

1 **6. SUPPLEMENTARY INFORMATION**

2 *Table S1: CIMP5 participating models used in the study*

Model Name	Abbreviation
Australian Community Climate and Earth-System Simulator	ACCESS1-0
Beijing Climate Center Climate System Model, version 1.1	BCC-CSM1-1
Second Generation Canadian Earth System Model	CANESM2
Community Climate System Model, version 4	CCSM4
Centro Euro-Mediterraneo per I Cambiamenti Climatici Climate Model	CMCC-CM
Centro Euro-Mediterraneo per I Cambiamenti Climatici Stratosphere-resolving Climate Model	CMCC-CMS
Centre National de Recherches Météorologiques Coupled Global Climate Model, version 5	CNRM-CM5
Commonwealth Scientific and Industrial Research Organisation Mark 3.6.0	CSIRO-MK3-6-0
Geophysical Fluid Dynamics Laboratory Climate Model, version 3	GFDL-CM3
Geophysical Fluid Dynamics Laboratory Earth System Model with GOLD component	GFDL-ESM2G
Geophysical Fluid Dynamics Laboratory Earth System Model with MOM, version 4 component	GFDL-ESM2M
Hadley Centre Global Environment Model, version 2 - Carbon Cycle	HADGEM2-CC
Hadley Centre Global Environment Model, version 2 - Earth System	HADGEM2-ES
Institute of Numerical Mathematics Coupled Model, version 4.0	INMCM4
L'Institut Pierre-Simon Laplace Coupled Model, version 5A, low resolution	IPSL-CM5A-LR
L'Institut Pierre-Simon Laplace Coupled Model, version 5A, mid resolution	IPSL-CM5A-MR
L'Institut Pierre-Simon Laplace Coupled Model, version 5B, low resolution	IPSL-CM5B-LR
Model for Interdisciplinary Research on Climate, version 5	MIROC5
Model for Interdisciplinary Research on Climate, Earth System Model	MIROC-ESM
Model for Interdisciplinary Research on Climate, Earth System Model, Chemistry Coupled	MIROC-ESM-CHEM
Max Planck Institute Earth System Model, low resolution	MPI-ESM-LR
Max Planck Institute Earth System Model, medium resolution	MPI-ESM-MR
Meteorological Research Institute Coupled Atmosphere–Ocean General Circulation Model, version 3	MRI-CGCM3
Norwegian Earth System Model, version 1 (intermediate resolution)	NorESM1-M

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1 Table S2: Summary of model agreement on sign of change, percentage number of participating models projecting a negative
 2 (decrease) change for the different climate extreme indices.

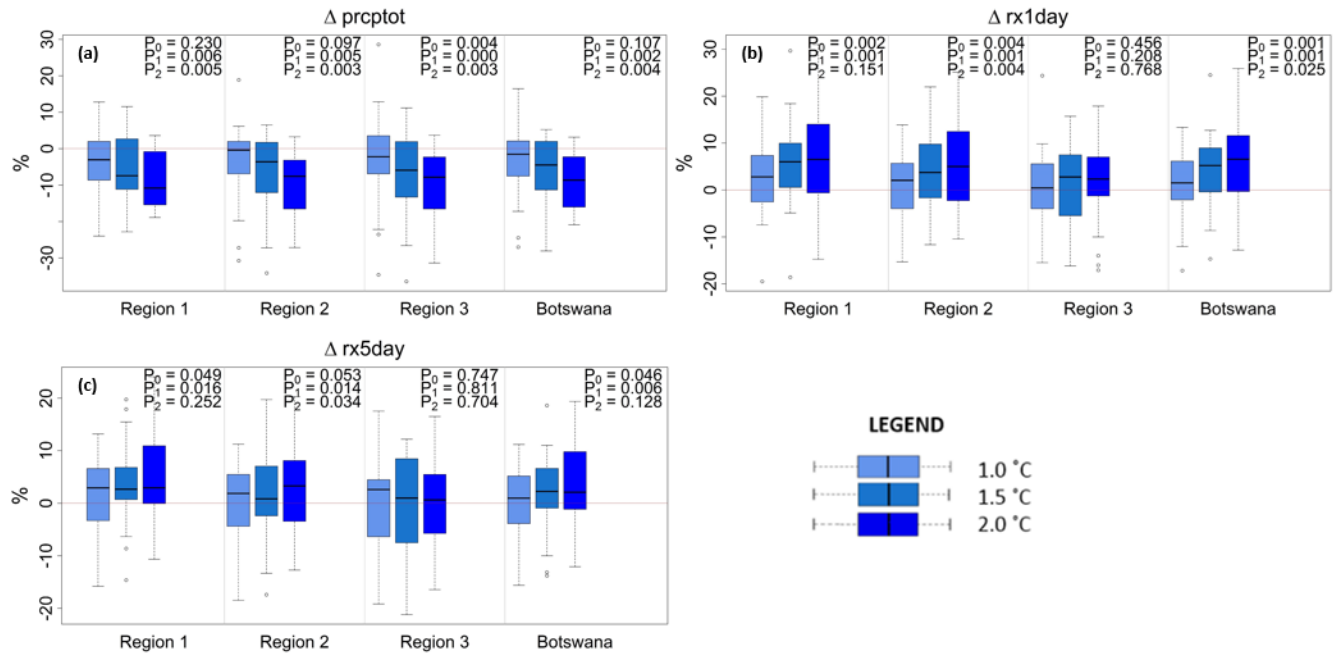
	% Number of Members Projecting Negative Change											
	REGION 1			REGION 2			REGION 3			Botswana		
Warming Level	1.0 °C	1.5°C	2.0°C	1.0 °C	1.5°C	2.0°C	1.0 °C	1.5°C	2.0°C	1.0 °C	1.5°C	2.0°C
Index	PRECIPITATION											
PRCPTOT	62.5	66.7	75.0	58.3	62.5	79.2	54.2	58.3	83.3	58.3	62.5	83.3
ALTCDD	16.7	8.3	4.2	12.5	8.3	0.0	16.7	4.2	0.0	12.5	4.2	4.2
ALTCWD	62.5	79.2	79.2	50.0	66.7	79.2	45.8	62.5	75.0	54.2	75.0	79.2
R95P	37.5	37.5	41.7	41.7	50.0	50.0	45.8	45.8	50.0	41.7	41.7	50.0
R99P	29.2	20.8	25.0	41.7	25.0	29.2	45.8	41.7	37.5	33.3	20.8	25.0
RX1DAY	37.5	20.8	29.2	37.5	33.3	37.5	50.0	37.5	37.5	33.3	25.0	25.0
RX5DAY	41.7	20.8	25.0	41.7	41.7	33.3	45.8	50.0	50.0	45.8	25.0	33.3
R20MM	45.8	45.8	58.3	50.0	50.0	58.3	45.8	50.0	50.0	50.0	50.0	58.3
R10MM	62.5	66.7	75.0	58.3	62.5	79.2	66.7	62.5	79.2	58.3	62.5	79.2
	TEMPERATURE											
TN10P	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
TN90P	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TX10P	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
TX90P	0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0
WSDI	0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0

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Table S3: Median changes in the precipitation and temperature indices (top figures) and the inter-quartile ranges of the ensemble spread of the changes (bottom figures).
NOTE: The red colored figures show neegative channaes

		MEDIAN AND INTERQUARTILE RANGE											
		REGION 1			REGION 2			REGION 3			Botswana		
	Warming Level	1.0 °C	1.5 °C	2.0 °C	1.0 °C	1.5 °C	2.0 °C	1.0 °C	1.5 °C	2.0 °C	1.0 °C	1.5 °C	2.0 °C
Index	Units	PRECIPITATION											
PRCPTOT	mm/yr	-20.2 -0.6, 16.2	-55.1 -82.1, 25.8	-75.9 -113.0,-6.8	-3.6 -44.8,15.9	-24.7 -72.8,12.2	-61.7 -97.7,-18.3	-10.0 -37.9,17.90	-30.4 -64.28,11.1	-43.0 -100.4,-11.4	-13.4 -42.1,15.1	-33.4 -74.0,18.4	-63.4 -98.8,-12.6
ALTCDD	days	7.2 1.2,16.0	13.5 7.0,17.9	18.7 12.0,24.2	4.5 3.0,10.8	8.7 4.7,14.5	16.6 8.3,20.5	5.5 4.1,10.8	9.2 4.9,13.3	14.5 9.2,19.7	5.7 2.4,13.4	10.4 6.1,15.3	17.8 9.8,20.4
ALTCWD	days	-0.2 -1.3,0.3	-0.9 -1.9,-0.3	-1.3 -2.4,2.6	0.0 -0.7,0.8	-0.5 -1.9,0.2	-0.7 -1.2,-0.5	0.1 -0.5,0.5	-0.3 -1.1,0.3	-0.6 -1.4,-0.1	-0.1 -0.9,0.6	-0.7 -1.3,-0.1	-1.0 -1.5,-0.5
R95P	mm/yr	6.2 -17.9,20.3	5.2 -4.2,24.4	3.4 -9.2,30.7	0.3 -15.3,19.0	3.6 -12.5,23.1	-0.1 -12.6,21.5	1.6 -11.3,19.7	3.4 -16.1,23.0	-0.8 -12.9,16.0	2.1 -9.4,20.3	7.3 -9.6,24.2	0.7 -9.9,26.0
R99P	mm/yr	3.5 -1.3,13.9	10.3 3.9,17.3	8.7 0.1,22.7	2.2 -4.0,12.1	6.9 0.3,14.4	6.6 -1.3,17.0	1.9 -4.1,13.0	3.8 -3.6,13.6	3.6 -1.4,12.1	2.9 -1.7,11.7	8.0 2.7,15.2	7.7 0.6,20.4
RX1DAY	mm/dy	0.8 -1.1,2.6	2.0 0.3,3.7	2.5 0.1,5.3	0.6 -1.4,2.2	1.2 -0.6,3.2	2.0 -0.7,4.0	0.1 -1.1,1.4	0.7 -1.3,2.4	0.7 -0.4,2.1	0.1 -0.7,2.0	1.3 0.0,3.2	1.7 0.0,4.0
RX5DAY	mm/5dy	2.5 -3.5,5.7	2.7 1.0,6.8	2.7 -0.1,10.6	1.6 -4.3,4.8	0.7 -2.0,6.1	2.31 -2.8,6.7	1.8 -4.4,3.6	0.4 -4.7,5.7	0.5 -3.4,3.9	0.6 -4.2,4.5	1.8 -0.3,5.7	1.6 -0.9,7.3
R20MM	days	0.1 -0.6,0.4	0.1 -0.4,0.4	-0.1 -0.6,0.6	0.0 -0.5,0.5	-0.1 -0.5,0.8	-0.2 -0.4,0.4	0.0 -0.2,0.7	0.0 -0.4,0.7	0.0 -0.3,0.4	0.0 -0.5,0.5	0.00 -0.4,0.5	-0.2 -0.4,0.4
R10MM	days	-0.7 -2.2,0.4	-2.0 -3.1,0.9	-2.8 -4.1,-0.9	-0.2 -1.7,0.6	-1.3 -2.6,0.3	-2.2 -3.4,-0.2	-0.2 -1.2,1.5	-0.9 -2.1,0.9	-1.2 -2.8,-0.3	-0.4 -1.7,0.9	-1.4 -2.4,0.5	-2.4 -3.6,-0.6
		TEMPERATURE											
TN10P	%	-9.1 -10.1,-6.7	-11.0 -12.5,-8.8	-12.2 -13.7,-10.8	-7.5 -8.8,-6.5	-10.3 -11.4,-8.4	-11.4 -13.0,-10.0	-7.3 -8.6,-6.7	-9.9 -11.13,-8.7	-11.0 -12.3,-10.1	-8.1 -9.5,-6.7	-10.6 -11.6,-8.4	-11.6 -13.2,-9.7
TN90P	%	12.9 10.8,16.0	23.3 10.7,28.2	35.0 30.3,38.7	12.0 9.5,14.2	20.3 18.3,22.6	30.6 26.1,33.2	10.5 8.6,13.2	19.4 18.3,22.6	28.0 26.1,33.2	12.6 9.8,14.8	21.1 18.9,24.8	32.8 27.9,35.4
TX10P	%	-6.0 -7.0,-5.4	-8.2 -9.0,-7.2	-9.3 -11.0,-8.6	-5.2 -5.9,-4.3	-7.0 -7.9,-6.1	-8.6 -9.5,-7.8	-5.3 -6.2,-4.3	-7.4 -8.1,-6.1	-8.5 -9.7,-7.4	-5.7 -6.2,-4.9	-7.4 -8.2,-6.7	-9.0 -9.9,-8.2
TX90P	%	11.4 9.9,14.8	20.9 17.8,26.1	31.6 25.4,33.9	10.5 8.9,13.1	18.4 16.2,22.5	27.6 24.4,32.7	10.8 9.5,13.3	19.5 16.3,23.9	28.1 25.1,33.3	10.7 9.2,13.6	19.8 17.1,24.3	29.5 24.9,32.7
WSDI	days	23.5 16.3,32.0	47.0 34.7,61.2	80.7 62.3,96.4	18.6 12.6,24.3	41.2 30.1,45.5	65.4 52.6,76.5	17.4 12.7,22.4	37.3 26.7,43.5	62.4 54.3,72.1	20.5 14.2,27.6	43.9 33.0,51.0	70.6 57.5,80.3

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3 Figure S1: Box and whisker plots showing the relative changes in extreme accumulated precipitation indices across an ensemble
4 of 24 participating model members. The changes are at 1.0, 1.5 and 2.0 °C above preindustrial levels (1861-1900). P-values from
5 the WRS test are shown: P_0 , P_1 and P_2 compares the ensemble spread of 1.0 to 1.5°C, 1.5 to 2.0 °C and 1.0 to 2.0 °C warmer
6 climate regimes respectively