

PLANS FOR METEOSAT THIRD GENERATION (MTG)

Tasks of the EUMETSAT Meteosat Third Generation (MTG) Programme are progressing at EUMETSAT as part of the Preparatory Programme. Phase A has been completed and Phase B is ongoing. At ESA level, following the MTG Programme approval at C-MIN 2008, activities have completed Phase B1. Phase B2 will start in early 2010 following selection of the Industrial prime for the satellites.

The system architecture has adopted a twin-satellite configuration, with an Imaging Satellite embarking a Flexible Combined Imager and a Lightning Imaging Instrument, and a sounding Satellite embarking the Infrared Sounder and accommodating the GMES provided Sentinel 4 instrument in support to atmospheric chemistry applications. The system is designed for 20 years of operations of the imagery mission and at least 15.5 years of operations of the sounding mission.

Approval of the full MTG programme at EUMETSAT will follow the release of the Programme Proposal, a draft version of it has been released and a final version is planned in Q1 of 2010. Start of Phase C/D at EUMETSAT is planned for late 2010.

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1 INTRODUCTION

The MTG Programme activities at EUMETSAT are part of the MTG Preparatory Programme. Phase B started in Jan 2009 following the successful completion of the Preliminary Requirements Review (PRR) at the end of Phase A. The Programme Proposal for the full MTG Programme of EUMETSAT has been released in a draft version to EUMETSAT Delegated Bodies in September 2009, with a plan to finalise it by March 2010 and then to open the programme for voting. Approval of the full MTG Programme at EUMETSAT is planned for spring/summer 2010.

At space segment level in ESA as part of the ESA MTG Programme the Phase B1 has been completed with the release of the Invitation to Tender for the phase B2-C/D and support to Phase E, leading to the selection of the Industrial Prime and setting up of the Industrial consortium for the satellites. The ESA MTG Programme has been approved by the ESA Council at Ministerial level in Nov 2008 (C-MIN 08) its Phase C/D will commence following approval of the EUMETSAT Programme.

2 STATUS OF ACTIVITIES

2.1 Space Segment

The Phase A activities were completed with the Preliminary Requirements Review (PRR) for the Satellite which took place at ESA level in the period from September to November 2008. Activities of Phase B1 have subsequently started in 2009, with the same industrial consortia of the Phase A still in competition, up until the completion of Phase B1. The Intermediate Requirements Reviews took place in first half of July 2009 signaling the end of the Phase B1. In July the Invitation to Tender (ITT) for the Phase B2-C/D and support to Phase E has been released by ESA. EUMETSAT has been heavily involved to consolidate with ESA the ITT requirements throughout the first half of the year.

At satellite level, Phase B2 is planned to start around January 2010, and Phase C/D in February 2011, following approval of full MTG Programme at EUMETSAT.

2.2 Overall System

The MTG End-User Requirements Document (EURD) has been drafted, submitted to the Scientific and Technical Group (STG) of the EUMETSAT Council in spring 2009 and unanimously endorsed as basis for preparing the full MTG Programme Proposal, with comments and recommendations becoming part of dedicated actions. The

formal release of the MTG EURD will be in conjunction with the final MTG Programme Proposal in Q1 of 2010.

The implementation of the agreed actions and decisions from PRR and the translation of the EURD requirements into the overall system requirement documents were checked at the System Requirements Review (SRR) Part 1 (SRR-1) in EUMETSAT, which took place between August and September 2009. The good progress achieved since the PRR was underlined, without detecting any major and/or blocking issue. All the review objectives have been considered achieved. The next Review at overall system level will be the SRR Part 2 and the System Preliminary Design Review, around mid 2010, following the evaluation of the B2-C/D industrial Offers for the space segment and the reconsolidation of the space segment requirements.

The Ka band dissemination baseline has been selected for the MTG Payload raw data link.

2.3 Ground Segment

Ground Segment (GS) studies and analyses in the period focused on the understanding of the challenges of the MTG Ground Segment, and to establishing the principles of the GS architecture, development and procurement approach. They have also provided EUMETSAT with important industrial views on the maturity and performance levels of current and evolving market-place technologies. These studies indicate that the requirements for data circulation on the MTG Ground Segment will necessitate high end but achievable technologies.

Studies have also been released related to the algorithm and prototyping of the instrument processing and for the capabilities of Ka band reception antennas for multiple satellites. Analysis of terrestrial based dissemination possibilities has started, to broaden the range of dissemination mechanisms for addressing the high rate of MTG products.

2.4 Scientific Activities in Progress

Scientific activities have progressed well in Phase B. An important focus is with the novel Infrared Sounding (IRS) mission and Lightning Imagery (LI) missions. Two expert groups, the MTG-IRS Science Team (MIST) and the LI Science Team (LIST) have been established. Both Science Teams consists of remote sensing experts from EUMETSAT Member States supported by experts from EUMETSAT staff. The Lightning Imagery Science Team additionally includes a NOAA expert with the relevant GOES-R GLM (Geostationary Lightning Mission) expertise. The aim of both Science Teams is the scientific development/assessment of Level 2 processing concepts for fully exploiting the capabilities of these two new MTG observation missions.

2.5 Programmatic Aspects

The scope of the cooperation with ESA, the implementation principles and high level mechanisms were established and agreed by both EUMETSAT and ESA Councils as part of a dedicated Agreement document in late summer 2008. Concerning the implementation of GMES Sentinel 4 and the flight of the UVN (Ultra-violet, Visible and Near Infrared) Instrument on the MTG-S (MTG Sounding) satellites, implementing arrangements have also been drafted and negotiated between ESA and EUMETSAT. In both cases Approval of the full MTG Programme at EUMETSAT is the prerequisite for signing those agreements.

The MTG Programme Proposal has been delivered in a draft version to the autumn session of Delegate Body meetings of EUMETSAT. The final version is planned to be released for a special session Delegate Body meetings during Q1 2010, opening the MTG Programme for voting in March 2010.

2.6 PLANNING

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

Phase 0:	2001-2005, completed
Phase A:	2006-2008, completed
Phase B:	2008-2010, on going as part of the MTG Preparatory Programme
Phase C/D:	end 2010-2016, planned
Need date:	end 2016, (new date) for the first in-orbit elements
Phase E:	Operations and Utilisation: 20 years for the Imaging Missions after commissioning of the first in-orbit elements.

2.7 CONCLUSIONS

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