Central Operations Report
for the period January to June 2008

Contents

EUMETSAT Central Operations Report for January – June 2008

Introduction

Welcome to our report on EUMETSAT's provision of services to its user community for the first half of 2008. This issue differs slightly in appearance to the last due to the small 'face-lift' that has been applied to the EUMETSAT logo and associated templates.

The first 6 months of 2008 have been characterized by continued high performance of the primary operational services, but also by various spacecraft events, including a recurrence of an uncommanded change in the orbit of Meteosat-8, a triggering of a safe-mode on Meteosat-9 and two 'PLSOLs' on Metop-A. As always, much effort is devoted to investigating the root causes, and although remedial action is often not possible with the spacecraft in orbit, we modify their onboard software, our ground segments and/or our ways of working where appropriate, in order to reduce or eliminate recurrence of problems, or to better handle them in future if recurrence is unavoidable.

One very positive spacecraft event during the period has been the successful launch of the Jason-2 satellite on the 20th of June. Jason-2 is one of a series of satellites supporting the Ocean Surface Topography Mission, and EUMETSAT works together with CNES, NASA and NOAA, supporting the inter-agency activities related to the processing and distribution of the Jason-2 data and products. It is expected that operational products will become available in the second half of 2008. →

Introduction (continued)

→ The performance of the services currently covered in this report have been impacted by the anomalous spacecraft events mentioned earlier, and by various ground segment problems, all of which are described in more detail on the slides covering the services affected.

In addition to the range of content seen in the last issue of the report, performance indicators for the ATOVS Level 2, IASI Level 2 and EARS AVHRR services have been added. In addition to the range of content seen in the last issue of the report, performance indicators for the ATOVS Level 2, IASI Level 2 and EARS AVHRR services have been added. We hope to be able to add further indicators in the next issue of the report, to cover more of the increasing range of meteorological data and products that we disseminate via EUMETCast, including those from peer satellite operators.

On a final note, please be informed that issues of the Central Operations Report (as of 2007/H2) are now to be found in their own section under 'Publications' on the EUMETSAT website. Further information on all products (including their delivery mechanisms) is available via the 'Product Navigator', a link for which is provided on the home-page of the website.

Best regards,
Mikael Rattenborg
Director of Operations

Service Reporting: Categories

The charts on the following slides present a summary view of the performance of the services within the categories listed here:

- Meteosat Services
- Metop/NOAA Global Data Service
- Metop/NOAA Regional Data Service (EARS)
- EUMETSAT's Archive Service
- EUMETSAT's User Support Service

Several terms with special meaning (e.g. Nominal RCs) appear in the following slides. A glossary is provided at the end of the report.

Service Reporting: Conventions

The Availability Charts:

These typically show the month-by-month availability of the services and are accompanied by commentary identifying any events which may have had impact on the provision of them.

Events Impacting Availability:

Some operational events impact the availability of more than one service category or component service within a category. Such events are described on a separate slide preceding all the component services on which the events had impact.

Events (whether satellite or ground-segment in nature) which significantly affected the availability of a single service (e.g. data associated with a single instrument) are indicated on the relevant slide for that service.

Meteosat Services

This service category refers to the dissemination of data and products produced with the Meteosat System, which comprises geostationary satellites positioned at longitudes 0° and 57°E. The latter is the current operating location for 'Indian Ocean Data Coverage' (IODC).

The individual services addressed in this section are as follows:

- Meteosat image data acquired at 0° and 57°E
- Meteorological products derived from that image data
- Data Collection and Retransmission (the DCP service)

Meteosat Services → SEVIRI 0° Image Data

Performance measured in terms of:

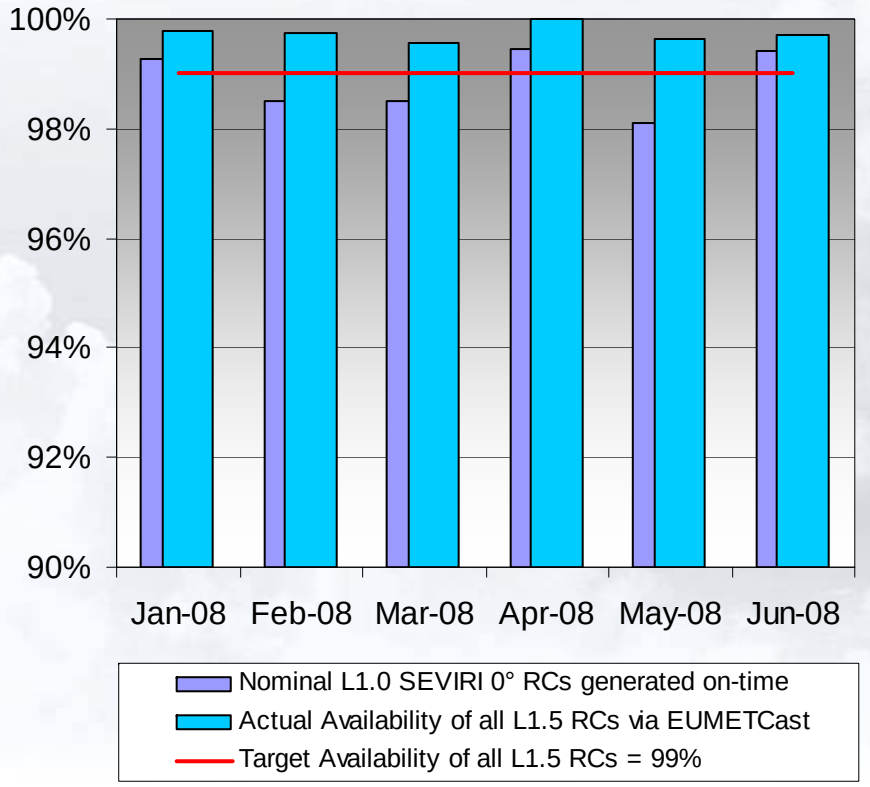
1) **the number of Nominal Level 1.0 Repeat Cycles (RCs) which have been generated 'on-time', as a percentage of those scheduled**
2) **the combined timely availability of all (nominal and otherwise) Level 1.5 RCs (High-Rate and Low-Rate) via EUMETCast**

Events Which Impacted Availability:

Feb 2008: Number of Nominal RCs impacted by reduced geometric quality following a North-South Station-Keeping manoeuvre.

March 2008: Number of Nominal RCs impacted by ground-station-sun-satellite colinearity.

May 2008: Number of Nominal RCs impacted by (1) Met-9 entering safe-mode on 13-May and (2) RAID array failure on the image-processing system on 20-May.



Meteosat Services → IODC 57°E Image Data

Performance measured in terms of:

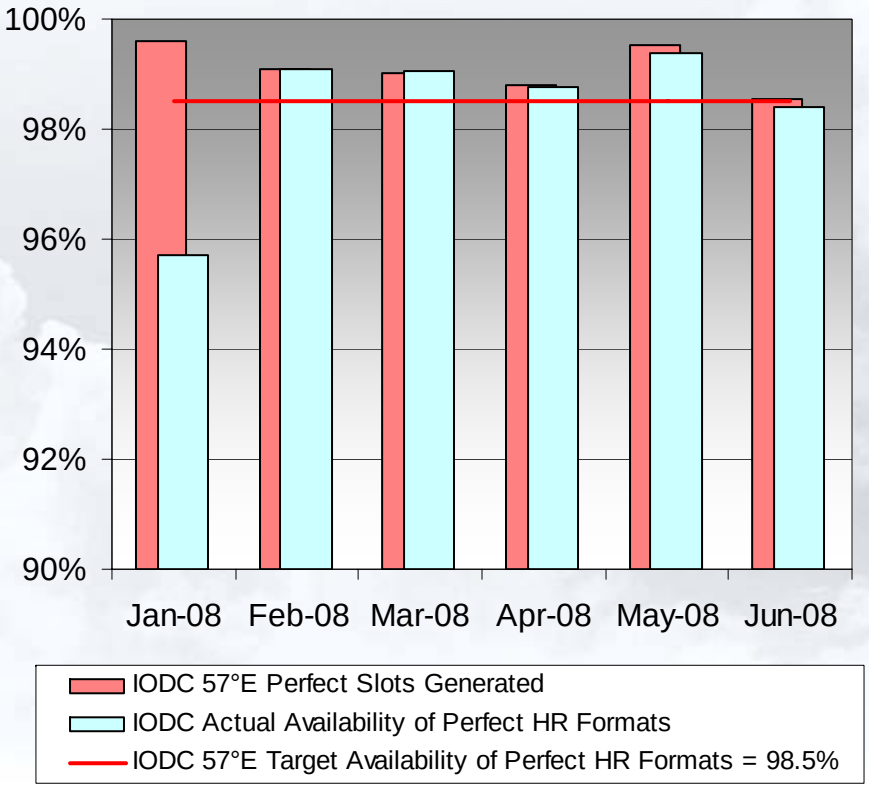
(1) the number of Perfect Images which have been generated, as a percentage of those scheduled,

(2) the availability of Perfect Formats disseminated via Meteosat-7, as a percentage of those scheduled

Events Which Impacted Availability:

January 2008: Wefax carrier inadvertently left on at ground station (which was not promptly observed because of temporary outage of monitoring mechanism) resulted in the loss of a total of 94 formats.

General issue: Repeated satellite down-link drops, each causing 1 or more missing lines in an image, which result in images not qualifying to be classed as 'perfect'. Occurred significantly in June 2008.



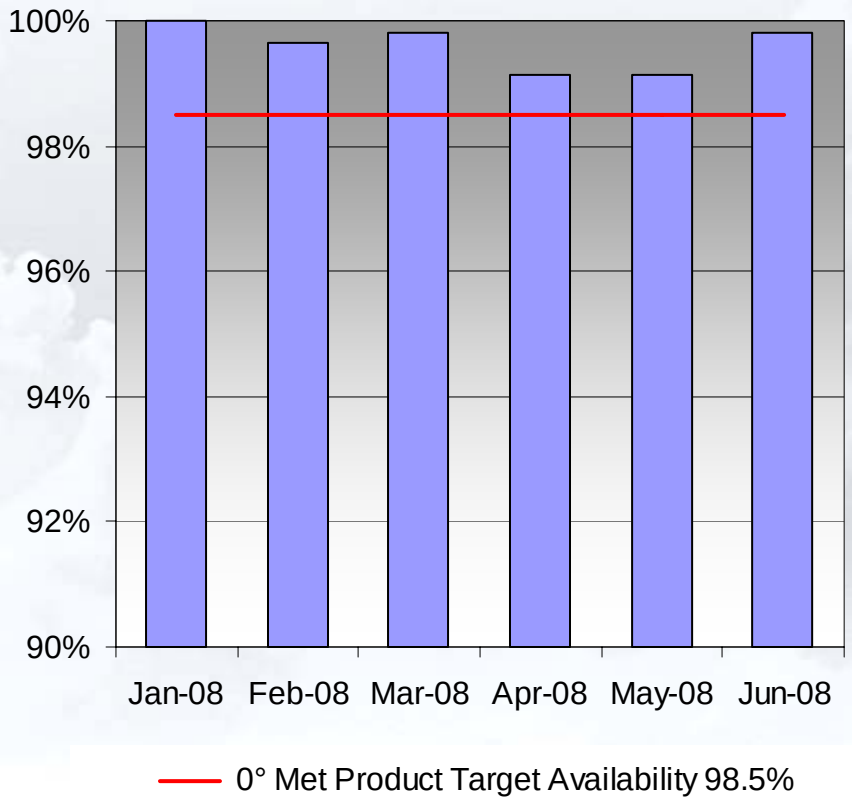
Meteosat Services → Meteorological Products derived from 0° Data

Performance measured in terms of the number of meteorological products which have been generated at EUMETSAT, as a percentage of those scheduled.

Events Which Impacted Availability:

None significant, as regards the availability of the generated products in the EUMETSAT archive, but their availability on the GTS was impacted on 19-20 June 2008 due to problems experienced on the MSG dissemination facility.

The event highlighted a weakness in the monitoring and alarming mechanisms with respect to data destined for the GTS. Improvements are in progress.

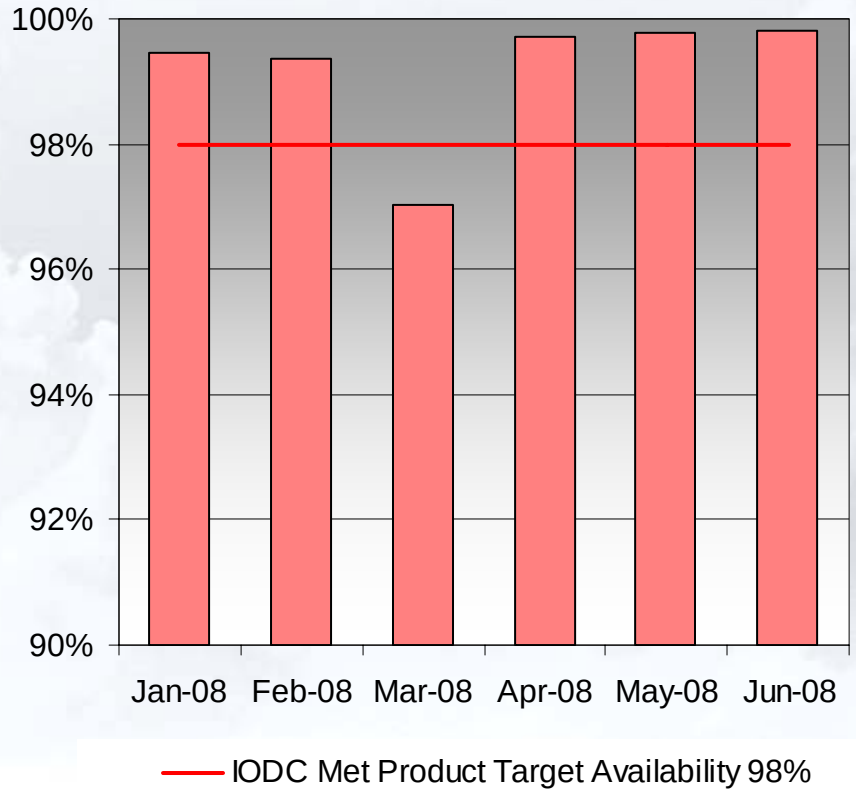


Meteosat Services → Meteorological Products derived from 57°E Data

Performance of this service is measured in terms of the number of meteorological products which have been generated at EUMETSAT, as a percentage of those scheduled.

Events Which Impacted Availability:

March 2008: Problems with the product extraction system impacted generation of products for a period of approximately 16 hours on 8-March.

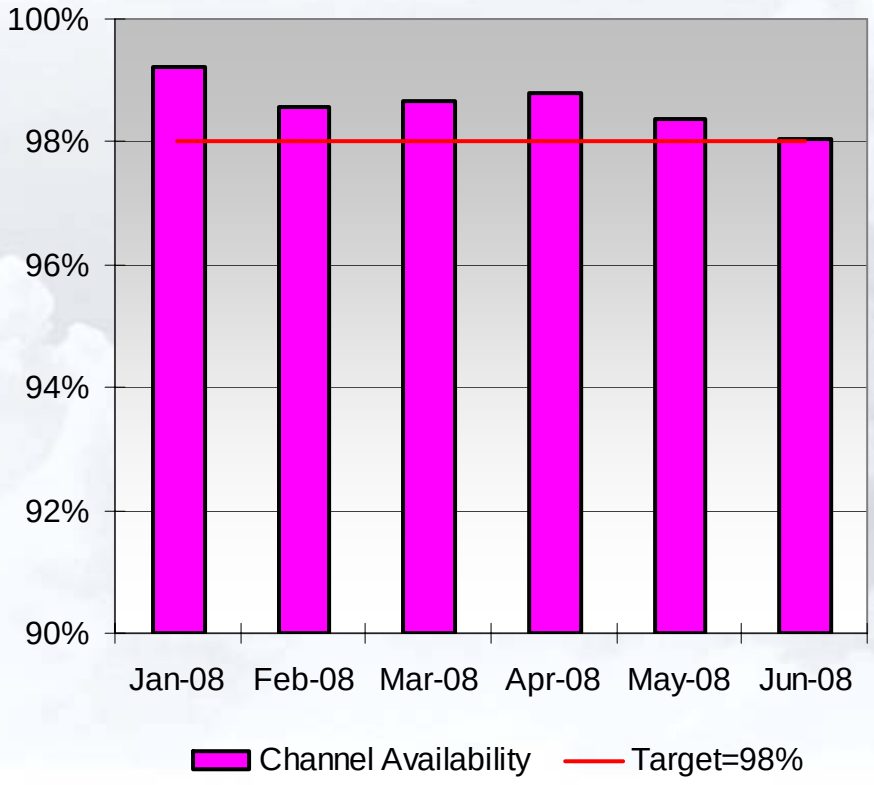


Meteosat Services → DCP Channel Availability at 0°

Data Collection and Retransmission operations at 0° utilise Meteosat-9's international and regional DCP channels. An additional 4 international DCP channels are supported by Meteosat-6 as part of the Indian Ocean Tsunami Warning System (IOTWS).

As of the end of June 2008, there were 547 active Data Collection Platforms (DCPs) out of a total of 943 registered units, belonging to 115 operators.

Availability of the 0° service is shown on the chart to the right. It is measured in terms of the number of hourly reference DCP messages on all operational regional channels which have been successfully received back by EUMETSAT, as a percentage of those sent. Availability for IOTWS is currently not shown, but it typically averages 99% monthly.



Events Which Impacted Availability:

June 2008: problems experienced with the reporting mechanism – actual availability believed to be higher.

Metop/NOAA Global Data Service

This service comprises the provision of Level 0 and 1 products derived from the data generated by the following Metop-A instruments:

A-DCS, AMSU, ASCAT, AVHRR, GOME-2, GRAS, HIRS, IASI, MHS, SEM

As of 2008/H1, the service also includes Level 2 products based on IASI and ATOVS data.

The charts on the following pages show the month-by-month availability of the products, identifying any significant events which impacted the service.

Note: Unless otherwise indicated, the availability figures are derived as shown here:

For Level 0: production statistics from EUMETSAT's EPS Product Generation Facility (PGF)
For Level 1: reception statistics from EUMETSAT's reference EUMETCast User Station
For Level 2: as for Level 1

Metop/NOAA Global Data Service: Definition of Availability

Unless otherwise indicated in the availability slides, then the monthly figures are those for 'timely availability', where 'timely' is used to mean the following:

Level 0 & 1:	**available within 2 hours 15 minutes of sensing**
Level 2:	**available within 3 hours of sensing (note: IASI Level 2 products were declared operational as of 29-April-08 and ATOVS Level 2 products on 24-June-08)**

Availability is measured per instrument and for one or more data levels thereof, in terms of the amounts that have been generated/disseminated for each of the months in the reporting period, as a percentage of that which would nominally have been produced/disseminated in the month had continuous operations been achieved without any deviation.

Metop/NOAA Global Data Service: Operational Events with General Impact

The following events impacted all types of Metop/NOAA Global Data unless otherwise indicated on the instrument-specific slides following this one:

16 January 2008: A 'Payload Switch-Offline' (PLSOL) occurred on the satellite, attributable to a 'Single Event Upset' (SEU), resulting in the stoppage of data from all instruments.

When such a complete switch-off occurs, investigation and analysis of the cause is first carried out. If it is determined that it is safe to resume normal operations, then the satellite sub-systems and the instruments are reactivated / switched back on. The overall process takes approximately two days to complete. Dissemination of products typically resumes after a period of stabilization of the Level 0 instrument data and manual checks that the quality of the generated products has returned to acceptable levels. The time taken to achieve this varies per instrument.

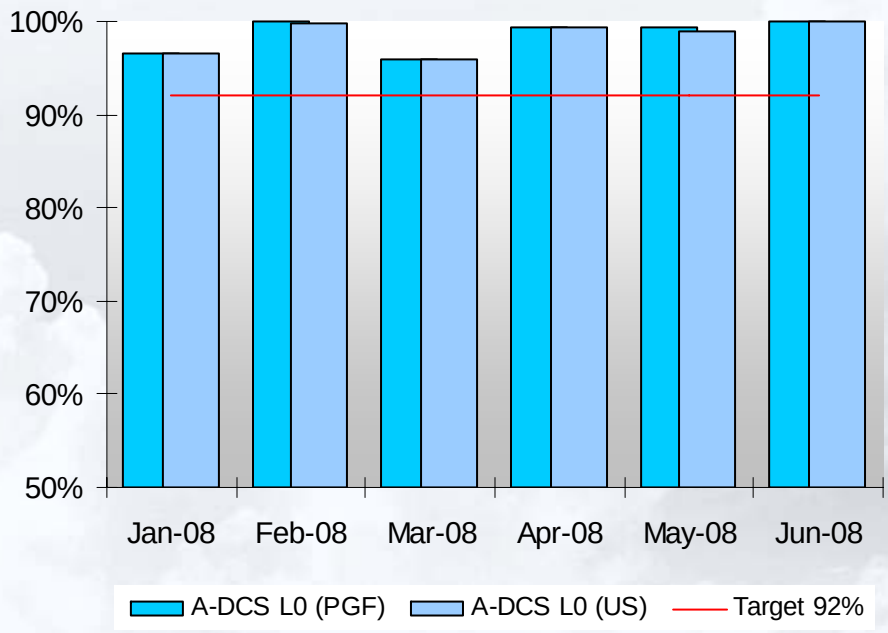
19 March 2008: Another PLSOL occurred on the satellite, also due to an SEU.

8/9 April 2008: A planned 'Out-Of-Plane' manoeuvre was performed. Although all scanning instruments remained switched on (with the exception of the SEM instrument), they were put into standby mode for approximately a 22-hour period, and thus their data was unusable for product generation. The functioning of A-DCS and GRAS was unaffected.

Metop/NOAA Global Data Service → A-DCS Level 0 Data

Metop-A carries an instrument for the Argos Advanced Data Collection System (A-DCS). Environmental data transmitted by measurement platforms (on land or sea or in the atmosphere) is collected and relayed by EUMETSAT to CLS (a CNES subsidiary) in Toulouse.

Performance in all months of the reporting period above target. Availability of the Level 0 via EUMETCast is measured on EUMETSAT's reference user station (US).



<u>Events Which Impacted Availability:</u>

January & March 2008: PLSOLs (general impact on all instruments – see slide 15)

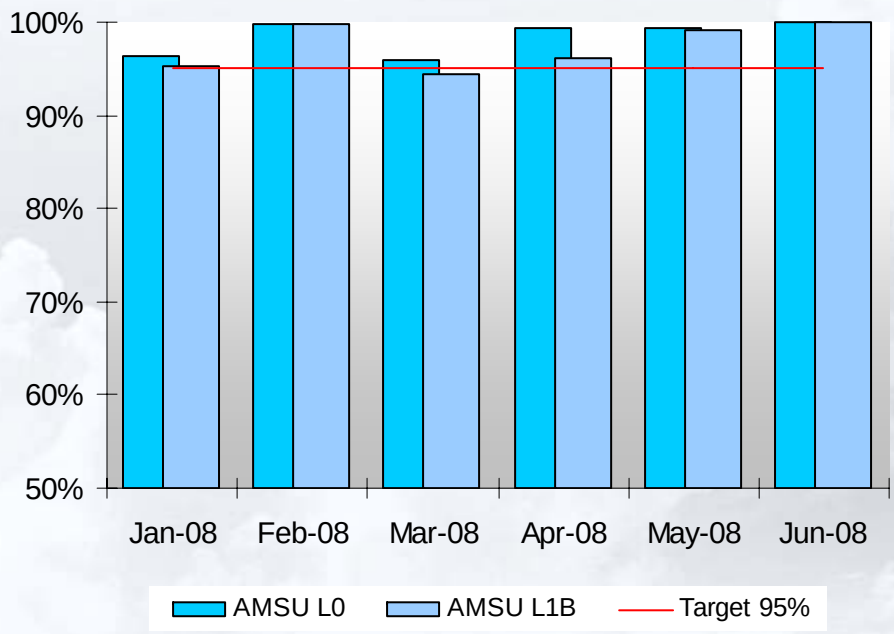
Metop/NOAA Global Data Service → AMSU Level 1B BUFR Data

The Advanced Microwave Sounding Unit (AMSU) is a 15-channel microwave radiometer supplied by NOAA which measures atmospheric temperature profiles.

Events Which Impacted Availability:

January & March 2008: PLSOLs (general impact on all instruments – see slide 15)

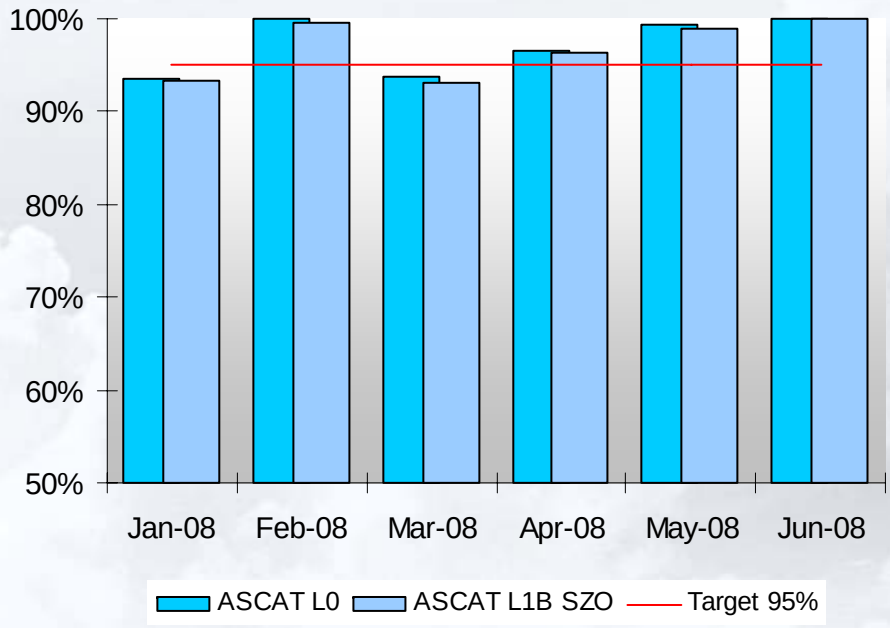
April 2008: availability of Level 1B data reduced by the out-of-plane manoeuvre



Metop/NOAA Global Data Service → ASCAT Level 1B (SZO) Data

The Advanced Scatterometer (ASCAT) is a C-band radar provided by ESA which measures global ocean wind vectors.

Performance of the Level 1B service is measured in terms of the timely availability of the 'SZO' product with spatial resolution of 50 km on the EUMETCast reference user station (US).



Events Which Impacted Availability:

January & March 2008: PLSOLs (general impact on all instruments – see slide 15)

Metop/NOAA Global Data Service → ATOVS Level 2 Data

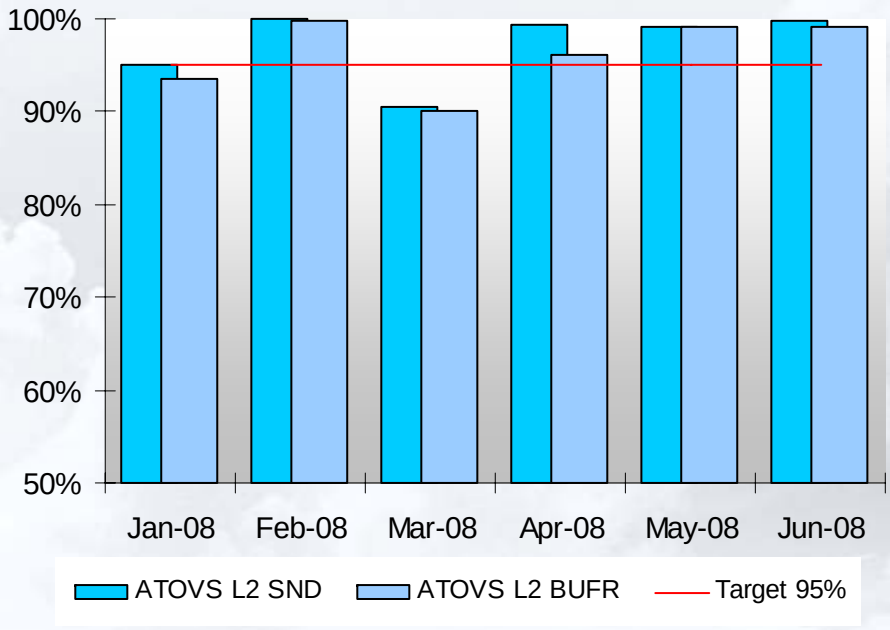
ATOVS Level 2 product processing transforms the calibrated radiance measurements from the AMSU-A, MHS and HIRS instruments into information on the vertical distribution of atmosphere state parameters, on cloud and surface parameters and total atmosphere contents. All the parameters derived are assembled in one ATOVS L2 product.

Performance of the Level 2 service is measured in terms of the timely availability of the intermediate 'SND' version of the product stored in the archive and of the BUFR-encoded product received on the EUMETCast reference user station (US).

Events Which Impacted Availability:

January & March 2008: PLSOLs (general impact on all instruments – see slide 15)

April 2008: availability of Level 2 data reduced by the out-of-plane manoeuvre



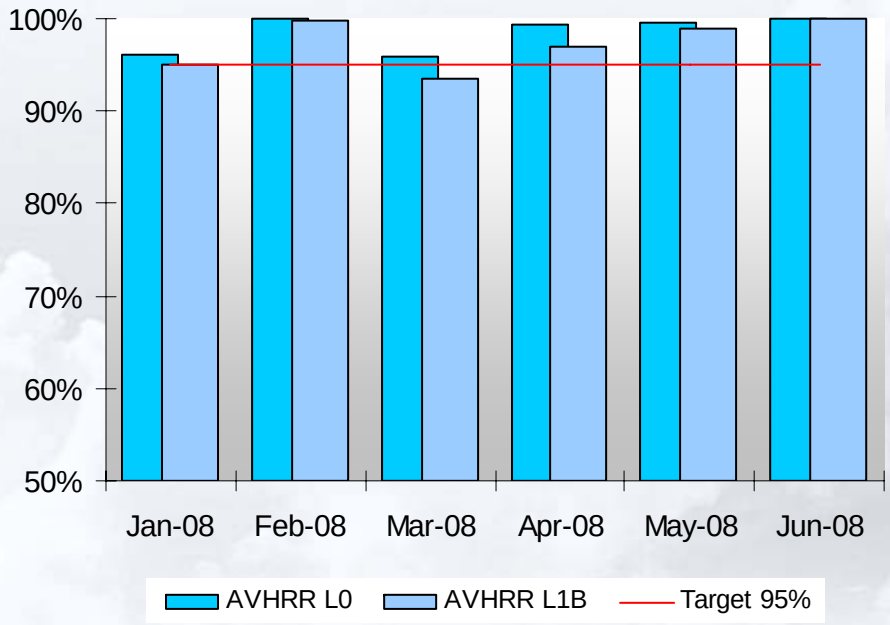
Metop/NOAA Global Data Service → AVHRR Level 1B Data

The Advanced Very High Resolution Radiometer (AVHRR) is a multi-spectral imaging instrument provided by NOAA which produces global cloud imagery and images of land and sea surfaces.

Events Which Impacted Availability:

January & March 2008: PLSOLs (general impact on all instruments – see slide 15)

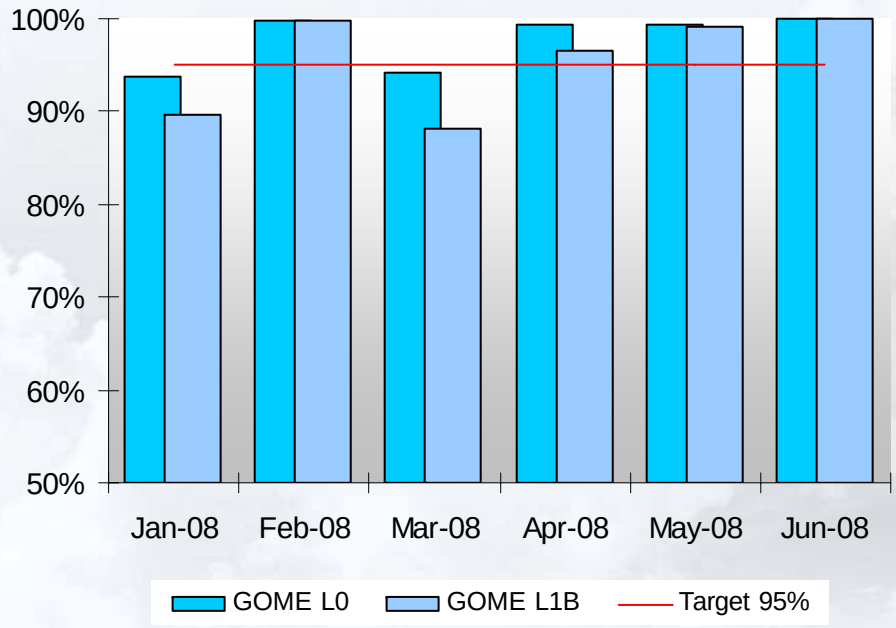
April 2008: availability of Level 1B data reduced by the out-of-plane manoeuvre



Metop/NOAA Global Data Service → GOME-2 Level 1B Data

The Global Ozone Monitoring Experiment-2 (GOME-2) is a scanning spectrometer used to measure profiles of atmospheric ozone and other trace gases.

GOME-2 level 1B data was declared operational on 12-March-2008.



<u>Events Which Impacted Availability:</u>

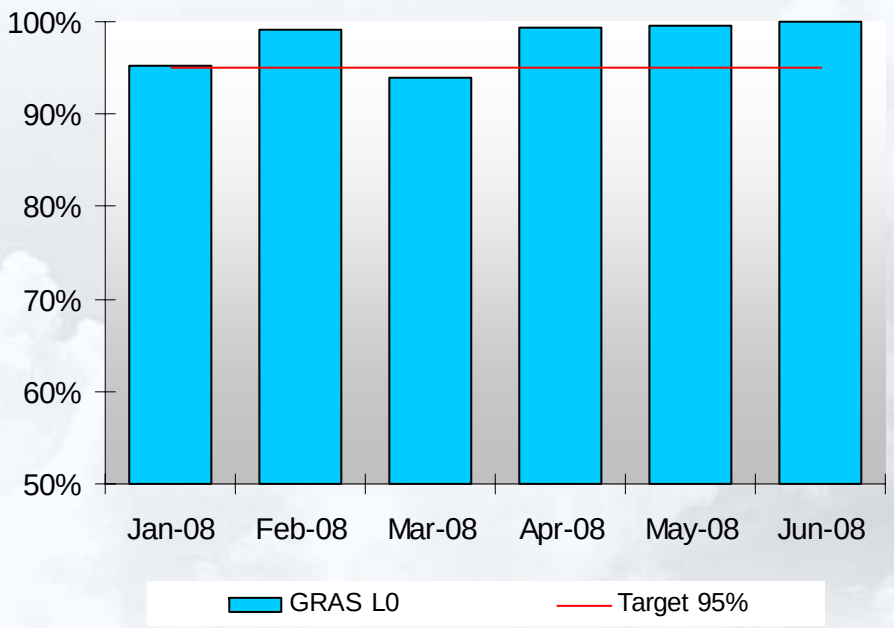
January & March 2008: PLSOLs (general impact on all instruments – see slide 15)

April 2008: availability of Level 1B data reduced by the out-of-plane manoeuvre

Metop/NOAA Global Data Service → GRAS Level 1B BUFR Data

The GNSS Receiver for Atmospheric Sounding (GRAS) is a radio occultation instrument which determines atmospheric profiles using GPS signals.

Test dissemination of GRAS Level 1B commenced in August 2007. The performance is believed not to diverge significantly from that for the Level 0 data, although the variability of occultation events poses a challenge to automating the performance monitoring function.

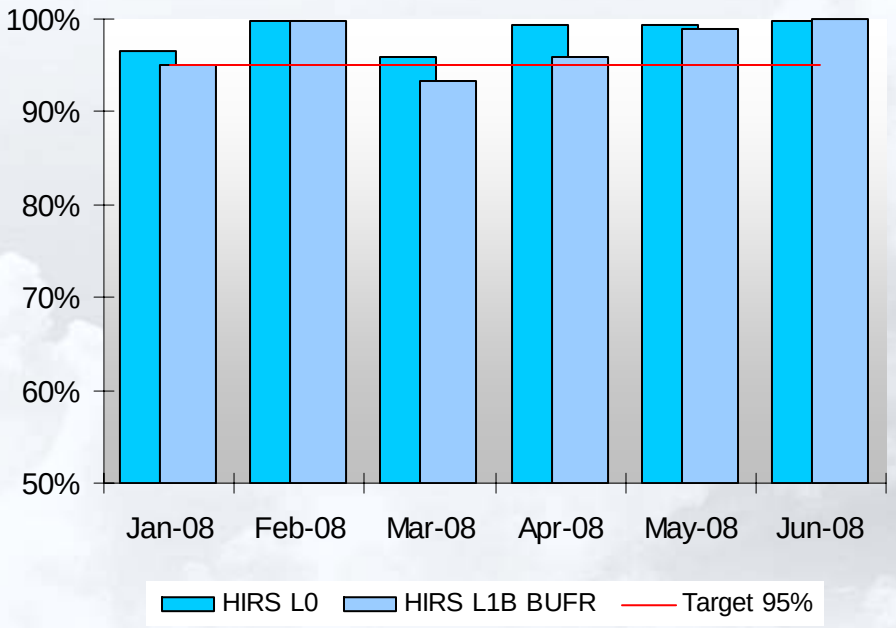


<u>Events Which Impacted Availability:</u>

January & March 2008: PLSOLs (general impact on all instruments – see slide 15)

Metop/NOAA Global Data Service → HIRS Level 1B BUFR Data

The High Resolution Infrared Radiation Sounder (HIRS) measures incident radiation using 19 infrared channels and 1 visible channel, the data contributing to the determination of the atmosphere's vertical temperature profile and water vapour from the Earth's surface to an altitude of about 40 km.



Events Which Impacted Availability:

January & March 2008: PLSOLs (general impact on all instruments – see slide 15)

April 2008: availability of Level 1B data reduced by the out-of-plane manoeuvre

Metop/NOAA Global Data Service → IASI Level 1C & Level 2 BUFR Data

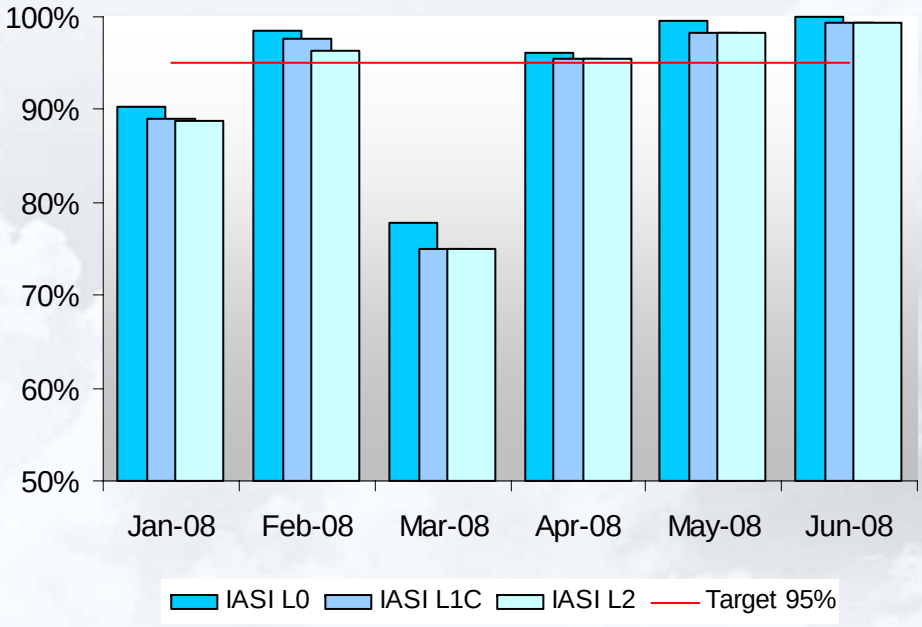
The Infrared Atmospheric Sounding Interferometer (IASI) measures temperature, water vapour and trace gases.

Events Which Impacted Availability:

January & March 2008: PLSOLs (general impact on all instruments – see slide 15)

February 2008: IASI twice entered 'heater-refuse mode' (both occurrences attributable to SEUs) which resulted in an outage of approximately 9 and 4 hours respectively.

Note that an IASI decontamination operation, which was to have been a separate activity at a later date, was started during the outage following the PLSOL in March, taking advantage of the already 'warmed-up' state of the instrument.



Metop/NOAA Global Data Service → MHS Level 1B BUFR Data

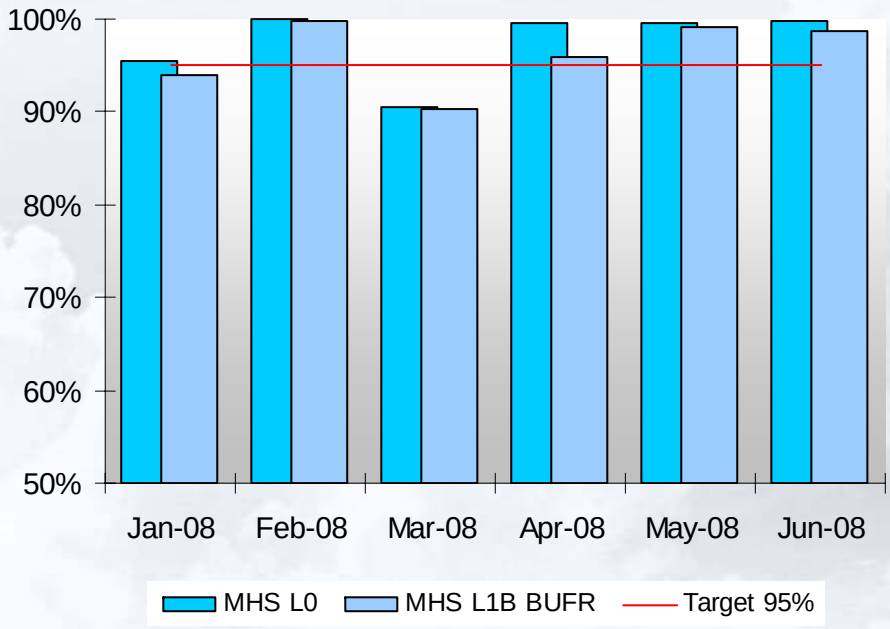
The Microwave Humidity Sounder (MHS) is used to measure atmospheric humidity primarily, but also to measure cloud liquid water content and to provide qualitative estimates of precipitation.

Events Which Impacted Availability:

January & March 2008: PLSOLs (general impact on all instruments – see slide 15). Additionally, an SEU-provoked fault mode in January caused a data outage of approx. 6 hours.

April 2008: availability of Level 1B data reduced by the out-of-plane manoeuvre

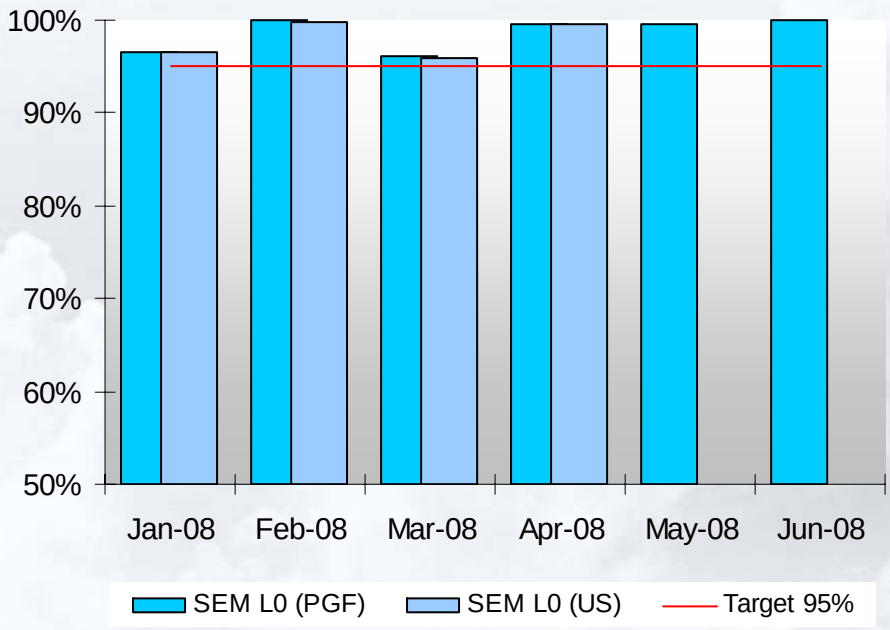
June 2008: instrument entered fault mode, again due to an SEU. Resulted in a data outage of approximately 7 hours.



Metop/NOAA Global Data Service → SEM Level 0 Data

The Space Environment Monitor (SEM) consists of a pair of instruments which provide data to determine the intensity of the Earth's radiation belts and the flux of charged particles at the satellite's orbiting altitude.

Note that Level 0 data (consisting of the SEM instrument source packets in EPS native format) is no longer disseminated via EUMETCast (discontinued as of 8-April-2008), but continues to be provided to NOAA via dedicated terrestrial line. The chart shows the availability on the EUMETCast reference user station until the date of discontinuation.



Events Which Impacted Availability:

January & March 2008: PLSOLs (general impact on all instruments – see slide 15)

Metop/NOAA Regional Data Service

This service category currently comprises EARS-ATOVS and EARS-AVHRR services. A third service originally foreseen (namely EARS-ASCAT) is not available due to the failure of HRPT on Metop-A.

Performance of the service is measured in terms of the availability of the data on the user reception stations within 30 minutes of the instrument's observations.

The target for the availability of the EARS service is 90% (according to EARS Operational Service Specification v3A, Oct 2005).

Metop/NOAA Regional Data Service → EARS-ATOVS

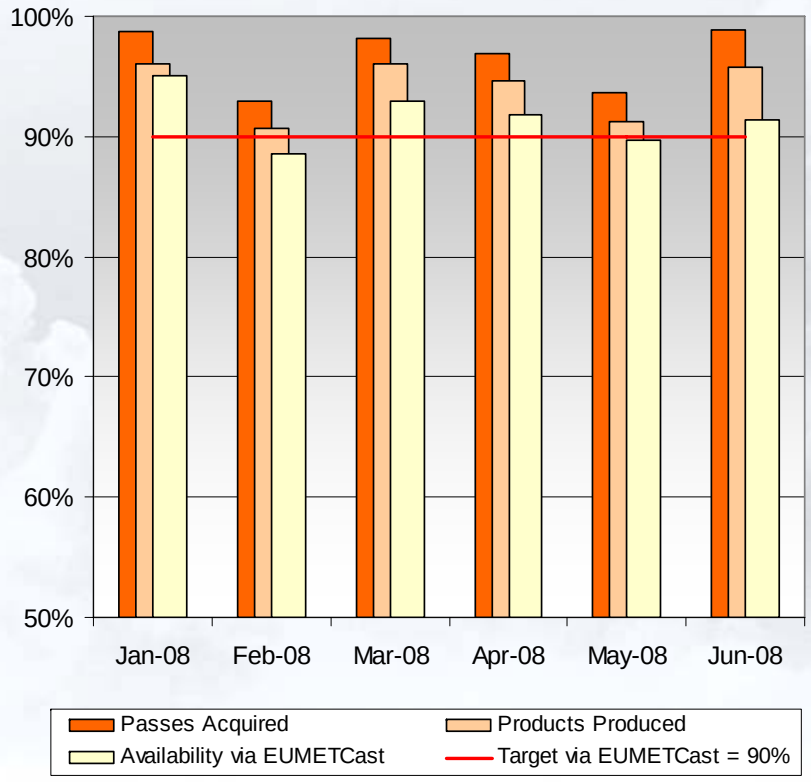
This service provides ATOVS sounder data covering data-sparse areas, as received from the NOAA satellites N15, N16, N17 and N18.

Availability shown on the chart is for the products received by users (relative to scheduled ground station passes) and covers Levels 1A and 1C in BUFR and Level 1D products.

Events Which Impacted Availability:

February 2008: An HRPT anomaly on the NOAA-17 spacecraft necessitated a change to another transmission frequency, this requiring the stations to retune. Some retuning problems for certain stations increased the impact on overall performance for the month.

May 2008: Antenna damage at Gander resulted in a 17-day outage of data from that station.



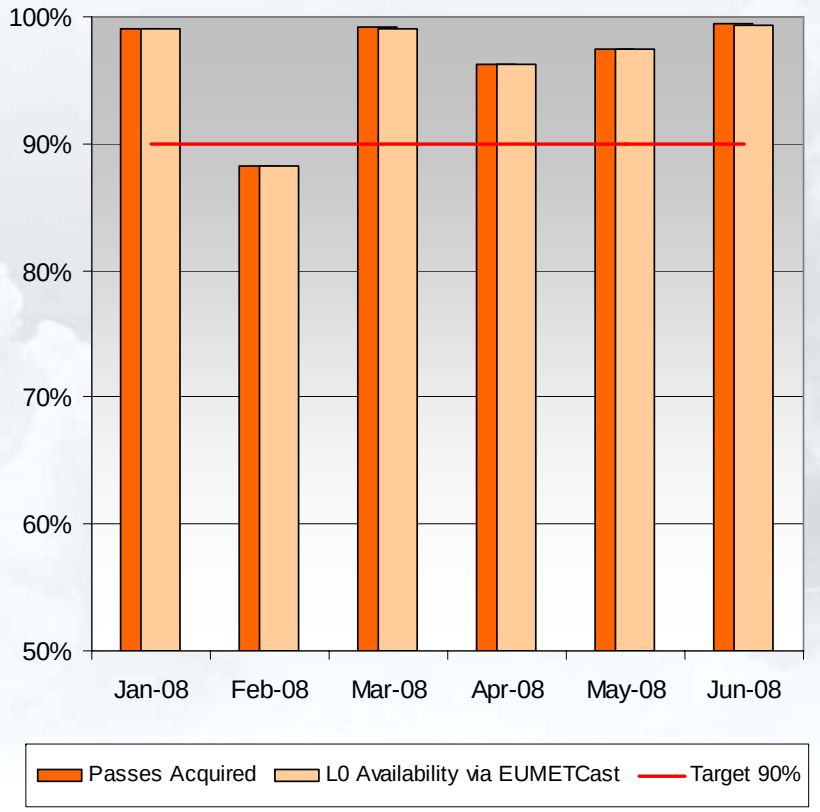
Metop/NOAA Regional Data Service → EARS-AVHRR

This service provides data from the AVHRR instruments onboard the two contributing NOAA satellites (N17 and N18).

Availability shown on the chart is for Level 0 data received by users (relative to scheduled regional passes). Note that no higher-level products are generated.

<u>Events Which Impacted Availability:</u>

February 2008: The HRPT anomaly on the NOAA-17 spacecraft explained on the previous slide also impacted performance of AVHRR.



Archive Service

This service allows registered users to request and receive data acquired from any of EUMETSAT's operational satellites and any products derived from the data. EUMETSAT provides an online 'self-service' ordering mechanism and can supply requested data and products from its archive via physical media and the Internet.

Plans for enhancing this section to provide better presentation of the performance of the Archive Retrieval Service are still in progress, so apologies for not providing the changes in this report.

Charts currently provided show the following :

- **Meteosat Image & Product Availability**
- **Total Data Volumes Retrieved**

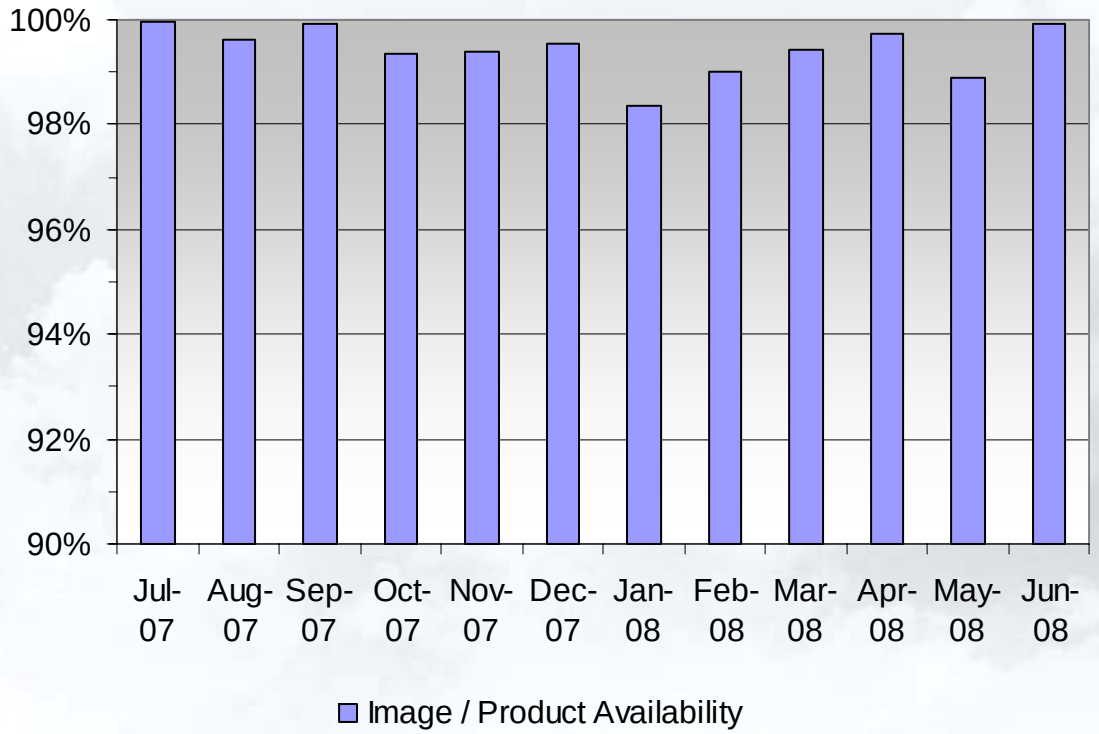
Archive Service → Meteosat Image & Product Availability

The chart here shows total numbers of Meteosat images & products held by EUMETSAT's archive facility for each of the months in the reporting period, as a percentage of what was scheduled to be produced (eclipse seasons taken into account). Many factors influence the final availability of data in the archive, from the point when a satellite generates the raw data, through ground acquisition and processing, to the point where it is ingested and stored.

Note that statistics for Metop data are currently not available.

<u>Events Which Influenced Availability:</u>

None, other than those indicated on the 'Meteosat Services' slides.

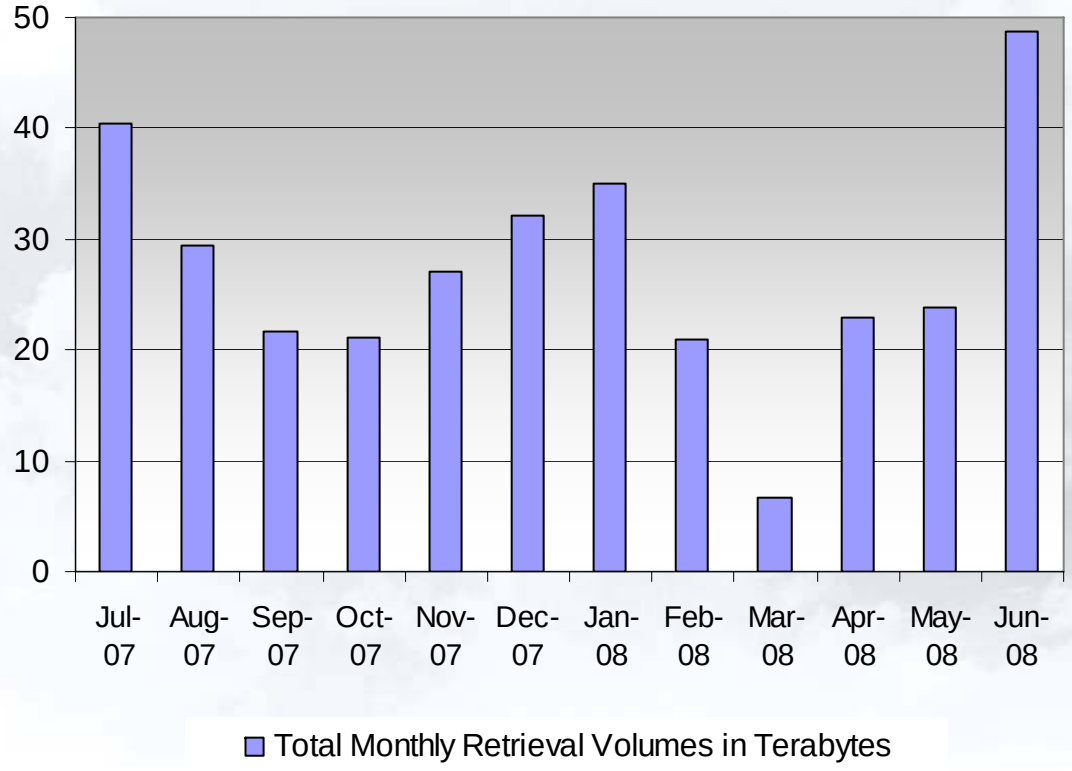


Archive Service → Total Data Volumes Retrieved

The chart here shows total volumes of data retrieved from EUMETSAT's archive facility month-by-month. Note that retrieved data is subject to various processing activities prior to its being written to media or being forwarded electronically to Internet recipients.

Events Which Influenced Retrieval Volumes :

March 2008: a migration to new tape library hardware, with a planned week's downtime of order processing, encountered a software compatibility problem, which required almost a further week for resolution.



User Support Service

As part of its role, EUMETSAT's User Helpdesk receives requests from users that are classified as either 'enquiries' (related to services provided) or 'registrations' for one or more of the services.

Charts on the following slides show:

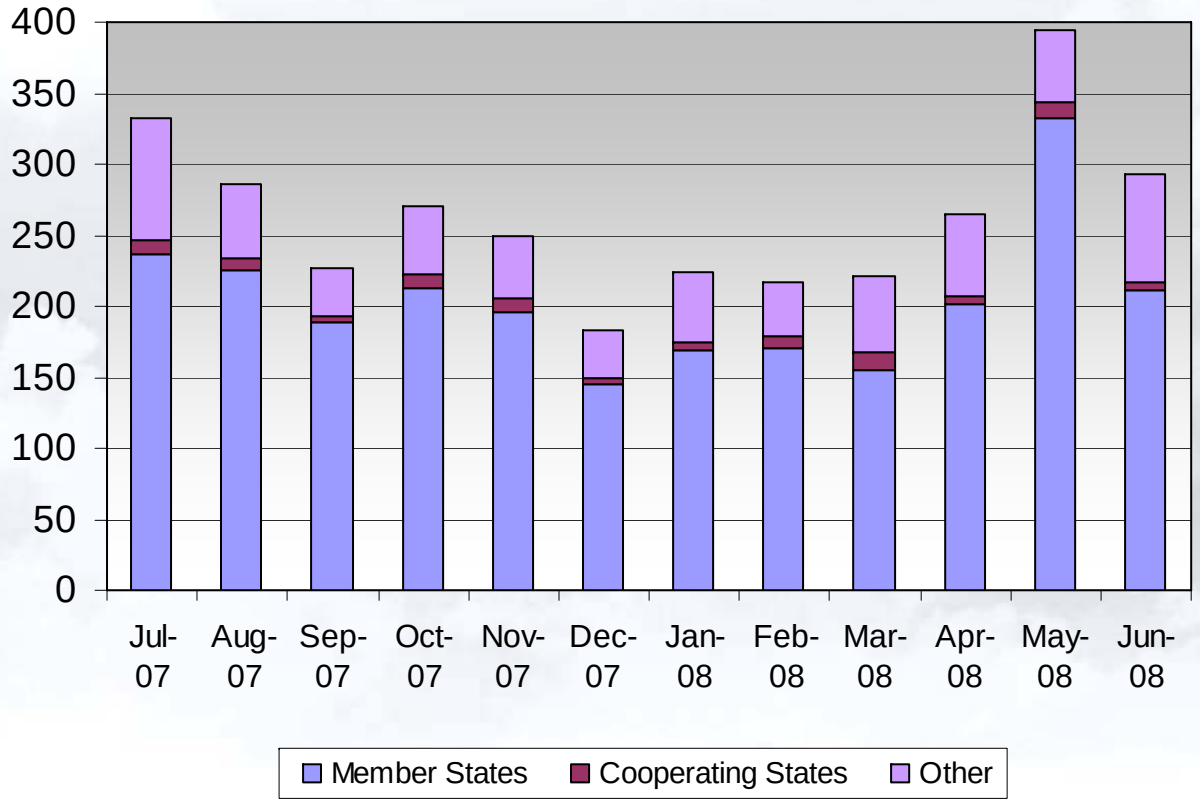
- **User requests received from Member States, Cooperating States and 'Other Countries'**
- **The 'Top 5' countries that gave rise to the most significant numbers of user requests**
- **User enquiry and user registration breakdowns**

User Support Service → User Requests Month-by-Month

The chart here shows the month-by-month split of requests originating from EUMETSAT Member States, Cooperating States and all other countries.

The number of requests received in in the 12 months ending June 2008 totalled 3163, of which 1614 were received in the period January to June 2008. Requests comprise registrations and enquiries.

The next slides show user requests by country of origin, user registrations by category and user enquiries by subject area. The subject timeframe for each is the period January-June 2008.

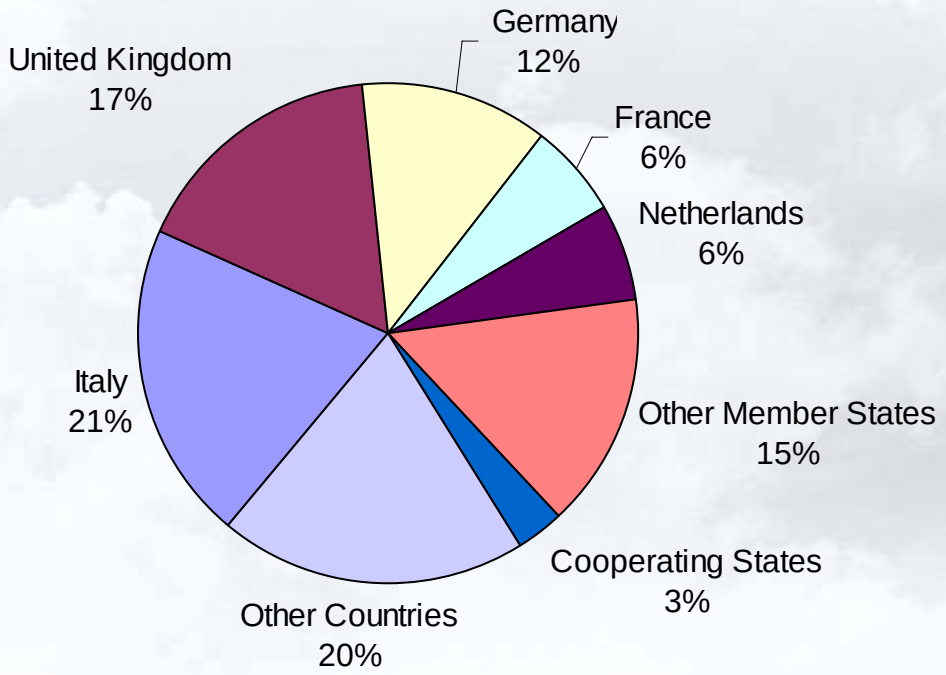


User Support Service → User Requests by Country of Origin

The pie chart here shows the requests received in the first half of 2008 from:

(1) the 5 countries that gave rise to the largest numbers of requests, and

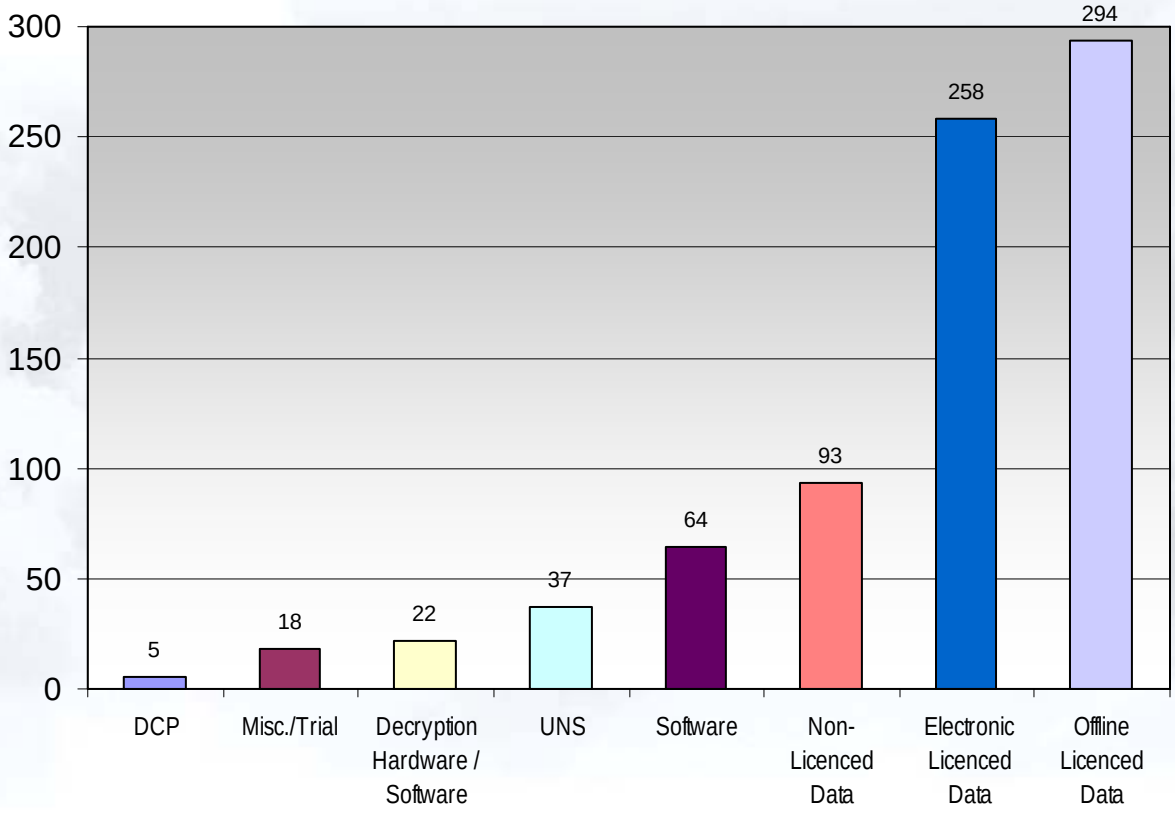
(2) the split of the remainder of the requests between other Member States, the Cooperating States and other countries.



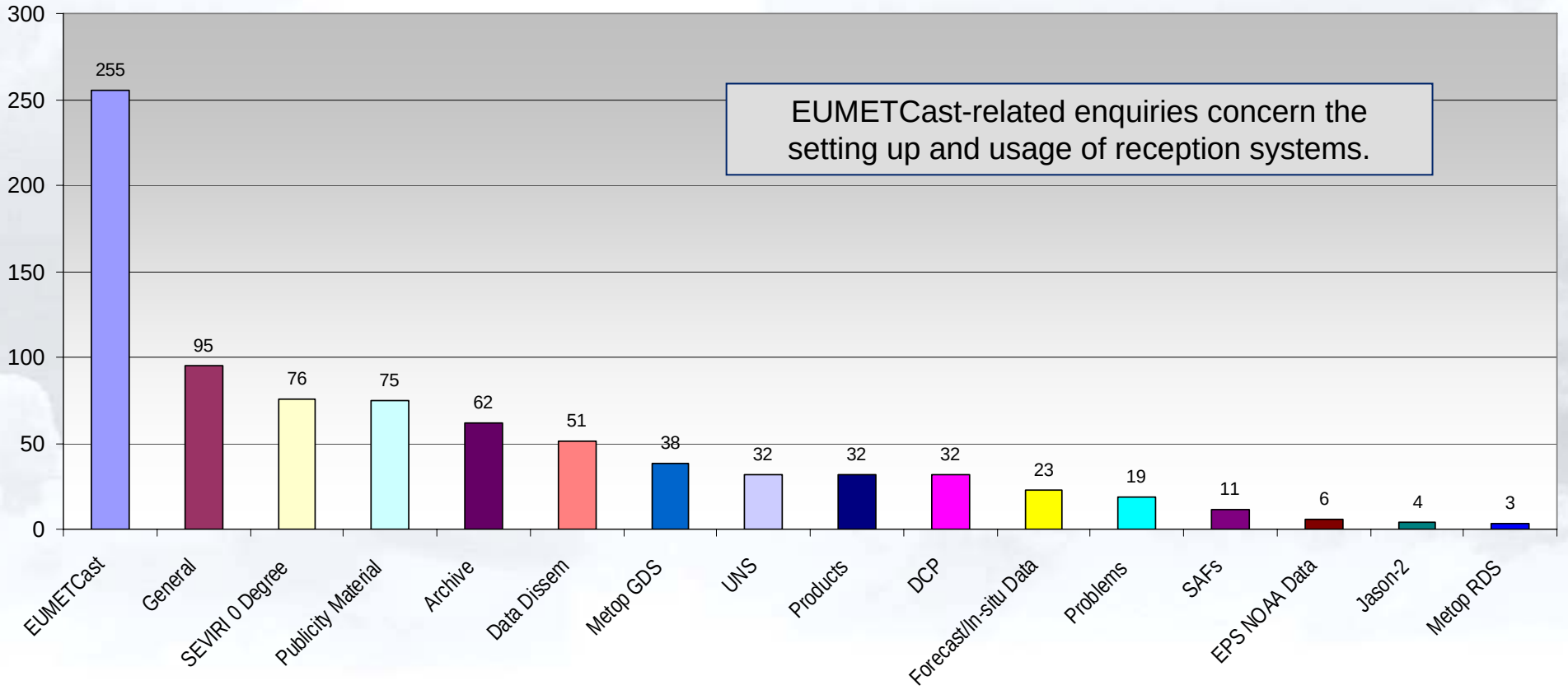
User Support Service → User Registrations by Category

The chart shows the spread of registrations across the various service categories.

'Electronic' refers to the registrations for data made by users using the self-service mechanism on the EUMETSAT website, whereas 'offline' includes registrations involving external licensing agents, paying customers and all non-member states.



User Support Service → User Enquiries by Subject Area



Changes to EUMETSAT's Services

This section lists the changes to services that have taken place in this reporting period:

Date	Service	Description
21 Jan – 17 Mar	Meteosat-9 Level 1.5 imagery – new radiance definition	Disseminated via EUMETCast for user validation (made available in EUMETSAT's archive as of 1-Feb-08)
11 March	GOME-2 Level 1B	Declared operational
9 April	ASCAT Level 1 (on Metop /NOAA Global Data Service)	Declared operational
15 April	GRAS Level 1B	Declared operational
29 April	IASI Level 2 products: TWT and CLP	Declared operational (TWT = Atmospheric Temperature, Atmospheric Water Vapour and Surface Skin Temperature, CLP = Cloud Parameters)
5 May	Meteosat-9 Level 1.5 imagery	New radiance definition implemented operationally (then implemented for Meteosat-8 on 13 May 08)
23 June	ATOVS Level 2 product	Declared operational

Glossary

Special terms used in this report are explained in the table below (continued on several subsequent slides).

Term	Context in which used	Description
A-DCS	Metop / NOAA Global Data	The 'Advanced Data Collection System' instrument on Metop contributes to the Argos programme, which is a satellite-based data location and collection system dedicated to monitoring and protecting the environment.
AMSU-A	Metop / NOAA Global Data	The 'Advanced Microwave Sounding Unit-A' is a multi-channel microwave radiometer provided by NOAA, flying on Metop-A, which is used in combination with the HIRS instrument for measuring global atmospheric temperature profiles.
ASCAT	Metop / NOAA Global Data	The 'Advanced Scatterometer' is a C-band radar provided by ESA, flying on Metop-A, which measures global ocean wind vectors.
ATOVS	Metop / NOAA Global Data	Calibrated radiance measurements from the AMSU-A, MHS and HIRS instruments are transformed into various parameters and assembled in the ATOVS L2 product.
AVHRR	Metop / NOAA Global Data	The 'Advanced Very High Resolution Radiometer' is a multi-spectral imaging instrument provided by NOAA which produces global cloud imagery and images of land and sea surfaces.

Glossary (continued)

Term	Context in which used	Description
DCP	Meteosat	A 'Data Collection Platform' measures and transmits environmental data which is relayed by Meteosat satellite first to EUMETSAT's central operations, and then forwarded on to the DCP operator via direct, EUMETCast or GTS dissemination.
Formats	Meteosat (IODC)	This refers to the High-Resolution Image (HRI) formats disseminated via Meteosat's direct dissemination broadcasts.
GOME-2	Metop/NOAA Global Data	The 'Global Ozone Monitoring Experiment-2' instrument flying on Metop-A is a scanning spectrometer used to measure profiles of atmospheric ozone and other trace gases.
GRAS	Metop/NOAA Global Data	The 'GNSS Receiver for Atmospheric Sounding' instrument flying on Metop-A is a radio occultation instrument which determines atmospheric profiles using GPS signals.
GTS	General	The 'Global Telecommunications System', established by the WMO, is used by national meteorological services to exchange meteorological data and products. See also 'RMDCN'.

Glossary (continued)

Term	Context in which used	Description
HIRS	Metop/NOAA Global Data	The 'High Resolution Infrared Radiation Sounder' measures incident radiation in for determining the atmosphere's vertical temperature profile and water vapour from the Earth's surface to an altitude of about 40 km.
IASI	Metop/NOAA Global Data	The 'Infrared Atmospheric Sounding Interferometer' is a multi-purpose sounding instrument used for global measurement of temperature, water vapour, trace gases such as ozone, nitrous oxide, carbon dioxide and methane, as well as surface temperature, surface emissivity, and cloud characteristics.
Level 0	Metop/NOAA Global Data	An instrument's raw data which has been demultiplexed from the total set of data dumped from one orbit of the Metop satellite.
Level 1.0	Meteosat	The raw image data acquired from a Meteosat satellite and preprocessed at the ground station, which is then received by a EUMETSAT image-processing facility, to be geometrically rectified and radiometrically corrected.
Level 1.5	Meteosat	Level 1.0 image data that has been corrected for radiometric and geometric non-linearity and is accompanied by the appropriate ancillary information that allows the user to calculate the geographical position and radiance of any pixel.

Glossary (continued)

Term	Context in which used	Description
Level 1A	Metop/NOAA Global Data	Instrument data in full resolution with radiometric and geometric (i.e. Earth location) calibration computed and appended but not applied.
Level 1B	Metop/NOAA Global Data	Calibrated, earth-located and quality-controlled product, in the original pixel location, packaged with ancillary, engineering and auxiliary data.
Level 1C	Metop/NOAA Global Data	In the case of the IASI spectra, Level 1B data after the application of the apodization function.
Level 2	Metop/NOAA Global Data	Earth-located values converted to geophysical parameters at the same spatial and temporal sampling as the Level 1B and 1C data.
MHS	Metop/NOAA Global Data	The 'Microwave Humidity Sounder' is a new 5-channel microwave instrument developed for EUMETSAT to measure profiles of atmospheric humidity. Five flight models in total will be flown on the 3 Metop satellites, plus NOAA-N and NOAA-N'.

Glossary (continued)

Term	Context in which used	Description
Nominal RCs	Meteosat (0° SEVIRI)	SEVIRI repeat cycles consisting of geometrically and radiometrically-corrected data in all 12 channels, with less than 18 missing detector lines in the scanned Earth area for any given spectral channel (54 for HRV), where less than 12 of those lines (36 for HRV) are adjacent to each other.
'On-Time'	All	The data or product has been generated or received 'on-time' at a specified location (e.g. at generation facility or EUMETCast user station respectively) within the relevant timeliness constraint.
Perfect Formats	Meteosat (IODC)	High-Resolution Image (HRI) formats which have no missing lines and are based on the latest scanned image according to schedule.
Perfect Images	Meteosat (IODC)	Rectified images which are 100% complete.
PGF	On Metop performance charts	The Metop 'Product Generation Facility' is the part of the EPS CGS (Core Ground System) which generates Level 0 data and controls the generation of Level 1 and 2 products by the relevant PPFs (Product Processing Facilities).

Glossary (continued)

Term	Context in which used	Description
Repeat Cycles (or RCs)	Meteosat (0° SEVIRI)	The period in which the SEVIRI instrument performs one scan and then is repositioned ready for the next repeat cycle. A nominal repeat cycle (a scan of the entire Earth disc) has a duration of 15 minutes.
RMDCN	General	The 'Regional Meteorological Data Communication Network' is used by WMO Region VI to carry GTS traffic within Europe. See also 'GTS'.
SEM	Metop/NOAA Global Data	The 'Space Environment Monitor' consists of a pair of instruments which provide data to determine the intensity of the Earth's radiation belts and the flux of charged particles at the satellite's orbiting altitude.
US	On Metop performance charts	The EUMETCast reference user station that is used to receive data and products disseminated via EUMETCast. Reception statistics that it generates contribute to the measurement of the availability of disseminated data and products.