Crustal Dynamics Data Information System (CDDIS)

Introduction

The CDDIS is a dedicated data center supporting the international scientific community as NASA's space geodesy data archive since 1982. This data archive was initially conceived to support NASA's Crustal Dynamics Project; since the end of this successful program in 1991, the CDDIS has continued to support the science community through an RTOP from NASA's Solid Earth and Natural Hazards program, HQ Code YS. The CDDIS provides easy and ready access to a variety of data sets, products, and information about these data. The CDDIS archive includes Global Positioning System (GPS), GLObal NAvigation Satellite System (GLONASS), Satellite Laser Ranging (SLR), Very Long Baseline Interferometry (VLBI), and Doppler Orbitography and Radiolocation Integrated by Satellite (DORIS) data and products. The specialized nature of the CDDIS lends itself well to enhancement to accommodate diverse data sets and user requirements. Information about the system is available at http://cddisa.gsfc.nasa.gov.

The CDDIS serves as one of the primary data centers for the following services within the International Association of Geodesy (IAG):

- International GPS Service (IGS) and its diverse pilot projects and working groups
- International Laser Ranging Service (ILRS)
- International VLBI Service for Geodesy and Astrometry (IVS)
- International Earth Rotation and Reference Systems Service (IERS)
- International DORIS Service (IDS)

The CDDIS is operational on a dedicated computer facility located in Building 33 at NASA GSFC. This computer facility hosts web sites for the CDDIS, the ILRS, and several other GSFC facilities. The majority of the CDDIS data holdings are accessible through anonymous ftp and the web.

By the end of 2003, users had downloaded nearly 60 million files, averaging over 450 Gbytes in size each month. Furthermore, nearly 2000 distinct hosts users accessed the CDDIS on a monthly basis to download data. Users from over 100 countries accessed and downloaded data from the CDDIS last year. Over 130 institutions in over sixty countries supply data to the CDDIS on a daily basis for archival and distribution to the international user community.

CDDIS Activities in 2003

In support of the IGS pilot project on Low Earth Orbiter (LEO) missions, the CDDIS enhanced its archive to include GPS data from additional flight receivers (Jason-1). Analysts

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retrieved these data to produce precise orbits of these LEO platforms, which will aid in the generation of other products, such as temperature and water vapor profiles in the neutral atmosphere and ionosphere imaging products.

An updated archive structure for IDS data and products was implemented at the CDDIS.

The CDDIS staff assisted in the publication of several ILRS documents, particularly the proceedings from the 13th International Workshop on Laser Ranging and the 2002 ILRS annual report.

Staffing and Funding

The CDDIS staff consists of one civil servant and 2.5 Raytheon ITSS contractors. Carey Noll has a BA in Mathematics; Maurice Dube, lead contractor, has a PhD in Physics.

Future Plans

A new LINUX-based (and backup) system was purchased in 2003 to replace the current UNIX server. This system has been configured with nearly 3 Tb of RAID disk space and a dedicated tape backup system. Plans are to have this system operational as the main CDDIS on-line server in mid-2004.

Acronyms

CDDIS	Crustal Dynamics Data Information System
DORIS	Doppler Orbitography and Radiopositioning Integrated by Satellite
GLONASS	Global'naya Navigatsionnay Sputnikovaya Sistema (Global Navigation Satellite System)
GPS	Global Positioning System
IAG	International Association of Geodesy
IDS	International DORIS Service
IERS	International Earth Rotation Service
IGS	International GPS Service
ILRS	International Laser Ranging Service
IVS	International VLBI Service for Geodesy and Astrometry
LEO	Low Earth Orbiter
POD	Precision Orbit Determination
RAID	Redundant Array of Inexpensive Disk
SLR	Satellite Laser Ranging
VLBI	Very Long Baseline Interferometry

For further information: http://cddisa.gsfc.nasa.gov