ANALYSIS OF EXTREME TEMPERATURE INDICES OF LONG-TERM HOMOGENISED TEMPERATURE SERIES IN SOUTH AFRICA

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Problem statement 1/2

- Temperature extremes can be devastating.
- Insufficient information on trends and variability.
- Inconsistencies exist in available data and information.
- Limitations in extent of period of analysis.
Problem statement 2/2

- Despite this, consistent trends in daily temperature extremes over southern and western Africa.

- Also, generally greater magnitudes of hot than cold extreme trends.

- Warming trend in SA surface temperatures.

- This concurs with global historical trends.

- Differences in index trends are highlighted.
Methods

- Data sets (1931-2014) were collected, merged and quality controlled.
- They were homogenised using RHtestV4.
- Artificial changepoints were identified.
- Available metadata was used for inhomogeneity validation.
Key Findings

• Number of days per year with low minimum temperatures have declined while days with high minimum temperatures have increased. 

• Number of days per year with low maximum temperatures have declined while days with high maximum temperatures have increased.
Key Findings

• Annual absolute minimum, and annual absolute maximum daily minimum temperatures are increasing.

• Significant decreases in cold spell duration are evident over most of the eastern half.

• While significant increases in warm spell durations are evident over most of the western and northern interior.
Conclusions/Recommendations

• There has been a general increase in warm temperature extremes and a decrease in cold temperature extremes.

• Results useful in deepening the understanding of temperature extremes in SA.

• They can also be incorporated in decision-making.

• Applications of such work in southern Africa are suggested.

• Software available at WMO ETCCDI website and is userfriendly, recommended for other countries.