



CGMS is informed of the status of the current European Space Agency Earth Observation missions. Two of them, MSG and Metop are in co-operation with EUMETSAT. The second ERS satellite, launched in 1995, has continued to increase SAR production, and has aligned products and formats with Envisat. The limited LBR operations are being overcome with extending the network of acquisition stations. .

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STATUS OF THE CURRENT ESA EARTH OBSERVATION MISSIONS

1. - INTRODUCTION

The Earth Observation Directorate of the European Space Agency (ESA) is currently running a number of programmes. Two of these, MSG and Metop are in co-operation with EUMETSAT. The second ERS satellite, launched in 1995, has continued to increase SAR production, and has aligned products and formats with Envisat. The limited LBR operations are being overcome by extending the network of acquisition stations. Envisat was successfully launched in 1st March 2002. The success of the Envisat mission is well established, with a constant increase of user demand for data and services. Currently, over 1000 scientific projects are served with Envisat data. Data accessibility is constantly upgraded through Internet and Telecom multicast. Several thematic workshops and symposia have been organized, increasingly attracting participants from all over the world. Today, the mission is expected to exceed the original foreseen 5 years lifetime. PROBA is covering the Science mission since 2003.

2. - STATUS OF THE ERS MISSIONS

The ERS-1 spacecraft, which ceased its operations in March 2000, is regularly tracked to predict and avoid possible interference with the orbits of other missions. All ERS services are provided by ERS-2, which remains operational.

All Low Bit Rate (LBR) instruments were operated on a global basis until the 22 June 2003, where the failure of the onboard recorders discontinued the global LBR observations of the ERS missions. Since then the ERS-2 LBR mission is continued within the visibility of ESA and other ground stations, which network continues to increase.

Due to a reduced pointing accuracy caused by the gyro failures, the Wind Scatterometer data distribution was interrupted from 17th January 2001 to the 21 August 2003; it is back into operations since 22 August 2003.

Currently all LBR data are distributed nominally. SAR is operated in response to user requests with an increased production, which in 2005 doubled that of 2000.

The Platform, Payload and the Instrument Data Handling and Transmission (IDHT) system, beside the recorders, are working nominally and despite the advanced mission lifetime no significant aging has been observed

In order to ensure an homogenous data access covering 15 years of continuous observations, the formats of the products are being aligned to those of Envisat. .

The consumption of hydrazine during the routine orbit control is very low. Also after 11 years in orbit the fuel available would allow a continuation of the mission beyond 2008, including de-orbiting of the satellite.

The most complete information about the ERS mission, system, instruments, its products, user services and latest news can be found at <http://earth.esa.int/ers/>

3. - STATUS OF THE ENVISAT MISSION

The Envisat satellite, the largest Earth Observation mission ever operated, was successfully launched on 1st March 2002 by an Ariane-5 vehicle and is since then orbiting in its assigned 35-day repeat cycle, 30 minutes ahead of the ESA ERS-2 satellite. During the first weeks of the mission, all 10 Envisat instruments were progressively switched on and data taking activated successfully for all of them.

After the most extensive calibration and validation activity ever performed in Europe (200 teams), the Commissioning Phase was completed in December 2002 with a Validation Workshop during which the Earth Science community confirmed its enthusiasm for the initial performances and capabilities of the data provided by the Envisat instruments. The validation effort continues during the mission lifetime in order to improve the accuracy of the product geophysical measurements.

During 2003, the Envisat services to users were gradually open and have now reached a stable status with satisfactory data acquisition and product generation performances. A total of 78 different types of products are generated amounting to about 250 GBytes of product data per day. Several of these products have been tailored for the meteorology community. Access to such service is to be requested via the eopi.esa.int portal (cat-1 for LBR).

About two thirds of the Envisat instrument data is transmitted to the ground via the ESA data relay satellite, Artemis, providing Europe with data acquisition capabilities for any location worldwide. Latest upgrades in the ground segment include a new type of ASAR product and gradual on-line availability of archived data (e.g. MERIS reprocessed data

The most complete information about the Envisat mission, system, instruments, its products, user services can be found on the Envisat mission web site at <http://envisat.esa.int/>. The web site also includes the latest mission news, such as the problems currently experienced with the Radar Altimeter instrument, which experienced anomalies since February 2006, under correction. The MIPAS and GOMOS instruments have suffered some degradation.. Data accessibility is constantly upgraded through Internet and Telecom multicast.

Envisat data is currently provided to about 1060 active Category 1 use projects. About half of the Category 1 use projects ask for ASAR High Bit Rate data, which are also requested for Category 2 use.

Near Real Time (NRT) data can be accessed through different systems:

1. *Internet systems*, allowing access to rolling archives of all Envisat products generated during the previous 7 days (15 days for ASAR Medium Resolution products). A sub-

system, called Envisat Web File Server (EWFS), allows, via a geographic selection, to extract and download sub-products within the rolling archive, and is available for MERIS, AATSR and ASAR data.

2. *Telecommunication satellite broadcast system (DDS broadcast)*, allowing access to Envisat data broadcast via Eutelsat satellite using a small receiving antenna. Apart from being part of the operational ground segment data flow, the DDS broadcast system, available for users in Europe and in Africa, currently broadcasts in NRT all MERIS Level 1 and Level 2 Reduced Resolution data, part of AATSR Level 1 and all AATSR Level 2 data, and all SCIAMACHY Level 1 data.

The “ftp-on-demand” service is being opened gradually to users, starting with Category 2 users and GMES projects. It is currently working at ESRIN, Kiruna and UK-PAC. This service allows registered user to receive an e-mail after the generation of an on-demand product with the information of where to pick-up the product on Internet.

On-line access to archived data on Internet is implemented for the MERIS Reduced Resolution dataset (MERCIS web interface), for Atmospheric Chemistry data and in progress for Altimetry data. Archived data remains accessible on media, in particular for projects requesting large amount of data.

Today, the mission is expected to exceed the nominal lifetime of five years by three additional years, the limited hydrazine on-board being the current major limitation

The next Envisat Symposium will take place in Montreux (Switzerland) from 23 to 27 April 2007. Several thematic workshops and symposia have been organized, increasingly attracting participants from all over the world.

4 – STATUS OF CHRIS/PROBA

The Earthnet/Third Party Mission TPM programme element has been running for almost 30 years. It enables harmonized access to non-ESA missions for the benefit of European users. Currently, ESA provides access to data from 17 Third Party Missions and 24 instruments. One of them is CHRIS/Proba:

Following a successful year of exploitation in 2005, a new Science Program has been elaborated and implemented for 2006. The 2006 program addresses major objectives identified by ESA including furthering hyperspectral multi-angular mission concepts, wetland monitoring , retrieval studies, vegetation and coastal studies, lichen field studies in deserts, atmospheric studies/cloud heights and support to disaster monitoring as part of the International Charter on Space and Major Disasters. In addition, more than 20 new scientific projects have been started, also those using Envisat and CHRIS data in synergy.

<http://earth.esa.int/missions/thirdpartymission/proba.html>

5 – INTERNATIONAL CHARTER ON SPACE AND MAJOR DISASTERS

Following the UNISPACE III conference held in Vienna, Austria in July 1999, the European and French space agencies (ESA and CNES) initiated the [International Charter "Space and Major Disasters"](#), with the Canadian Space Agency (CSA) signing the Charter on October 20, 2000. Since its signing, the International Charter on Space and Major Disasters has been providing important EO satellite data input to natural hazards post-crisis management around

the world, with both increasing Charter activations and participating space agencies as data providers.

6. - REFERENCES

Further information about the various ESA missions can be found on the following WWW addresses which offers the possibility to download many supporting relevant documentation:

<http://www.esa.int>

<http://earth.esa.int>

<http://earth.esa.int/missions/thirdpartymission/proba.html>

Complementary to this report is the information contained in the “CGMS Consolidated report”.