WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

AMCOMET and the African Space Programme

Working Group #2
Meeting
12 September 2016
Kigali, Rwanda

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World Meteorological Organization
Organisation météorologique mondiale

Dr. Joseph Mukabana
Director, AMCOMET Secretariat
Regional Office for African and LDCs

What is AMCOMET

- A **high-level policy mechanism** for the development of meteorology and its applications in Africa
- The **intergovernmental authority** that fosters political will to strengthen NMHSs and enable them to fully perform their roles as fundamental components of the national development infrastructure and a major contributor to social and economic development
- **Vision:** to have a framework of cooperation to support sustainable development through the sound governance of the science of meteorology
- **Mission:** to provide political leadership, policy direction and guidance in the provision of weather and climate services that meet societal needs

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What is AMCOMET

- **Joint initiative** of the WMO and AUC and is a body endorsed by the African Heads of States
- **Membership:** all African Ministers in charge of meteorology
- Decisions taken during AMCOMET Sessions are submitted to the **African Union Summit** of Heads of State and Government for endorsement
- WMO acts as the **Secretariat of AMCOMET**, in collaboration with African Union Commission – ensure that decisions taken are implemented

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AMCOMET and the African Space Programme

October 2012
AMCOMET-2

Ministerial Decision 02/5

… investigate the feasibility of developing an African Regional Space Programme …

January 2013
AU Summit

Decision 744

Establishment of a Joint Task Force, ensuring close coordination with other relevant (AUC) Departments and stakeholders

May 2014
Bureau Meeting

Decision

Request the AUC, AMCOST and AMCOMET to link the African Regional Space Programme with the WMO Space Programme

February 2015
AMCOMET-3

Praia Ministerial Declaration

Endorsement of the draft African Space Policy and the African Space Strategy

WMO RAI
Endorsement of Concept Note for the African Regional Space Programme

Next Steps:

Following approval of the African Space Policy and Strategy by the AU Heads of State and Government in January 2016, next step, specifically for WMO and AMCOMET is to ***define concretely meteorological inputs into the African Space Implementation Plan***

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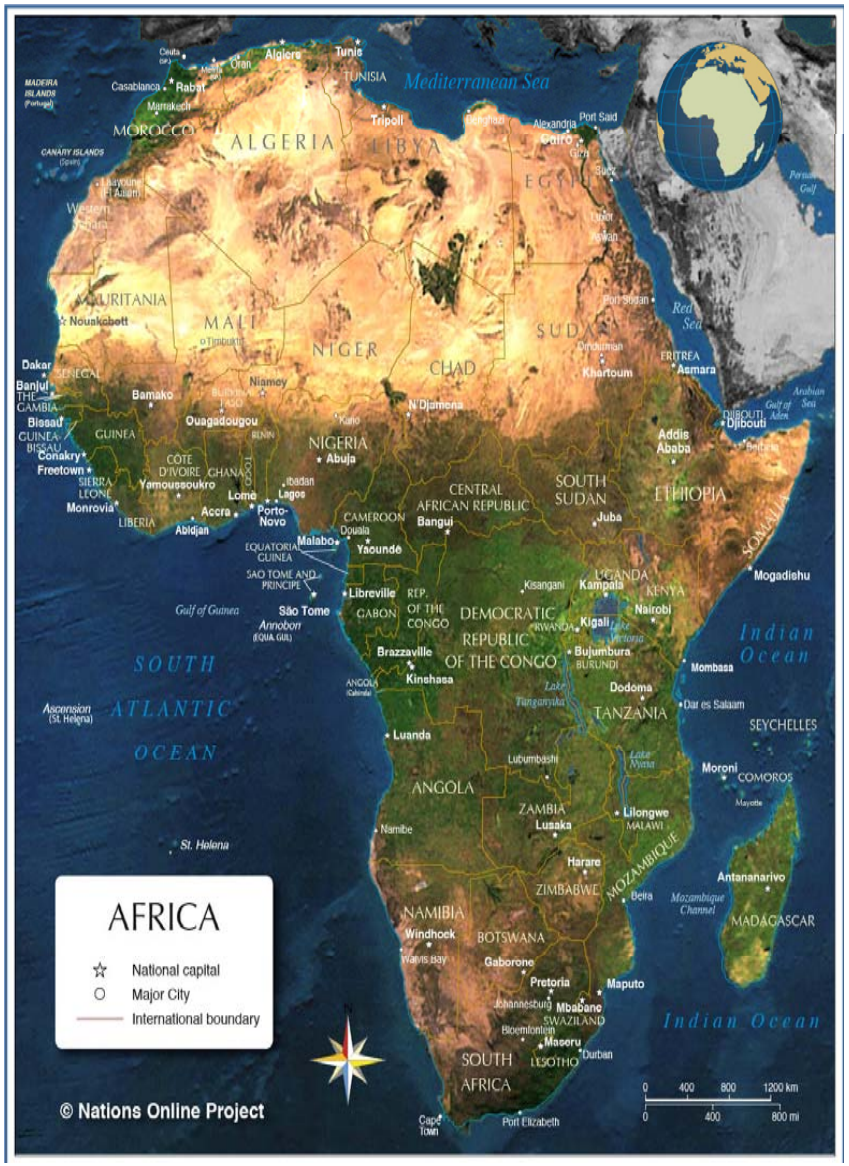
Importance of Space-based Observation for Africa

Africa

- world's **second largest continent** (30.2 m km^2) including islands
- **second most populous continent** (1.1 billion people as by 2013)
- Covers 6% of the Earth's total surface area and **20.4% of total land area**;
- It accounts for about **15% of the world's population**
- has a vast land area with difficult terrain *(deserts, rainforest, inland water bodies, complex and inhomogeneous topography, the Great Rift Valley)*
- *surrounding Oceans* pose great difficulties in installing and maintenance of in-situ observation networks



Satellite observations are critical to support weather, climate, marine and environmental services for protection of life and property and sustainable socio-economic development of the African continent.

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CURRENT SITUATION

- Surveys with WMO Members in RAI (Africa) show that data access, product development and **regional capacity in satellite meteorology are still limiting factors** to an efficient exploitation of satellite observation data and products
- An effective breakthrough could be achieved by **leveraging current satellite-related activities**, such as those undertaken in cooperation with EUMETSAT, among others, with the aim to:
  - provide better satellite data accessibility;
  - Develop regionally tailored products & services; and
  - Develop technical and human capacity in all WMO application areas dependent on satellites.

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Meteorological Inputs into the African Space Implementation Plan

Five (5) Thematic Areas of the African Space Programme

1. Earth Observations
2. Navigation and Positioning
3. Satellite Communications
4. Space Physics
5. Astronomy

Meteorological Input is particularly important with regards to bullets 1 through 3

Meteorological Inputs into the African Space Implementation Plan

Proposed Activities

- **Building a Ground Segment** (for receiving and accessing existing satellite data and products)
- **Strengthening Application Segment** Capacity
  - building for a critical mass of expertise with skills and competences in the processing, analysis and use of satellite data
  - identifying gaps in existing space observations
  - Acquiring requisite infrastructure and knowledge to support the exploitation of existing satellite data
- Development of a **Space Segment to be considered** based on:
  - Rich experience gained through applications of existing satellite systems
  - Identification of more precise needs and gaps in current and planned systems using WMO Rolling Review of Requirements Process

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AMCOMET Task Force Meeting on the African Space Programme

AMCOMET Task Force Meeting on the African Space Programme

- *11 September 2016*
- *Participation of Task Force Members, African Union Commission, AU Space Working Group, WMO, AMCOMET Secretariat, RAIDEG Members, Group on Earth Observations (GEO / AfriGEOSS) and EUMETSAT*
- *Chair of the AU Space Working Group*
  - *presented the key elements of the African Space Policy and Strategy and the context for unpacking the user requirements of the African meteorology community*
  - *facilitated discussions to identify the critical issues in terms of the assessment of user requirements and to develop an action plan to address highlighted issues*
- *RAIDEG Working Group Chair presented an overview of the RAIDEG activities and its links to the African Space Programme, specifically as a building block in developing the elements of the meteorological input for the Implementation Plan of the African Space Programme*

Recommendations of the AMCOMET Task Force Meeting on the African Space Programme

The participants of the Task Force Meeting:

- Requested the AUC and the AMCOMET Secretariat to support African Countries in sensitizing their governments on the importance of space applications and in-situ observations.
- AMCOMET Task Force to consider the formal inclusion of RAIDEG in its activities

Action Plan for meteorological contribution to the African Space Implementation Plan

- **Undertake Capacity Development:** AUC, AU Space Working Group (AUSWG), WMO and AMCOMET to collaborate in the development of a structured training programme and its potential linkages to the Pan-African University on Space Science (PAUSS) including a possibility of having a satellite campus on meteorology
- **Improve Data Infrastructure:** The AUSWG and AfriGEOSS to engage with AMCOMET, through Kenya and South Africa, on the development of a shared integrated space applications platform within the scope of the Africa Research Cloud programme

Action Plan: continued

- **Upgrade Ground Segment:** WMO, AMCOMET and AUSWG to investigate the potential contribution of the RAI (Africa) WIGOS Implementation Plan to the African space programme implementation plan, particularly with in-situ observations
- **Enhance Dynamic Modeling and Forecasting:** Develop a human capacity development plan for data assimilation and using modeling numerical weather prediction (NWP)
- **Deliver Products and Services:** AUSWG to highlight the need for establishing and interaction of communities of practice at national level, leveraging on existing platforms, such as the GEO National Coordination Mechanisms and the GFCS User Interface Platform
- **Mobilize Resources:** AUSWG need to undertake a socio-economic benefit analysis of the African Space Programme and AMCOMET / WMO to provide existing case studies.

Action Plan: continued

- **Build Space Segment:** AUSWG, in collaboration with AMCOMET, to develop the value proposition and rationale behind the need for African capacity to build its own satellites.
- **Foster Strategic Partnerships:** AUSWG to develop a framework to enhance existing and develop new partnerships, through which AMCOMET will bring forth its strategic partners

WMO 2016 Survey Feedback

USE OF SATELLITE DATA

- 215 responses globally
- 56 from RAI, from 36 countries
- 82% NMHS
- 11% Research, academia
- 5% Other government agency

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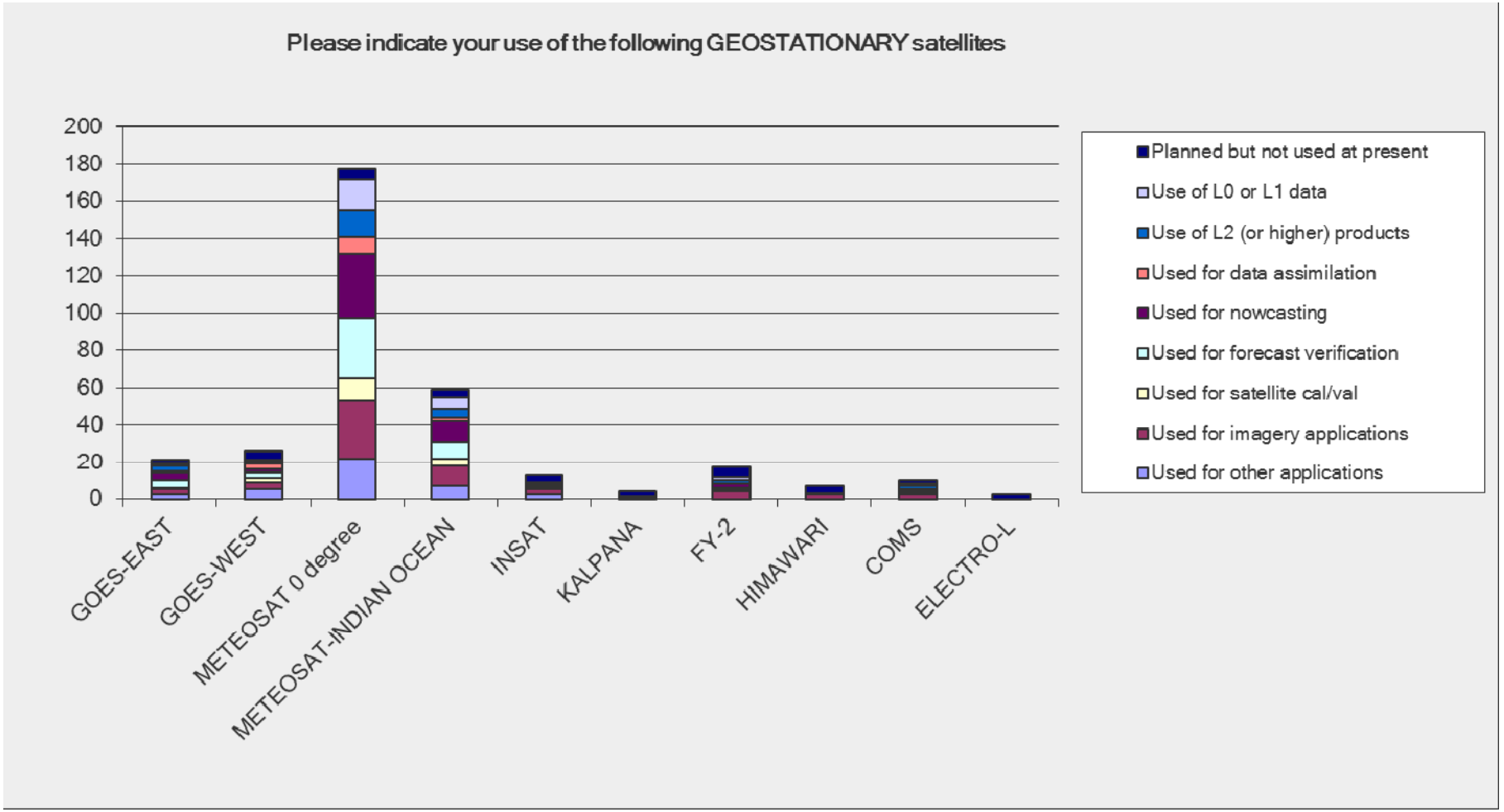
(French)
Benin
Cabo Verde
Central Africa
Congo-Brazzaville
DRC
France
Gabon
Guinea-Bissau
Guinea
Ivory Coast
Niger
Mali
Sao Tome e Principe
Senegal
Tunisia

(English)
Angola
Egypt
Ethiopia
Gambia
Ghana
Kenya
Lesotho
Liberia
Libya
Malawi
Mauritius
Nigeria
Rwanda
Seychelles
Sierra Leone
Somalia
South Africa
South Sudan
Tanzania
Uganda
Zimbabwe

RAI: GEO Data Use



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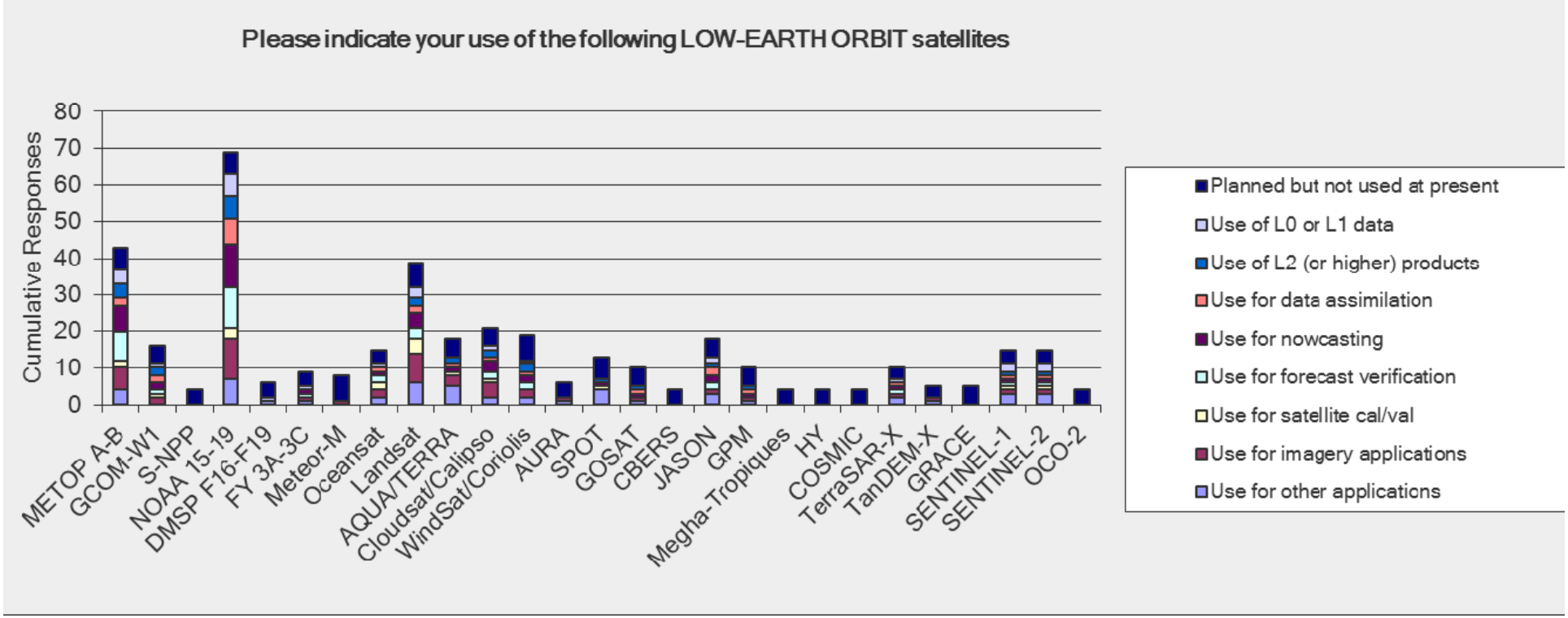
RAI: LEO Data Use



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RAI: Satellite data for thematic interest areas

- **Soil moisture:** high demand, mostly not satisfied
- **Lightning:** high demand, more planning underway
- **GHG products:** very little awareness of space capability
- **Ocean salinity:** moderate demand
- **Inland water:** moderate-high demand

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RAI: Satellite Applications

Use of Satellite Data for each application in terms of whether it is essential or not essential, used or not used and indicate if there is a need

Satellite Data Use

Answer Options	USED	NOT USED	RESPONSE COUNT
Climate Services	33	9	42
Aviation Services	40	1	41
Marine Services	30	8	38
Public Weather Services	42	3	45
Agro-meteorological Services	36	7	43
Research	35	8	43

Satellite Data Importance

Answer Options	ESSENTIAL	USEFUL	NOT USEFUL	RESPONSE COUNT
Climate Services	23	19	0	42
Aviation Services	29	11	1	41
Marine Services	30	6	2	38
Public Weather Services	33	10	0	43
Agro-meteorological Services	27	15	0	42
Research	23	20	0	43

RAI: Satellite Applications

TRAINING NEEDS				
Answer Options	NO NEED	MINOR NEED	MAJOR NEED	RESPONSE COUNT
Climate Services	0	6	38	44
Aviation Services	2	4	34	40
Marine Services	2	3	33	38
Public Weather Services	2	10	32	44
Agro-meteorological Services	1	6	36	43
Research	1	8	34	43

TRAINING NEEDS:

- ❑ Software and Maintenance
- ❑ Basics of Forecasting
- ❑ Data Assimilation
- ❑ Applications Development

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RAI: Training Resources

LEVEL OF USE

Answer Options	USED, VERY IMPORTANT	USED, SOMEWHAT IMPORTANT	NOT USED	RESPONSE COUNT
Vlab	8	10	26	44
WMO Product Access Guide	17	13	16	46
COMET/MetEd	19	10	13	42
EUMETCAL	8	11	22	41
EUMeTrain	12	12	20	44
WMO OSCAR/Space	4	7	25	36
Satellite Operator Websites	19	14	10	43
Int'l Scientific Working Groups	15	15	12	42
Social Networks, i.e. Twitter, FB, etc	12	17	10	39
Through Colleagues and Peers	18	15	5	38
CEOS Website	4	6	24	34
CGMS Website	6	5	25	36
WMO-CGMS Satellite User Readiness Navigator	4	6	28	38
Peer Reviewed Literature	10	13	15	38
Internet Search Engines, i.e. Google	25	11	3	39
Conferences and Meetings	23	12	6	41
WMO Space Programme Website	12	18	10	40

Further Considerations

- *Results of the 2016 Survey on the Use of Satellite Data can be used as **baseline information** for the meteorological input into the Implementation Plan of the African Space Programme*
- ***In-situ observations** remain a critical component in verifying satellite observed data*
- ***Converging of all complementary activities to improve capacity building efforts** for NMHSs in Africa (i.e. GMES&Africa, RAIDEG, MTG, various training resources available, among others)*
- ***Identify Strategic Partnerships** (both funding and cooperation)*
- *There is a need to **enhance cooperation** between on-going initiatives / programmes to maximize benefits and create synergies*
- ***Leverage these existing activities** and use them as concrete input into the Implementation Plan of the African Space Programme*

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AFRICAN UNION www.au.int

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Thank you
Merci

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