

SAWIDRA and NWP in Africa

Satellite and Weather Information for Disaster Resilience in Africa (SAWIDRA)



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Satellite and Weather Information for Disaster Resilience in Africa (SAWIDRA)

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ACP-EU Programme

Building disaster resilience to natural hazards in Sub-Saharan African Regions, Countries and Communities



ACP-EU Programme Structure



RESULT 1
Regional DRR Coordination & Monitoring
(AUC & UNISDR)



RESULT 5
Multi-risk financing strategies for decision-making
(WB/GFDRR)

RESULT 2
DRR Capacity Building of Reg. Economic Communities
(WB/GFDRR)



RESULT 4
Improved risk knowledge and risk modelling
(UNISDR)

RESULT 3
Capacity Building of national & Regional Climate Centres
(AfDB/ClimDev)



1. Project Goal

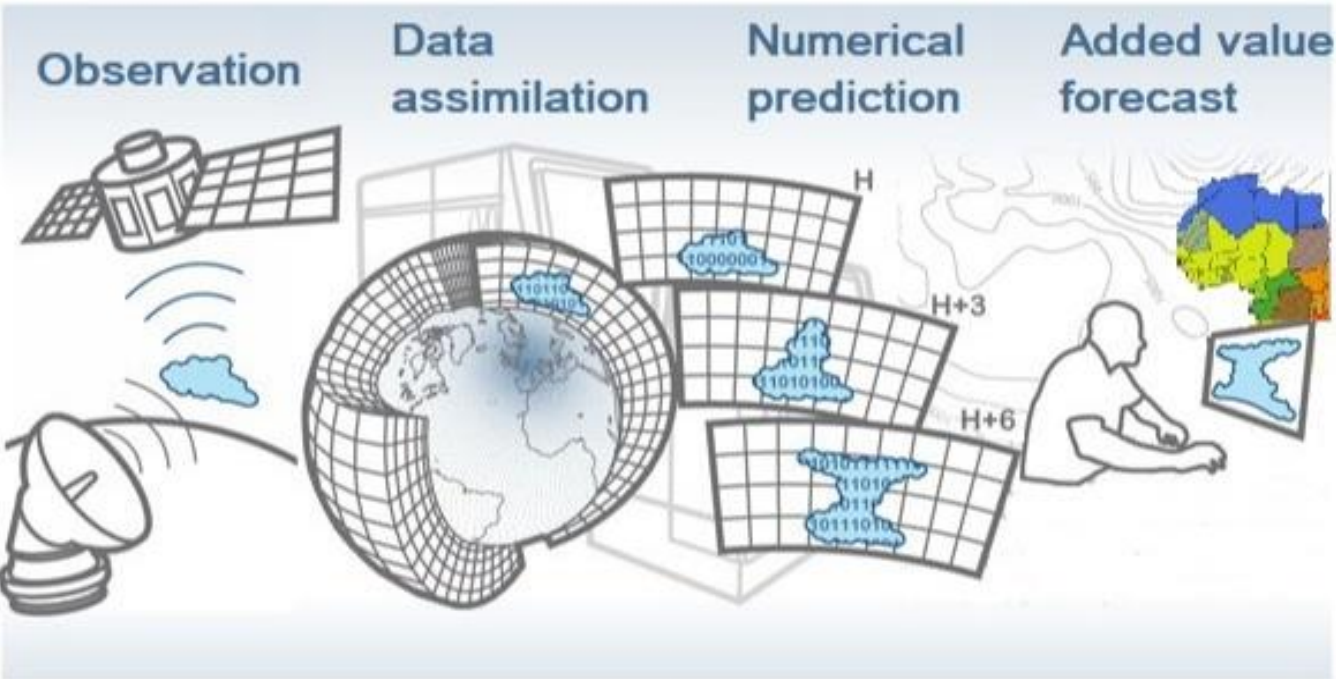
To “improve core capacities of the specialized national and Regional Climate Centers (RCCs), to meet the needs of DRM agencies and socio-economic sectors for effective use of weather and climate services and community-focused and real-time early warning system (EWS)”.

That goal will be achieved through the following specific objectives:

- To ensure operational access to polar orbiting satellites through RARS-Africa network establishment: **Component#1**
- To establish operational NWP capabilities at ACMAD, including data assimilation of both in-situ and satellite data and produce operational NWP outputs at continental level and support NWP operations at regional level (e.g. provision of initial conditions) : **Component#2**
- To build continental level capacity to create user-driven NWP-DRR products: **Component#3**



2. Main activities



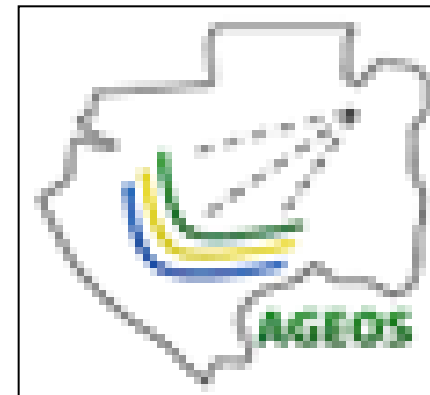
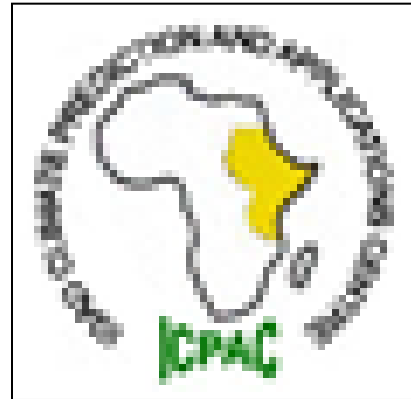
**RARS network
Infrastructure**

**Numerical Weather Prediction
High Performance Computing**

**E.W.S. for DRR
Climate Services**



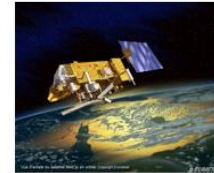
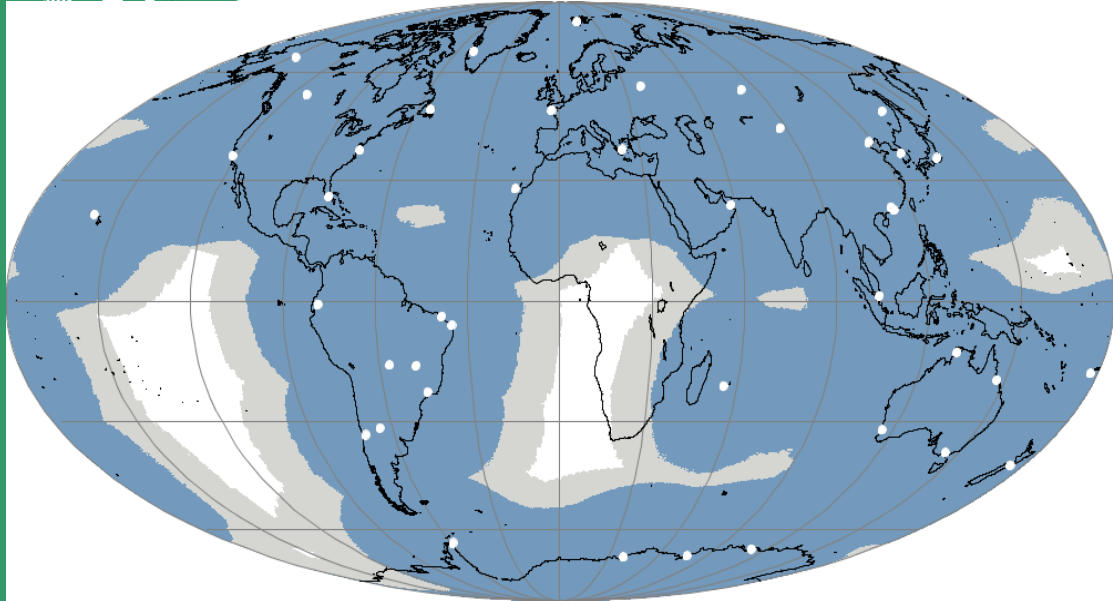
3. SAWIDRA's technical partners





RARS Network (Regional Advanced Retransmission Service)

Before SAWIDRA



METOP-A
METOP-B
METOP-C



S-NPP
JPSS-1

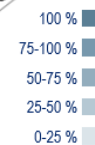
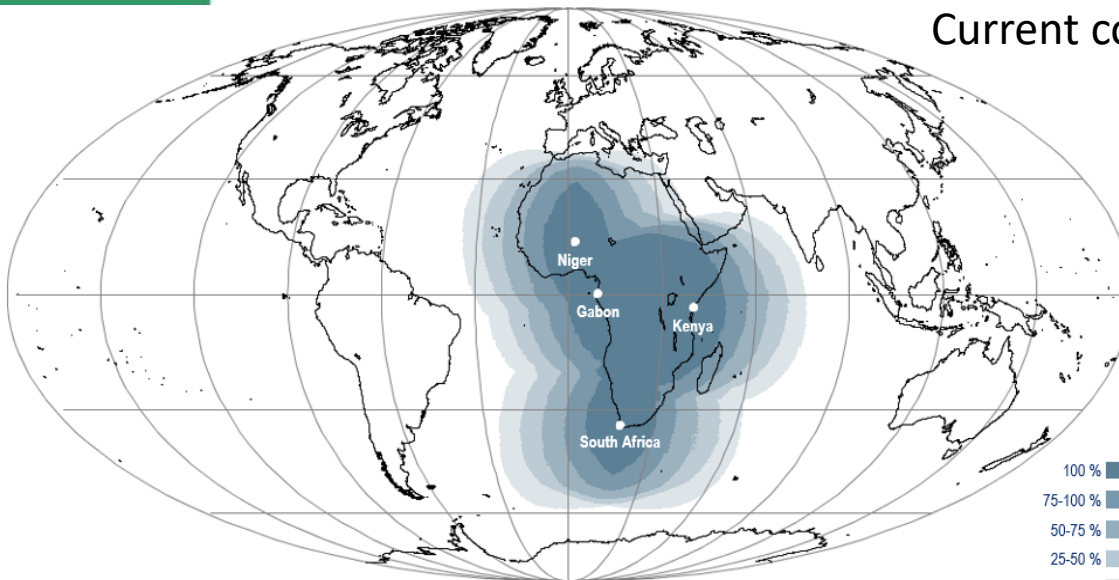


NOAA-18
NOAA-19

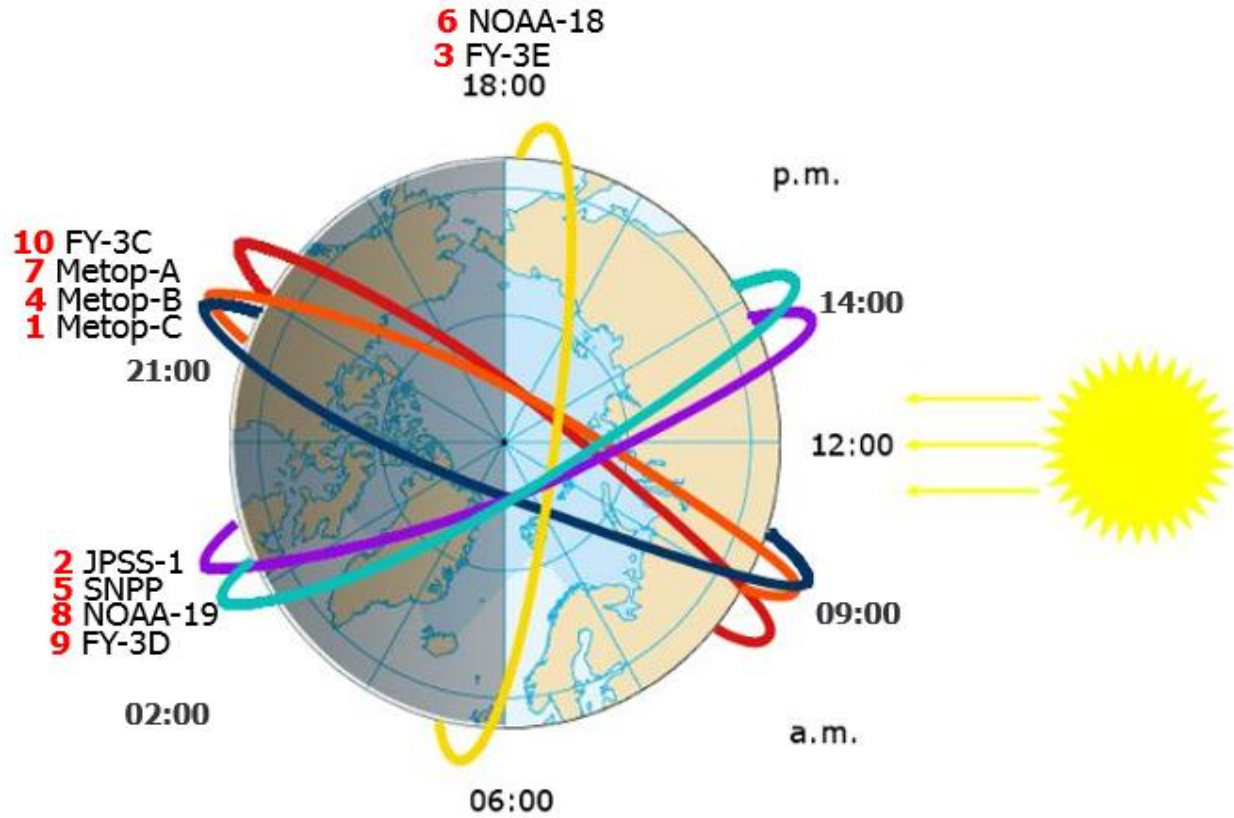


FY-3D
FY-3E

Current coverage of the RARS-Africa Network after SAWIDRA

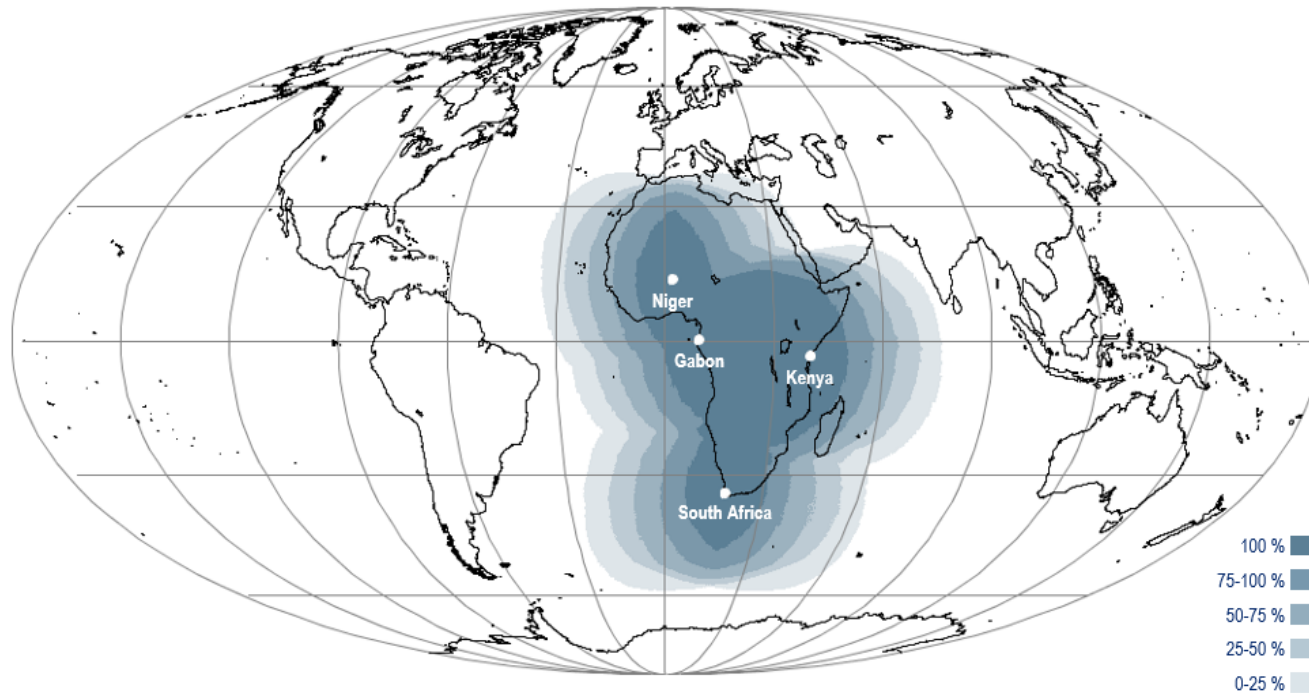


5. Acquisition priority of the initial SAWIDRA satellite network





4. RARS Africa coverage,



Installation of (4) X/L-Band antennas

6. SAWIDRA Results



RARS station built at ICPAC's premises (Kibiko Ngong – Nairobi, Kenya)



RARS station built at AGEOS's premises (Nkok- Libreville, Gabon)



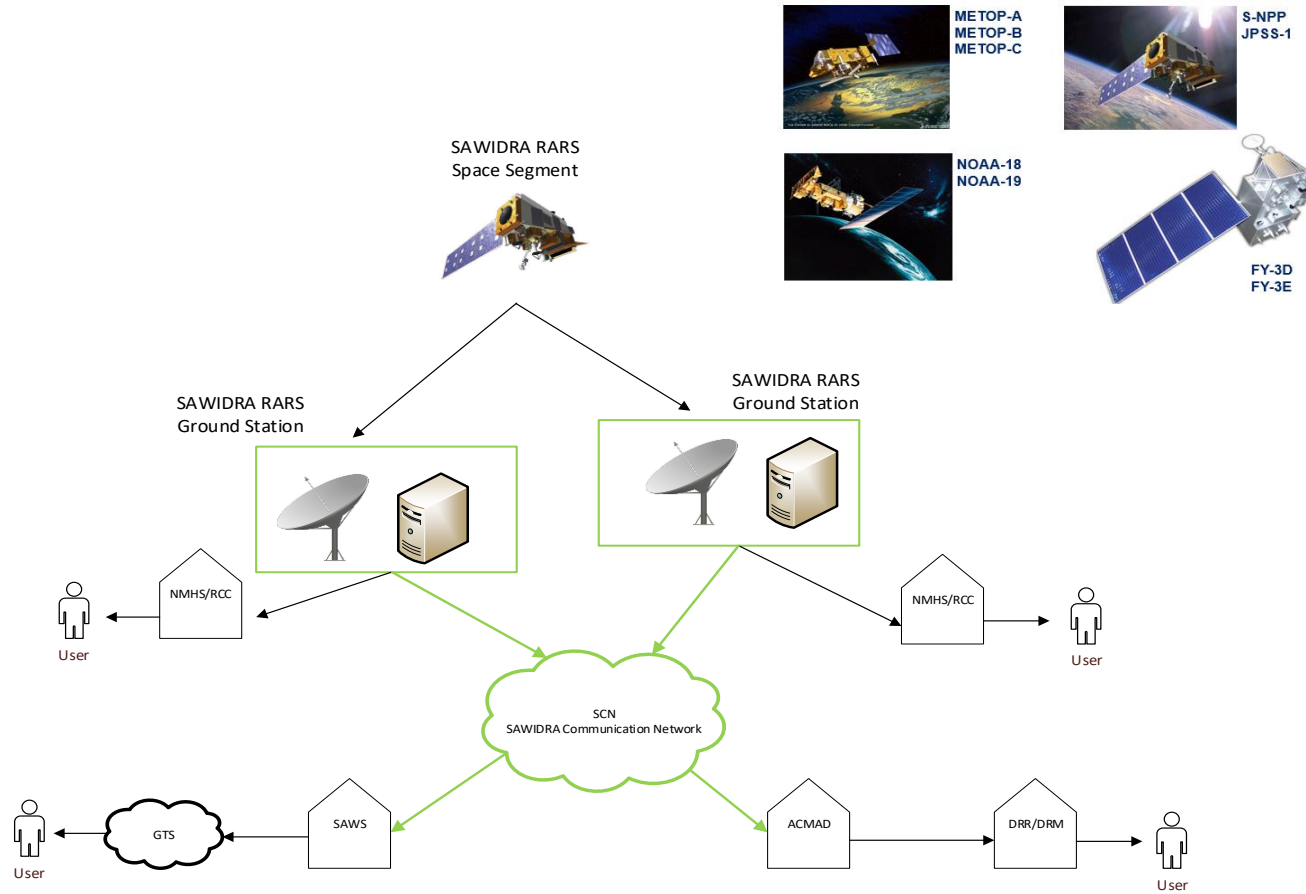
RARS station installed on the roof of AGRHYMET's building (Niamey- Niger)



RARS station built at SANSA's premises (Pretoria, South Africa)

6. RARS Africa data flow

Facilities /services



system overview of SAWIDRA RARS (in green colour) ground segment and the external entities it is connected with.



SAWIDRA Results

Browser address bar: :8080/observer/

farEarth OBSERVER

NO PASS		
RECORDINGS		
28 Dec 2020 01:47:01 UTC	Africa NOAA 20 VIIRS	
28 Dec 2020 00:56:31 UTC	Africa SUOMI NPP VIIRS	
28 Dec 2020 00:08:36 UTC	Africa NOAA 20 VIIRS	
27 Dec 2020 21:38:21 UTC	Africa METOP B AVHRR	
27 Dec 2020 21:22:55 UTC	Africa NOAA 18 AVHRR	
27 Dec 2020 20:51:26 UTC	Africa METOP C AVHRR	
27 Dec 2020 20:27:13 UTC	Africa METOP A AVHRR	
27 Dec 2020	Africa	

farEarth: satellite data reception software installed with RARS-Africa stations



6. SAWIDRA Results

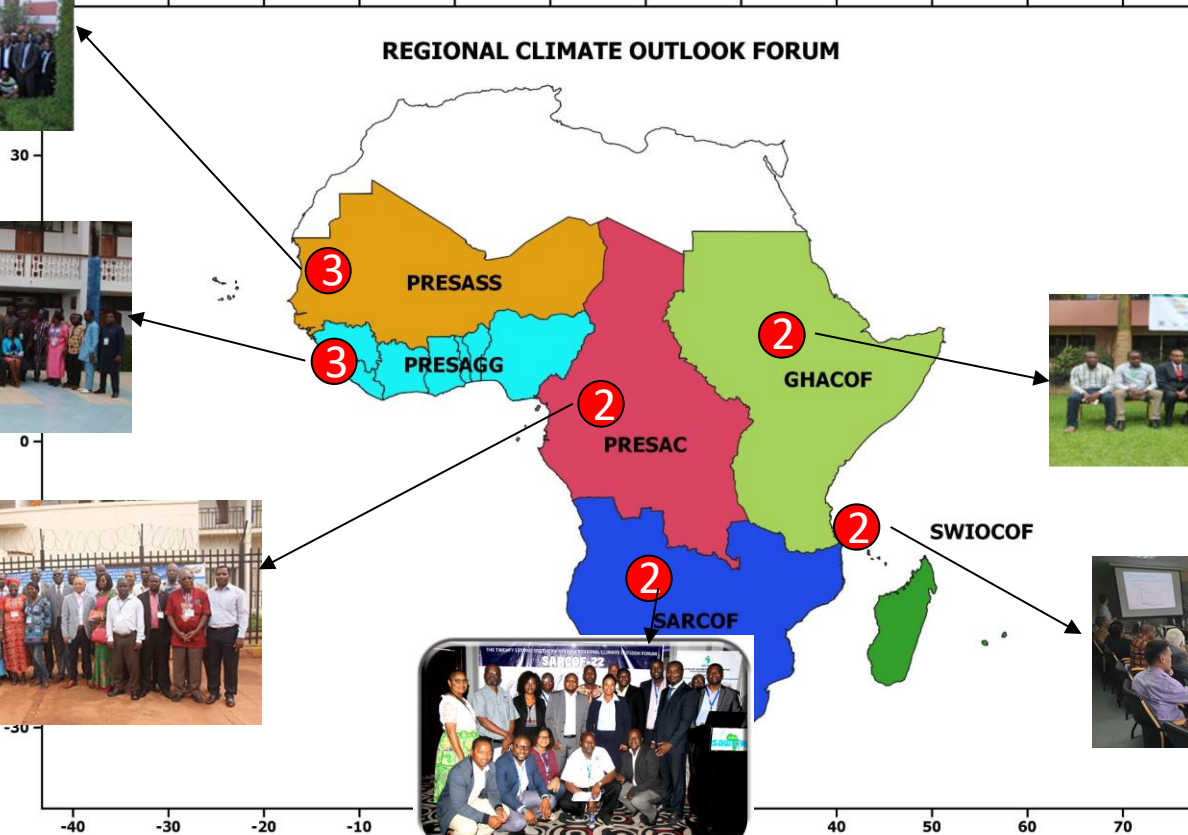
- 4 RARS stations installed and operational (3year warranty)
(1 RARS station (SAWS) connected to GTS)
- 1 HPC acquired and installed with 344 cores and 700TB storage server



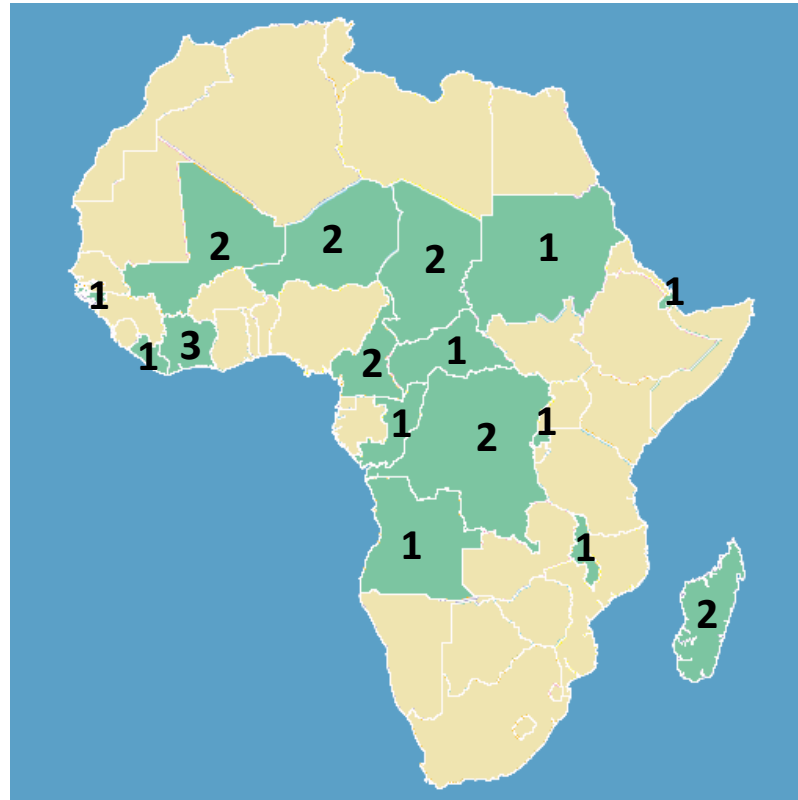
High Performance Computing installed at ACMAD with 700 cores and 600TB storage

14 Interfaces (Dialogues) between Climat&Meteo / RRC

- * 196 DRM & Humanitarians consulted,
- * DRR's needs for climatological information collected for 6 regions,
- * Best practices on preparation & response to disaster shared for each 6 region.



Reception of NMHS staff on Internships/Secondments (24)





7. Challenges

- RARS-Africa network sustainability : (ACMAD, WMO, EUMETSAT, and partners)
 - RARS exploitation costs:
 - SW & HW maintenance services
 - electricity power,
 - spare parts,
 - telecommunication cost
 - Build an african IT team on the maintenance of RARS stations,
- Finalize inclusion of RARS-Africa in WMO DBNet (ACMAD, WMO, EUMETSAT, ASECNA, SAWS ...)
- Monitor RARS inputs and impacts on global and regional NWP (Global Prediction Centres: ECMWF, NCEP, DWD, UKMO, METEO-FRANCE...)



Build capacity for African scientists on NWP with emphasis on satellite meteorology and advanced data assimilation systems (ACMAD, Universities, Global Prediction Centres ...)

- Exploitation of non-meteorological data:
 - data archive and access (data server)
 - dedicated telecommunication
- Develop the wide range of other applications meeting the requests in climatology, hydrology, oceanography, disaster management....
- **Abide by AMSAF Abidjan 2019 declaration.....**
'Africa shall not only be a user of Satellite products but shall generate its own products'



Thank you for your attention