National Space Science Data Center

NSSDCNEWS

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SSDOO Provides New Service for XTE: Mission Data Staging Service

by Roger Dilling and Joseph King

New approaches and systems have been defined and implemented for the management, archiving, and dissemination of the scientific data to be acquired from the X-Ray Timing Explorer (XTE) spacecraft, due for launch November 9, 1995. The data volume to be managed, 2.5 GB/day for a nominal mission life of three years, is especially challenging.

Raw data will be ingested by the XTE Science Data Center (XSDC) of the Astrophysics Data Facility (ADF). The XSDC will produce Flexible Image Transport System (FITS)-formatted calibrated data files using software and calibration data mainly developed by the Guest Observer Facility (GOF) of Goddard's Laboratory for High Energy Astrophysics (LHEA).

The raw data and the calibrated data will then be delivered to NSSDC's new Mission Data Support Service (MDSS), a Digital Linear Tape (DLT) jukebox with a capacity of 2.5 TB (plus compression) front-ended by a UNIX (IRIX)-based SGI Challenge computer. The data will adhere to XTE File Format (XFF) relative to directory and subdirectory structure. Initial public network access to the XTE data on the MDSS system will be through interfaces developed by LHEA's High Energy Astrophysics Science Archive Research Center (HEASARC), NSSDC's partner in assuring the effective access to public high energy astrophysics data. (See *URL* http://heasarc.gsfc.nasa.gov/docs/xte/XTESOC.html for further access information.) Eventually, the XTE data will become accessible through normal NSSDC data access paths.

Within the Goddard Space Science Data Operations Office (SSDOO), NSSDC is responsible for the MDSS system, while the ADF has responsibility for providing the lead scientific support and appropriate technical support.

New NASA Science Data Policy Is Issued

by Joseph King

A new policy governing the public release data from NASA's science missions asserts that non-proprietary data from such missions will be made publicly available in usable form as quickly as possible. Full text of the new policy statement, whose development was coordinated by NASA Chief Scientist Dr. France Cordova, is available at *URL* http://dlt.gsfc.nasa.gov/cordova/guide.html.

The policy recognizes the complexity of data rights issues and the diversity of approaches to data release now taken by various projects and various disciplines. Rather than attempt to specify a single approach to data release for all NASA spaceflight projects, it envisions for each new mission a data release plan determined early, consistent with general NASA policy for quick release and with the nature of the mission and its data stream.

San Marco Data To Become Network-Accessible

by Dieter Bilitza

Preparations have started for the ingest of the San Marco satellite data to NSSDC's network-accessible Data Archive and Distribution System (NDADS). The San Marco satellite mission has generated a unique data set for the study of the equatorial ionosphere and thermosphere. The center is now putting the Ion Velocity Instrument (IVI) data from the principal investigator (PI) team at the University of Texas at Dallas, Texas, in ASCII format onto NDADS. The Drag Balance Instrument (DBI) and Electric Field Instrument (EFI) data, already archived at NSSDC off line, will follow next with the Atmospheric and Solar EUV Spectrometer Instrument (ASSI) data expected in the near future.

Valerie L. Thomas, associate chief of the Space Science Data Operations Office (SSDOO), retires. See page 2 for details.

Magnetic Tape Continues Vital Role

by Joseph King and Ralph Post

Use of magnetic tapes of various types at NSSDC is reviewed in this article. In particular, roles of 9-track tapes, 3480 tape cartridges, 4-mm and 8-mm helical scan tapes, and Digital Linear Tapes (DLT) in the receipt, off-line, and near-line management, and dissemination of data are described. Briefly, 4-mm and 8-mm tapes are the most frequent exchange media but are not depended upon for long-term archiving. Use of 9-track for exchange and internal storage is declining, and 3480 tapes are used for internal storage only. DLT is used for internal storage, and NSSDC has just emplaced a DLT jukebox with a 5-TB capacity for supporting network access to data.

NAS/NRC/CODATA Survey Studies Data Access Across National Boundaries

by R. Stephen Berry and Paul F. Uhlir

The National Research Council (NRC) has organized a study, chaired by R. Stephen Berry of the University of Chicago, to investigate the barriers and other issues in the transborder flow of scientific data. The study's goal is to improve access to scientific data and services internationally with a primary focus on data in electronic forms. To obtain broad input from users and suppliers of scientific data, the study committee has developed an "Inquiry to Interested Parties" that requests information on technical issues and is available at *URL* http://www.cisti.nrc.ca/codata/welcome.html. Information about the study and CODATA activities generally may be obtained from Paul F. Uhlir, Director, USNC/CODATA, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

Valerie L. Thomas Retires

by James L. Green

The associate chief of the Space Science Data Operations Office (SSDOO), Valerie L. Thomas, retired from NASA at the end of August 1995. Over her NASA career Valerie has had a series of challenging positions involving computer systems, especially as related to Earth science data.

Since she joined the NSSDC in 1985, she has been the NSSDC Computer Facility manager, Space Physics Analysis Network (SPAN) project manager, NASA Automated Systems Incident Response Capability (NASIRC) manager, and chair of the SSDOO Education committee. Her dedication to educational outreach is evidenced by her exceptional role as a model for potential young black engineers and scientists, her mentorship of summer student interns, and her years of visiting and addressing elementary through college-/university-age as well as adult groups. Among the awards Valerie has received are the GSFC Award of Merit, the highest award given by GSFC, and the NASA Equal Opportunity Medal. We will all miss her!

NSSDC Privatization Status Report

by Joseph King

As of mid-September 1995 the detailed nature of "NSSDC privatization" was still being addressed within NASA. Most significantly, a NASA-wide committee under the leadership of Al Diaz of the Office of Space Science, chartered to assess and define the creation of primarily university-affiliated institutes to be formed from about a dozen science-oriented groups at many NASA field centers, has been addressing the possibility of privatizing the NSSDC in this institute context. Final recommendations of this committee are expected to be released by the end of September 1995. NSSDC will announce the committee's recommendations relevant to NSSDC in the on-line version of this newsletter as soon as available. These recommendations should decrease and may eliminate the uncertainties associated with "NSSDC privatization."

Jeanne Behnke Moves On from NSSDC

by Joseph King

Jeanne Behnke has accepted a position with the Earth Observing System (EOS) Distributed Information System (EOSDIS). She had in the last few years become centrally and critically important to NSSDC's operation. She has been the main person responsible for the development and operations of NSSDC's computer systems, mass storage systems, data base management systems, and locally-developed data systems software. In her new position into which she is gradually transitioning she will help define EODIS hardware and software systems to manage the anticipated large volume of EOS program data flow. Her skills, dedication, and exuberance will be sorely missed at NSSDC.

Captain Kirk Leads Astrophysics Data Support

by Roger Dilling

In July 1995 Dr. Kirk Borne was appointed Hughes STX division manager for Astrophysics Data Support for the Astrophysics Data Facility (ADF). Dr. Borne received his Ph.D. in astrophysics in 1982 from Caltech where his research work was in the field of interacting binary galaxies. On the Association of Universities for Research in Astronomy, Inc. (AURA) staff at the Space Telescope Science Institute (STScI) for ten years, he most recently was the Space Telescope-Data Archive and Distribution System (ST-DADS) project scientist there. His recent spectacular Hubble Space Telescope

(HST) results on the "Cartwheel" Ring Galaxy have been featured in several popular science magazines this year. He has won the nickname "Captain Kirk" from friends and colleagues for his public lectures at Star Trek conventions.

CDF Earns Honorable Mention and Continues Modifications

by Gregory Goucher

In July 1995 the Common Data Format (CDF) software was selected for honorable mention as one of the five runners-up in the 1995 NASA Software of the Year Award. Updates to CDF Version 2.5 include porting the Version 2.5 distribution to Linux, the CDF Version 2.5 library and the command line toolkit programs to Microsoft Visual C/C++ under Windows NT on an IBM PC, and the Windows-based toolkit programs to the Windows NT environment (in early fall 1995); modifying the Version 2.5 Interactive Data Language (IDL) interface to reflect the changes in how IDL 4.0 handles the ".pro" file extension on UNIX machines; and adding a new CDF_EPOCH encoding routine to the Version 2.5 distribution.

LSDA Project Undergoes Formal Evaluation Process

by Elise Blaese

The Life Sciences Data Archive (LSDA) is being evaluated through a six-part evaluation process by the LSDA Evaluation Committee led by a Uniformed Services University of the Health Sciences (USUHS) team with representatives from NSSDC, Johnson Space Center's Mission Science Office, and Ames Research Center's Data Archive Office. The goal of the evaluation is to deliver a product that is easy to use and provides information and data without much of a learning curve for users. Test subjects include professional software system evaluators as well as selected members of the intended LSDA user community.

The tests results for Phases 1-5 have helped pinpoint usability problems in the LSDA prototype system. Evaluators hope that the results from Phase 6 will give the project an idea of where users might run into problems with the system.

ADC Participates in UNIVERSE '95

by Gail Schneider and Karinn Hassan

The Astronomical Data Center (ADC)/ NSSDC booth at UNIVERSE '95, a national astronomy festival on June 24-25, 1995, at the University of Maryland, received over 200 visitors and gave several World Wide Web (WWW) demonstrations of its services and other astronomical resources. More than five dozen Welcome to the Planets educational CD-ROMs and Selected Astronomical Catalogs, Volume 1 CD-ROMs were sold. Visitors were also interested in the pending release of volume 2 of the Selected Astronomical Catalogs CD-ROM and the availability of a PC version of the Welcome to the Planets CD-ROM.

Cosmic and Heliospheric Data Evaluation Report Completed

by Robert McGuire

The final report of the NASA Space Physics Division's Cosmic and Heliospheric (C&H) Data Evaluation Panel has been completed and released. Among the recommendations was that completion of archiving of all unique data from Voyagers 1 and 2, Pioneers 10 and 11, Helios 1 and 2, the Interplanetary Monitoring Platform (IMP) 8, and the International Sun-Earth Explorer (ISEE) 3 (International Cometary Explorer [ICE]) is the highest data archiving priority for this discipline. The panel also recommended feasibility studies and testbed activities to define cost- and benefit-effective approaches to the archiving of telemetry-resolution data (full time resolution data and/or pulse height data for energetic particle investigations, and/or distribution function data for plasma investigations).

The report is WWW-accessible from http://spds.nasa.gov. Paper copies of the report are available from NSSDC and from the report author (Robert McGuire).

Horizons Broaden for Summer Interns at SSDOO

by Valerie L. Thomas

This summer, the Space Science Data Operations Office (SSDOO) again hosted summer students and staff from nearly all of the programs at Goddard Space Flight Center (GSFC). There was a total of 14 students and three staff (two computer science professors and one high school teacher) representing several Goddard-involved programs.

The students and staff worked on a wide range of activities, including a number specifically related to K-12 education. They also participated in the Interactive NASA Space Physics Ionospheric Research Experiment (INSPIRE) program's observation of radio signals from the Russian space station MIR. A group of the students and members of the SSDOO Education Committee was invited to the Howard B. Owens Science Center to participate in the Challenger Center VIP flight simulation.

Erratum: *In the June 1995 issue of the* NSSDC News, *Richard Burley was incorrectly identified as affiliated with Hughes STX. He is a civil servant in Goddard's Space Physics Data Facility.*

NOST News

by John Garrett

NOST has been continuing its efforts in support of standards for information interchange. These efforts include work toward accreditation of a next issue of the NOST Definition of the Flexible Image Transport System (FITS), which includes recommendations for the use of decimal degrees for angular measurements to clarify "units" ambiguities. NOST has also been working on standard means of referencing data objects on physical media and hopes to reach consensus with other Consultative Committee for Space Data Systems (CCSDS) representatives at the international 1995 U.S. Workshop on ISO Archiving Standards. More information on this workshop is available on a new World Wide Web (WWW) page (*URL*: http://www.gsfc.nasa.gov/nost/isoas/ws95us/ws.html).

NOST has also developed a simple version of a data entity dictionary specification language, which will be ready for WWW-based review and testing by mid-October 1995.

NSSDC Contributes Significantly to IUGG Meeting

by Joseph King

NSSDC contributed significantly to this summer's 21st General Assembly of the International Union of Geodesy and Geophysics (IUGG). NSSDC session topics included World Wide Web (WWW)-based access to multispacecraft heliospheric data (OMNIWeb and COHOWeb), CD-ROM-based access to atmospheric and ionospheric observational data, and a vision of the effective data center in the year 2000.

SISIC Update

by James Thieman

A call for papers for the Science Information Systems Interoperability Conference (SISIC) in College Park, Maryland, was announced in the June 1995 issue of the *NSSDC News*. That announcement resulted in the receipt of nearly 70 abstracts. The large response has in turn resulted in the addition of another day (November 6, 1995) to the planned dates of November 7-9, 1995. Readers are invited to browse the conference program at *URL* http://nssdc.gsfc.nasa.gov/sisic/SISIC_Agenda.html.

IGRF Model Updated to the Year 2000

by Dieter Bilitza

Following the decisions made during the International Association of Geomagnetism and Aeronomy (IAGA) meeting in Boulder, Colorado, in July 1995, the newest release of the International Geomagnetic Reference Field (IGRF) now includes the definitive set of coefficients for 1990 (DGRF90) and the preliminary set of coefficients for 1995 (IGRF95) including the coefficients for the time regression from 1995 to 2000. The new coefficients are now available from NSSDC's anonymous ftp site (nssdca.gsfc.nasa.gov) in directory /MODELS/IGRF. The coefficients are incorporated into the interactive driver program BILCAL that lets a user calculate geomagnetic coordinates and parameters for specified input conditions. This program can also be accessed and run directly on line in NSSDC's On-Line Data and Information Service (NODIS) account.

New and Updated Services on the World Wide Web

By Ed Bell and Syed Towheed

New and updated services include availability of the NASA Master Directory (NMD), access from a number of World Wide Web (WWW) pages to the NSSDC Master Catalog (NMC), and interactive browsing of and access to data. New WWW home pages now available are astronomy and astrophysics, life science, space education, and CDF (not new but minimally advertised until now). Other new pages include project pages for the Interplanetary Monitoring Platform (IMP) 8, the International Sun-Earth Explorer (ISEE), Voyager, Pioneer Venus, Mariner 10, Lunar Prospector, and Mars Global Surveyor; and planetary fact sheets. The lunar pages and NSSDC Photo Gallery have been updated as well as "What's New" pages.

NSSDCNEWS

NSSDC News is published quarterly by NASA's National Space Science Data Center. Please send your address changes and requests to the appropriate address listed in the box below. Your comments are welcome.

Joe King, Head
Miranda Robinson, Editor
Erin Jackson, Graphics
Syed Towheed, WWW

NSSDC Information

To discuss the archiving of data at NSSDC, contact

JOSEPH H. KING, HEAD
NSSDC, CODE 633
NASA/GODDARD SPACE FLIGHT CENTER
GREENBELT, MD 20771, U.S.A.

To request data or information from NSSDC, contact

NSSDC (for U.S. requesters) or WDC-A-R&S (for non-U.S. requesters)

both at

Coordinated Request and User Support Office (CRUSO)
NSSDC, Code 633
NASA/Goddard Space Flight Center
Greenbelt, MD 20771, U.S.A.
Telephone: (301) 286-6695
FAX: (301) 286-1771
Internet: request@nssdca.gsfc.nasa.gov
NSI/DECnet: NSSDC::REQUEST

To access NSSDC's on-line services (NODIS), log on

TELNET: 128.183.36.23
Username: NODIS

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