7.8
MAM	8.5	7.1	9.8	8.2	12.0	10.1	13.6	9.4	16.5	11.3	20.2	14.0
JJA	18.4	14.8	19.9	15.9	20.7	16.7	25.1	16.6	25.3	17.0	23.7	15.7
SON	9.5	8.6	10.9	10.0	13.4	12.3	10.1	9.4	11.4	11.0	13.2	12.6



50

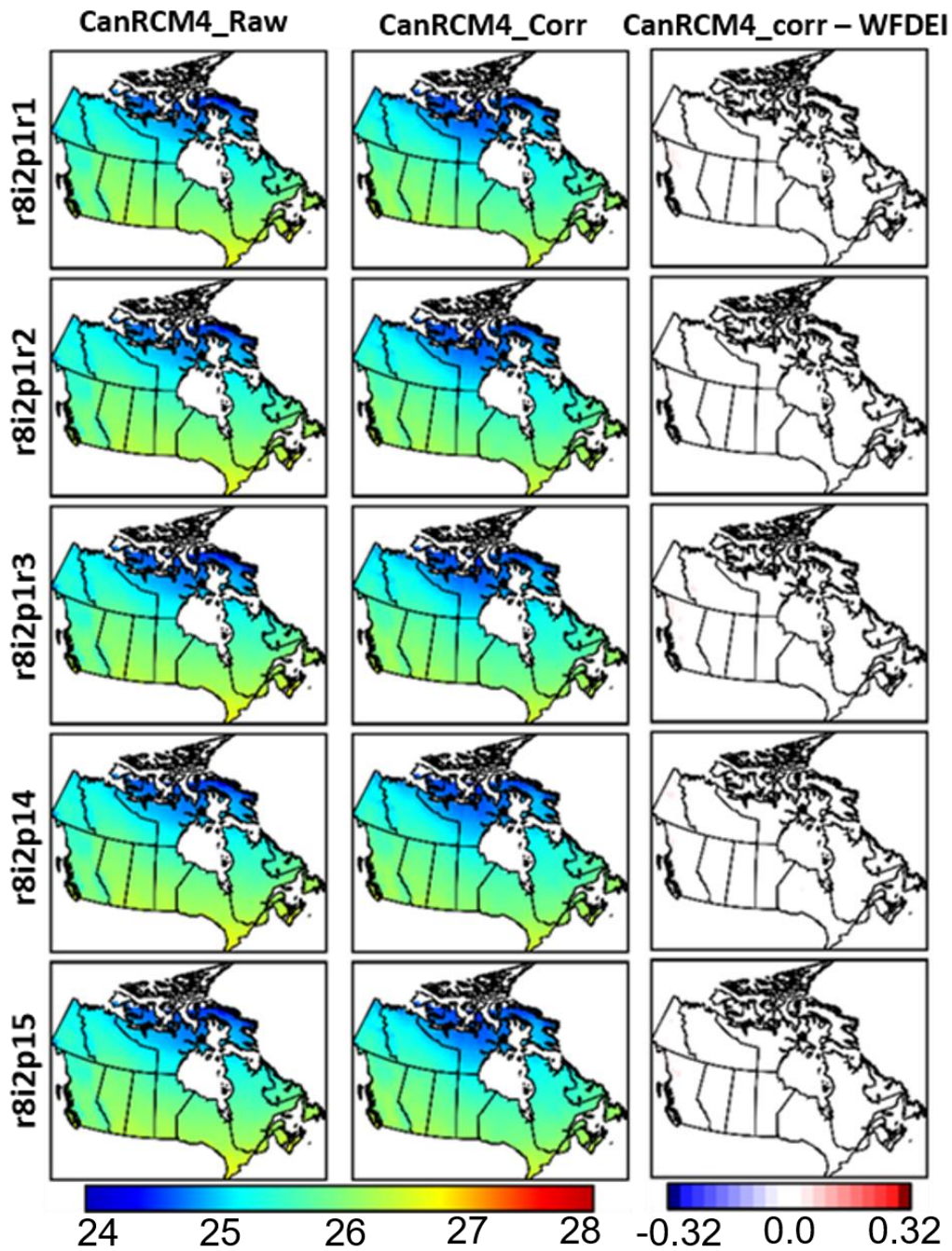
51 **Figure S1:** Zonal plots (all longitudes are averaged for each latitude) of number of consecutive wet (a) and
 52 dry days (b) during 1979 – 2008. All 15 ensemble members of the CanRCM4 simulations are shown as well
 53 as the WFDEI data.

54



55

56 **Figure S2:** Mean bias between the bias-corrected (CanRCM4_Corr) and WFDEI 3-hourly precipitation
 57 averaged over the period 1979 – 2008. The uncorrected (CanRCM4_Raw) outputs are also shown.



58

59 **Figure S3:** Mean bias between the bias-corrected (CanRCM4_Corr) and WFDEI 3-hourly air temperature

60 (°C) averaged over the period 1979 – 2008. The uncorrected (CanRCM4_Raw) outputs are also shown.