IDS DATA CENTER UPDATE

- Data Center Overview
- Archive Structure
- Data and Product Availability
- Users of DORIS Data
- Future Plans/Issues
- Contact Information
Two data centers support the IDS:
- Crustal Dynamics Data Information System (CDDIS), NASA GSFC, Greenbelt, MD USA
- Institut Géographique National (IGN), Paris France

CDDIS is a dedicated data center supporting the international space geodesy community since 1982.

The CDDIS serves as one of the primary data centers for the following IAG services:
- International GPS Service (IGS)
- International Laser Ranging Service (ILRS)
- International VLBI Service for Geodesy and Astrometry (IVS)
- International DORIS Service (IDS)
- International Earth Rotation Service (IERS)

CDDIS and IGN have archived DORIS data since launch of TOPEX/Poseidon in 1992.

IGN currently mirrors contents of CDDIS data and product archives.
DATA FLOW FOR IAG SERVICES

Network Stations
- Continuously operational
- Timely flow of data

Data Centers
- Interface to network stations
- Perform QC and data conversion activities
- Archive data for access to analysis centers and users

Analysis Centers
- Provide products to users (e.g., station coordinates, precise satellite orbits, Earth orientation parameters, atmospheric products, etc.)

Central Bureau
- Management of service
- Facilitate communications
- Coordinate activities

Governing Body
- General oversight of service
- Future direction
DORIS DATA AND PRODUCT FLOW (CDDIS)

- SSALTO deposits data in incoming disk area on CDDIS host computer
- IDS analysis centers deposit product files in incoming disk area on CDDIS computer
- Automated routines peruse incoming data and product areas for new files and archive files to public disk areas
- IDS Central Bureau ftp files mirrored by IDS data centers
- At CDDIS, summaries generated from DORIS data files and loaded into Oracle data base
- Data base information includes satellite, site, time span, and number of observations per pass
- Data base used to generate reports on DORIS data holdings at CDDIS
- During 2003, over 110 groups in 30 countries accessed DORIS data and information from the CDDIS
New archive structure implemented at data centers in January 2003

Description at http://lareg.ensg.ign.fr/IDS/doc/struct_dc.html

Main directories (CDDIS):
- ftp://cddisa.gsfc.nasa.gov/pub/doris/data for all data
  - Subdirectories by satellite code
  - New file naming convention
- ftp://cddisa.gsfc.nasa.gov/pub/doris/products for all products
  - Subdirectories by product type and analysis center
- Documentation files for each data type, product type, and solution
- ftp://cddisa.gsfc.nasa.gov/pub/doris/cb_mirror
  - Mirror of IDS Central Bureau information files
### Directory Structure

<table>
<thead>
<tr>
<th>Directory</th>
<th>File Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data Directories</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/doris/data/sss</td>
<td>sssdataMMM.LLL.Z</td>
<td>DORIS data for satellite sss, cycle number MMM, and version LLL.</td>
</tr>
<tr>
<td></td>
<td>sss.files</td>
<td>File containing multi-day cycle filenames versus time span for satellite sss.</td>
</tr>
<tr>
<td>/doris/data/sss/sum</td>
<td>sssdataMMM.<em>LL</em>.sum.Z</td>
<td>Summary of contents of DORIS data file for satellite sss, cycle number MMM, and file version number LLL.</td>
</tr>
<tr>
<td><strong>Product Directories</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/doris/prodtype/ccc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>/doris/prodtype/ccc/orbits</td>
<td>ccc/cccsssVV.bXXDDD.eYYEE.E.sp1.LLL.Z</td>
<td>Satellite orbits in SP1 format from analysis center ccc, satellite sss, solution version VV, start date year XX and day DDD, end date year YY and day EEE, and file version number LLL.</td>
</tr>
<tr>
<td></td>
<td>sinex_global/cccWWuVV.snx.Z</td>
<td>Global SINEX solutions of station coordinates for analysis center ccc, year WW, content u (d=DORIS, c=multi-technique), and solution version VV.</td>
</tr>
<tr>
<td></td>
<td>sinex_series/ccc/</td>
<td></td>
</tr>
<tr>
<td></td>
<td>cccYYDDDtuVV.snx.Z</td>
<td>Time series SINEX solutions for analysis center ccc, starting on year YY and day of year DDD, type t (m=monthly, w=weekly, d=daily) solution, content u (d=DORIS, c=multi-technique), and solution version VV.</td>
</tr>
<tr>
<td></td>
<td>stcd/cccWWtuvV.stcd.aaaaa.Z</td>
<td>Station coordinate time series SINEX solutions for analysis center ccc, for year WW, type t (m=monthly, w=weekly, d=daily), content u (d=DORIS, c=multi-technique), solution version VV, for station aaaa TRF origin (geocenter) solutions for analysis center ccc, for year WW, type t (m=monthly, w=weekly, d=daily), content u (d=DORIS, c=multi-technique), and solution version VV.</td>
</tr>
<tr>
<td></td>
<td>geoc/cccWWtuVV.geoc.Z</td>
<td>Earth orientation parameter solutions for analysis center ccc, for year WW, type t (m=monthly, w=weekly, d=daily), content u (d=DORIS, c=multi-technique), and solution version VV.</td>
</tr>
<tr>
<td></td>
<td>eop/cccWWtuVV.eop.Z</td>
<td></td>
</tr>
<tr>
<td></td>
<td>iono/ccc/sss/</td>
<td></td>
</tr>
<tr>
<td></td>
<td>cccssssVV.YYDDD.iono.Z</td>
<td>Ionosphere products for analysis center ccc, satellite sss, solution version VV, and starting on year YY and day of year DDD.</td>
</tr>
<tr>
<td><strong>Information Directories</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/doris/cb_mirror</td>
<td></td>
<td>Mirror of IDS central bureau files.</td>
</tr>
</tbody>
</table>
DORIS ARCHIVE CONTENT

- CDDIS and IGN currently archive DORIS data from six operational satellites: TOPEX, SPOT-2, SPOT-4, SPOT-5, Jason-1, Envisat
- Historic archive of SPOT-3 data also available
- CDDIS data files are mirrored at IGN data center
- Data are stored in multi-day (typically 10-day) cycle files
- Data availability after the last observation day:
  - TOPEX: ~20 days
  - SPOT: ~30 days
  - Jason: ~20 days
  - Envisat: ~40 days
- Files approximately two Mbytes in size (UNIX compressed)
- New DORIS data format (V2.1) to accommodate new DORIS receiver implemented for all data since 15-Jan-2002
<table>
<thead>
<tr>
<th>Satellite</th>
<th>Time Span</th>
</tr>
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<tbody>
<tr>
<td>TOPEX/Poseidon</td>
<td>25-Sep-1992 through present</td>
</tr>
<tr>
<td>SPOT-2</td>
<td>31-Mar through 04-Jul-1990</td>
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<tr>
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<td>04-Nov-1992 through present</td>
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<td>SPOT-3</td>
<td>01-Feb-1994 through 09-Nov-1996</td>
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<td>SPOT-4</td>
<td>01-May-1998 through present</td>
</tr>
<tr>
<td>SPOT-5</td>
<td>11-Jun-2002 through present</td>
</tr>
<tr>
<td>Jason-1</td>
<td>15-Jan-2002 through present</td>
</tr>
<tr>
<td>ENVISAT</td>
<td>13-Jun-2002 through present</td>
</tr>
</tbody>
</table>
Archived by data type and Analysis Center (AC)
- Station coordinates (SINEX)
  ✦ Global
  ✦ Time series (daily, weekly, monthly)
- Geocenter variations
- Orbits
- Ionosphere products
- EOP (X, Y, UT1-UTC rate)
- Etc.

ACs (and three-character code) archived thus far:
- Institut Géographique National/JPL (ign) France, P. Willis
- LEGOS/GRGS-CLS (lca) France, J.-F. Crétaux
- SSALTO (ssa) France, G. Tavernier
- CNES/SOD (sod) France, J.P. Berthias
- INASAN (ina) Russia, S. Tatevian
Products archived thus far (subdirectory name):
- IGN/JPL (ign)
  - TRF-origin time series (geoc)
  - Global SINEX solutions (sinex_global)
  - Time series of SINEX solutions, weekly and monthly (sinex_series)
  - EOP time series (eop)
- LEGOS/GRGS-CLS (lca)
  - Orbits, Jason-1 (orbits)
  - Time series of SINEX solutions, monthly (sinex_series)
- SSALTO (ssa)
  - Ionosphere (iono)
  - Time series of SINEX solutions, weekly and monthly (sinex_series)
  - Station coordinates time series, weekly (stcd)
- SOD (sod)
  - Time series of SINEX solutions, weekly (sinex_series)
- INASAN (ina)
  - Time series of SINEX solutions, weekly and monthly (sinex_series)
In 2003, nearly 52K DORIS-related files (18K data, 26K product) were downloaded from the CDDIS.

Users from 30 countries and over 100 government, education, and commercial institutions downloaded DORIS data and products from the CDDIS.

Note: Over 70% of downloads from France are from IGN for data archive mirroring purposes.
DELAY IN DELIVERY OF DORIS DATA
(All Satellites, 01/2003 - 03/2004)

Note: Delivery delay has significantly reduced since 01/2004
SSALTO’s reduction in delivery delay of all DORIS data files to CDDIS has been beneficial to users

IGN currently providing minimal service to IDS (i.e., mirroring of CDDIS archive) due to manpower constraints

- Implies delay in enhancements to data center functionality
- Mirroring of CDDIS archive still critical to ensure IDS viability

At this time, IGN mirrors the CDDIS archive

- SSALTO should deliver data to both CDDIS and IGN data centers (when IGN staffing issue is resolved)
- Will ensure redundancy in data delivery in the event one data center is unavailable

Enhance procedures at both data centers to regularly compare data holdings (when IGN staffing issue is resolved)

Issue bi-monthly data holding reports through DORISMail
Current DORIS Data Holdings for March 2004 by Satellite
(as of 23-Apr-04 11:24)

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<tr>
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</table>

16 rows selected.
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