

CDDIS Data Center Summary for the 2008 IVS Annual Report

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Abstract

This report summarizes activities during the year 2008 and future plans of the Crustal Dynamics Data Information System (CDDIS) with respect to the International VLBI Service for Geodesy and Astrometry (IVS). Included in this report are background information about the CDDIS, the computer architecture, staff supporting the system, archive contents, and future plans for the CDDIS within the IVS.

1. Introduction

The Crustal Dynamics Data Information System (CDDIS) has supported the archiving and distribution of Very Long Baseline Interferometry (VLBI) data since its inception in 1982. The CDDIS is a central facility providing users access to raw and analyzed data to facilitate scientific investigation. The CDDIS archive of GNSS (GPS and GLONASS), laser ranging, VLBI, and DORIS data is stored on-line for remote access. Information about the system is available via the Web at the URL <http://cddis.gsfc.nasa.gov>. The current and future plans for the system's support of the IVS are discussed below.

2. System Description

The CDDIS archive of VLBI data and products is accessible to the public via anonymous ftp access.

2.1. Computer Architecture

The CDDIS is operational on a dedicated server, cddis.gsfc.nasa.gov. The system has over 5 Tbytes of on-line magnetic disk storage; over 1.2 Tbytes are devoted to VLBI activities. A dedicated DLT tape system is utilized for system backups. The CDDIS is located at NASA GSFC and is accessible to users 24 hours per day, seven days per week.

2.2. Staffing

Currently, a staff consisting of one NASA civil service employee and two contractor employees supports all CDDIS activities. (See Table 1 below.)

Table 1. CDDIS Staff

| Name | Position |
|------------------|--|
| Ms. Carey Noll | CDDIS Manager |
| Dr. Maurice Dube | Head, CDDIS contractor staff and senior programmer |
| Ms. Ruth Labelle | Programmer |

3. Archive Content

The CDDIS has supported GSFC VLBI coordination and analysis activities for the past several years through an on-line archive of schedule files, experiment logs, and data bases in several formats. This archive has been expanded for the IVS archiving requirements.

The IVS data center content and structure is shown in Table 2 below. (A figure illustrating the flow of information, data, and products between the various IVS components was presented in the CDDIS submission to the 2000 IVS Annual Report.) In brief, an incoming data area has been established on the CDDIS host computer, `cddis.gsfc.nasa.gov`. Using specified file names, operation and analysis centers deposit data files and analyzed results to appropriate directories within this filesystem. Automated archiving routines, developed by GSFC VLBI staff, peruse the directories and migrate any new data to the appropriate public disk area. These routines migrate the data based on the file name to the appropriate directory as described in Table 2. Index files in the main subdirectories under `ftp://cddis.gsfc.nasa.gov/pub/vlbi` are updated to reflect data archived in the filesystem. Furthermore, mirroring software has been installed on the CDDIS host computer, as well as all other IVS data centers, to facilitate equalization of data and product holdings among these data centers. At this time, mirroring is performed between the IVS data centers located at the CDDIS, the Bundesamt für Kartographie und Geodäsie in Leipzig, and the Observatoire de Paris.

The public filesystem in Table 2 on the CDDIS computer, accessible via anonymous ftp, consists of a data area, which includes auxiliary files (e.g., experiment schedule information, session logs, etc.) and VLBI data (in both data base and NGS card image formats). A products disk area has also been established to house analysis products from the individual IVS analysis centers as well as the official combined IVS products. A documents disk area contains format, software, and other descriptive files.

4. Data Access

During 2008, over 400 user organizations accessed the CDDIS on a regular basis to retrieve VLBI related files. These users downloaded over 13.5 Tbytes of data and products (640K files) from the CDDIS VLBI archive last year.

5. Future Plans

The CDDIS staff will continue to work closely with the IVS Coordinating Center staff to ensure that our system is an active and successful participant in the IVS archiving effort. Over the last two years, we have procured new computer hardware that will increase the CDDIS on-line disk storage capacity, ensure system redundancy, and better serve our user community. We hope to be operational on this new system in the spring of 2009.

Table 2. IVS Data and Product Directory Structure

| Directory | Description |
|-------------------------------------|---|
| Data Directories | |
| vlbi/ivsdata/db/ <i>yyyy</i> | VLBI data base files for year <i>yyyy</i> |
| vlbi/ivsdata/ngs/ <i>yyyy</i> | VLBI data files in NGS card image format for year <i>yyyy</i> |
| vlbi/ivsdata/aux/ <i>yyyy/sssss</i> | Auxillary files for year <i>yyyy</i> and session <i>sssss</i> ; these files include: log files, wx files, cable files, schedule files, correlator notes |
| vlbi/raw | Raw VLBI data |
| Product Directories | |
| vlbi/ivsproducts/crf | CRF solutions |
| vlbi/ivsproducts/eopi | EOP-I solutions |
| vlbi/ivsproducts/eops | EOP-S solutions |
| vlbi/ivsproducts/daily_sinex | Daily SINEX solutions |
| vlbi/ivsproducts/int_sinex | Intensive SINEX solutions |
| vlbi/ivsproducts/trf | TRF solutions |
| vlbi/ivsproducts/trop | Troposphere solutions |
| Project Directories | |
| vlbi/ivs-iers | IVS contributions to the IERS |
| vlbi/ivs-pilot2000 | IVS Analysis Center pilot project (2000) |
| vlbi/ivs-pilot2001 | IVS Analysis Center pilot project (2001) |
| vlbi/ivs-pilotbl | IVS Analysis Center pilot project (baseline) |
| vlbi/ivs-pilottro | IVS Analysis Center pilot project (troposphere) |
| vlbi/ivs-special | IVS special analysis solutions |
| Other Directories | |
| vlbi/ivscontrol | IVS control files (master schedule, etc.) |
| vlbi/ivsdocuments | IVS document files (solution descriptions, etc.) |
| vlbi/dserver | dserver software and incoming files |