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# Plans for Meteosat Third Generation (MTG)

EUMETSAT and ESA have initiated joint preparatory activities for the definition of the Meteosat Third Generation (MTG) geostationary mission expected to be available in the 2015 timeframe. This paper presents the status of the activities conducted in Phase 0.

# 1 INTRODUCTION

EUMETSAT and ESA have initiated joint preparatory activities for the definition of the Meteosat Third Generation (MTG) geostationary mission expected to be available in the 2015 timeframe, with the following planning assumption for feasibility studies and development:

- 2001-2005: "User Consultation Process" and pre-Phase A studies
    - 2001-2003: Phase 1: High level user needs and priorities agreed, preparation of pre-Phase A studies;
    - 2004-2005: Phase-2: pre-Phase A studies, evaluation /pre-selection of mission concepts;
- 2005-2007: MTG phase A studies for selected mission concepts, approval processes for coordinated ESA and EUMETSAT MTG preparatory programmes;
- 2007-2009: Phase B activities under coordinated ESA and EUMETSAT preparatory programmes, approval processes for coordinated MTG development programmes;
- 2009-2014: Development and on-ground testing of MTG system.

The pre-phase A studies to be conducted by ESA and EUMETSAT in 2004-2005 are driven by high level user needs and priorities established in 2000-2003 throughout the post-MSG user consultation process.

It is however important to stress that the Pre-Phase A studies at system level are still of exploratory nature, aiming at providing relevant information for Delegate Bodies to decide on the relevant and affordable mission concepts to be further studied during feasibility (phase A) studies in the 2005-2007 timeframe. Their main objectives are to:

- Establish and trade off preliminary mission concepts that implement the MTG Mission Requirements in part or in full, and define related functional requirements;
- Assess associated complexity, schedule and cost drivers;
- Identify needs for critical R&D.

The MTG pre-phase A studies at system level will be contracted out by ESA and conducted under the supervision of EUMETSAT and ESA. Up to 3 competitive studies will be kicked off in the summer 2004 and will continue into 2005. EUMETSAT has established an MTG Mission Team in order to provide independent short loop user and scientific feedback in the course of the studies.

An open workshop is planned in 2005 to narrow down the pre-selection of proposed mission concepts, and decisions on the way forward will be proposed after completion and analysis of results of pre-phases A studies. This will narrow the uncertainties on the scope of the mission concepts to be further considered and traded-off during feasibility (phase A) studies.

## 2 MTG MISSIONS

MTG missions are split into Observational and non-Observational missions.

There are five candidate observation missions identified. The definition of the five observation missions captured in the MTG Mission Requirements Document (MRD) was established through consolidation activities during Phase 1. Full traceability is maintained to the agreed high level user needs and priorities documented by three position papers from two Application Expert Groups on nowcasting and on regional/global numerical weather prediction:

- Three distinct imagery missions dedicated to operational meteorology, with emphasis on nowcasting and very short term forecasting:
  - The High Resolution Fast Imagery (HRFI) mission, enhancement of the MSG HRI mission;
  - The Full Disk High Spectral resolution Imagery (FDHSI) mission, successor to the MSG SEVIRI mission;
  - The Lightning Imagery (LI) mission;

- An Infrared Sounding (IRS) mission focussed on operational meteorology, with some potential relevance to atmospheric chemistry;
- An UV/Visible sounding (UVS) mission dedicated to atmospheric chemistry.

The non-observational missions include:

- A level 2 product extraction mission associated to these observation missions;
- A Data Collection Mission (DCS) for collecting and transmitting observations and data from surface, buoy, ship, balloon or airborne Data Collection Platforms;
- An External Data Collection (EDC) mission, that collects selected data from other EUMETSAT and Third Party satellite systems;

Services are characterised in three categories: near real time for direct delivery of data to users, non real time to cope with the off-line supply of data and information to the users, and on-line services supporting two-way live interactions of the users with the system.

The MRD also captures requirements associated to the foreseen environment of the MTG system, e.g. in the context of WMO and CGMS.

Considering the exploratory nature and the objectives of the pre-Phase A studies, it is important to note that full traceability between level of requirements is essential to control the link between the expected impact of MTG missions on applications. Such traceability is a prerequisite to make assessment on the value of proposed mission concepts and, ultimately, well-informed decisions on the scope of the MTG mission to be further studied in phase A.

The Secretariat has established a Mission Team formed of key Application and Remote Sensing experts in order to provide short loop and independent user feedback to ESA on all issues raised during the pre-phase A studies.

## 3 MTG PREPARATION PHASE 0 PLANNING

Figure 1 below briefly summarises the above listed milestones within the current MTG Phase 0 planning.

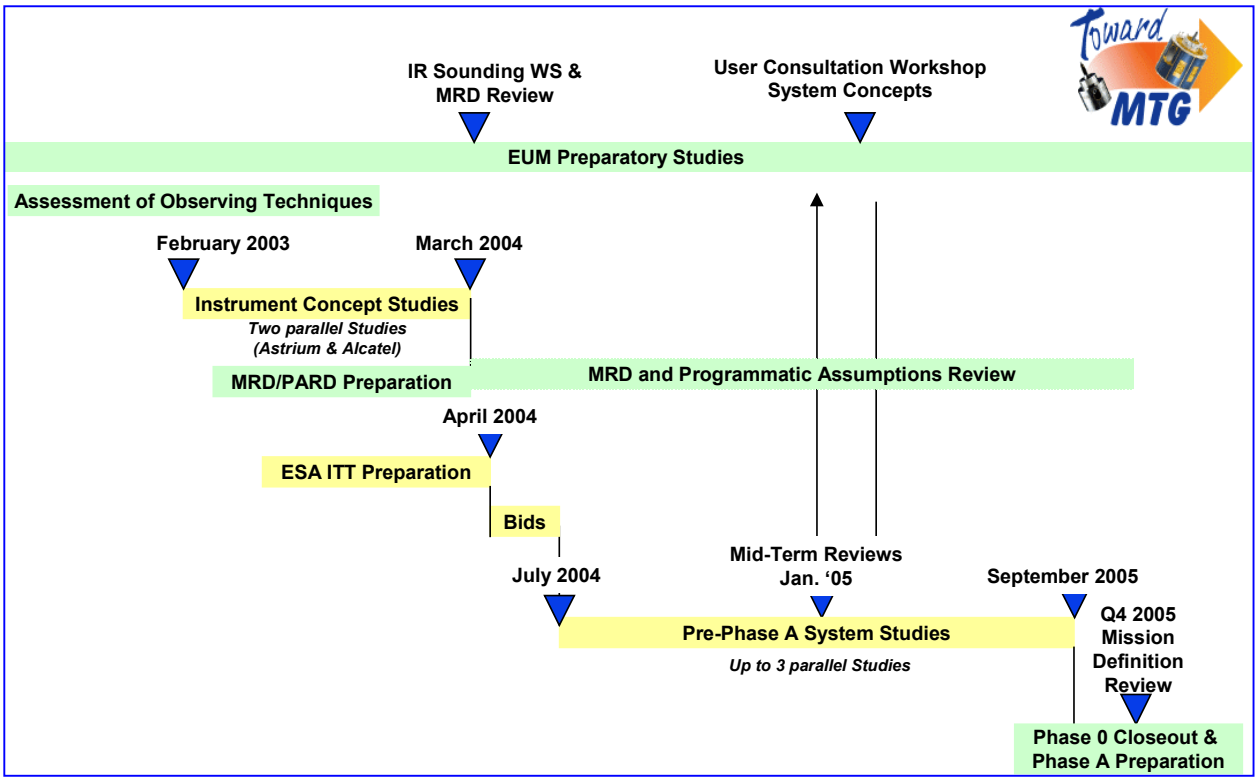


**Figure 1** Timeline for Phase 0 Planning

## 4 MORE DETAILED INFORMATION ON MTG

A comprehensive web page "Towards MTG – METEOSAT THIRD GENERATION has been established under http://www.eumetsat.de

► Preparation of Future Programmes
- Meteosat Third Generation (MTG)

Quick links are provided to the complete background information on the 'User Consultation process', as well as to all study reports and workshop summaries carried out in the course of 'Consolidation Activities' in preparation of pre-phase A.


**Figure 2** EUMETSAT entry MTG web page