

Climate information needs in southern Africa: A review

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User needs assessments, the co-production of climate information, and the creation of tailored climate services are critical factors in providing increasing useful and accessible products for the management of climate risks and informing climate change adaptation.

Climate information and services

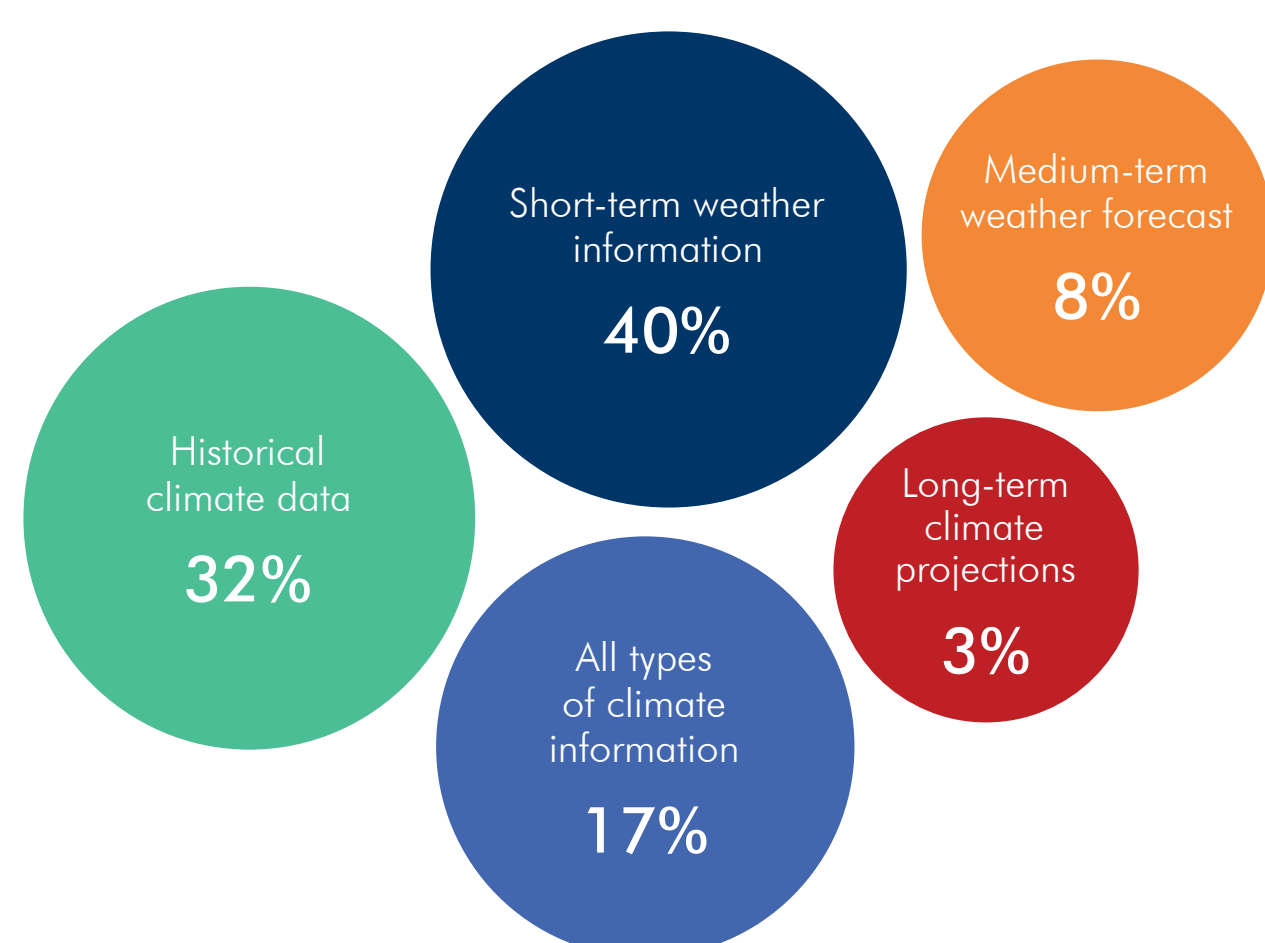
This refers to the collection and interpretation of climate-related data. Climate information is typically produced from analysis of historical observations of the past and current climate, and it spans various timeframes, from short-term weather forecasts, to seasonal forecasts, to long-term climate projections.

Climate information infrastructure and communication needs

Most countries in southern Africa lack an adequate observation network of both surface and upper air stations as well as remote sensing such as Radar networks. The Trans-African Hydro-Meteorological Observatory (TAHMO), seeks to install 20,000 automatic weather stations across sub-Saharan Africa by 2027. There are also major deficiencies in the collection and retransmission of meteorological data and products.

Technical improvements and modernization of infrastructure will be unsuccessful unless there are:

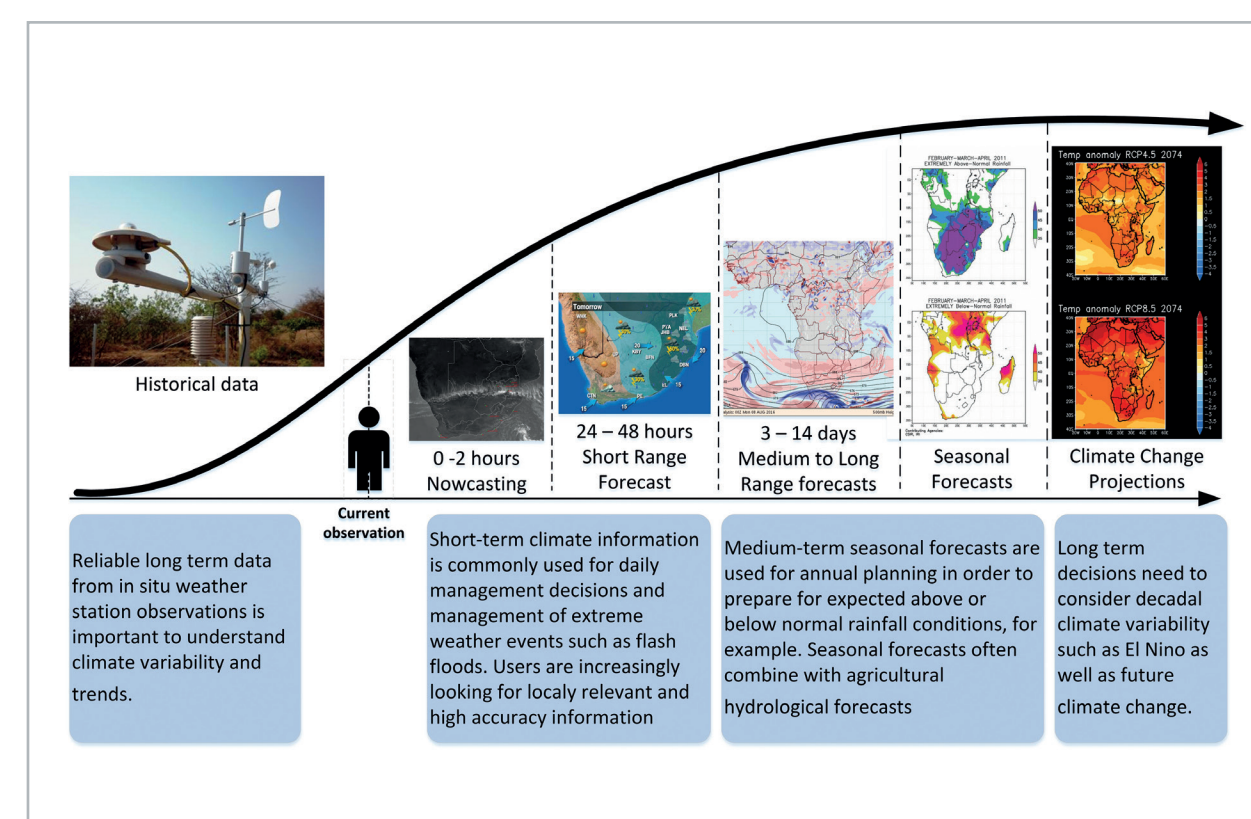
- Qualified and experienced meteorologists to use the tools to generate timely warnings and improved forecasts;
- Strong communication mechanisms;
- Coordinated institutional arrangements and programmes to support the interventions.



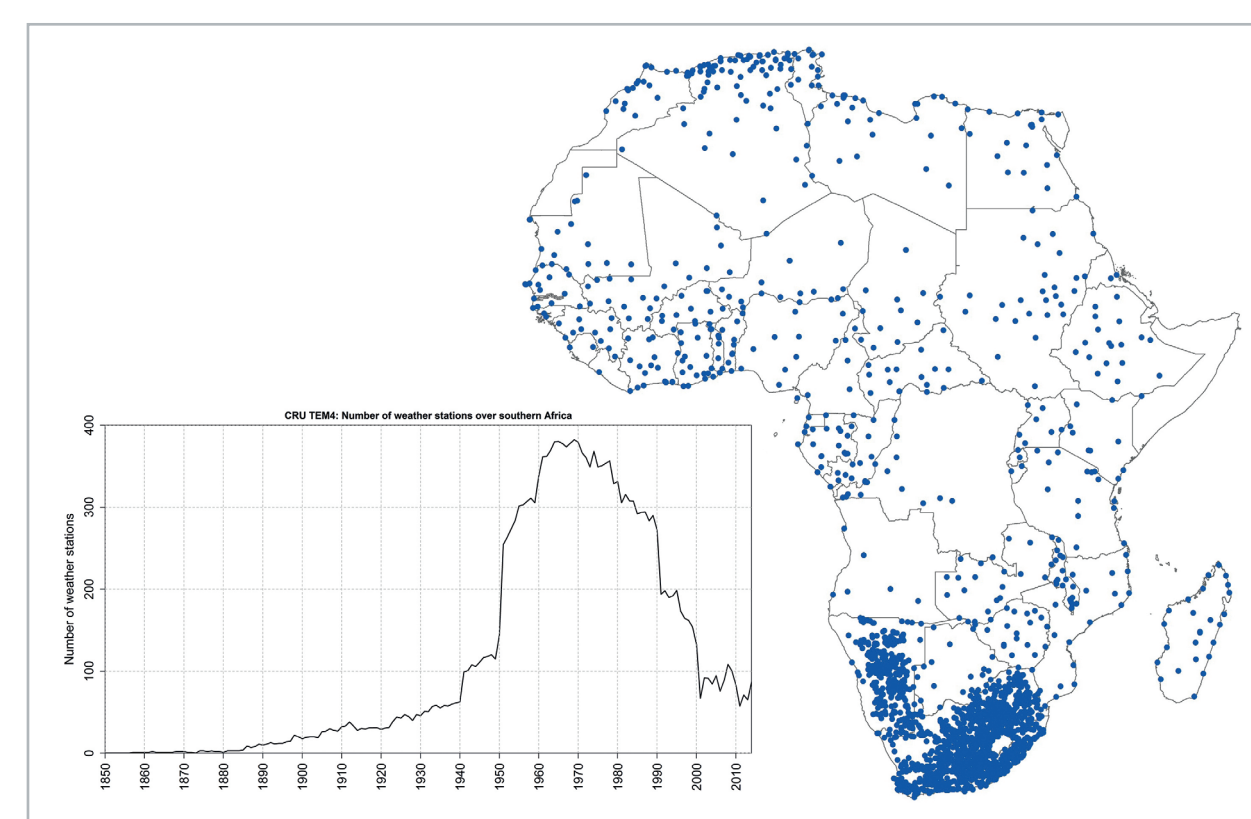
The types of climate information that stakeholders utilise (Davis 2012)



Types of climate information and services available in southern Africa



Short term: weather forecasts (days), medium term: seasonal climate forecasts (week to months), and long term: climate variability and change (decades). (Davis and Vincent 2017 in press)



The location of NOAA's Global Historical Climate Network (GHCN) weather stations across Africa and the number of weather stations collecting daily temperature records across southern Africa from 1850 to 2014 used in the gridded CRUTEM4 product. Station density increased consistently from the start of the 20th century and peaked in the 1970s, after which it began to decline. (Davis and Vincent 2017 in press)

Sectoral climate information needs

Agriculture and food production

Improve structure of seasonal forecasts to aid local interpretation; reflect growing season weather beyond the seasonal average; translate information into agricultural impacts and management implications.

Water resource management

Seasonal forecasts for understanding effects of climate variation on flows and water demand.

Human health

Predicting the outbreak of climate sensitive diseases.

Disaster risk management

Improve communication and dissemination of disaster warnings to rural communities.



Key lessons from user needs studies

- Barriers exist because of the highly scientific presentation of seasonal forecasts and climate projections, and the lack of capacity to interpret the findings to suit the needs of different sectors.
- Climate information is only useful when it addresses a need.
- The limitations and uncertainty of climate forecasting and climate change modelling need to be communicated effectively.
- Climate scientists need to draw on local capacity and local knowledge to generate tailored products.
- Trust between the provider and user of information is key.
- When users are involved in the development process and co-production of information the services are more likely to be embraced and expanded.
- Regular training programmes can assist with interpretation of climate information.

Recommendations

- User-tailored climate services is critical for successful integration of climate issues into planning and policy development.
- Bridging the gap between data producers and data users will be crucial for advancing the use of climate information across sectors in southern Africa.
- Climate service centres/partnerships are advocated as the primary mechanism to bridge this gap.

References

- Davis, C.L. and Vincent, K. 2017 (in press): Climate Risk and Vulnerability: a Handbook for Southern Africa (2nd Edition), SunMedia Press, Stellenbosch, South Africa.
- Davis, C. 2012. SADC capacity building in relation to the Risk and Vulnerability Atlas. Unpublished Report. CSIR, Pretoria.

Acknowledgements

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