AMCOMET

African Ministerial Conference on Meteorology (AMCOMET)

Session 7C: African Regional Space Programme Earth Observation, Data Needs and Access

Needs of Meteorology and linkage to the African Regional Space Programme Thema / Themes

10 September 2014
Benoni, South Africa

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WHY AN AFRICAN METEOROLOGICAL SPACE PROGRAMME?

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- Address critical **shortage of land based observations** in most African countries
- Address **communication gaps for data exchange** between African countries and beyond
- Access to products and services from advanced centres to acquire initial and lateral boundary **data required for numerical model forecasts**
- Enable **disaster risk management** (tracking and forecasts of high-impact weather such as floods, dust storms, drought, etc)
- Foster **Research** and **Development** in the science of meteorology and its applications

AMCOMET TASK FORCE ON THE AFRICAN REGIONAL SPACE PROGRAMME

- AU Executive Council Decision to establish a **Joint Task Force** on the African Regional Space Programme
- AMCOMET Task Force on the African Regional Space Programme has been collaborating with the African Union (AU) Space Working Group on the African Space Policy and Strategy, **providing inputs related to meteorological issues**
- The African Space Policy and Strategy, which guide the **framework for the formalization of the African Space Agenda** are expected to be presented during the 16th Session of RAI and AMCOMET-3

AMCOMET BUREAU ON THE AFRICAN REGIONAL SPACE PROGRAMME

- The AMCOMET Bureau requested the AUC and the African Ministerial Conference on Science and Technology (AMCOST), in collaboration with AMCOMET, to **link the African Regional Space Programme to the WMO Space Programme** and to other ongoing regional initiatives such as the Monitoring of Environment for Security in Africa (MESA) and the African Satellite Meteorology Education and Training (ASMET)

SYNERGIES AND LINKAGES BETWEEN METEOROLOGICAL NEEDS IN AFRICA AND THE AFRICAN REGIONAL SPACE PROGRAMME

AFRICAN SPACE POLICY AND STRATEGY

Has **five (5) major thema**: earth observation, navigation and positioning, satellite communications, space physics and astronomy

- **Earth Observation:** links to operation and application of meteorological satellites, and offers the strongest linkage between AMCOMET and AMCOST
- **Satellite Communication:** addresses accessibility and connectivity for data and product exchange among African countries and the rest of the world
- **Navigation and Positioning:** locations of high impact weather events such as tropical cyclones, including volcanic ash and tsunamigenic waves, among others

SYNERGIES AND LINKAGES BETWEEN METEOROLOGICAL NEEDS IN AFRICA AND THE AFRICAN REGIONAL SPACE PROGRAMME

AFRICAN SPACE POLICY AND STRATEGY (cont)

- **Space Physics:** links to space weather (solar wind, ionosphere, magnetosphere) which impacts aviation and space exploration
- **Astronomy:** links with the periodic movement of the sun between the Tropic of Cancer (latitude: 23.5° Northern Hemisphere) across the Equator (latitude 0°) to the Tropic of Capricorn (latitude 23° Southern Hemisphere) which causes the change in seasons dependent on the position of the overhead Sun. This linkage may also be identified in the relationship between the ocean tides and the position of the moon

SYNERGIES AND LINKAGES BETWEEN METEOROLOGICAL NEEDS IN AFRICA AND THE AFRICAN REGIONAL SPACE PROGRAMME

Convergence in policy objectives:

- *Addressing user needs* (develop products to minimize impact of disasters and climate change, among others) in accordance to the Hyogo Framework of Action (HFA), Millennium Development Goals (MDGs) and post-2015 frameworks
- *Developing and using satellite derived products and services* (implies sharing of data, infrastructure and developing human capacity)

SYNERGIES AND LINKAGES BETWEEN METEOROLOGICAL NEEDS IN AFRICA AND THE AFRICAN REGIONAL SPACE PROGRAMME

Convergence in policy objectives:

- *Promoting international cooperation* (to advance African-led space agenda through partnerships)
- *Promoting the development of indigenous space capacity* (for the sustainability of the African Regional Space Programme)
- *Developing the African market and adapting good governance* (for optimum exploitation of space products and services)

WMO RAI DISSEMINATION EXPERT GROUP (RAIDEG)

- Established in 2010 **to capture user needs and review satellite data access requirements** for the African Region;
- The Group **focuses on updates to the EUMETCast-Africa Dissemination Baseline**, which are put forward for approval by the EUMETSAT Council and are subsequently implemented on EUMETCast; and
- RAIDEG is the **focal point for enhancements to satellite reception station equipment** provided through continental wide projects and is the interface with those responsible for satellite related training services provided to the Region

WMO RAI DISSEMINATION EXPERT GROUP (RAIDEG)

Topics of key importance to RAIDEG include the following:

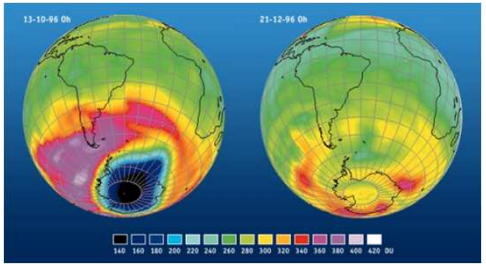
- **Maintenance** of existing satellite ground receiving station equipment;
- Assessing **training** needs (material and support); and
- **Communication** with the NMHSs, which RAIDEG is mandated to represent, and other user communities within the region.

MEMBERS OF RAIDEG

MEMBER	SUB-REGION / ROLE
Kenya	Eastern Africa
Cameroun	Central Africa
Mauritius	Indian Ocean
Morocco	Northern Africa
Senegal	Western Africa
South Africa	Southern Africa
ACMAD	Regional
ASECNA / EAMAC	Regional
EUMETSAT	Data Provider
WMO	Host Organization

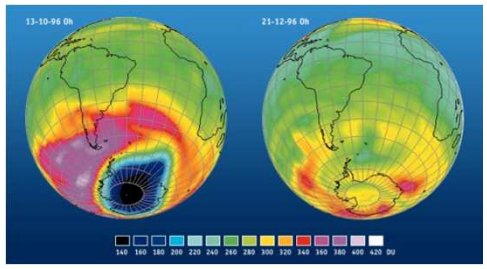
EUMETCast AFRICA DATA AND PRODUCTS

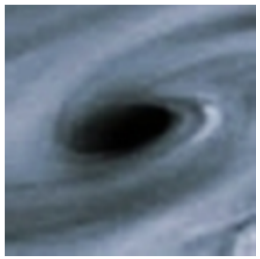
Services Available on EUMETCast Africa	
EUMETSAT Satellite Data (Level 1)	Meteosat
Third Party Satellite Data (Level 1)	GOES (NOAA), MT-SAT (Japan) / FY2 (China)
Numerous Level 2 Products	EUMETSAT, Satellite Application Facilities (SAFs), others
In-situ / observational data	NMHSs
Numerical Weather Forecasts & Analysis Data	NWP Centres



EUMETCast AFRICA DATA AND PRODUCTS

Products per Application	
Earth Component	**No. of Satellite Products**
Atmosphere	71
Marine	51
Land	108




SOME METEOROLOGICAL APPLICATIONS FROM SATELLITE OBSERVATIONS

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- *Environment Monitoring* (biomass mapping to indicate vegetation coverage, human / rural / urban settlement)
- *Agricultural Meteorology* (rainfall and temperature estimation)
- *Atmospheric Chemistry* (monitoring dispersal of pollutants – both gaseous and aerosols)
- *Forecasting of high-impact Weather* (cloud movement, storm tracks, gusty winds, floods, fog, smoke, sand/dust storms, etc)
- *Numerical Weather Prediction* (data assimilated into dynamic models for nowcasting)

SOME METEOROLOGICAL APPLICATIONS FROM SATELLITE OBSERVATIONS

- *Climate Monitoring*
- *Space Weather*
- *Research*
- *Marine and Oceanography*

CROSS CUTTING ISSUES BETWEEN METEOROLOGY IN AFRICA AND THE AFRICAN REGIONAL SPACE PROGRAMME

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- Data Access and Infrastructure
- User Needs Assessment
- Research and development
- Capacity development
- Data sharing

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Thank you for your kind attention

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