

Adapting to Global Change in a Diverse Landscape: The Kruger to Canyons Biosphere Reserve

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BEING HOME TO JUST OVER HALF OF THE BIRD AND MAMMAL SPECIES IN SOUTH AFRICA, K2C DISPLAYS A SUBSTANTIVE TOPOGRAPHIC AND CLIMATIC DIVERSITY, AND IS THE SITE OF MULTIPLE STRESSORS. THIS MAKES IT AN EXCELLENT SUBJECT FOR CONSIDERING HOW GLOBAL CHANGE IMPACTS MIGHT BE SUCCESSFULLY MANAGED IN A DIVERSE LANDSCAPE.

Introduction

The Kruger to Canyons study area (K2C) was designated as a Biosphere Reserve under UNESCO to preserve the integrity of the conservation areas while improving the livelihoods of the people who live within its borders. One of the consequences of conservation initiatives in the past has been the economic underdevelopment of rural areas adjacent to conservation areas.

Previous studies indicate that global change in the area may already be occurring. Key areas of critical impact include water supply and quality; commercial agriculture; forestry (including the reversion of commercial forestry in certain areas); health; commercial rangeland management; communal agriculture and livestock; and conservation management at the landscape scale (Kruger National Park).

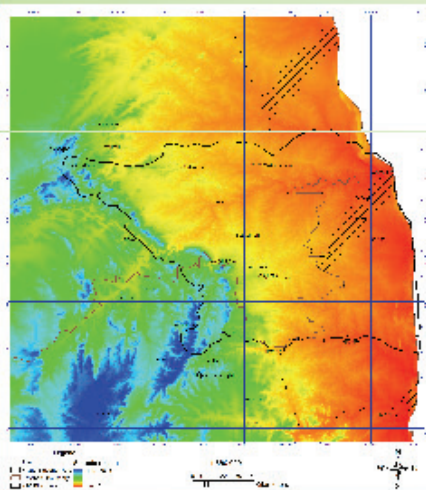


Fig. 1. Location of the Kruger to Canyons Biosphere Reserve, South Africa (CSIR, Climate Change Group, 2010)

Aim

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

- access to policy-relevant climate information,
- a better understanding of how to use the information and the limitations of the data, and
- an ability to improve decisions will ultimately enhance the region's resilience to climate change.

Results

Increase in Rainfall (14.23 – 196.53 mm per annum)

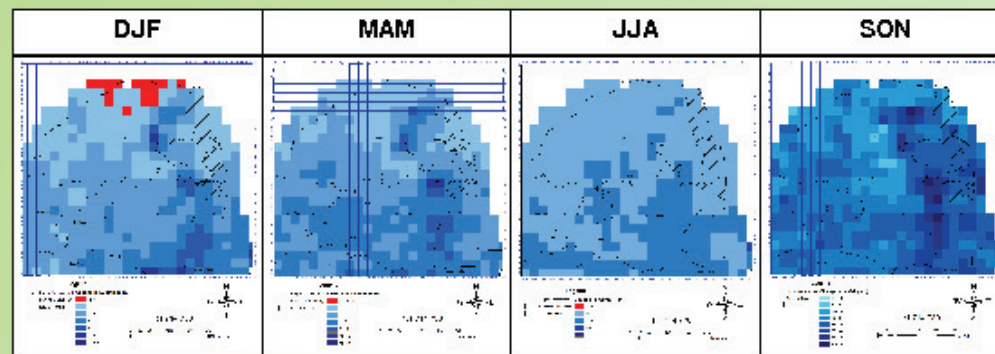


Fig. 2. Projected seasonal rainfall change (December – January – February; March – April – May; June – July – August; September – October – November) expressed as the median of the 10 downscaled Global Climate Models (CSIR, Climate Change Group, 2010)

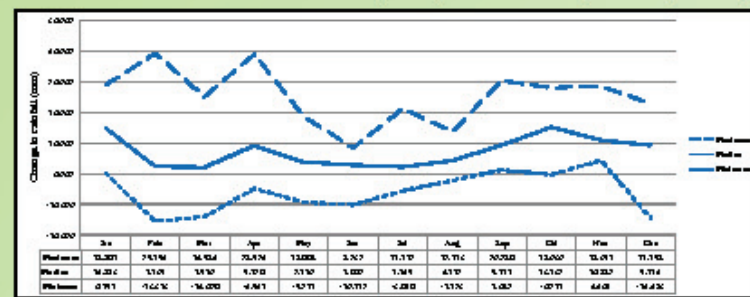


Fig. 3. Projected monthly rainfall change expressed as upper, middle and lower limits of the 10 downscaled GCMs (CSIR, Climate Change Group, 2010)

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

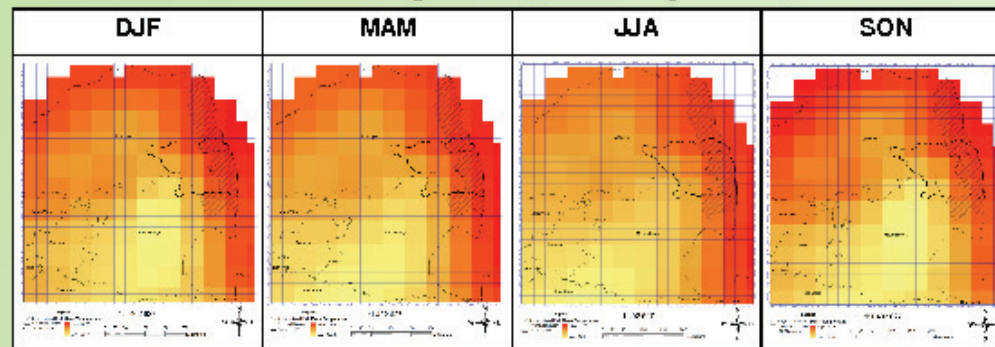


Fig. 4. Projected seasonal temperature (December – January – February; March – April – May; June – July – August; September – October – November) expressed as the mean of the 2 downscaled GCMs (CSIR, Climate Change Group, 2010)

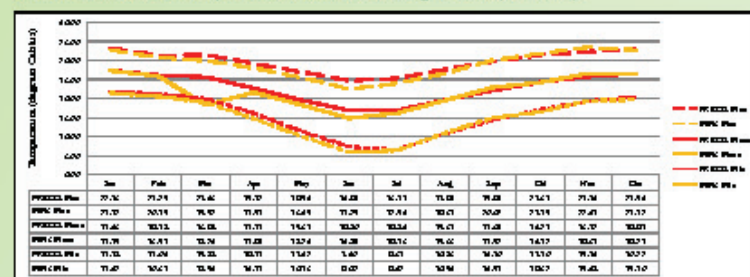


Fig. 5. Projected monthly maximum, minimum and mean temperature of the 2 downscaled GCMs (PRECIS and MM5), (CSIR, Climate Change Group, 2010)

Stakeholder Engagement

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

The six stakeholder categories that emerged from the stakeholder analysis were **agriculture, health and socio-economics, municipality and planning, private conservation, state conservation, and water sector**.

IT IS HOPED THAT THE OUTPUTS OF THIS PROJECT WILL INCLUDE 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.

Conclusions

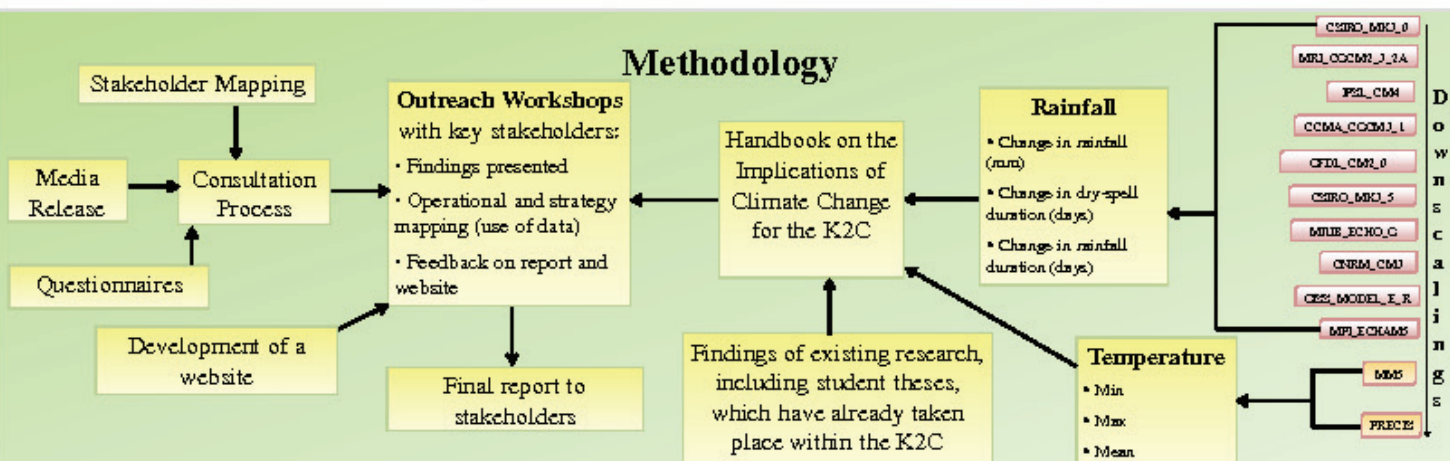
The project is ongoing, and lessons to be learnt are being learnt

Interaction and iterative orientation with stakeholders in the area as a follow up to initial user surveys is critical, to avoid the 'front end loader' approach to the provision of information.

Decisions informed by the research will be tracked and monitored in partnership with relevant stakeholders. The proposal to be developed at project end will address, in part, a strategy to encourage investigation of climate change impacts for sectors not yet substantively investigated in a global change context in the Kruger to Canyons area.

THERE IS A KEEN DESIRE AMONGST DIVERSE STAKEHOLDERS TO ACCESS GLOBAL CHANGE INFORMATION, AS WELL AS TO INTERACTIVELY DEVELOP AN UNDERSTANDING OF WHAT GLOBAL CHANGE IMPLIES FOR CRITICAL SECTORS IN THE AREA.

Methodology



Acknowledgements

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For further information

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