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## **PLANS FOR METEOSAT THIRD GENERATION (MTG)**

This paper presents the status of preparation of the EUMETSAT Meteosat Third Generation (MTG) Programme and provides relevant planning elements.

## PLANS FOR METEOSAT THIRD GENERATION

### 1 INTRODUCTION

This paper presents the status of the MTG preparatory activities at the start of Phase A. The Phase A activities aim at assessing the feasibility of the components of the mission and the architecture of the MTG System. The objectives, organization and plan for Phase A work have been presented to and endorsed by the EUMETSAT Council in July 2006.

### 2 STATUS OF ACTIVITIES

#### 1.1 Outcome of the MTG Phase 0

The consolidated results of the Post MSG User Consultation process and MTG Phase 0 activities are summarised in the updates and last versions of the Mission Requirements Document (MRD) and the Programmatic Assumptions and Requirements Document (PAR), both available on the EUMETSAT Web. The requirements in the MRD are fully traceable to the user's needs and priorities agreed with application experts and in line with the scientific studies and analysis carried out in Phase 0. The assumptions and constraints for development of the system and implementation of the MTG programmes, as expressed in the PAR, were derived from users, partners, and EUMETSAT strategies and have been subject to discussion with EUMETSAT Delegate Bodies. The requirements derived by ESA, contained in the incorporate some of the constraints expressed by industry after analysing the MTG mission requirements through the dedicated pre-Phase A studies.

The MRD requirements are derived from the high-level users needs and priorities captured in endorsed Application Expert Groups (AEGs) position papers and annexed tables of variables. After iterations with users and industry, the requirements take into consideration the assessment of capabilities done by the Remote Sensing and Satellite experts, the outcome of dedicated studies, expert meetings and seminars, and the advice given by the members of the MTG Mission Team (MMT).

The Mission Requirements Document (MRD) will still be maintained through Phase A under the supervision of a MTG Mission Team (MMT), taking up the feedback collected from scientific and technical Experts and recommendations of EUMETSAT Delegate Bodies. At the end of Phase A, the MRD will be superseded by the MTG End User Requirements Document (EURD).

The PAR will also be maintained through Phase A, to be timely superseded by the approved Programmes Proposals and associated Development Plans.

#### 1.2 MTG Phase A

The EUMETSAT Council agreed in July 2006 to target the Phase A Industrial Studies on a Twin-Satellite and a Single-platform configurations and relevant in-orbit deployment approach, with the Combined Imager, the IR sounder and the Lightning Imager, as payload complement.

The trade-off on the satellite configuration will be addressed in the early stages of Phase A aiming at selection one of these configurations for the remaining part of the Phase A.

The implementation of the UV/Vis (Chemistry) mission on MTG will be pursued in cooperation with the EU/ESA GMES initiative, taking advantage of the Sentinels 4 and Sentinel 5 planned activities. The ultimate goal will be exploit synergies to the maximum extent and to converge toward shared requirements for these Sentinels, thus ensuring fulfilment of the EUMETSAT needs.

Phase A engineering activities started after the Council decision on the missions that will be carried on MTG. Starting with the requirements in the MRD, an MTG system concept is being developed giving consideration to the following issues:

- Capacity, to address how the system will optimise assigned resources, support mission growth, handle large data volume, meet contingency requirements, and integrate with other EUMETSAT enterprise, legacy, and operational systems.
- Mission Management and Command, to address how the system will integrate into the existing EUMETSAT command and control structure, and how it will evolve with the new state of the art standards, best operation practices, the future EUMETSAT enterprise architecture, and global operational observing systems.
- Operability and Flexibility. Address how the system will maintain continuity of operational services to assure efficient mission accomplishment and in parallel increase of capabilities. Address to what extent the system will be self-contained.
- Survivability and Resiliency. Address the level of disaster/conflict the system will survive/endure to assure mission accomplishment within EUMETSAT business continuity plan.
- Standardisation and Interoperability, to address how the system will be standardised and inter-operates with existing infrastructure, both within and outside of EUMETSAT.
- Reliability, Maintainability, and Sustainability, to address any reliability/maintainability issues that may include single point failures, common maintenance support, and operation & maintenance or life cycle costs.
- Manpower, Basing, and Program Management Structure, to address basing and manning constraints and identify expected program management structure. Areas to consider may include automation to minimise manpower requirements and co-operation with other government agencies to take advantage of economies of scale. Enterprise wide facilities re-use considerations must also be addressed.

During Phase A, EUMETSAT will be responsible and take care of end-to-end system engineering and ground segment engineering, with ESA being responsible for space segment engineering. Parallel studies will be initiated with Industry in early 2007 for both the Space and Ground Segments.

In the course of the Phase A, EUMETSAT and ESA will establish the framework for conduction of the Phase B activities, including relevant approval processes by the respective governing bodies.

### **3 PLANNING**

The following main planning elements are assumed for the preparation of the MTG Programme:

Phase 0:	2001-2005
Phase A:	2006-2008
Phase B:	2008-2009
Phase C/D:	2010-2014
Need date:	2015, for the first in-orbit elements
Phase E:	Operations and Utilisation: 15 years after commissioning of the first in-orbit elements.

### **4 CONCLUSIONS**

CGMS is invited to take note of the progress of preparation of the MTG Programme at EUMETSAT.