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## **EUMETSAT CONTRIBUTIONS TO GMES (GLOBAL MONITORING FOR ENVIRONMENT AND SECURITY)**

This Working Paper provides updated information to CGMS on the European initiative of Global Monitoring for Environment and Security – GMES and on the EUMETSAT involvement. It complements the information presented at CGMS 38 in CGMS-38-EUMETSAT-WP 17.

Action/Recommendation proposed: CGMS is invited to take note.

## **EUMETSAT contributions to GMES (Global Monitoring for Environment and Security)**

### **1 INTRODUCTION**

This document is an update on the status of the GMES programme, complementing the detailed information presented at the 38<sup>th</sup> CGMS meeting in CGMS-38-EUMETSAT-WP-17.

### **2 GMES STATUS**

The GMES programme aims at supporting EU objectives in a range of policy areas and also at providing policy-makers, industry leaders and other stakeholders the precise data and information they need to coordinate policies and formulate strategies relating to the environment. In order to achieve this goal, GMES aims to develop a special portfolio of operational services based on Earth observation systems. These operational services are the following:

- GMES Land Monitoring Service
- GMES Marine Environment Service
- GMES Atmosphere Service;
- GMES Emergency response Service;
- GMES Security Service;
- GMES Climate Monitoring Service.

All services, but the GMES Climate Monitoring Service, are now in a pre-operational phase, and the European Commission has taken measures to secure their funding at least until 2014.

For the GMES Climate Monitoring Service, the European Commission is still in a definition phase. Activities preparing for this Service will be initiated in 2012.

Concerning the long-term funding of GMES, on 29 June 2011, the European Commission made its proposal on the extent and content of the future EU Budget for the period 2014 – 2020. In this proposal, the financial needs for GMES have been assessed at a level of 5.6 BEUR over the 2014 – 2020 period. A discussion will now start with the EU Council and the European Parliament to refine the overall budget, and the part which will be dedicated to GMES, as well as the financial instrument (budget line) which will be used to secure the funding of the activity. These discussions should converge in the 2013 timeframe, enabling an implementation as of 1 January 2014.

On its side, the European Space Agency (ESA) is progressing with the development of the GMES Space Component.

The GMES Space Component will be composed of 5 Sentinel missions:

Sentinel-1 providing C-Band SAR observation data  
Sentinel-2 providing super-spectral high resolution imaging data  
Sentinel-3 providing sea and land colour, surface temperature and altimetry data  
Sentinel-4 providing atmospheric composition observation data from GEO orbit  
Sentinel-5 providing atmospheric composition observation data from LEO orbit

The Sentinel-1,-2, and -3 missions foresee two identical satellites (A and B-Units) in orbit at any point in time in order to meet coverage and observation frequency requirements. The A units of the Sentinel-1,-2, and -3 satellites are nearing the completion of their development phase and are planned to be launched in 2013, followed after 18 months by the B units.

Two Sentinel-4 instruments are currently under development and planned to be launched as a payload on the EUMETSAT MTG-S satellites in 2019 and 2027.

ESA is also preparing the continuation of the GMES Space Component and will propose to its Member States to fund the development of the Sentinel-5 mission at the next ESA Ministerial Conference planned in 2012.

In addition, a 6<sup>th</sup> family of Sentinels will be proposed to the ESA Ministerial Conference. It will consist in a series of 2 Jason-CS satellites, to be developed and operated in cooperation with EUMETSAT, NOAA and NASA. Jason-CS satellites should succeed the currently planned Jason-3 satellite and cover the need for high precision ocean altimetry measurements in the 2017 – 2030 timeframe.

### **3 EUMETSAT'S ROLE IN GMES**

EUMETSAT is a key actor of GMES and will play different roles in this initiative.

#### **3.1 Operator of Sentinels-3, -4, -5 and Jason-CS**

EUMETSAT will be the operational agency for the GMES Sentinel-3, -4, -5 and Jason-CS satellites, responsible for the satellite operations and data distribution to users.

EUMETSAT will serve the marine user community with near-real-time (via EUMETCast) and off-line products (via the EUMETSAT Portal and archive) from Sentinel-3.

Instruments needed for the GMES Sentinel-4 and -5 missions will be integrated and flown onboard EUMETSAT's future Meteosat Third Generation (MTG) and second generation EUMETSAT Polar System (EPS-SG) missions, respectively.

In addition, as indicated above, it is envisaged in GMES to develop a family of missions called Jason-CS related to high precision altimetry as the successor to the successful current Jason-series already supported by EUMETSAT.

In July 2009, ESA and EUMETSAT signed a Framework Agreement concerning GMES-related cooperation between the two agencies. Under this agreement, EUMETSAT will be responsible, among other tasks, for the contribution of its mission data, products and services to GMES and for the operation of the Sentinel-3 marine element. Implementing arrangements for cooperation on GMES Sentinels-4 and -5 is also under preparation. The Cooperation framework for the Jason-CS satellites is still under discussion.

Detailed information on EUMETSAT involvement in:

Sentinel-3 activities is provided in CGMS-39-EUMETSAT-WP-11  
Sentinel-4 in CGMS-39-EUMETSAT-WP-09  
Sentinel-5 in CGMS-39-EUMETSAT-WP-07  
Jason-3 and follow-on (Jason-CS) in CGMS-39-EUMETSAT-WP-10

### **3.2 Data provider and related data policy**

As previously indicated, EUMETSAT will provide relevant data from its operational fleet of satellites to GMES. In 2009, EUMETSAT's Council granted free access to all data, products and services from EUMETSAT satellites to the GMES Core Services, on the basis that both EUMETSAT and the European Commission make their respective contributions to GMES and exchange the resulting data and products on a reciprocal basis. The EUMETSAT data dissemination system (EUMETCast) is used to distribute the data to GMES Core Services together with archived data to be made available via the EUMETSAT product portal.

The final data policy that will apply to GMES data in general and to GMES Sentinel data in particular is still under discussion. The planned GMES data policy is based on a number of principles which try to achieve the following objectives:

Promoting the use and sharing of GMES information and data;

Full and open access to information produced by GMES services and data collected through GMES infrastructure, subject to relevant international agreements, security restrictions and licensing conditions, including registration and acceptance of user licences;

Strengthening Earth observation markets in Europe, in particular the downstream sector, with a view to enabling growth and job creation;

Contributing to the sustainability and continuity of the provision of GMES data and information;

Supporting the European research, technology and innovation communities.

The detailed implementation of these data policy principles should be clarified by the end of 2011.

### **3.3 Listening to long-term user requirements**

Discussions with the European Commission and ESA related to future GMES missions are ongoing regarding activities that might be carried out by EUMETSAT in support to GMES. This primarily focuses on oceanography and atmospheric composition space components.

It is envisaged that in the 2012 / 2013 timeframe, EUMETSAT should start an activity to prepare the user-requirements for the future GMES Sentinels based on GMES service requirements gathered by the European Commission. A final decision on this activity should be taken early in 2012.

### **3.4 Third-party data provision**

EUMETSAT has developed a number of international cooperation agreements to grant access to its Member States to data from third-parties. In the context of these agreements, EUMETSAT will try to ensure that data could also be made available to the GMES community. Through this, EUMETSAT is aiming at acting as interface between GMES and third-party data providers, for all type of satellite data which are in the remit of EUMETSAT contribution to GMES. The discussion with third-parties will be established on a case-by-case basis.

As part of this discussion, EUMETSAT will also try to ensure access to GMES data to EUMETSAT partners. This would however depends on final decisions on GMES data policy.

### **3.5 GMES and Africa**

EUMETSAT has been very active in ensuring that GMES is also made available to African countries, and strongly supported the Lisbon Process which launched the GMES and Africa process in 2007. EUMETSAT expects that a large quantity of relevant GMES data could be made available to African countries. Again, the data dissemination infrastructures of EUMETSAT (EUMETCast) would play a key role in making the data available to African countries.

An important project supporting this is currently being finalised (AMESD – [www.amesd.org](http://www.amesd.org)) and a continuation (MESA) is planned to be funded by the European Commission and will cover the period 2013– 2017.

## **4 CONCLUSION**

CGMS is invited to take note of the European initiative GMES and EUMETSAT's contribution and involvement.