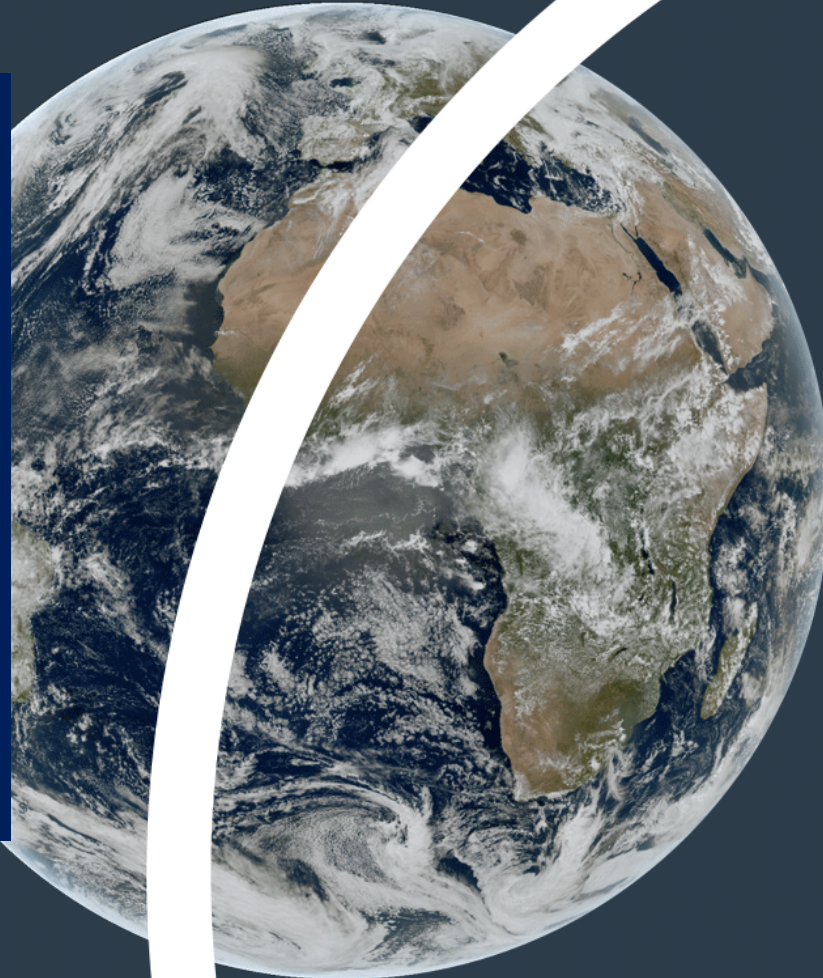


# Space for Early Warning in Africa (SEWA)

## Expected EUMETSAT contribution

16<sup>th</sup> EUMETSAT User Forum in Africa  
*16-20 September 2024*





## S02: Enhance the capacity to produce and deliver space-based services and applications, data and information, for early warning systems related to hazardous weather or climate event

- ➔ 2.1 Improved access, processing, applicability and use of Earth Observation (EO) data, with a focus on meteorological data, and Numerical Weather Prediction (NWP) products and services for Early Warning
- ➔ 2.2 Established and operated African Meteorological Satellite Application Facility (AMSAF), including possible support for forecasting capabilities at different ranges led
- 2.3 Co-designed and delivered Impact Based Forecast services & tools
- 2.4 Enhanced coordination with institutional framework for hazardous weather & climate Early Warning and shared knowledge across regions
- ➔ 2.5 Strengthened human capacities, knowledge and community shaping across the Early Warning value chain with a focus on space-based data and technologies



- General principles for the implementation
- Data access
- AMSAF
- Training



- *Principle #1: Focus on capacity building and contribute to “African ownership”*
  - AUC and African experts participation in design and contractualization
  - Alignment with AMCOMET / AUC objectives
  - Training / Infrastructure
- *Principle #2: Build on existing assets and know-how*
  - *PUMA, AMSESD, MESA, **SAWIDRA**, **CLIMSA**, G&A*
- *Principle #3: Engage external expertise from various entities to reach the expected outcomes*
  - Most of the activities done via contracts
- *Principle #4: Alignment with EUMETSAT owned activities*
  - Contribution from EUMETSAT on top of project activities
  - Ensure sustainability on some aspects



*Improved access, processing, applicability and use of Earth Observation (EO) data, with a focus on meteorological data, and Numerical Weather Prediction (NWP) products and services for Early Warning*

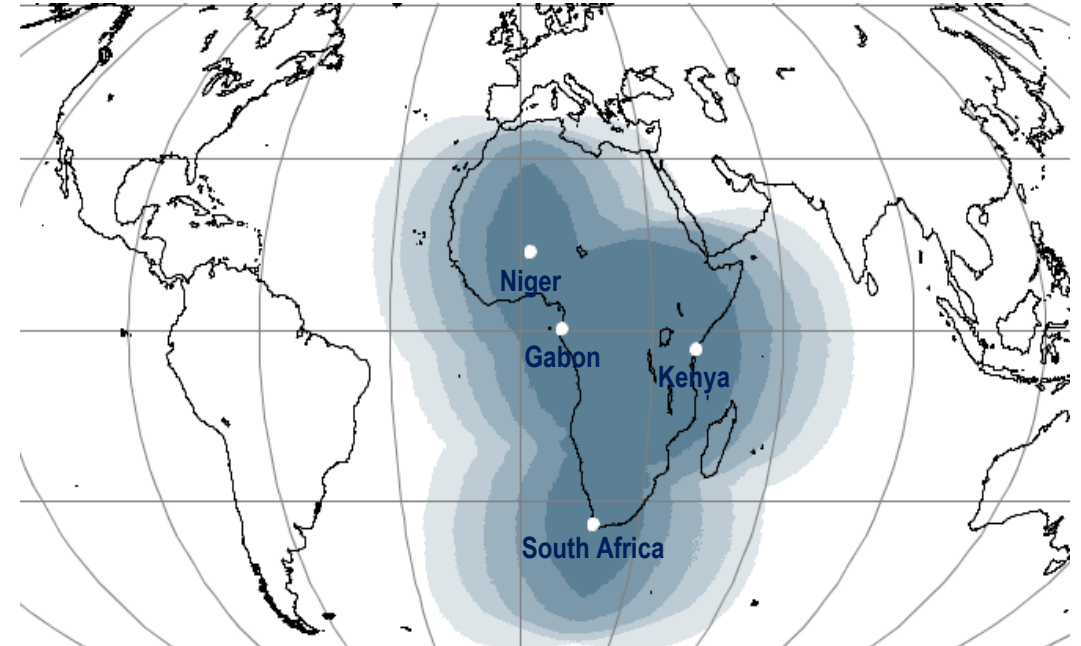
- EO data:
  - Focus on MTG and EPS-SG (with potential to add Copernicus or other third party products)
  - NWP access -> done by ECMWF
- Approach:
  1. Consolidate existing assets – PUMA & RARS
  2. Introduce new data access systems:
    - EUMETCast-Terrestrial
    - Cloud-Computing resources



- **Upgrade of PUMA-2025 stations**
  - PUMA Software update ( new MTG products, new AMSAF products, other EW products)
  - PUMA upgrade to display additional EW-related data available on-line (connection with Output #2 and #3)
  - Maintenance of the PUMA stations

*Specification for the PUMA update, upgrade and maintenance will be discussed with the Working Group (and RAIDEG).*

- Upgrade of RARS stations
  - Maintenance of existing 4 stations located at AGEOS, SAWS, ICPAC and AGRHYMET.
  - Upgrade to new generation of polar orbiting satellite
  - Provide input to NWP global centre (e.g. ECMWF)

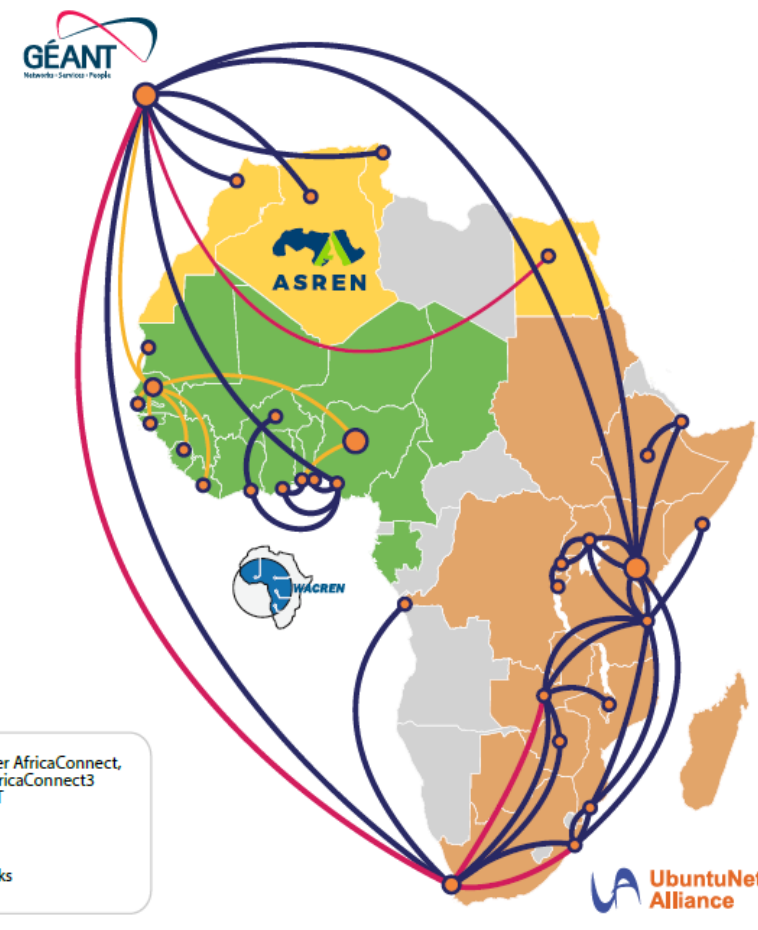


## • EUMETCast-Terrestrial

- Connect more NMHS to EUMETCast-Terrestrial
- Access to ALL MTG data and products (pending bandwidth connectivity)

- **South Africa** already connected
- **Ghana and Mauritius** in progress
- **Who is next???**

- Strong link with



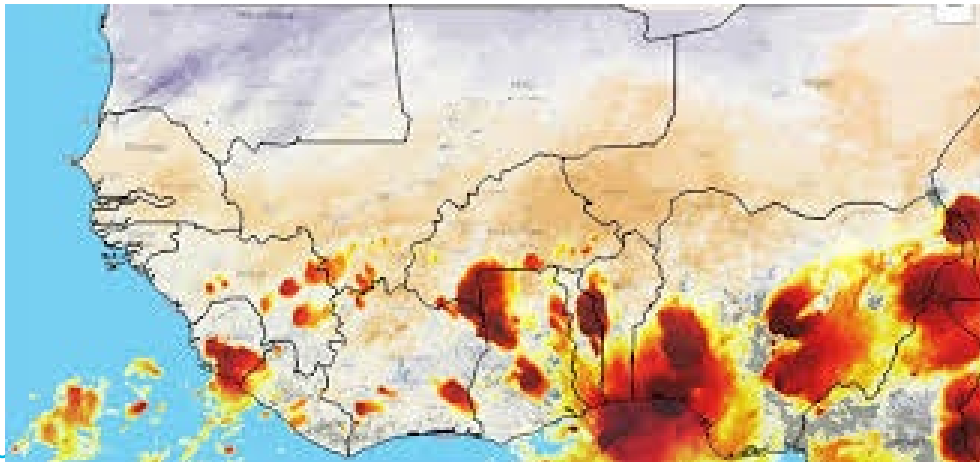
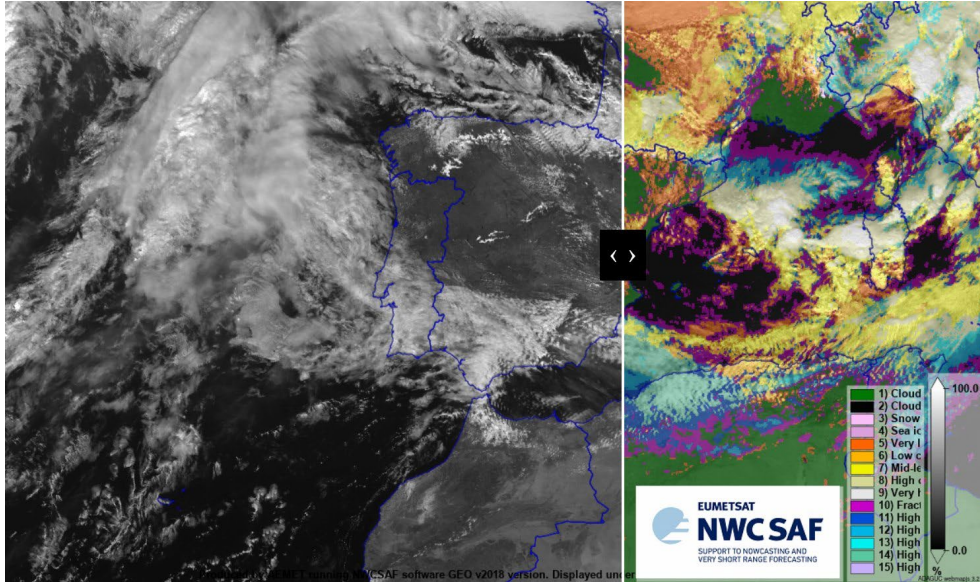




# Cloud computing

(AI generated image)

- *Running the AMSAF-Nowcasting on a cloud environment.*



- AMSAF was introduced in the Abidjan Declaration  
*“Africa shall not only be a user of satellite data&products, but shall generate its own products”*

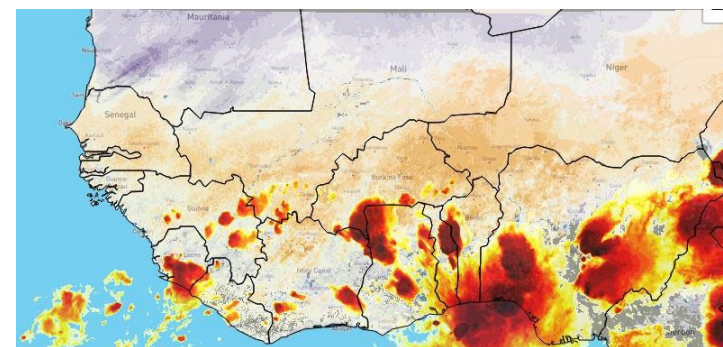
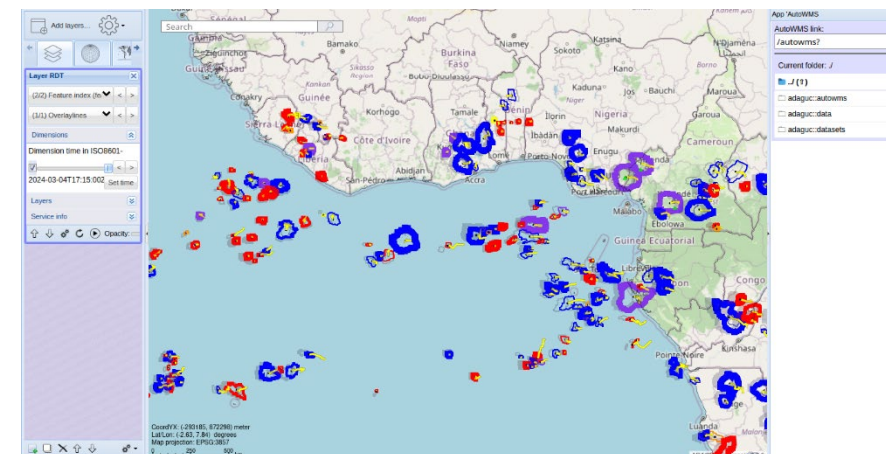


- AMSAF workshop in 2019 to refine the concept.

- Objective: *Established and operated African meteorological satellite application facility (AMSAT), including possible support for forecasting capabilities at different ranges*
- Focus on Early Warning - > Nowcasting
- 3 activities are planned:
  - Establish AMSAT-Nowcasting in each region
  - AMSAT roadmap for future development
  - R&I Studies for new African AMSAT products



- Approach is to have 4 regional centers producing dedicated Nowcasting (detection of severe weather) products for their region
  - Build on the EUMETSAT Nowcasting SAF
  - Build on PUMA station
  - Build on SWIFT-Africa and WISER-EWSA
  - Build on WMO-SWF project



- Establish AMSAF-Nowcasting in each region, combining strength of REC's regional centre and RSMC
  - **Western Africa:** AGRHYMET and ANACIM (Senegal Met Service)
  - **Eastern Africa:** ICPAC and Kenya Meteorological Department
  - **Southern Africa** (inc. Indian Ocean): SADC-CSC and SAWS
  - **Central Africa:** CAPC-AC and Cameroon Met Services, with support from ACMAD and ANACIM



- Training will focus on
  - Infrastructure maintenance and usage (PUMA, RARS, Cloud)
  - AMSAF-Nowcasting
- In close partnership with the VLAB Centre of Excellence
  - IMTR
  - EAMAC
  - SAWS
  - Morocco
- Link with universities for AMSAF and Training is also envisaged.



**Thank you!**  
Questions are welcome.