

Adapting to Global Change in a Diverse

Landscape: The Kruger to Gaborone

Biosphere Reserve

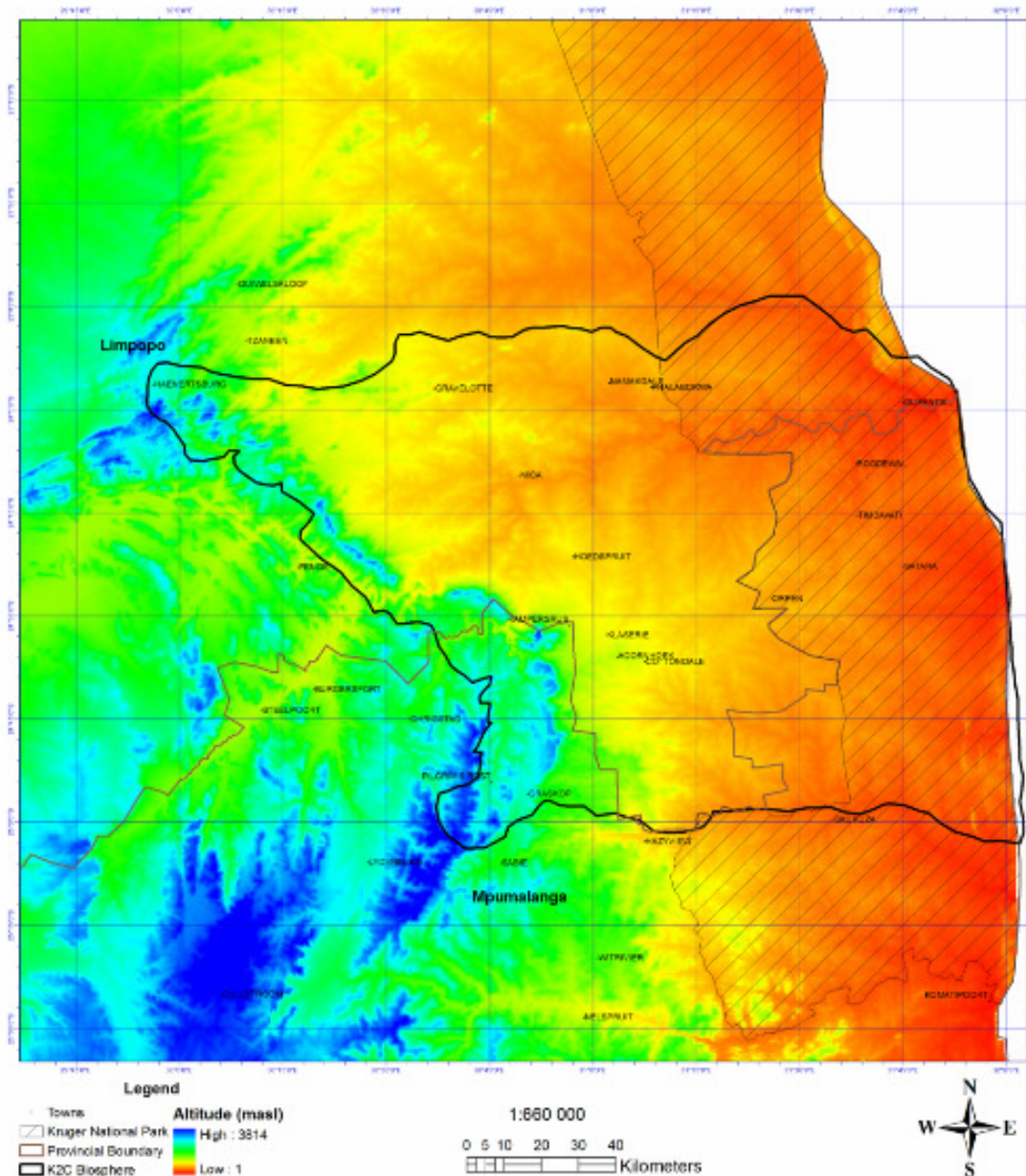
Climate Change and the Environment, CSIR

Science – Policy – Practice

CSIR

our future through science

Kruger to Canyons Biosphere Reserve

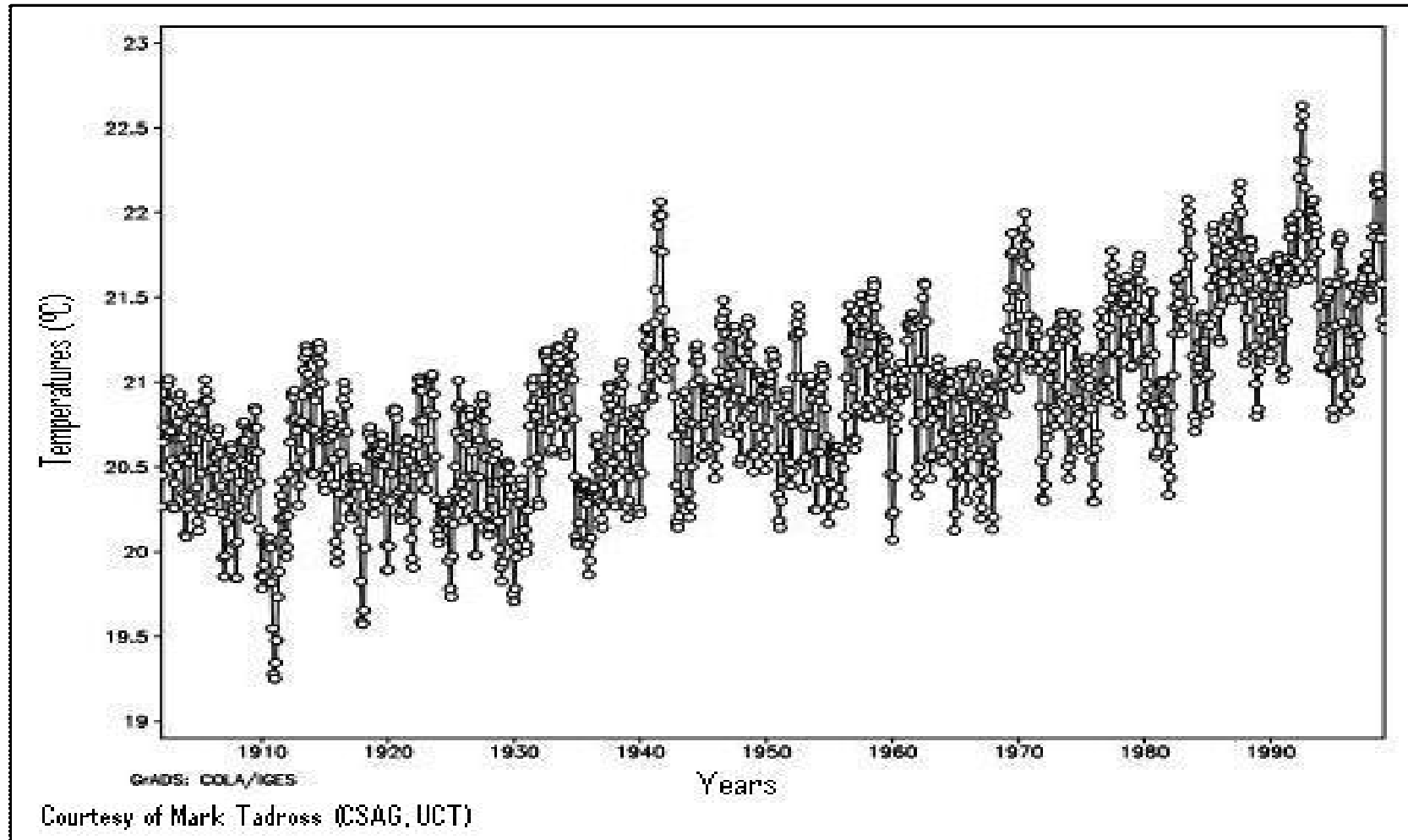


- Large climatic and topographical range
- Multiple different stressors across a range of scales
- Diverse array of land-use and economic activities
 - Commercial Agriculture and forestry
 - Communal/subsistence agriculture
 - Private conservation
 - National and provincial parks
 - Water and health sectors

DEM showing the Location of the Kruger to Canyons Biosphere Reserve ,
South Africa (CSIR, Climate Change Group, 2010)

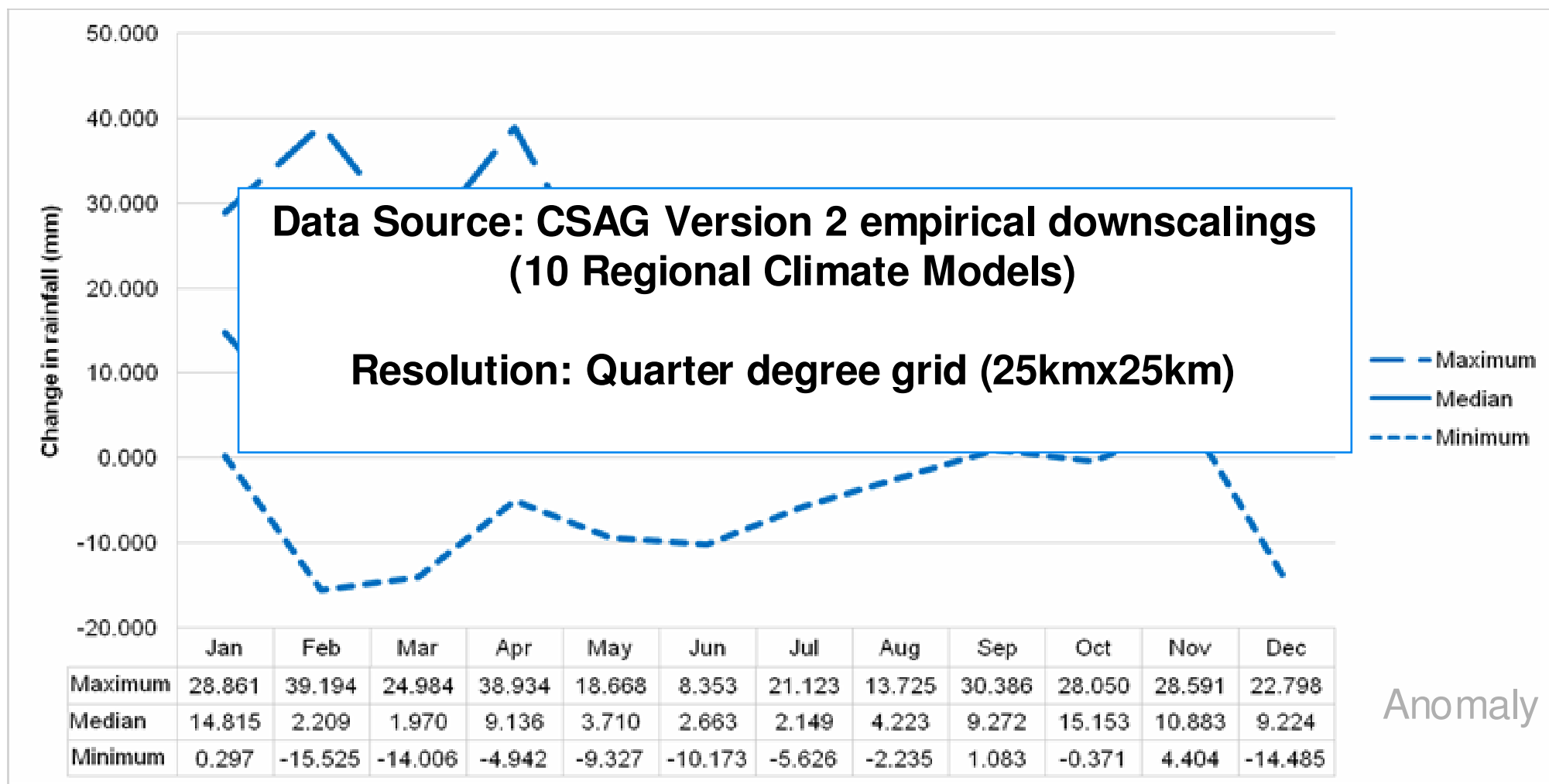
Climate Change in K2C Reserve

- Previous studies indicate that global change in the area may already be occurring



Modelled Predictions of Climate Changes in the K2C Biosphere

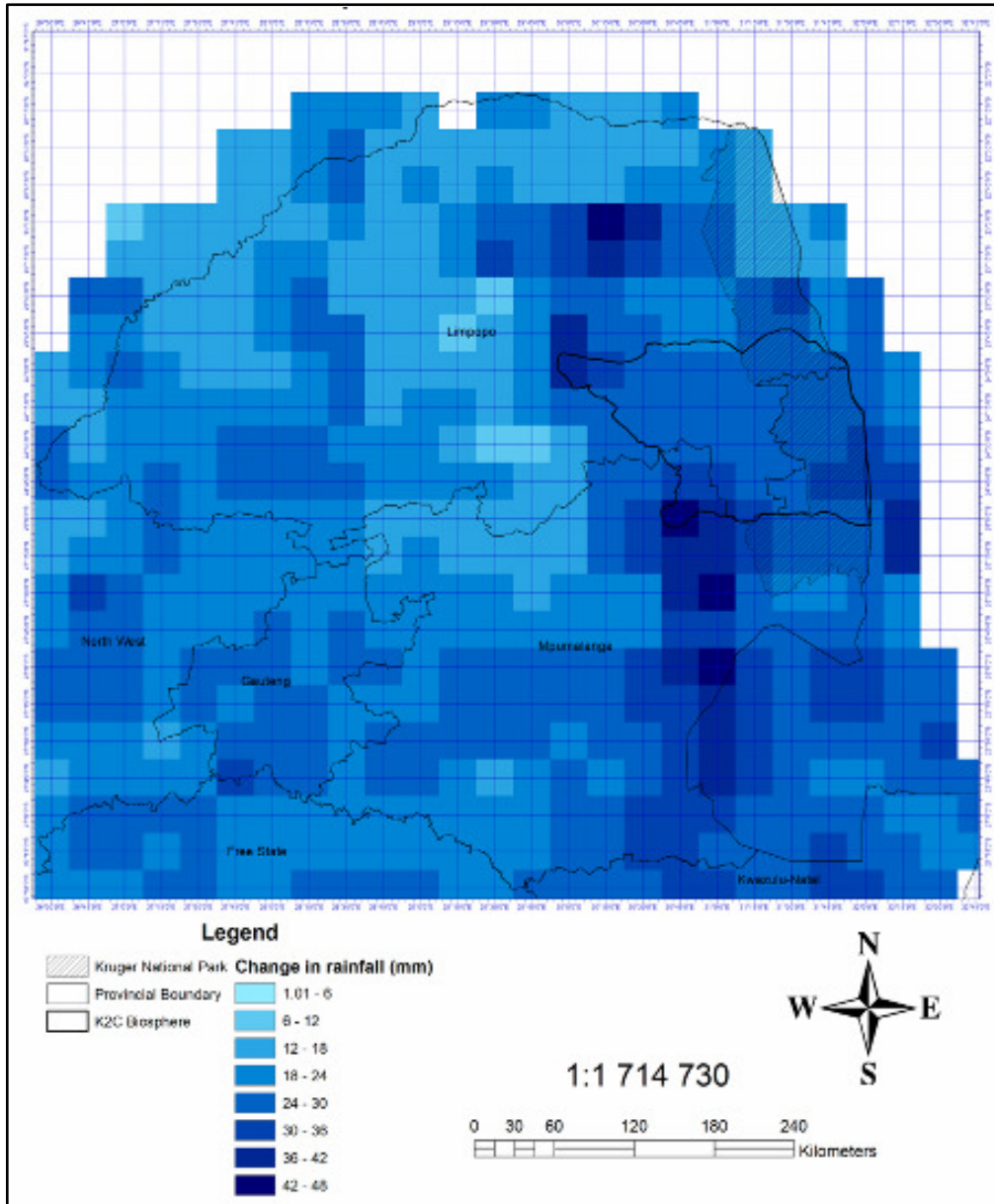
Increase in Total Annual Rainfall
 (14.23 – 196.53 mm per annum)



Seasonal Changes in Rainfall

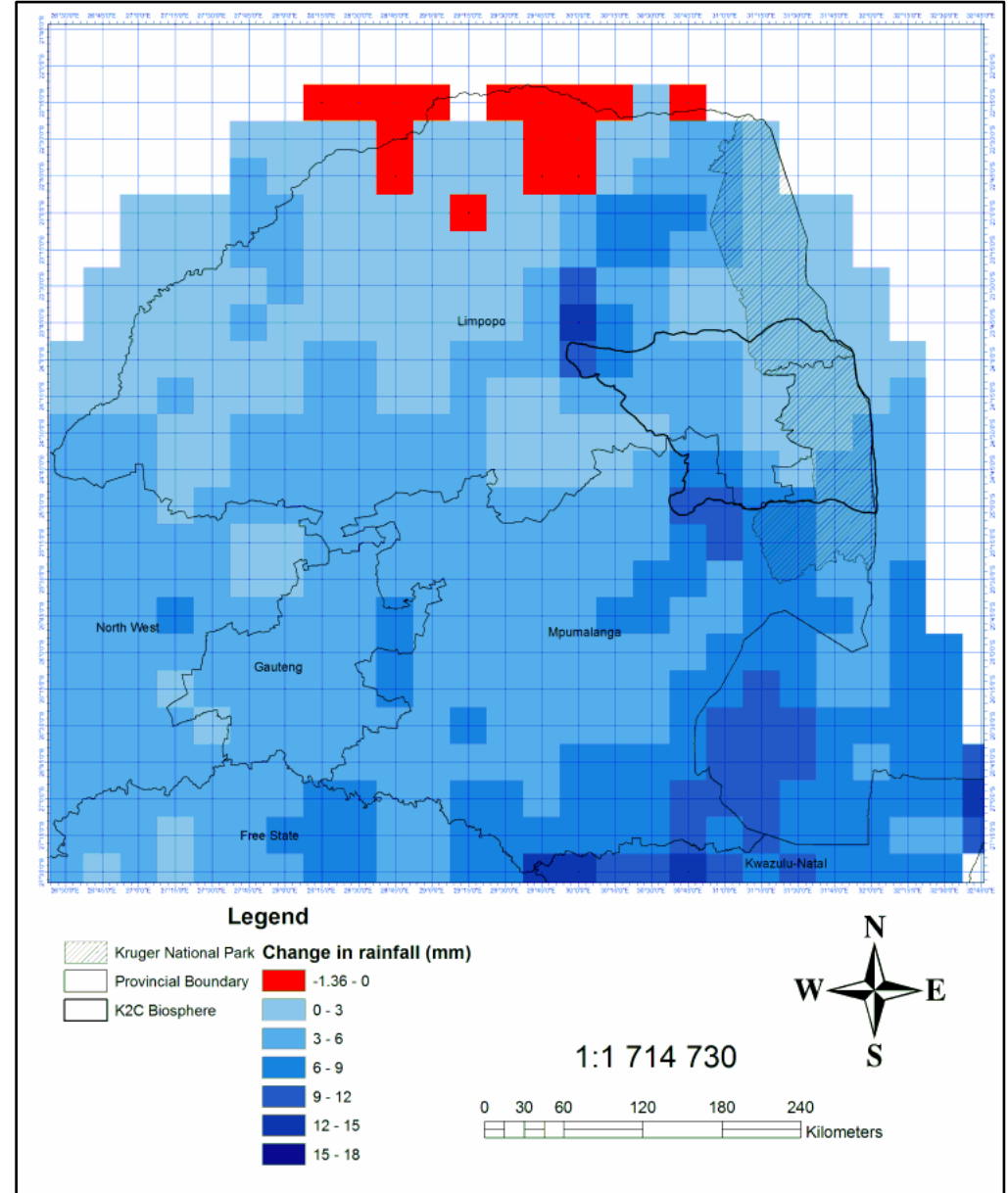
September – October – November

Median



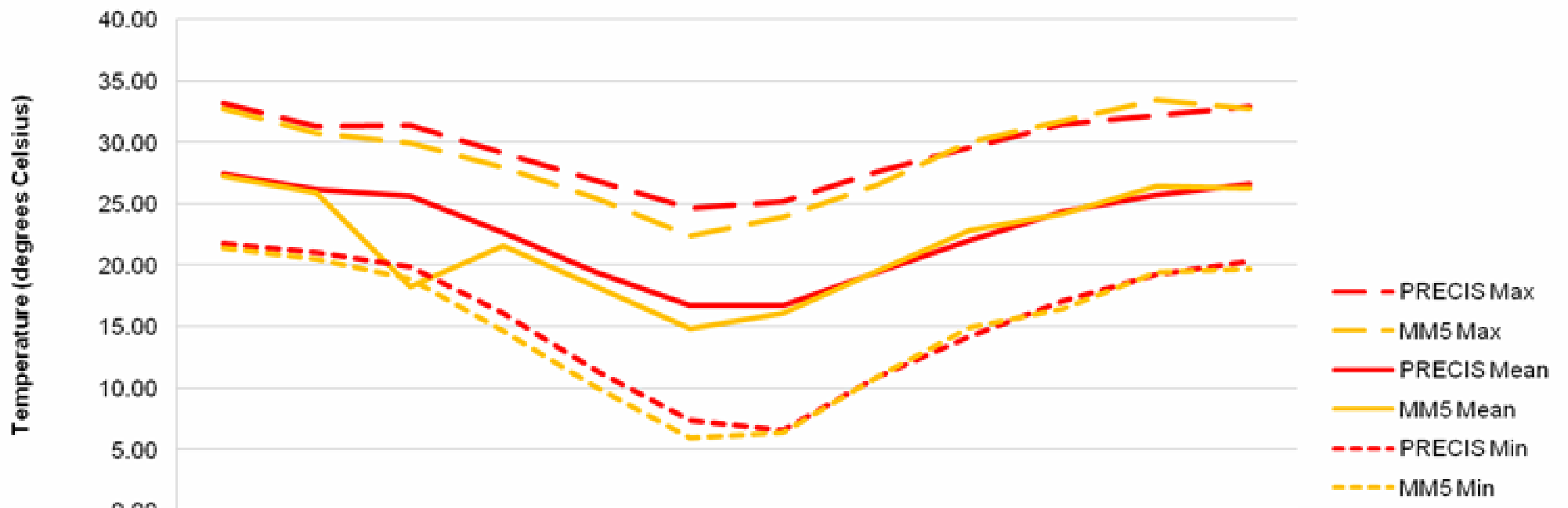
December – January – February

Median



Modelled Predictions of Climate Changes in the K2C Biosphere

Increase in Temperature
(0.5 – 3.5 °C per annum)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PRECIS Max	33.25	31.39	31.45	29.13	26.94	24.64	25.22	27.62	29.64	31.51	32.24	32.94
MM5 Max	32.73	30.79	29.93	27.97	25.49	22.39	23.94	26.51	30.03	31.79	33.47	32.73
PRECIS Mean	27.45	26.18	25.68	22.72	19.51	16.80	16.84	19.52	22.04	24.37	25.73	26.62
MM5 Mean	27.29	25.92	18.34	21.61	18.34	14.89	16.15	19.55	22.93	24.23	26.52	26.31
PRECIS Min	21.78	21.04	19.88	16.12	11.43	7.40	6.57	10.85	14.20	17.10	19.24	20.33
MM5 Min	21.43	20.51	18.94	14.72	10.15	6.00	6.43	10.94	14.97	16.53	19.48	19.70

Absolute
value

Key question: **‘How should we adapt to the changes which are most likely to occur’?**



Project Aim

To engage stakeholders in the development of an information system focused on climate change adaptation

- Focus is on stakeholders operating in the Limpopo and Mpumalanga provinces of South Africa:
 - Bushbuckridge Municipality
 - South African National Parks
 - Mpumalanga and Limpopo Parks Board
 - Agricultural Research Council
 - private conservancies
 - commercial agricultural entities in the area
 - The Department of Agriculture, Forestry and Fisheries
 - relevant civil society initiatives.

Outputs: diverse stakeholder *planning* and decision-making for the K2C area, which is more directly *informed by climate change predictions*, and *improved resilience* of such sectors under climate change.



Debate: removal vs. re-planting of commercial pine plantations on Mariespkop, Mpumalanga

