

AGRICULTURAL RESEARCH COUNCIL

Agrometeorological Monitoring Network

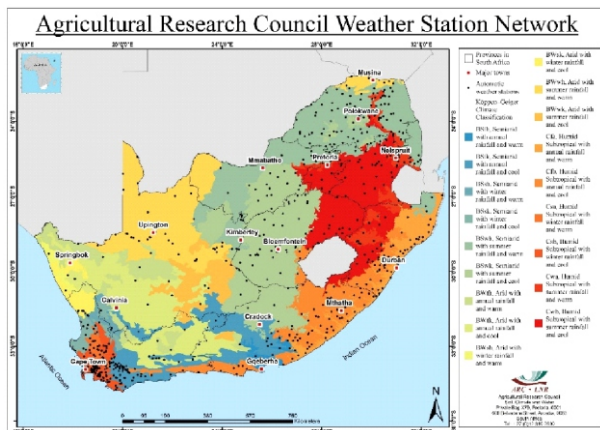
Teboho Masupha, Chrisna Henningse, Mokhele Moeletsi,
Gert De Nysschen and Chris Kaempffer
ARC-Natural Resources and Engineering, Private Bag X79, Pretoria 0001, South Africa

Introduction

Climate and weather data are of paramount importance to support efficient management and sustainable use of natural resources including agricultural productivity. Highlighting, the importance of accurate, climate data in the development of decision support tools required for adaptation and mitigation strategies relating to climate change and variability. Thus, the necessity of an effective and reliable weather stations network.

The network

- The ARC weather station network (WSN) consists of approximately 650 automatic weather stations (AWS) distributed across the country to cover wide range agro-climatic zones.
 - Currently, a total of 512 operational stations are owned by ARC, with other stations owned by Eastern Cape DRDAR (86), Limpopo DRDAR (26) and AB-InBev (26).
- Climate data archives consists of additional readings obtained from approximately 400 mechanical weather stations (MWS) dating from 1900 - 2015.
- Research technicians situated in various offices across the country are responsible for installing and maintaining the stations.
- All stations need to be visited twice a year for routine maintenance while emergency visits are done as necessary.



The big picture

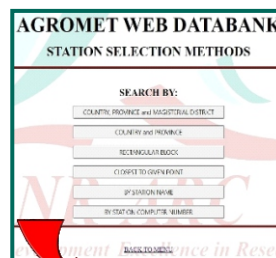
The main objective of the WSN is to collect and supply South Africa's agricultural community with weather and climate data to support decision-making.

Collection



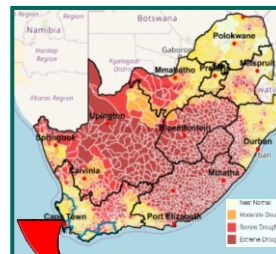
At each AWS, air temperature, rainfall relative humidity, solar radiation, wind speed and direction are monitored to produce hourly, daily, monthly, yearly or long-term average reports. Calculated indices include evapotranspiration, cold and heat units meteorological data.

Retrieval



The databank stores all the data from ARC weather station network. It is used to generate various reports from the data and it is also used by AgroMet technicians to complete various weather station related tasks, including generating fault reports, completing station visit forms, etc.

Applications



The climatic dataset from this WSN is been used extensively for scientific research purposes, as input to early warning systems and in support of development of policies.

Analysis



Meteorological parameters may be utilized to support weather forecasting, validate hydrological and crop models, and related services.

Current data access

- Umlindi News letter**
 - Link: <https://www.arc.agric.za/arc-iscw/Pages/News-Articles.aspx>
 - Contact: Reneilwe Maake
MaakeR@arc.agric.za
- Agri-Data Web Portal**
 - <https://www.agroclimate.agric.za/WP/WP/>
- ARC-Agri-Climate Databank**
 - Contact: Irene Nel • VGentl@arc.agric.za



ARC-Natural Resources and Engineering
600 Belvedere Street, Arcadia, 0083
Private Bag X79, Pretoria 0001
Tel: 012 310 2500 • Fax: 012 323 1157
Website: www.arc.agric.za