CGMS-35 EUM-WP-08
v1, 27 September 2007
Prepared by EUMETSAT
Agenda Item: C.2

PLANS FOR METEOSAT THIRD GENERATION (MTG)

The EUMETSAT Meteosat Third Generation (MTG) Programme is under definition and its Phase A concept and feasibility trades are well underway in coordination between EUMETSAT and ESA. EUMETSAT is running Mission and System Level engineering activities and ESA has started competitive Space Segment studies in February 2007 aiming at their completion in early summer 2008. An MTG Preparatory Programme, including Phase B activities, is planned to start at EUMETSAT in January 2008.

PLANS FOR METEOSAT THIRD GENERATION (MTG)

1 INTRODUCTION

This paper summarises the status of the MTG Programme definition activities at EUMETSAT, which are currently in Phase A. This Phase aims at assessing the feasibility of key components of the mission and the overall 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. The Council also approved a twin-satellite in-orbit configuration, with a MTG-I Satellite dedicated to imaging missions and a MTG-S satellite dedicated to the sounding mission.

Parallel work is ongoing at ESA, in coordination with EUMETSAT.

2 STATUS OF ACTIVITIES

The EUMETSAT MTG Team is conducting the following system and ground segment level activities:

- Functional analysis for a notional MTG system fulfilling missions (imagery, IR sounding, lightning, Data Collection and Search and Rescue) and considering services continuity, incremental development, integration, and testing, verification and validation constraints;
- Assessment of operations needs and high level operability requirements, participating in the update of standards (e.g. ECCS) drafts open for public review;
- Analysis of requirements and capabilities for: navigation and registration of images and soundings; accurate attitude determination and adequate satellite ranging and tracking methods for orbit determination; data compression methods both lossless and lossy of hyperspectral imagery data; and wide area network communication services, lines and protocols;
- Analysis of external interface requirements and constraints for DCPs, Search and Rescue and dissemination, considering regulatory issues, allocation and management of frequencies, coordination or orbital station positions, and telecommunication driven constraints;
- High level System configuration trade-offs, addressing space segment configuration, instrument concepts, cross-mission needs and operability;
- System and Mission Operations concepts;
- Documentation of high level System Requirements, driving requirements and open issues deferred for consideration at later stages or forthcoming phases.

Any Space Segment architecture for study in Phase A will accommodate three instruments:

- The flexible Combined Imager (FCI), for continuation of MSG image related missions;
- The Infra-red Sounder (IRS), sensor based on a Fourier Transform Spectrometer;
- The Lightning Imager (LI), for detection of total lightning flashes.

The result of the trade-off analyses led the Secretariat and ESA in the early stages of Phase A to recommend a twin-satellite configuration for the deployment of the MTG mission. This recommendation applies to the Phase A study activities of EUMETSAT and of ESA, pre-empting only the type of platform (3-axis body stabilised) but not binding yet any decision by EUMETSAT Delegations of what will be the MTG payload complement to target in the following Phases B/C/D. This will be covered by dedicated discussions and decisions at the end of the Phase A, following the Preliminary Requirements Review. The recommendation stemming from the Secretariat to study in Phase A the feasibility of the twin-satellite configuration was endorsed by Council at it special 61st session agreeing inter alia the following:

I. *That the main missions of MTG should be met through a* ***twin*** *satellites configuration, respectively embarking, as main missions, the Imaging and Sounding mission, in a series of three-axis stabilised satellites, based on a common platform design.*

II. *That, in order to improve the value for money of the MTG programme, every effort should be made during the preparation phase to ensure that the design lifetime of the satellites is maximised, and that overall flexibility regarding the schedule of launches is preserved.*

III. *To urge ESA to initiate all necessary preparatory activities to obtain approval of their part of the programme in 2008 in order to secure data continuity in the geostationary orbit.*

IV. *To task the Director-General with establishing a joint road map with ESA leading to a coordinated approval of the MTG programme by both Organisations.*

V. *To task the Director-General with elaborating an MTG Preparatory Programme Proposal and related Programme Resolution, and to submit them for approval to the 62nd Council meeting in June 2007.*

The Proposal for the MTG Preparatory Programme Proposal has been submitted to and approved by the EUMETSAT Council in June 2006, opening voting of associated Resolution, whose enter into force is planned by end of 2007.

3 PLANNING

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

Phase 0:	2001-2005, completed
Phase A:	2006-2008, on-going
Phase B:	2008-2009, planned as part of the MTG Preparatory Programme
Phase C/D:	2010-2014, planned
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.