



World Meteorological Organization

Weather • Climate • Water

## Severe weather in Africa and impact of current telecom capability on Early Warning Systems

*WMO African severe weather demonstration projects success and limitations*

*Abdoulaye Harou (WMO)/ David Thomas (WMO)*

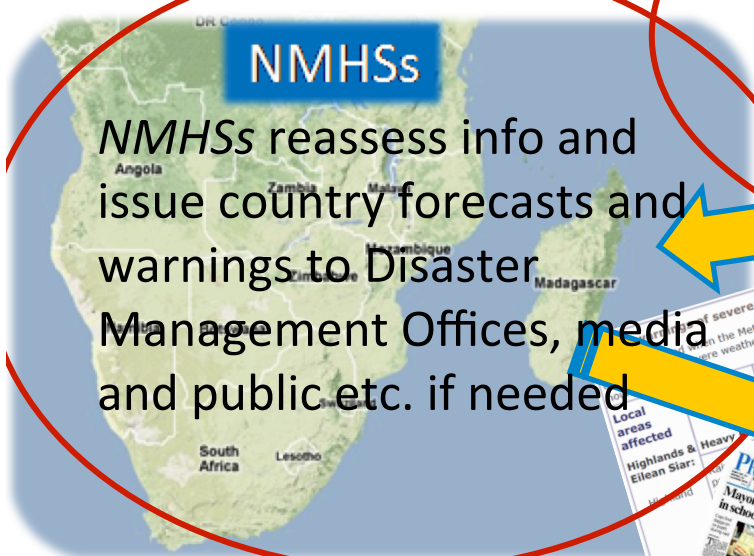
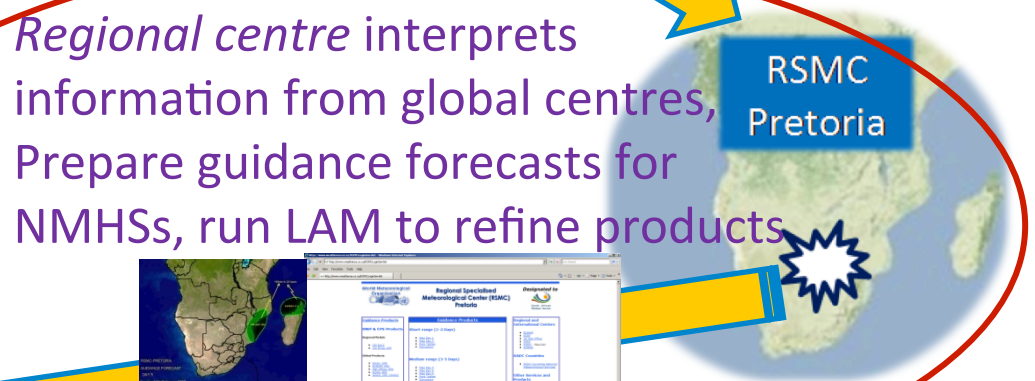
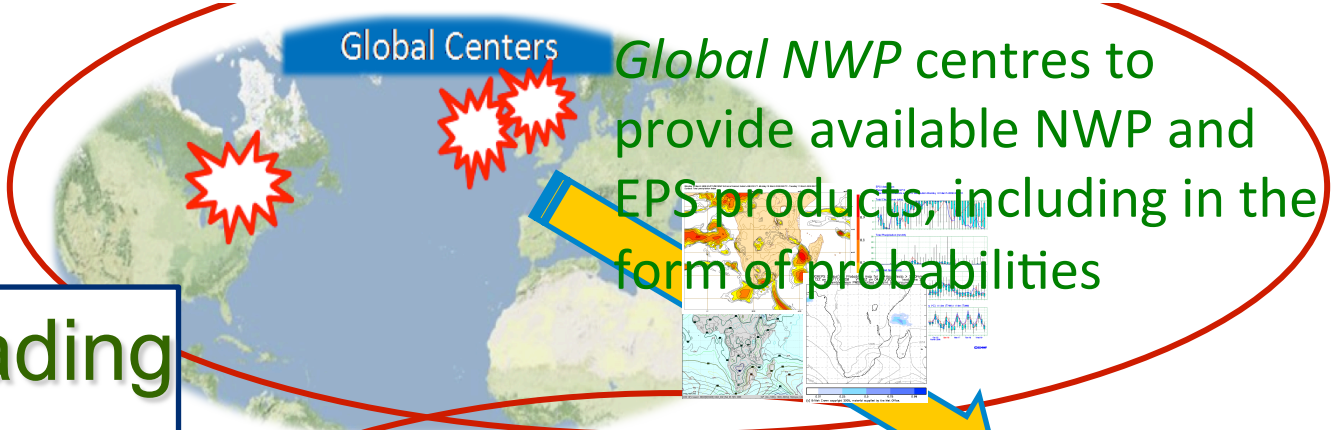
# Main SWFDP Goals

- *Improve Severe Weather Forecasting*
- *Improve lead-time of Warnings*
- *Improve interaction of NMHSs with users: media, disaster management, civil protection authorities*
- *Identify areas for improvement and requirements for the Basic Systems*
- *Improve the skill of products from WMO operational centres through feedback*
- *Capacity building*





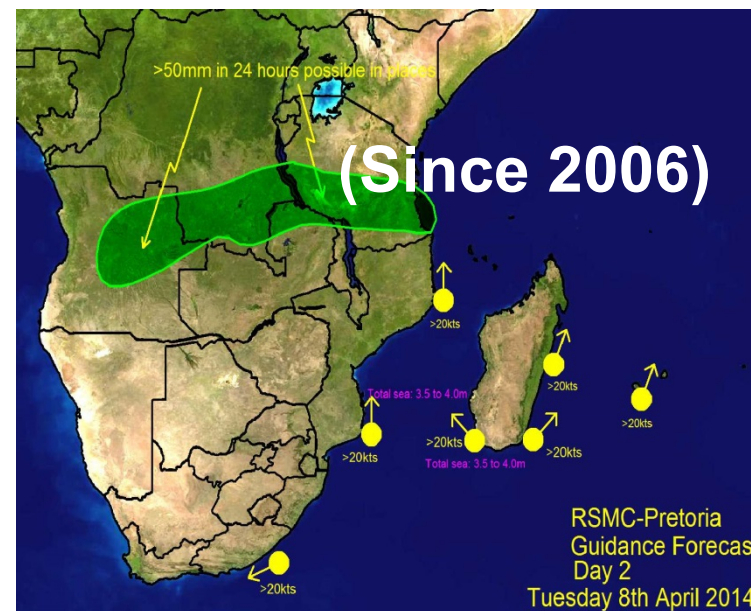
# SWFDP Cascading Forecasting Process



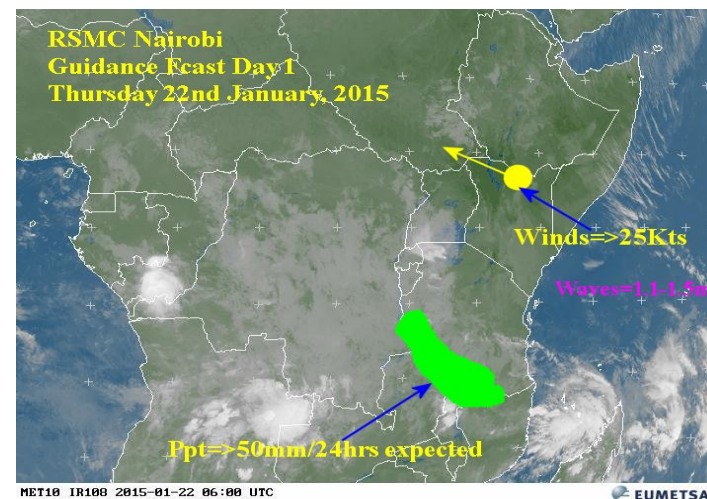
# SWFDP – Africa

## South Africa -16

**Countries :** Angola, Botswana, Democratic Republic of the Congo, Malawi, Mauritius, Madagascar, Mozambique, Namibia, Lesotho, Seychelles, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe, Comoros



**Eastern Africa - 7 Countries:** Burundi, Ethiopia, Kenya, Rwanda, South Sudan, Tanzania and Uganda



 **West Africa: In Development**

# Issues around accessing and sharing information

- Weather business creates huge amount of data (Satellites, Radars, Surface & upper air observations etc). Accessing these data facilitates the development of accurate weather information and warnings
- High quality Numerical Weather Information is shared through internet but in most countries the availability or adequacy of Internet is the sore point
- The dissemination of warnings through internet is also hampered by the lack of Internet connection
- Where Fiber is available, the cost for accessing adequate Internet connection is prohibitive for many National Meteorological Services



# Presentation by Mr Thomas follows





# Africa historically relies extensively on V-SAT links in many parts

- ASECNA centres
  - High bandwidth central service Senegal supporting:
  - VSAT-64kps / TCP/IP to most centres
- Other NMHS typically using
  - Fixed line or VSAT less than 64kps for dedicated networks
  - VSAT 256kps lines for internet access
- Larger centres have fixed links through coastal fibre network (Eg Pretoria)
- High reliance on Sat Broadcast (EUMETSAT/Puma/etc)
- High reliance on Satellite Data Collection Systems (EUMETSAT)



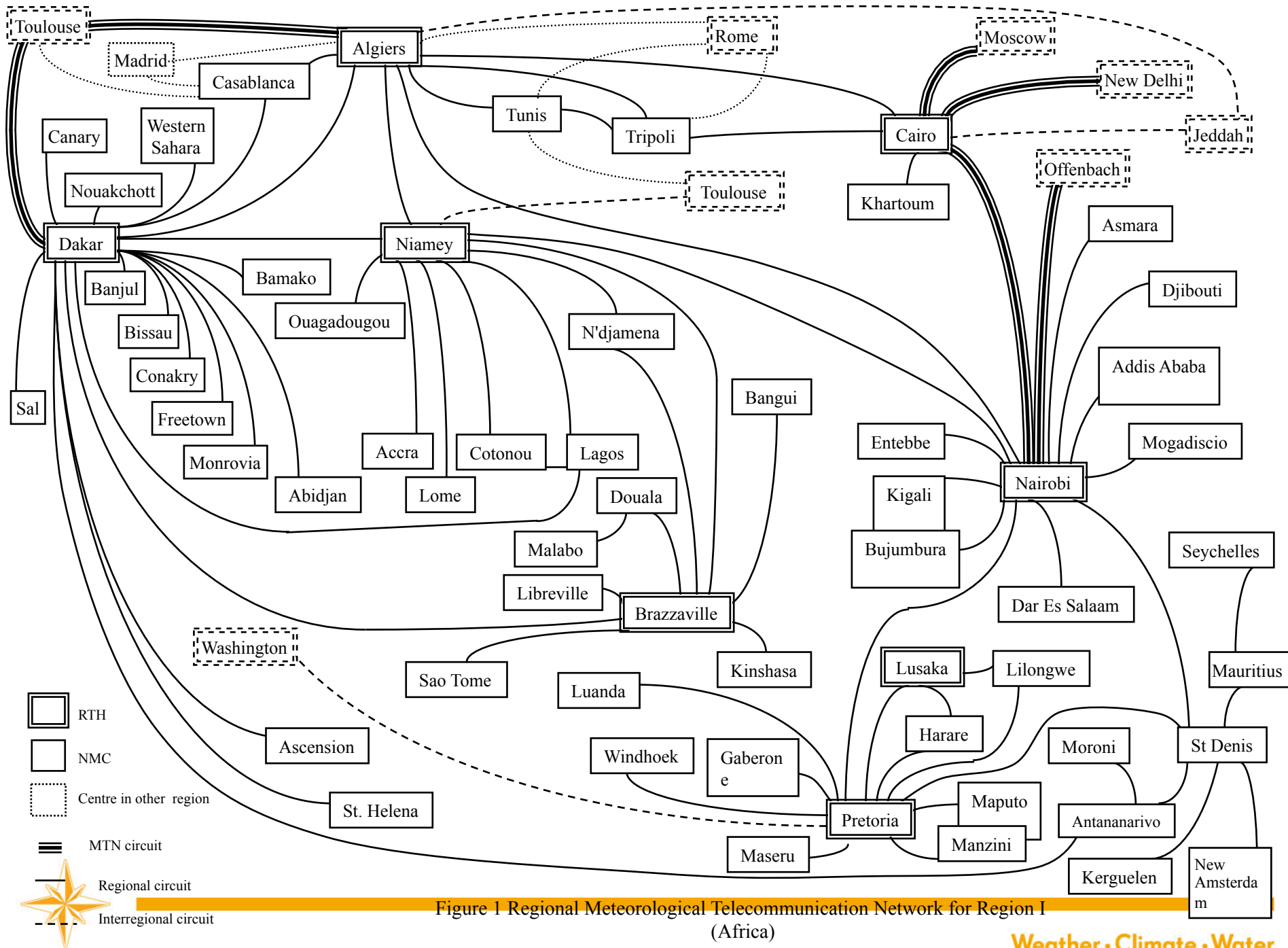
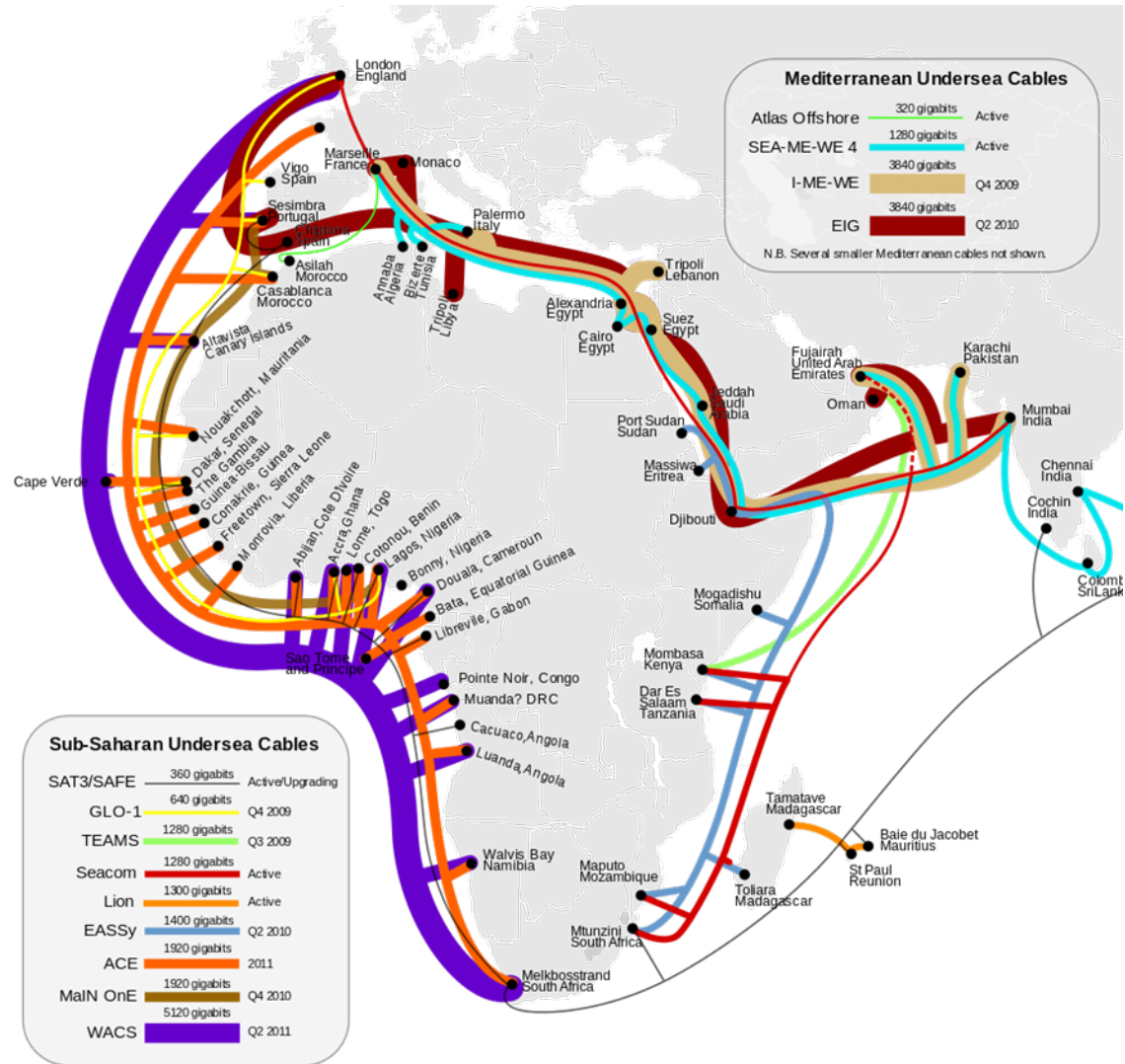


Figure 1 Regional Meteorological Telecommunication Network for Region I (Africa)



# Coastal centres first to benefit from fiber rollout

- GISCs  
Pretoria and Casablanca have MPLS connections to Europe



# Fibre is being rolled out in Africa

- Source: <http://afterfibre.net/>
- For country details - see [http://en.wikipedia.org/wiki/List\\_of\\_terrestrial\\_fibre\\_optic\\_cable\\_projects\\_in\\_Africa](http://en.wikipedia.org/wiki/List_of_terrestrial_fibre_optic_cable_projects_in_Africa)
- Varies from single to multiple in suppliers in each country
- Wouldn't it be nice to get Telco's to support



**NMHS needs**

WMO Observation and Information System Department



Weather • Climate • Water

# Regional WIGOS and WIS implementation

- Acknowledged that supplies and infrastructure were problematic for observation availability, but
- Identified that communications is a larger factor in missing observations
- Consistent with the Southern African Development Community - Meteorological theme group
- <http://www.sadc.int/themes/meteorology-climate/>
- SADC master plan (2012)
- ([http://www.sadc.int/files/1313/5293/3533/Regional\\_Infrastructure\\_Development\\_Master\\_Plan\\_Meteorology\\_Sector\\_Plan.pdf](http://www.sadc.int/files/1313/5293/3533/Regional_Infrastructure_Development_Master_Plan_Meteorology_Sector_Plan.pdf))



# SADC - Meteorology sector Vision 2027

- The telecommunication infrastructure available to the NMSs does not support adequate transfer of data inside or outside the countries.
- Many do not have dependable access to the internet to consistently reach out to users for feedback on their products.

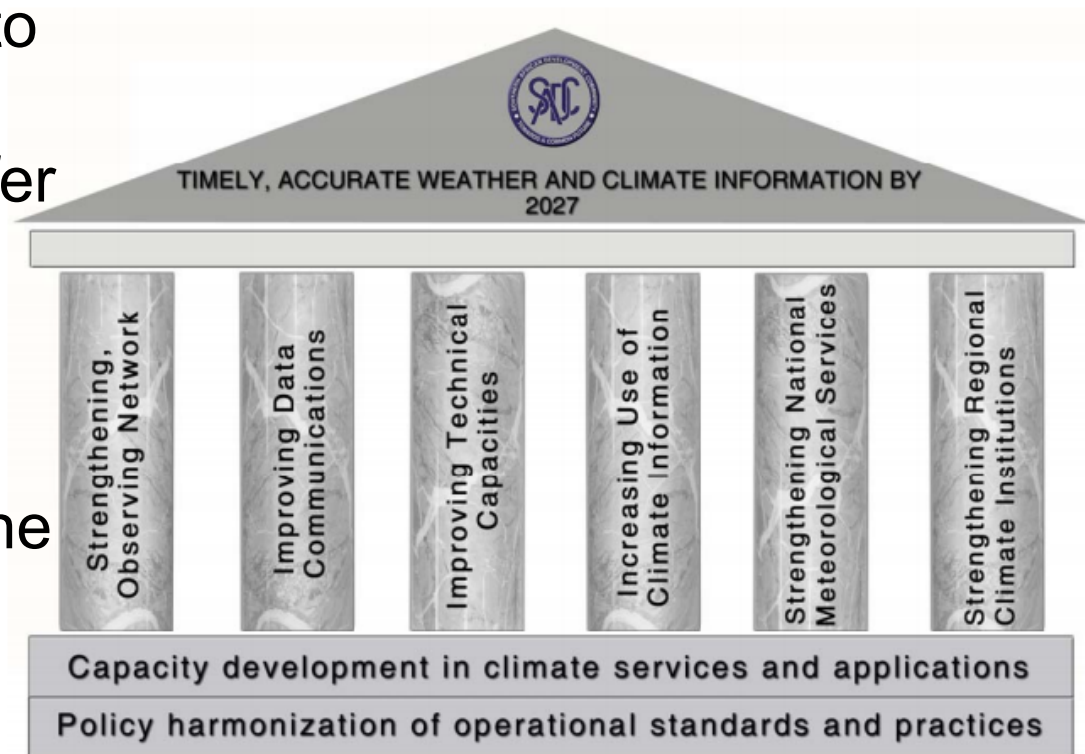


Figure 1: SADC Meteorological sector vision 2027





World Meteorological Organization

Weather • Climate • Water

**Thank You**