

Status of activities at ESA regarding Alternative Dissemination methods

CGMS is informed about ESA's activities regarding EO data distribution

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1.- INTRODUCTION

The ESA Directorate of Earth Observation has started in 2003 a series of projects under the Oxygen indicative (ref CGMS-XXXI-ESA-WP-07) aiming at achieving the following objectives:

- ***Facilitate access*** to EO data and services from ESA and other missions
- ***Increase sustainability*** of EO data provision by widening the range of data sources offered in a global EO based service
- Ensure efficient operations and services

The Oxygen Online Data Access Project is addressing the need to facilitate the access to EO data and services, supporting the request and distribution of EO products to the user community at large, and the EO data dissemination between the EO Centres involved in the data processing using electronic means.

This paper summarises the main ESA on going activities on electronic distribution of products, as one of the Alternative Dissemination Methods.

2.- ACTIVITIES

Besides the data distribution using physical media, ESA Earth Observation data has been distributed using different electronic systems since the launch of the ERS-1 satellite. Traditionally, the Low Rate products were distributed using Web or FTP server through the open Internet, while the High Rate products were distributed using either physical media or, for Near-Real Time applications, using a Multi-cast satellite system based in VSAT technologies in the early '90s (Broad-Band Data Dissemination Network, BDDN), which has evolved since more than 4 years over DVB-S standard (called DDS, Data Dissemination Satellite).

The Oxygen Online Data Access Project aims to improve the current infrastructure to allow High Rate products also to be distributed to the wide EO user community through a direct access to the different distributed archives using Internet. It shall be noted that the user community of EO data is widely distributed in the whole world and any dissemination system shall satisfy a high penetration in this potential user community, this is the main reason why a ground Internet solution is being prioritized. That also considering that EO users are used to exchange level 3 and 4 products, and to publish and share their project results through the Internet, as well as most of the value-adding services being consolidated are relying in the Internet.

Accordingly, current solutions allow any registered user to search the EO data through Internet, consulting the available catalogues and placing a request for data already available or still to be acquired. In the request, the user can specify the delivery mechanism being media, Internet or satellite delivery. When the product will be generated, the user will be warned about the location and mechanism to download the data, in the Internet download case, or the delivery will be performed to the user satellite receiver, in the Satellite delivery case.

The products generated systematically, are available on servers accessible to the registered users for download. ESA links a network of servers for its own data, but also for products generated by national or foreign facilities.

In order to further increase the amount of data distributed on-line the following actions are on going and planned to be completed for the end of 2004:

- Migrate the current off-line archives in On-line Archives based on Mass Storage Tape Libraries or disk.
- All the ESA Archive and NRT Centers will subscribe to a High Speed Internet Service Provider with speed of at least 34 Mbps using its local National Research and Education Network. The network will also made available for use of the data from national missions.
- Implement a solution to augment the standard Internet commercial performance using automatic re-routing techniques through an ESA Intranet high-speed backbone. The user downloading the data will perceive this with and improved Quality of Service.
- Allow products sub-setting and introducing format conversion and compression techniques.

ESA is also initiating the co-ordination with other national space agencies on the frame of this project and of the Oxygen concept as preparatory activities for GMES. CNES, DLR and ASI, as well as from other Value-added-companies, have started participating into the project and are becoming part of the HiSEEN network for the distribution of their EO mission data.

3.- CONCLUSIONS

ESA Earth Observation has been and is increasingly using electronic data distribution to the Earth Observation users. This capability is being enhanced to support also the High-rate products distribution.

ESA relies mainly in Internet distribution to reach the wider user EO community, dedicating the satellite multicast system based on DVB-S to those users in Europe requesting large amount of EO data and that has specific requirements for a Near-Real time distribution.

The enhancement of the Data distribution system is being performed with the co-ordination and collaboration of the main national space agencies in Europe.