Data Article

Title: Modelling drought risk using bivariate spatial extremes: Application to the Lowveld Limpopo region of South Africa

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Abstract

The article presents an application of max-stable spatial extremes models in modelling drought risk due to the simultaneous occurrence of low precipitation rates and extremely high temperatures in the Lowveld region of Limpopo province in South Africa. The data were collected from the KNMI climate explorer https://climexp.knmi.nl/start.cgi. The data are stored in an Excel file.

Specifications Table

Subject area	*Spatial Extremes Modelling*
More specific subject area	*Weather and Climate Extremes*
Type of data	*Excel file*
How data was acquired	*Provided and from the internet* https://climexp.knmi.nl/start.cgi
Data format	*Filtered and analysed.*
Experimental factors	*N/A*
Experimental features	*N/A*
Data source location	*The Royal Netherlands Meteorological Institute*
Data accessibility	*Data is hosted on GitHub https://github.com/csigauke*
Related research article	*The relevant research article is: Modelling drought risk using bivariate spatial extremes: Application to the Lowveld Limpopo region of South Africa.*

Value of the Data

- The data can be used to estimate the extremal dependence of annual average precipitation and maximum temperature.
- This helps quantify the joint impact of these two weather variables on the risk of drought occurrence.

Data

The data comprises the Climatic Research Unit gridded Time Series (CRU TS), monthly average temperature and monthly average precipitation. The data are stored in an Excel file. The data were collected from the KNMI climate explorer https://climexp.knmi.nl/start.cgi The monthly average precipitation and monthly maximum temperatures were recorded at 0.5^{o} resolution. These were collected from 1 January 1970 to 31 December 2020. These observations were recorded for annual average precipitation and maximum temperature for all the 24 grid points.

Experimental Design, Materials, and Methods

Data used in the study is from KNMI.

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References

KNMI climate explorer https://climexp.knmi.nl/start.cgi (Accessed on 31 October 2022).