

## **Recommendation from the 15th EUMETSAT User Forum in Africa**

*13-16 september 2022, Dar es Salaam, United republic of Tanzania*

### **Transition to MTG**

#### **#1 Dar es Salaam Statement**

The Forum took note of the Dar es Salaam Statement on MTG for Africa and AMSAF. Participants fully supported this statement, and emphasized the strong added value of the new MTG instruments, in particular the lightning imager (LI) and Flexible Combined Imager (FCI) for Africa. The Forum kindly asked the AMCOMET Chair and Secretariat to bring this Statement to the attention of the AMCOMET and to all African countries.

#### **#2 New reception stations for MTG (PUMA-202X stations)**

The Forum thanked the AUC and the EU for planning ClimSA funds for the procurement of new PUMA-202X-MTG stations that will replace the existing ones, which were deployed in 2016. The new stations should provide capacity to access, process and visualise the MTG-Africa products made available through EUMETCast-Africa.

The Forum recommended to AUC to expedite the launch of the procurement process, so that new PUMA stations can be deployed in all sub-Saharan Africa NMHS before the end of 2024.

#### **#3 New reception stations for North Africa**

The Forum also recommends to EUMETSAT to support North Africa countries in the transition to MTG by providing technical specification for the different EUMETCast broadcast band (C-Band and Ku-Band) and supporting regional Vlab Centers of Excellence to deliver training on MTG FCI, LI and sounder instruments. It recommends EUMETSAT and North Africa NMHSs to hold a dedicated meeting after the launch of MTG to discuss their preparedness for MTG.

#### **#4 Training**

The Forum took note of the training sessions that are planned on the new PUMA-202x station (system administrator and applications) as part of the ClimSA programme, as well as the MTG-related training topic planned to be addressed by WMO Vlab CoE, as part of the African Satellite Meteorology Training ASMET programme on various topics such as atmospheric convection, cloud identification, precipitation products, lightning, etc.

The Forum recommends to AUC and EUMETSAT to ensure that a sufficient number of forecasters and IT specialists are trained in the coming years on the new PUMA stations and on the applications of the MTG instruments (FCI and LI), in order to ensure a fast ramp-up of African capacities for MTG and sustainability through a critical mass of trained staff.

#### #5 – African Meteorological Satellite Application Facility

The Forum noted the concept for MTG AMSAF programme and fully supported it. It noted that the installation of NWC SAF locally in Africa, and of the Drought & Vegetation Data Cube, could become precursors of such an AMSAF.

It recommends to the Abidjan Declaration Joint Working Group and the RAIDEG to further discuss a roadmap for establishing the AMSAF, through concrete step-by-step implementation including a strong capacity development component, an adequate training strategy, and technology transfer to allow a quick operationalisation of AMSAF.

#### **Satellite data for early warning and aviation**

##### #6 - Nowcasting . Turbulence

In view of its importance for aviation, the Forum recommends to RAIDEG to assess with EUMETSAT the possibility to include the NWC SAF Turbulence products in the EUMETCast Africa dissemination in addition to the other products.

##### #7 - Nowcasting SAF local installation in Africa

The Forum noted that several regional centres and NMHSs have successfully installed and operated the NWC SAF software in recent years, notably thanks to the SWIFT-Africa project. It also noted the case of Southern Africa, where the Regional Specialised Meteorological Centre run the NWC SAF and make available NWC products in the Southern Africa region.

The Forum recommended the other regions to assess the implementation of similar scheme. It noted in particular the interest of CAPC-AC and the Central Africa NMHS for the NWC SAF products, and recommends CAPC-AC and NMHS to continue discussion to install a regional NWC SAF seconded by National ones.

##### #8 - SAWIDRA – RARS Africa

The Forum recommended to ACMAD, in close cooperation with the four RARS Africa antenna hosting sites (SAWS & SANSA, AGEOS, ICPAC, AGRHYMET), to operationalise the RARS Africa network and put data in the GTS, so that all NMHSs and international partners can benefit from this infrastructure. The Forum also recommends ACMAD to operate a NWP regional model at similar resolution (or better) than global model.

##### #9 - Disaster Situation Room

The Forum recommended to the regional entities working in the area of disaster risk reduction, and running Disaster Situation Rooms to continue close collaboration with the national meteorological services and other national agencies and regional institutions working in this arena. The Forum noted that the mandate to raise warning for weather and climate related disaster is at national level.

In line with the 2022 Maputo Ministerial Declaration on “Bridging the Gap between Early Warning and Early Action”, the Forum also noted that MTG and AMSAF will be essential to feed MHEWS and Disaster

Situation Room at continental, regional and national level. The Forum recommended to all NMHS to plan to include MTG, NWC SAF, Hydrology SAF and AMSAF derived products in their input to disaster early warning system at national level.

### **Satellite data for Blue Economy**

#### **#10 - G&A and Meteorological community**

Inspired by the example of University of Ghana and Ghana Met cooperation, the Forum noted that Synergy between NMHS and GMES & Africa consortia could be greatly beneficial to strengthen EO-based services to citizens in Africa.

The Forum recommends that AUC (GMES & Africa and ClimSA) and AMCOMET secretariat, with the support from EUMETSAT, ESA and JRC, to define concrete engagement areas, where actual cooperation could be beneficial for the citizens, based on the existing GMES & Africa phase 2 services and NMHS. At least one successful NMHS-G&A cooperation to be demonstrated per each region at the next GMES & Africa Service Workshops and Forum, and EUMETSAT User Forum in Africa, to serve as “best practices” inspiring others.

#### **#11 - G&A and NMHS cooperation in Western and Northern Africa for Coastal & Marine services**

The Forum noted that UoG call to the NMHS in Western and Northern Africa to engage with each other, and discuss possible cooperation. The Forum recommends UoG and NMHS to engage discussion on implementing services to fishermen, while taking into account respective national mandate in the area of marine weather forecast and marine & coastal resources management.

#### **#12 - Use of EO by River Basin Authority**

The Forum noted that River Basin Authorities are making extensive use of satellite data. In particular, Meteosat data are used for some critical operations (like flood warning and water management). The Forum recommended to the River Basin Authorities to consider transition to MTG as soon as possible to be ready and benefit increase accuracy for their services.

#### **#13 - G&A Marine in Southern Africa and Indian Ocean**

The Forum noted the excellent products made available by the G&A MarcoSIO consortia for Southern Africa and Indian Ocean (e.g. CSIR and TAFIRI). It recommended to the consortia to plan sufficient efforts to engage with users, policy and decision makers in all countries covered by their products, through awareness rising and training activities.

### **Satellite data for Climate monitoring and services**

#### **#14 - Satellite-based climate data for Africa and Climate station**

The Forum noted a need for awareness raising and capacity building among potential users in Africa for satellite-based climate products and tools demonstrated (TAMSAT EUMETSAT Data Cube, CM SAF products and toolbox, JRC Climate station). The Forum called upon closer collaboration between African and European institutions (data/tool providers) to optimize utilization of available data/tools to improve climate services in Africa. Strengthened collaboration between the Africa institutions are also encouraged to increase skill/technology exchange.

The Forum recommended to ClimSA partners, to EUMETSAT, to JRC, to TAMSAT and to CM SAF, to strengthen training on these tools and products.

The Forum also recommends CLimSA partners to consider the maintenance of the existing MESA stations to ensure continuous reception and operation, in parallel to the Climate station.

Finally, the Forum recommends to AUC to assess under which modalities North Africa countries could also benefit from the Climate station.

#### **#15 – Satellite based climate data on Cloud**

The Forum also recommended to ClimSA, AUC and EUMETSAT to assess the possibility to make available these products (TAMSAT, EUMETSAT Data Cube, CM SAF products and toolbox) on a cloud service, such as the European Weather Cloud, or on an African Cloud service that could be established as part of the AMSAF.

### **Data access and Training**

#### **#16 – PytTROLL for RARS and others**

The Forum noted with interest the availability of the PyTROLL open source python software modules built to read, process and visualise EO satellites and the opportunity for the RARS Africa Hosting Sites to use these modules. The Forum recommended the RARS Hosting Sites and partners (AGRHYMET, ICAPC, AGEOS, SANSA, SAWS and ACMAD) to engage with PYTROLL in order to install and use the software for the exploitation of the data received from the Polar orbiting Meteorological Satellites through the RARS Station.

The Forum also encouraged the NMHS with good IT and Python coding knowledge to assess the possibility to install, test and run the PyTroll in their premises, as a parallel system to the PUMA station.

#17 – NMHS and NREN

The Forum welcomed the AfricaConnect3 initiative proposal to engage more with the meteorological and climate community. NRENS might indeed play a significant role in facilitating data exchange (satellite, model, others) especially when it comes to voluminous data sets (Big Data).

The Forum further noted that the EUMETCAST terrestrial (which can be based on NREN network) will allow access to all MTG data & products (contrary to EUMETCast-Africa). The Forum recommended to NMHSs and RCCs that are willing to adopt these technologies to contact their respective NREN and inform EUMETSAT and AfricaConnect, so that test connections can be prepared and performed. NMHS and other partners are also encouraged to stay engaged with NRENS and express their needs in terms of connectivity, access, data dissemination and other services.