IDS DATA CENTER UPDATE

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IDS DATA CENTER UPDATE

- Data Center Overview
- Archive Structure
- Data and Product Availability
- Users of DORIS Data
- Data Availability Issues
IDS DATA CENTERS

- Two proposals received and accepted for IDS data centers:
  - 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 has archived DORIS data since launch of TOPEX/Poseidon in 1992

- The IGN data center currently undergoing a “revitalization”; DORIS data archiving activities to resume in summer 2002
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

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DORIS DATA FLOW (CDDIS)

- CNES deposits data in incoming disk area on CDDIS host computer
- IDS analysis centers also deposit solutions in incoming disk area on CDDIS computer
- Automated routines peruse incoming data and product area for new files
- New files copied to public disk area
- 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
- During first five months of 2002, over eighty groups in 20 countries have accessed DORIS data and information from the CDDIS
DORIS ARCHIVE CONTENT

Data

- CDDIS currently archives DORIS data from three satellites: TOPEX, SPOT-2, and SPOT-4
- Data from JASON, ENVISAT, and SPOT-5 expected “soon”
- Historic archive of SPOT-3 data also available
- Currently, data are stored in multi-day (typically 10-day) cycle files
- Data available ~ 10 days after the last observation day (TOPEX); longer for SPOT
- Files approximately two Mbytes in size (UNIX compressed)
<table>
<thead>
<tr>
<th>Satellite</th>
<th>Time Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOPEX/Poseidon</td>
<td>09/25/1992 through present</td>
</tr>
<tr>
<td>SPOT-2</td>
<td>03/31-07/04/1990</td>
</tr>
<tr>
<td></td>
<td>11/04/1992 through present</td>
</tr>
<tr>
<td>SPOT-3</td>
<td>02/01/1994 through 11/09/1996</td>
</tr>
<tr>
<td>SPOT-4</td>
<td>05/01/1998 through present</td>
</tr>
<tr>
<td>JASON</td>
<td>Launch 12/07/2001; data not yet released to data centers (available since 01/15/2002)</td>
</tr>
<tr>
<td>ENVISAT</td>
<td>Launch 03/14/2002; data not yet released to data centers (available since 04/23/2002)</td>
</tr>
<tr>
<td>SPOT-5</td>
<td>Launch 05/04/2002; data not yet released to data centers</td>
</tr>
</tbody>
</table>
DORIS ARCHIVE CONTENT

Products

- Archived by Analysis Center (AC) and data type
  - Station coordinates (SINEX)
    - Global
    - Time series (daily, weekly, monthly)
  - Geocenter variations
  - EOP (X, Y, UT1-UTC rate)
  - Orbits
  - Ionospheric data or models
  - Etc.

- SINEX solutions received from two ACs thus far
  - IGN (weekly and monthly, 1992-2001)
  - SSALTO (monthly, 01/2001-04/2002)

- EOP and geocenter solutions received from IGN
## ARCHIVE CONTENT
### 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/satname</td>
<td>satcode data###.dat.Z</td>
<td>DORIS data for satellite satcode and cycle number ###</td>
</tr>
<tr>
<td></td>
<td>satname.files</td>
<td>File containing multi-day cycle filenames versus time span</td>
</tr>
<tr>
<td>/doris/satname/sum</td>
<td>satcode data###.sum.Z</td>
<td>Summary of contents of DORIS data file for satellite satcode and cycle number ###</td>
</tr>
<tr>
<td><strong>Product Directories</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/doris/ccc</td>
<td>cccyydv.v.snx.Z</td>
<td>Global DORIS (d) SINEX solutions of station coordinates for analysis center ccc, year yy, solution version number vv</td>
</tr>
<tr>
<td></td>
<td>cccyyddtvv.snx.Z</td>
<td>Periodic SINEX solutions for analysis center ccc, starting on year yy and day of year ddd, type t (m=monthly, w=weekly, d=daily) solution version number vv</td>
</tr>
<tr>
<td></td>
<td>cccyytvvaaaa.snx.Z</td>
<td>Station coordinate 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 version number vv, for station aaaa</td>
</tr>
<tr>
<td><strong>Other Directories</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/doris/dorismail</td>
<td>dorismail.####</td>
<td>DORISMail message number ####</td>
</tr>
<tr>
<td>/doris/general</td>
<td></td>
<td>General DORIS information such as satellite maneuver files</td>
</tr>
</tbody>
</table>
USAGE OF DORIS DATA AT CDDIS
(01-05/2002)

Top Users in 2002

<table>
<thead>
<tr>
<th>Institution</th>
<th>No. of Files</th>
</tr>
</thead>
<tbody>
<tr>
<td>NASA JPL, USA</td>
<td>1,536</td>
</tr>
<tr>
<td>AUSLIG, Australia</td>
<td>1,113</td>
</tr>
<tr>
<td>Ohio State, USA</td>
<td>1,018</td>
</tr>
<tr>
<td>TRW, USA</td>
<td>793</td>
</tr>
<tr>
<td>IGN, France</td>
<td>629</td>
</tr>
<tr>
<td>DGFI, Germany</td>
<td>519</td>
</tr>
<tr>
<td>CLS, France</td>
<td>227</td>
</tr>
<tr>
<td>RAS, Russia</td>
<td>113</td>
</tr>
<tr>
<td>U. Newcastle, UK</td>
<td>70</td>
</tr>
<tr>
<td>NASA GSFC, USA</td>
<td>64</td>
</tr>
<tr>
<td>LRZ, Germany</td>
<td>60</td>
</tr>
<tr>
<td>CNES, France</td>
<td>51</td>
</tr>
<tr>
<td>TU Delft, The Netherlands</td>
<td>46</td>
</tr>
<tr>
<td>Johns Hopkins APL, USA</td>
<td>45</td>
</tr>
<tr>
<td>U. Texas, USA</td>
<td>39</td>
</tr>
</tbody>
</table>
ISSUES

- Start of delivery of data from recent missions (JASON, ENVISAT, SPOT-5)
- New DORIS format to accommodate recent satellites
- Delay in delivery of SPOT-2 and -4 data to data centers
- Need routine delivery of satellite maneuver information to data centers and IDS Central Bureau
- Need other ancillary information (e.g., satellite macro-model) prior to release of initial data sets
- Need feedback from CNES when replacement data files are issued
DELAY IN DELIVERY OF DORIS DATA
(All Satellites, 01/2000-05/2002)

Date of Last Obs. (MM/YY)

Delay in Delivery (Days)

TOPEX

SPOT-2

SPOT-4
FUTURE PLANS

- Efforts to enhance the DORIS data center at IGN in France will start in late summer 2002
  - Contacts Loic Daniel and Edouard Gaulue

- Procedures will be established at both data centers to regularly compare data holdings

- IDS Steering Committee has recommended data continue to be archived in files by cycle as released by CNES

- Expand the data archive to include data from recently-launched satellites

- Continue to enhance the on-line product archive
QUESTIONS?

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ftp://cddisa.gsfc.nasa.gov/pub/doris
DORIS DATA FLOW

DORIS Control Center
- Downlink DORIS data
- Uplink satellite and station control instructions
- Produce precise orbits

IDS Central Bureau
- Management of service
- Facilitate communications and coordinate activities

IDS Data Centers
- Archive data and ancillary files
- Archive DPE products
- Mirror data and products between data centers

IDS Analysis Centers
- Retrieve data
- Produce products

IDS Network Stations
USAGE OF DORIS ARCHIVE AT CDDIS