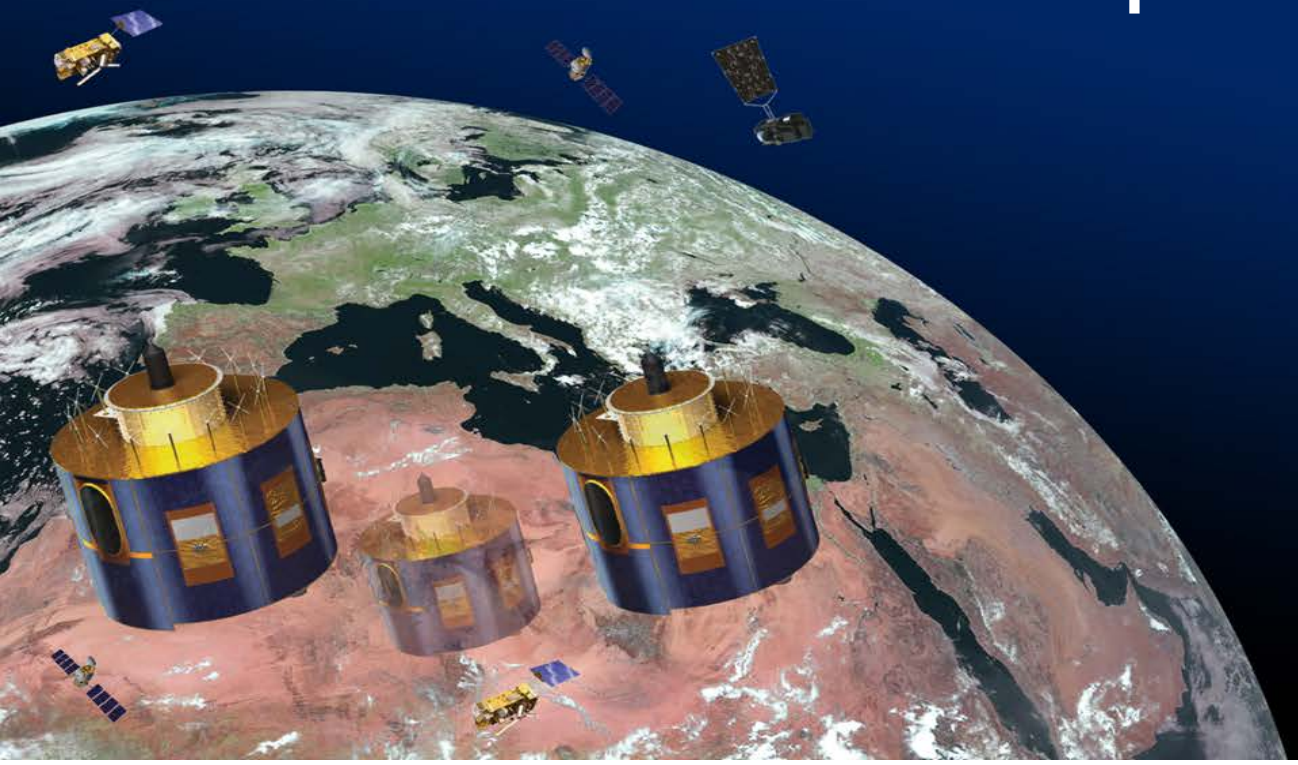
Update on MTG and MESA

Vincent Gabaglio

8th RAIDEG meeting

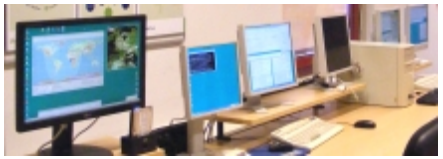
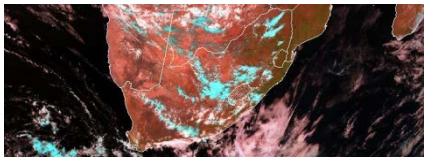
1-2 November 2017



Outline

- Main results of the MESA Programme
  - Overall
  - PUMA 2015
- MTG for Africa
  - Conclusion of the last EUMETSAT User Forum
  - Current stations and plans

MONITORING FOR ENVIRONMENT AND SECURITY IN AFRICA (MESA)

- Started in 2013, Ended in September 2017
- Funded by the 10th EDF, 37 M€
- Implemented by AUC and seven Regional Implementation Centers

Objective and purpose

- **Objective:**

  To support African decision-makers and planners in designing and implementing national, regional and continental policies and development plans towards sustainable development

- **Purpose:**

  To increase the capacity of African sector-mandated institutions to manage information, make decisions, and plan development at continental, regional, and national levels

Result areas

Outcomes:

1. Improved access to earth observation data
2. Products and information services
3. Geographic & thematic cross-fertilization
4. Strengthened policy development frameworks
5. Enhanced capacity

Overall results – Key figures

2250 African experts trained at continental level;

195 EUMETCast stations deployed or upgraded in 49 countries;

130 African trainers trained

50 class-room training courses (inc. 6 training of trainers session);

43 distance education courses conducted

18 environmental and climate services operational at regional level;

12 south-south transfer of know-how and services between regional centres;

8 Technical Expert Meetings and 7 Steering Committee meetings;

5 continental bulletins on the state of the environment for decision makers;

4 training centres fully equipped;

2 MESA Fora and

2 Policy dialogue workshops

Overview of MESA deployed stations

TYPE OF STATION	MAIN CONTRACT FED/2015/356-833	ADDENDUM 1	TOTAL
FULL MESA	55		55
AMESD UPGRADED TO MESA	57	16	73
MESA REFERENCE STATIONS	3		3
UPGRADED PUMA 2010 TO PUMA 2015	49		49
FULL PUMA 2015	4	1	4
PUMA 2015 REFERENCE STATIONS	2		2
Training Centre	5		
Telespazio	3		3
TOTAL	**178**	**17**	**195**

Overall status

- All stations deployed by mid-September 2017
  - Installation made by experts from Africa
  - Deployment was much longer than initially planned, and longer than in AMESD
  - Many issue related to custom clearance

- Warranty start in September
  - 3 years warranty period on HW (until 2020)
  - 1 year warranty on the SW (warranty is not upgrade/update, only debugging).

Associated training (PUMA and MESA stations)

- Training of trainers (TOT):
  - 6 TOT were conducted and 131 were trained,
  - TOT has been completed in June 2016

- Station Users training (System Administration and Thematic Application trainings)
  - 44 Onsite Courses have been conducted so far
  - 880 participants trained
  - Completed by 4 August 2017

IV. Major Challenges encountered:

- Delays in deployment and installation of receiving stations,
- Lack of nominations for Onsite and DE trainings,
- Availability of reliable internet connection for conducting DE Courses,
- Inadequate training facilities at some of the Training Centres such as EAMAC,

Major Challenges Encountered (Cont…)

- Difficulties in reaching agreement with some Training Centres (e.g. SAWS) on modalities of using the Training Centre facilities,
- Travels to EAMAC (Niger) and MMS (Mauritius) are very complex. Getting flights is very difficult and expensive.
- Getting entry Visa to Kenya (Mali, Senegal, Cameroon and Somalia nationals) and South Africa (Nigerian, Sierra Leone) citizens.
- Access to the national networks and national trainings has been challenging and difficult..

V. Lessons Learnt:

- Start onsite trainings after deployment of receiving stations and installation at the Training Centres,
- Closely working with national focal points (NFP) in nominating training participants in addition to the RICs/CIC.
- Training resources need to be properly documented and archived for future uses, the case of transition from AMESD to MESA!

Lessons Learnt (Cont…)

- Allocate sufficient financial resources to respond to the acute demand for trainings.
- Understand in advance country specific visa requirements by the Government of Kenya and South Africa, and plan training accordingly.
- Closely work with Universities and Regional Training centres for sustainability of EO Training service.

PUMA 2015 - upgrasde

- 1st upgrade made (supported by EUMETSAT)

Possibility for future upgrade/maintenance

EU funding:

- GMES&Africa (funded by EC – PANAF, started in 2017)
  - Ensure warranty are applied
  - New EUMETCast station for the new RIC/Services (mainly e-station)
  - Need to see the outcome of AUC selection of RIC
- GFCS ACP (funded by 11th EDF, to start in 2018)
  - Pending programme approval (December 2017)
  - Possibility for a new upgrade of PUMA 2015 stations (into PUMA 202X) in preparation for MTG
  - Part of this will be under AUC implementation
    -> need for some RAIDEG communication with AUC in the coming month to secure budget/approach
  - Timeframe:
    - ToR in 2019
    - Procurement in 2020/2021
    - Deployment in 2022/2023

Other funding

- ??

Overall consideration

Main outcomes:

- Continuity of data access in Africa for all NMHS (continuous since 2005)
- HW (PCs) fully renewed (3rd time since 2006)
- Some outdoor unit changed (e.g. LNB)
- New SW version installed everywhere in Africa inc. most of the requirement expressed in 2013/2014 (when drafting the ToR)

Limitation

- Budget
- EDF rules do not allow to have “service” (e.g. for upgrade) as part of a “goods” procurement contract
- Common PC-1 (and system approach) for PUMA and e-station
- Synchronous installation / training
- Need to respect contractual arrangements (User/RAIDEG/EUM -> AUC –> TPZ -> MFI) – Tuleap to “short-cut” this.
- Poor IT capacity in some NMHS

Possible recommendations

RAIDEG could sum-up feedbacks and lesson learnt regarding the PUMA 2015 overall implementation/approach to inform future project/implementation (through AUC)

Main outcomes of Phase I

- Main priority is continuation of MSG-equivalent service
  - Current use of MSG is mainly Level 1 (RGB composite), but also Level 2 is also relevant
- Use of MSG as long as possible (to ease transition)
- Include “new MTG features”:
  - First priority is the **LI accumulated flash number** (‘pseudo radar’);
  - FCI FDS new channels/features (*spectral, temporal or spatial resolution*)**;**
- Other MTG instruments/services (S4-UVN, RSS, IRS)
  - S4-UVN and FCI/RSS relevant only for North Africa (coverage)
  - IRS (might be considered at a later stage, will require huge capacity increase)

Outcome of Phase II: RAIDEG outcome

- Priority is to ensure MSG continuity for all users
- Baseline **(3.5 Mbps)** must ensure a MSG equivalent service:
  - MSG-like L1 spectral channels
  - Spatial resolution similar to MSG
- Baseline brings improvement vs MSG
  - **MSG-like channels @10min instead of 15mn**
  - **Addition of the Lightning pseudo radar product**

NB: Users can access additional datasets through high speed internet (for non time critical application)

Outcome of Phase II: RAIDEG discussion

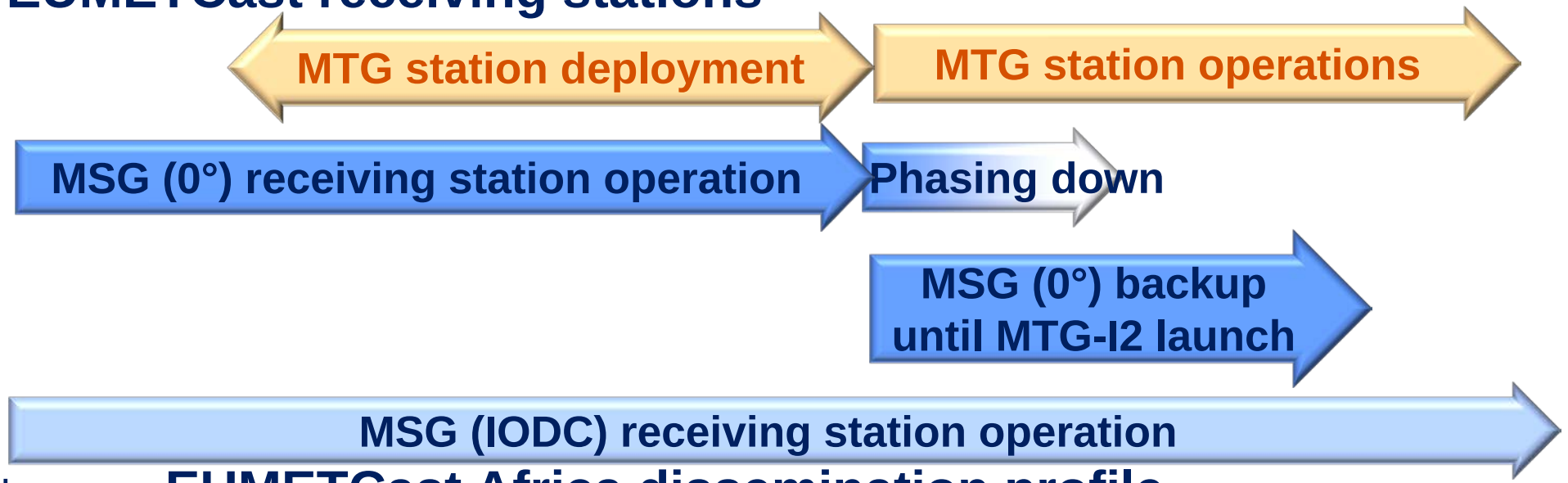
- Depending on capacities, affordability and priorities, to be complemented by:
  - o new MTG L1 spectral channels (potentially with lower temporal resolution) or
  - o Level-2 products (MSG-like or new) or
  - o some channels at improved spatial resolution, etc
  - o a combination of the above
- No definitive decision needed on complement now
- Discussion with RAIDEG to be continued over the next years

Transition: RAIDEG outcome

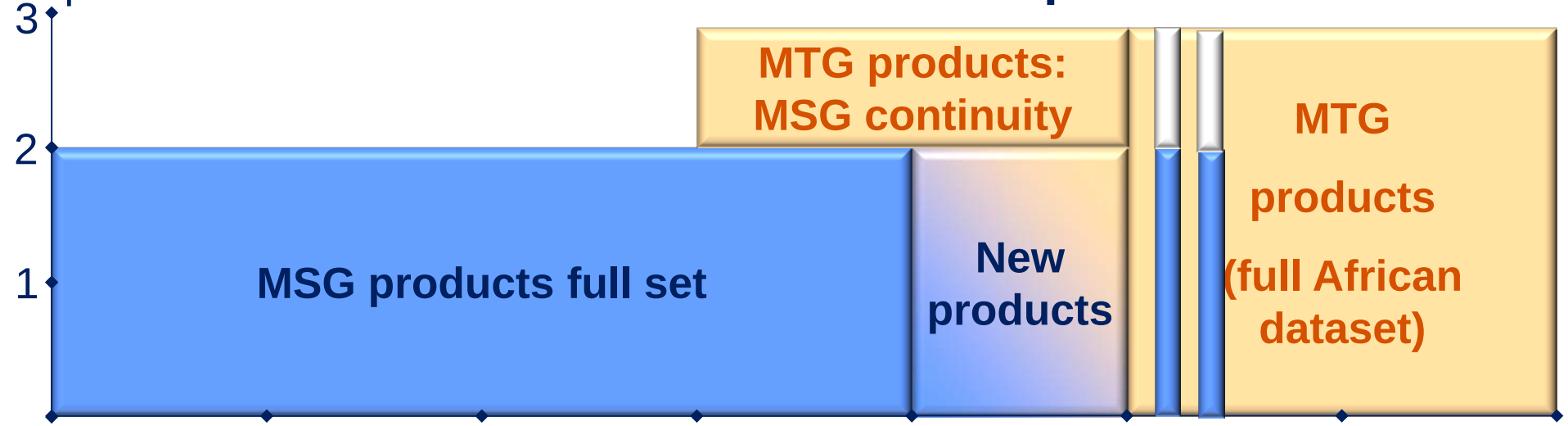
1. **Transition in 2 steps (Recommended by RAIDEG):**
   - Test data can be used to prepare & training
   - Transition of the user stations must start sufficiently in advance (e.g. 12 or 18 months) to be completed at the time of the parallel dissemination
   - Some trial periods before could be considered (e.g. when spare bandwidth is available)
   - Refine the parallel dissemination phase once the list of disseminated data will be finalised
   - There is time, MSG is still there

Transition: 2 steps approach

EUMETCast receiving stations



EUMETCast Africa dissemination profile



- Outcomes of 12th EUMETSAT User Forum in Africa

Recommendation from the 12th UFA

Recommendation #1
Roadmap for MTG Africa

The Forum noted and discussed the results of the MTG Africa Preliminary Study (MAPS). The Forum recommended EUMETSAT, in close coordination with the RAIDEG, to:

- Consolidate the results of MAPS, notably the definition of the "African data sets" and "transition scenario" in line with the discussion held during the MTG Africa session of the Forum, in order to optimise both temporal and spatial resolutions of MTG data, within the current identified bandwidth allocation;

- Present at the next EUMETSAT User Forum in Africa a roadmap for the transition from MSG to MTG, highlighting the actions to be taken at NMHS level to prepare for and implement the transition. This roadmap shall also include user preparedness activities (inc. training on MTG data and products which will be disseminated on EUMETCast Africa).

Recommendation from the 12th UFA

Recommendation #2
MTG Africa and AMCOMET

The Forum recommended AMCOMET Secretariat and AMCOMET Space Task Team, as part of their respective mandate to take into account the increase in capacity required for Africa to fully benefit from MTG (i.e. training, user station, EUMETCast bandwidth for data access) and to consider the MTG Africa roadmap that will be proposed by EUMETSAT and RAIDEG (see previous recommendation).

Recommendation from the 12th UFA

Recommendation #3
MTG Africa – Resources mobilisation

The Forum noted the bandwidth limitations and the efforts made by EUMETSAT to guarantee the continuity of an optimum satellite geostationary service to Africa.

The Forum recommended

- to the NMHS to mobilise resources for upgrade of their user stations (e.g. PUMA), the related infrastructure (e.g. processing chains) and the EUMETCast bandwidth, all required to access broader data sets and make best use of MTG data when available;
- to AMCOMET and AUC to support the NMHS in their resources mobilisation to prepare for the reception of MTG data in Africa;
- to EU and ACP Secretariat to include the relevant components in future EC-funded projects such as GMES&Africa or GFCS ACP.

Recommendation from the 12th UFA

Recommendation #4
MTG and North Africa

The Forum recommended EUMETSAT to support NMHSs of North Africa to be ready for the acquisition of MTG data, products and services in a timeframe simultaneous to that of the European NMHSs by creating links between NMHSs North Africa and the preparatory programme focused on European NMHSs (MTG-Up).

MTG Africa - way forward

- Action #1 – Pursue discussion with RAIDEG on data set priorities with a 3.5 Mbps bandwidth available (pending outcomes of the EUMETCast Africa tender process)
- Action #2 – Transition roadmap
  - Will be prepared by EUMETSAT to be presented at next RAIDEG. Depends on transition scenario MSG -> MTG (Rapid scan / full scan)
  - Will include also consideration on user segment
- Action #3 - optimized FCI spatial resolution
  - Started internal study at EUMETSAT
- Action #4 - Fund mobilisation for transition programme to support users to upgrade their capacity (station, training, etc) for MTG

MSG -> MTG

User station perspective

- PUMA 2015 -> valid until 2021/2022
- GFCS ACP -> new upgrade in ~2021/2022 with preliminary MTG readiness???
- Will need an update in ~2024 for full MTG-Africa capabilities - fund to be mobilised