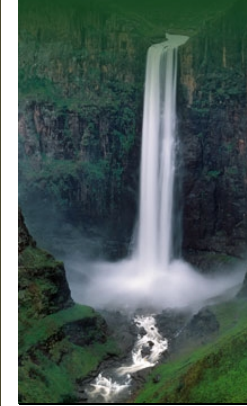




The River Basin

- Introduction
- Geography
- Climate and Weather**
 - Principles of Climate and Meteorology
 - Climate of the Orange-Senqu River Basin
 - Climate Change
 - Climate Change in southern Africa
 - Climate Change Downscaling
 - Water for the Future Report
- Hydrology
- Water Quality
- Ecology and Biodiversity
- References



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[Climate and Weather: Climate Change:](#)
Water for the Future Report

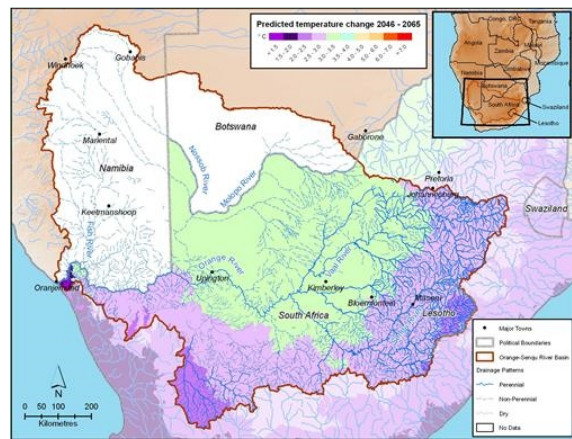
In 2009, Knoesen, Schulze, Pringle, Summerton, Dickens and Kunz prepared a report called [Water for the Future](#), a series of insights into the potential impacts of climate change in the Orange-Senqu River basin. This report was developed by the Institute of Natural Resources and the University of KwaZulu-Natal and was funded by the European Union and the Water Research Commission of South Africa. This report is part of the NeWater project which is aimed at creating new approaches to water management, especially through Adaptive Management, under uncertain conditions.

The Orange-Senqu River Basin was part of a scenario generation exercise in the Millennium Ecosystem Assessment, which included climate change scenarios (Bohensky et al. 2004). As part of an extension to this Millennium Ecosystem Study, the NeWater team took a more detailed look at potential impacts of climate change on the water situation in the Basin. This study builds upon the key results of a study conducted by Darryn M. Knoesen (Knoesen 2009) in which the future hydrological situation of the basin was modelled. Only South Africa and Lesotho were included in the model because of a lack of information for Namibia and Botswana.

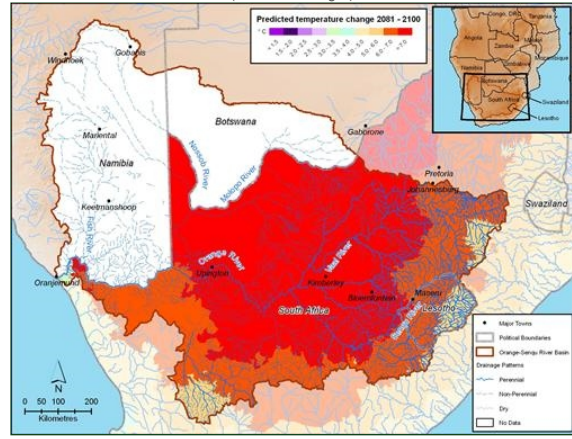
Overall results show that climate change will result in higher temperatures across the basin and higher evaporation. Rainfall will generally increase resulting in increased streamflow and flooding. Areas that experience hydrological and meteorological droughts will generally decrease over the short term (one or two years).

For a more detailed analysis of the impacts of climate change across the basin and the exceptions to these general impacts see the [Water for the Future report](#) (2009).

Below are examples of temperature and streamflow change expected in the near future and far future.



Predicted medium term temperature change (present until 2046-2065)
 Source: Hatfield 2009, after NeWater 2009
 (click to enlarge)



Predicted long term temperature change (present until 2081-2100)
 Source: Hatfield 2009, after NeWater 2009
 (click to enlarge)

Interactive

Basin Map

Explore the sub-basins of the Orange-Senqu River

[enter](#)

Video Tour

Tour video scenes along the Orange-Senqu River related to the River Basin

[enter](#)

Geography Maps

Investigate land cover and terrestrial ecoregions in the basin

[enter](#)

Water Cycle

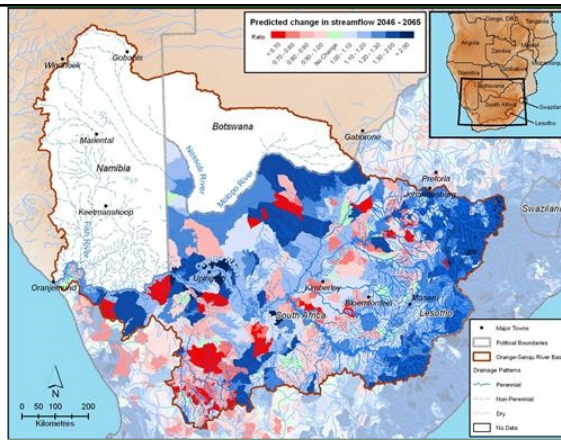
Examine how the hydrologic cycle moves water through and around the earth

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Food Web

Explore the interactions of living organisms in aquatic environments

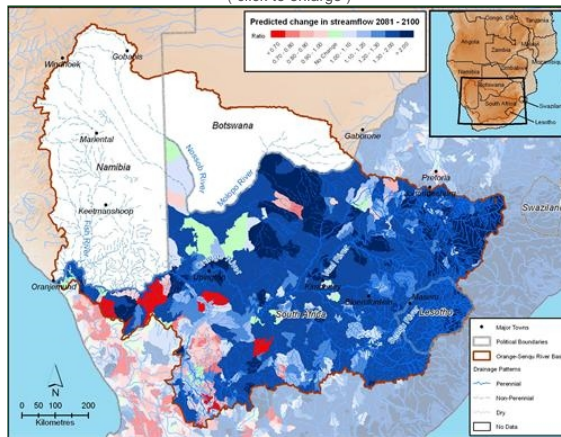
[enter](#)



Predicted medium term change in streamflow (present until 2046-2065)

Source: Hatfield 2009, after NeWater 2009

(click to enlarge)



Predicted long term change in streamflow (present until 2081-2100)

Source: Hatfield 2009, after NeWater 2009

(click to enlarge)

[Next Chapter: Hydrology](#) ►