Climate variability and change over southern Africa: impacts and challenges

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Abstract
In this paper, the influence of climate variability and change on the environment was studied over southern Africa using ground-based and remotely sensed data. A time series analysis of rainfall and temperature anomalies indicated that there was a high rainfall and temperature variability in the region. The influence of global teleconnections on rainfall patterns over southern Africa showed that in some areas there was a spatial variation in their strength, increasing from west to east. Maps of NDVI, from 1982 to 2004, showed that changes in vegetation cover were more apparent during the dry season than during the wet season. The study also revealed that climate variability and change are linked to decreasing rainfall and hence, decreasing regional water resources and biodiversity and increasing environmental degradation. With the regional population expected increase, this depletion of resources poses the greatest regional environmental challenge to humankind.