

STATUS OF THE CURRENT ESA EARTH OBSERVATION MISSIONS

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, is currently in limited LBR operations ~~-(does HBR as well)-~~. Envisat and MSG-1 were successfully launched in 1st March and 29th September 2002, respectively. PROBA is covering the Science mission since 2003.

The success of the Envisat mission is well established, with a constant increase of user demand for data and services. Currently 900 scientific projects are served with Envisat data. Latest upgrades include a new ASAR product and on-line availability of the second MERIS data reprocessing. Today, the mission is expected to exceed the original foreseen 5 years lifetime.

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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, is currently in limited LBR operations. Envisat and MSG-1 were successfully launched in 1st March and 29th September 2002, respectively. 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 ground stations over Europe, North Atlantic, the Arctic, North America, Hobart, Beijing and Miami. Kourou and Singapore are awaiting the ESA's LBR acquisition systems.

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

The Envisat Symposium in Salzburg (Austria) that took place 6-10 September 2004 included a very successful and interesting special session dedicated to the ERS scatterometer.

Currently all LBR data are distributed nominally. SAR is operated in response to user requests with an average duty cycle of some 4 minutes per orbit.

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

The ERS HR SAR products are available in ENVISAT format, whereas the Wave Mode and ATSR, will be made available in ENVISAT format within 2006. This will ensure an homogenous data access covering 14 years of continuous observations.

The consumption of hydrazine during the routine orbit control is very low. Also after 10 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. As an example, a successful Atmospheric Chemistry Balloon Campaign took place this summer in Brazil.

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. Internet access to NRT products is now granted to registered users. In addition, some products (e.g. MERIS and AATSR) are broadcasted through DDS (Data Dissemination Satellite) via Eutelsat-1 and Eutelsat-3. Several of these products have been tailored for the meteorology community and are also available through dedicated ftp servers in Near Real Time.

About two thirds of the Envisat instrument data is transmitted to the ground via the ESA data relay satellite, Artemis, providing Europe with raw 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 find 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 MIPAS and GOMOS instruments.

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 last Envisat Symposium took place in Salzburg (Austria) on 6-10 September 2004. It was attended by over 1000 scientists. Currently, 900 scientific projects are served with Envisat data. Several workshops related to Envisat and ERS data exploitation are scheduled between September 2005 and May 2006.

4 – Status of CHRIS/Proba Programme

Following a successful year of exploitation in 2004, a new Science Program has been elaborated and implemented for 2005. The 2005 program addresses major objectives identified by ESA including furthering hyperspectral multi-angular mission concepts (e.g. Earth Explorer Candidate SPECTRA), wetland monitoring-, retrieval studies, monitoring of forest fires together with the German national satellite BIRD 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. The 3rd CHIRS PROBA workshop was held at ESRIN 21-23 March 2005, where results were presented and the acquisition strategy for 2005 was finalized (see <http://earth.esa.int/missions/thirdpartymission/proba.html> and http://earth.esa.int/workshops/chris_proba_05/).

7. - 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://envisat.esa.int>

<http://eopi.esa.int>

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

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