THE EUMETSAT POLAR SYSTEM (EPS):
FIRST RESULTS FROM METOP-A

J. Schmetz, D. Klaes, M. Cohen,
K. Holmlund
and many others

EUMETSAT
Darmstadt, Germany
Content:

- MetOp-A is the first European operational meteorological satellite in a polar orbit
- MetOp is part of the Initial Joint Polar System with NOAA
- Successful launch on 19\textsuperscript{th} of October 2006
- Instruments: i) common instruments with NOAA, ii) instruments proven through research missions e.g. by ESA, iii) ‘first-ever’ instruments (i.e. IASI from CNES)
- This talk gives a few results (more in Poster Session by Dieter Klaes)
Some Facts about EPS/MetOp

- MetOp-A launched on 19 October 2006
- sun-synchronous at 820 km, 930 a.m.
- Metop-B and Metop-C (nearly) recurrent models
- 14 years of operations
MetOp Instruments

- **VIS/IR Imaging:** AVHRR/3
- **Infra-red sounding of T, H, etc.:** HIRS-4, IASI
- **Micro-wave sounding:** AMSU-A, MHS
- **UV/VIS:** GOME-2
- **Radio occultation:** GRAS

- **Ocean surface winds:** ASCAT
  - ARGOS Data Collection System
  - HRPT and LRPT
  - Search & Rescue

- **AVHRR-3**
- **HIRS-4** only on MetOp A + B
- **IASI**
- **GOME-2**
- **AMSU-A1**
- **AMSU-A2**
- **MHS**
- **ASCAT**
- **GRAS**
**Global mission**: delivery of global measurements to Met Services and NOAA within 2¼ hours of the instant of observation (GTS, EUMETCast)

**Local mission**: real-time transmission of imaging and sounding data to local user stations.

**Search and Rescue** service (S&R).

**ARGOS** mission of in-situ observational data.

**Data Dissemination**
- EUMETCast: Full NRT data stream
- GTS: Subset

**Archiving & Retrieval**
All data and products are archived in the UMARF.
AVHRR on MetOp-A

Received at EUMETSAT, 25 Oct 2006

Received at Meteo-France, Lannion
AMSU on MetOp: Observations minus First Guess of ECMWF
MHS (first L0 data)

- Instrument into measurement mode 31 October
- Performance Nominal
Early MHS Noise figures (NEdT) in Kelvin

<table>
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<th>Channel</th>
<th>Spec</th>
<th>EUMETSAT estimate</th>
<th>Metoffice estimate</th>
<th>NOAA-18 EUM/NOAA</th>
<th>AMSU-B EUM/NOAA</th>
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<td>0.34</td>
<td>0.55/0.55</td>
<td>0.80/0.80</td>
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GOME-2

- Switched on 27 October
- Note: very low signal in band 1a due to current configuration
IASI: a breakthrough in operational sounding

(spectral ‘resolution’ is ~ 0.5 cm⁻¹)

HIRS has 19 channels ⇔ IASI takes 8461 spectral samples
First IASI Level 1C Spectra

MTG spectral coverage

First IASI Level 1C Spectra

MTG spectral coverage
Winds from ASCAT compared with ECMWF

Level-2 processing at OSI-SAF, KNMI

ESA, 2006
Summary

- EPS/MetOp provides both continuity and progress for space based meteorological applications
- All instruments work well
- Problem with LRPT
- All instruments tested within two months !!
- Data and some products are already disseminated (AMSU and MHS used at ECMWF and UK Met Office)

=> *Important was the flexible and cooperative development of Ground Segment by / with industry*
- Three MetOp satellites will give 14 years of operations
- Advances to Numerical Weather Prediction and Climate Monitoring
- Excellent cooperation between ESA, CNES, NOAA and EUMETSAT

=> *superb team effort*