MONITORING WEATHER AND CLIMATE FROM SPACE

EUMETSAT

EUMETSAT presentation: Regional Consultation for the Design of MHEWS in Southeast Europe

EUMETSAT is an intergovernmental organisation with 30 Member and 1 Cooperating States

Member States

AUSTRIA
BELGIUM
CROATIA
CZECH REPUBLIC
DENMARK
ESTONIA
FINLAND
FRANCE
GERMANY
GREECE
HUNGARY
ICELAND
IRELAND
ITALY
LATVIA
LITHUANIA
LUXEMBOURG
NETHERLANDS
NORWAY
POLAND
PORTUGAL
ROMANIA
SLOVAK REPUBLIC
SLOVENIA
SPAIN
SWEDEN
SWISS
TURKEY
UNITED KINGDOM
BULGARIA

Cooperating State

SERBIA

EUMETSAT

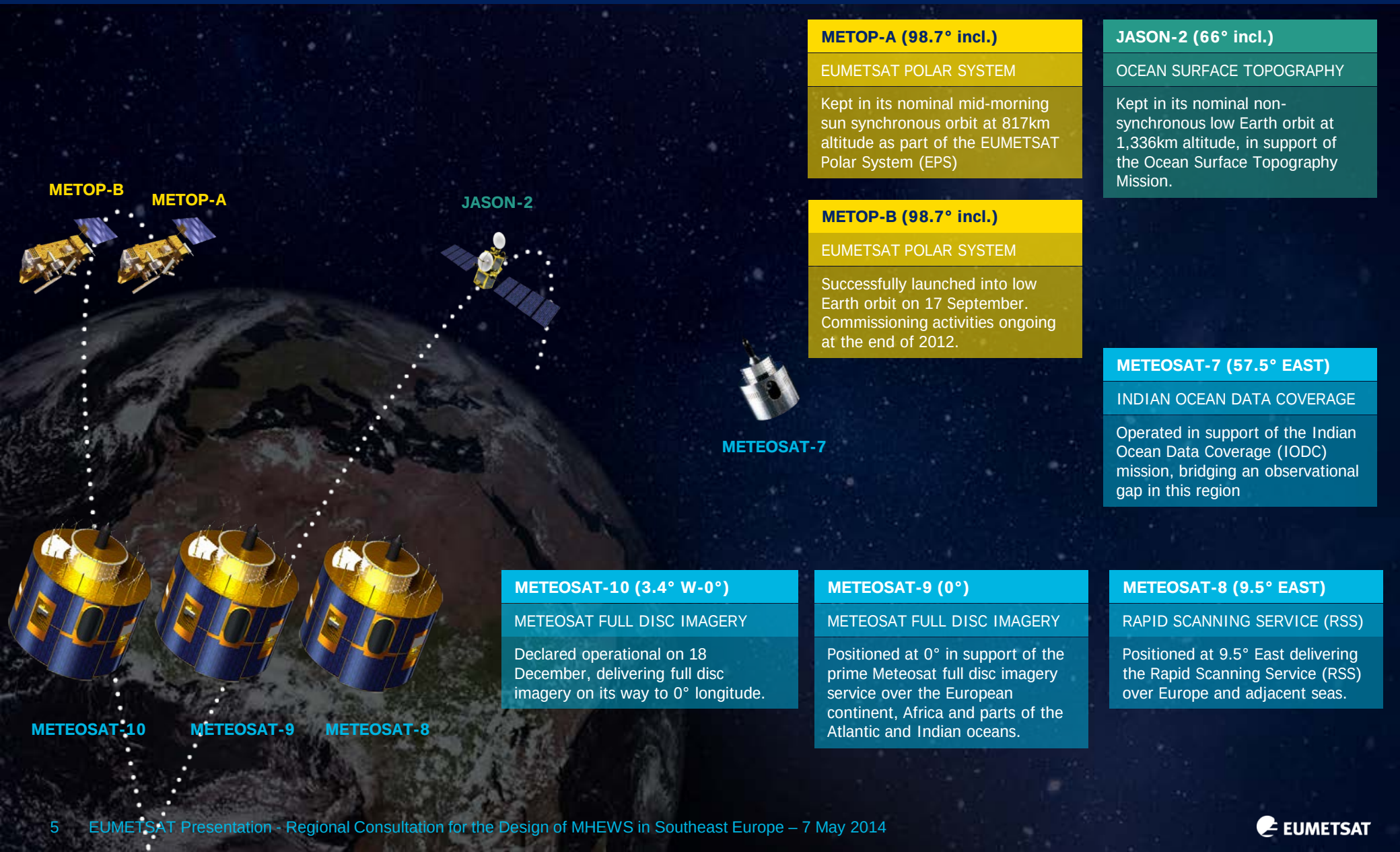
EUMETSAT's mission

- The primary objective is to establish, maintain and exploit European operational meteorological satellite systems, taking into account as far as possible the recommendations of WMO
- A further objective is to contribute to operational climate monitoring and detection of global climatic changes
- Through fulfilling these objectives, contribute to environmental monitoring, where interactions with the ocean and the atmosphere are involved

EUMETSAT's mission

- Deliver cost effective operational satellite data and products that satisfy the meteorological and climate data requirements of its Member States
- 24 hours a day, 365 days a year, over decades
- Encourage the maximum use of EUMETSAT data and products

Current EUMETSAT satellites



METOP-A (98.7° incl.)

EUMETSAT POLAR SYSTEM

Kept in its nominal mid-morning sun synchronous orbit at 817km altitude as part of the EUMETSAT Polar System (EPS)

METOP-B (98.7° incl.)

EUMETSAT POLAR SYSTEM

Successfully launched into low Earth orbit on 17 September. Commissioning activities ongoing at the end of 2012.

JASON-2 (66° incl.)

OCEAN SURFACE TOPOGRAPHY

Kept in its nominal non-synchronous low Earth orbit at 1,336km altitude, in support of the Ocean Surface Topography Mission.

METEOSAT-7 (57.5° EAST)

INDIAN OCEAN DATA COVERAGE

Operated in support of the Indian Ocean Data Coverage (IODC) mission, bridging an observational gap in this region

METEOSAT-10 (3.4° W-0°)

METEOSAT FULL DISC IMAGERY

Declared operational on 18 December, delivering full disc imagery on its way to 0° longitude.

METEOSAT-9 (0°)

METEOSAT FULL DISC IMAGERY

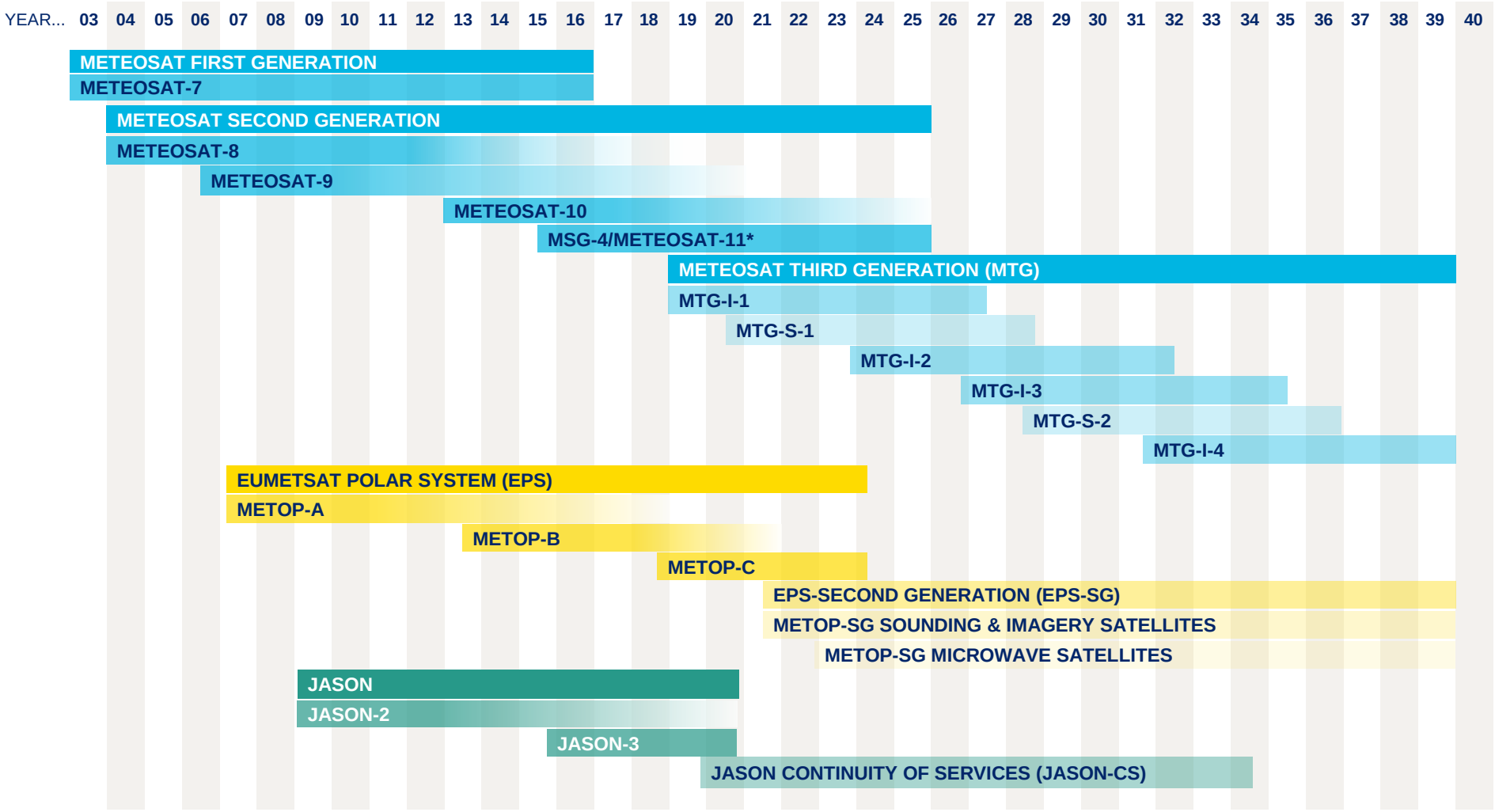
Positioned at 0° in support of the prime Meteosat full disc imagery service over the European continent, Africa and parts of the Atlantic and Indian oceans.

METEOSAT-8 (9.5° EAST)

RAPID SCANNING SERVICE (RSS)

Positioned at 9.5° East delivering the Rapid Scanning Service (RSS) over Europe and adjacent seas.

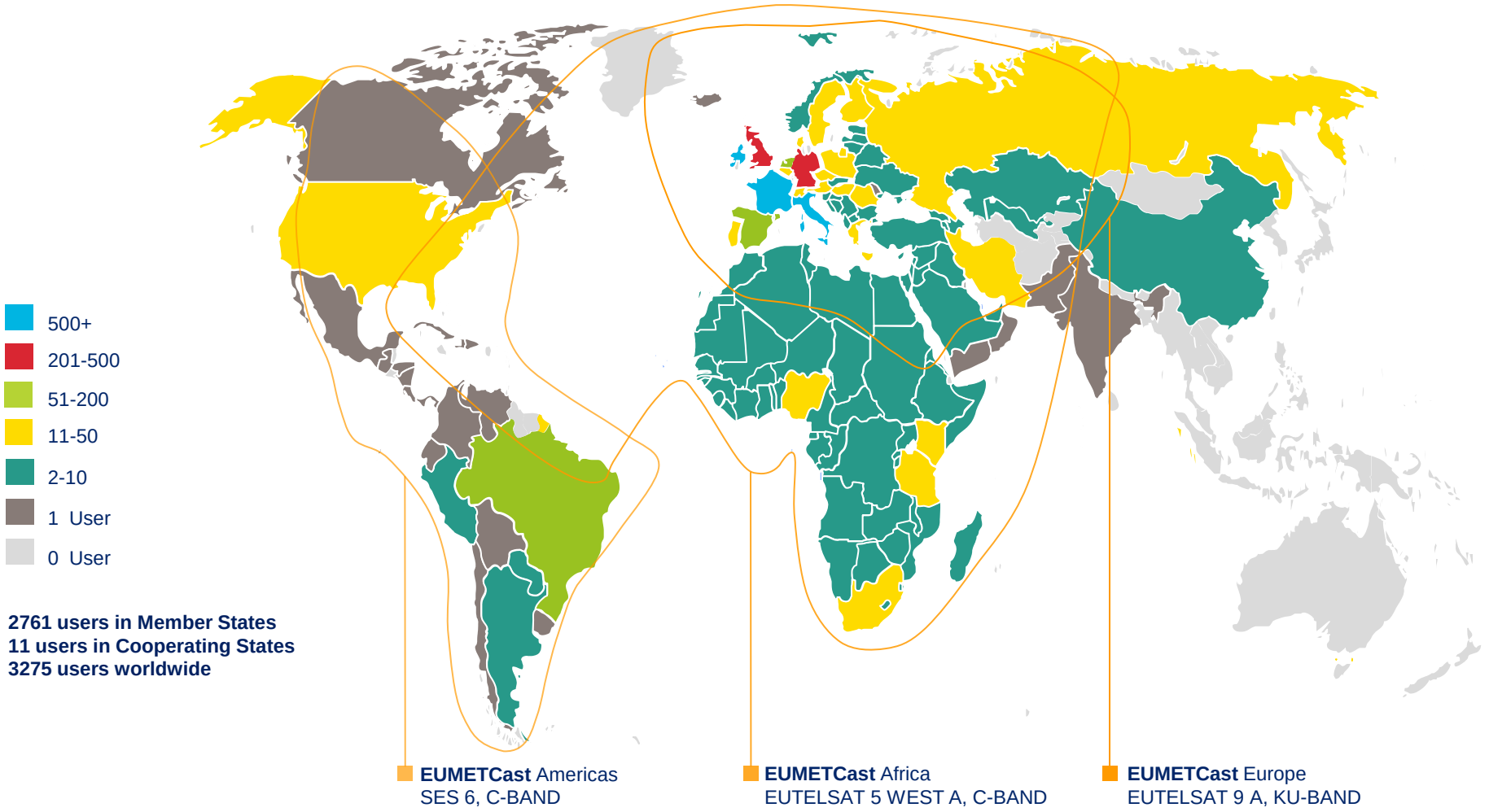
EUMETSAT mission planning



Only the full operational phase of each mission is represented, excluding commissioning.
*** MSG-4/Meteosat-11 will be stored in orbit, before replacing Meteosat-10**

Delivering to users worldwide

EUMETCast Users Worldwide as of 31 December 2013



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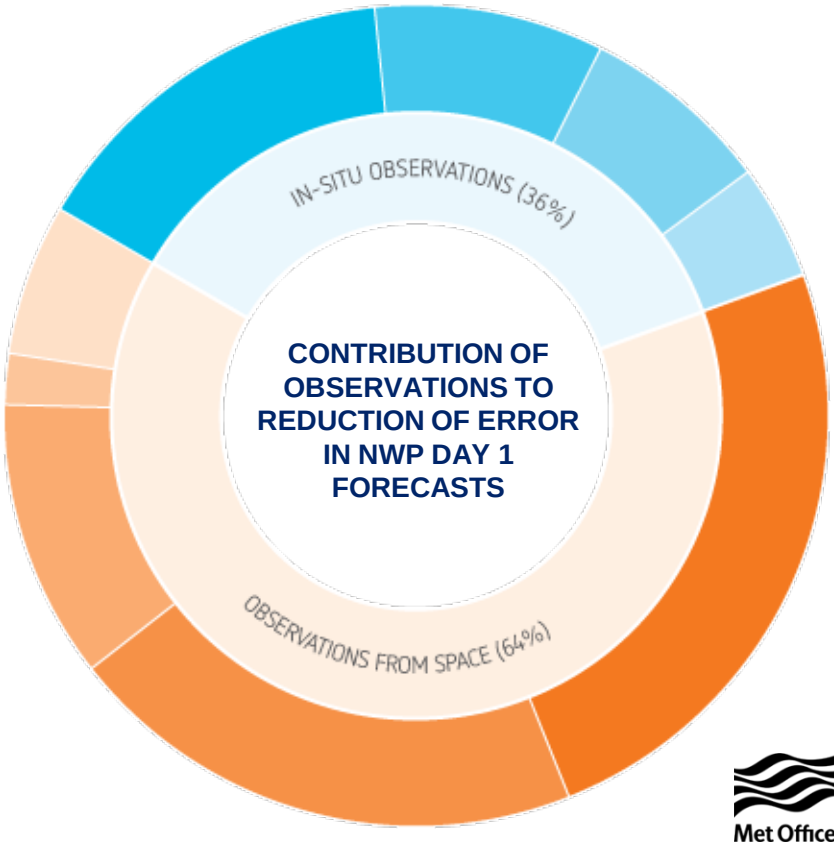
Attributing benefits of forecasts to satellites



Met Office

IN-SITU OBSERVATIONS
- "Sonde" (15%)
- Aircraft (9%)
- SFC Land (7.5%)
- SFC Sea (4.5%)

OBSERVATIONS FROM SPACE
- **Metop (24.5%)**
- All NOAA LEO satellites (20.5%)
- Other LEO (11.0%)
- Other RO (2.0%)
- GEO (6.0%)

- Numerical Weather Prediction is the basis for all modern global and regional weather forecasting.
- Polar orbiting satellites contribute 45% to the 24-hour forecast skill.
- EUMETSAT's Metop satellite has the highest contribution at 25%, representing 40% of the impact of all satellite data.
- ECMWF studies show an average degradation of forecast performance of the order of 8%, when Metop data are not ingested.
- For the purpose of attributing socio-economic benefits to the current EPS/Metop satellites, adopting the worst-case estimate of 8%, an estimated annual benefit ranging from a minimum of €1.2 billion to a more likely figure of € 4.9 billion (2010 e.c.) can be established.

EUMETSAT

EUMETSAT and South East European NMHS

- Some SEE NMHS are EUMETSAT Member or Cooperating States. They contribute to EUMETSAT programmes and benefits from them

- For non-Member and Cooperating states, EUMETSAT Strategy indicates:
  - *support the Strategic Plans of the WMO Regional Associations VI (Europe)*
  - *help the meteorological communities get easier access to EUMETSAT data, products and services and to make best use of available and planned satellite services in order to help individual countries and regions to meet their respective needs.*

EUMETSAT activities in support to SEE (non-Member)

1. Biennial Information day, at director level:
   - Montenegro in 2009
   - Skopje in 2011
   - Sarajevo in 2013
   - Tbc in 2015

2. Deployment of infrastructure (DAWBEE)

3. Training of forecasters

1. Information day

Objectives:

- Present EUMETSAT programmes and activities
- Receive feedback from NMHS and discuss needs and requirements w.r.t satellite data
- Plan for future activities

2. DAWBEE station and training

First IPA project:

- EUMETCast receiving station at each NMHS with data visualisation SW

- Dedicated training

2. DAWBEE

Second IPA project:

- Support for transition to DVB-S2 (new EUMETCast standard)
- Continuous training (March 2014)

Outcome of last information day (Sarajevo, April 2013)

- Need #1: more training/competences in the area of station maintenance (inc. IT aspects) to ensure continuity of access to satellite data
- Need #2: Additional training for satellite data interpretation e.g. in nowcasting
- Need #3: visualisation of SAF data (with a clear focus on Nowcasting, but also on LSA SAF and Hydrology SAF)
- Need #4: possibility to overlay graphically satellite data with NWP model outputs (workstation)

Conclusion

- EUMETSAT provides support to South East Europe NMHS on data access and use
- Expression of (national) needs at sub-regional level provide more weight
- Regional projects are instrumental to provide efficiently an answer to these needs

THANK YOU