EUMETSAT Plans

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EUMETSAT
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1 Introduction
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• Metop-A is now in orbit for ca. 1,5 years and is a real success!
• Metop-A was handed over from LEO to Operations in May 2007
• Positive Impact of Metop-A products on NWP was demonstrated
• All products are operational and are disseminated
• We establish Day-2 products
Main problems on Metop-A are:

- **HRPT service failure**: Failure Review Board underway; seems to be attributed to the combination of heavy ions combined with the domain of utilisation of output transistors (CLY 38). Replacement transistors procured and intention is to re-use MSG design (TBC)
- **LRPT failure**: investigation in parallel to HRPT; proposal to DB to descope the mission but this requires further iterations with the Delegations.
- **LRPT and HIRS compatibility**: needs to be further studied if service maintained
- **ADCS data corruption** (root cause understood and linked to a FIFO register)
- **Single Event Upsets**: a general problem which introduces several mission interruptions. A WG was created on IASI with CNES.
- **Efforts to improve the Metop timeliness** (incl. Antarctica station)
• Launch schedule
  – Nominally: Metop-B in April 11 and Metop-C in Oct 15
  – Possibility to increase the lifetime of Metop-A and B by 1 year subject to correct in-orbit performance.

• System and Operations preparation
  – Implementation of the System Development Plan (established)
  – Delta System Design (Key point in May 08)
  – Metop-B main issues to be resolved
    • HRPT
    • LRPT (TBC) and LRPT/HIRS (TBC)
    • Argos- ADCS
  – Ensure timely availability of instruments
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The GEO RING

- **FY-2D** (CHINA) 86.5°E
  - METEOSAT-6 (EUMETSAT) 67.5°E
  - GOMS-N1 (RUSSIA) 76°E

- **Meteosat-7** (EUMETSAT) 57.5°E
  - **Meteosat-6** (EUMETSAT) 67.5°E
  - **Meteosat-8** (EUMETSAT) 3.4°W - relocation to 9.5°E end of March, about 1 month long

- **Meteosat-9** (EUMETSAT) 0° Longitude
  - **Meteosat-10** (EUMETSAT) 75°W
  - **Meteosat-13** (EUMETSAT) 105°W

- **FY-2C** (CHINA) 105°E
  - INSAT 3A (INDIA) 93.5°E

- **Meteosat-11** (EUMETSAT) 145°E
  - **Meteosat-12** (EUMETSAT) 140°E

- **Meteosat-13** (EUMETSAT) 145°E

- **MTSAT-1R** (JAPAN) 140°E
  - **MTSAT-2** (JAPAN) 145°E

- **FY-2D** (CHINA) 86.5°E
  - **MTSAT-1R** (JAPAN) 140°E

- **GOES-10** (USA) 60°W
  - **GOES-11** (USA) 135°W
  - **GOES-12** (USA) 75°W
  - **GOES-13** (USA) 105°W

- **INSAT 3A** (INDIA) 93.5°E
  - **KALPANA-1** (INDIA) 74°E

- **MTSAT-2** (JAPAN) 145°E
  - **MTSAT-1R** (JAPAN) 140°E

- **MTSAT-2** (JAPAN) 145°E
  - **MTSAT-1R** (JAPAN) 140°E

- **MTSAT-2** (JAPAN) 145°E
  - **MTSAT-1R** (JAPAN) 140°E

- **MTSAT-2** (JAPAN) 145°E
  - **MTSAT-1R** (JAPAN) 140°E

- **MTSAT-2** (JAPAN) 145°E
  - **MTSAT-1R** (JAPAN) 140°E
MSG - Meteosat Second Generation

First MSG-1 images 28 Nov 02.

Applications: in continuous development ..... This image shows dust storms over Africa. Meteosat-8, 03 Mar 04, 12:00 UTC, RGB composite image

First GERB images on 12 December 2002
MSG - Meteosat Second Generation

- **METEOSAT-8**
  - at 3.4 W, preparing for Rapid scanning service at 10 E,
  - satellite relocation from end March, about 1 month

- **METEOSAT-9**
  - Primary imagery mission at 0

- **MSG-3** – satellite in storage in clean room at Thales
- **MSG-4** – Satellite Pre Storage Review in March-May 2007
  - Current plan of MSG-3/4 Launches agreed with Council
    - MSG-3: January 2011
    - MSG-4: January 2013
    - Plan of launches maintained based on in orbit status.

- **MSG Mission approved until end of 2018**
  - Launch of MSG-3 drives the need date of MTG – 1st Imagery satellite
  - Launch of MSG-4 drives the need of MTG 2nd Imagery satellite (High Resolution Fast Imagery Mission)
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EUMETSAT ATOVS Retransmission Service (EARS)

- Demonstrates potential future dissemination concepts to meet shorter timeliness requirements
- Planned to be extended for NOAA-N,N’, Metop
  - MHS
  - ASCAT / ASCAT Winds
  - AVHRR
  - IASI

Slide: 12 ITSC-XVI, 7 – 13 May 200, Angra dos Reis, Brazil
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Jason-2: Launch planned 15 June 2008
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MTG will provide continuity of EUMETSAT services

1 observation mission:
- MVIRI: 3 channels
- Spinning satellite 800 kg

3 observation missions:
- SEVIRI: 12 channels
- GERB
- Rapid Scanning (~2008)
- Spinning satellite Class 2-ton

4 observation missions:
- Combined Imager: 16 channels (FD + LAC Rapid Scanning)
- Infra-Red Sounder
- Lightning Imager
- 3-axis stabilised satellites Class 3-ton

Chemistry UVN Mission to be coordinated with ESA for implementation via GMES Sentinel IV

... 30 years of continuous operations ...
MTG, Preparatory Programme

ESA roadmap

- ESA C-MIN 2008
  - Approval full Programme
  - Go-ahead for Phase B

- Phase A
  - 2007
  - PCR

- Phase B
  - 2008
  - PRR
  - 2009
  - 2010

EUMETSAT roadmap

- Council Approved the MTG PP
- 2007
  - PCR
- 2008
  - PRR
- 2009
  - SRR
- 2010
  - PDR

EUMETSAT Council
- Full Programme Approval
- Development and Operations Phases
Post-EPS, Planning

EUM Phase 0

ESA Ph. 0 Studies

Prelim. Assessment Review
(missions shortlist)

Phase A

Ph. A Studies

Mission Definition Review

Preliminary Requirements Review

2007
2008
2009
2010
2011

MTR = Mid Term Review
PCR = Preliminary Concepts Review

EUM Approval of Preparatory Programme

ESA C-Min-11 go-ahead for Ph. B/C/D

2nd User Cons. Workshop
The Sentinel 3 satellite

**Payload:**
- OLCI: Ocean & Land Colour Instrument;
- SLST: Sea & Land Surface Temperatures;
- RA: Radar Altimeter;
- MWR: Microwave Radiometer;
- GNSS: Global Navigation Satellite System;
- LRR: Laser retro Reflector

**Space Segment Milestones**
- PDR: Sept 2008
- CDR: April 2010
- QR: July 2011
- LAUNCH: Oct 2012
Sentinel 3 Ground Segment

- EUMETSAT will manage the Marine part of the mission and a dedicated GS will be operated from EUM HQ
- Flight Operations Segment (ESOC)
Future EUM Missions Timeline


MTG | Phase B | Phase C/D | OPS
---|---|---|---
MTG IRS Launch

Post EPS (0) | Phase A | Phase B | Phase C/D | OPS
---|---|---|---|---
IR and MW Sounding VIS/IR Imaging Missions
Other Missions

Sentinel 3a Ph A/E | Phase C/D | OPS 3a | Launch of 3b: 2015

Jason 2 OPS | Jason 3 OPS | Jason follow on OPS

Life Cycle evolution of MTP, MSG and EPS Ground Segment