National Space Science Data Center

NSSDCNEWS

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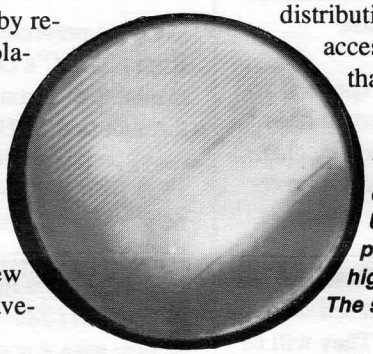
New IUE Final Archive Data Now Available!

by Michael Van Steenberg

Since its 1978 launch, the still-active International Ultraviolet Explorer (IUE) spacecraft has obtained about 100,000 distinct observations of astronomical sources. The IUE project is currently reprocessing all short and long wavelength prime (SWP and LWP) low-dispersion archival images through the new IUE Final Archive Processing System, known as NEWSIPS. At this time, about 10,000 of the more than 16,000 SWP low-dispersion images obtained at Goddard Space Flight Center have been processed and archived, making them available to the NASA scientific community.

There are many differences between the original IUESIPS (current)-processed data and NEWSIPS-processed data. Principal among them are: a cross-correlation technique is used to register the science data with the intensity transfer function (ITF) yielding a significantly more accurate registration and helping to remove pixel-to-pixel noise; a single-step geometric resampling, including all geometric corrections, reduces the "artificial" smoothing caused by repeated resampling/interpolations; a signal-weighted extraction technique is used, with a noise model that more accurately samples the spectral data and generally improves the signal to noise; and new calibrations, including wavelength calibrations and absolute calibrations, are used. Also in contrast to the original IUE data format, the NEWSIPS-generated output files are in the astronomical communities standard format, Flexible Image Transport system.

The full article provides details on the new system and the timetable for data distribution. It also explains how to access the data and documents that are now available.



The short-wavelength prime camera of the International Ultraviolet Explorer provided this raw image of a high-dispersion echellegram. The spectrum is from an O-star.

Latest COBE Data Sets Ready

by Dave Leisawitz

The Cosmic Background Explorer (COBE) Project Data Sets are now publicly accessible from the NSSDC. The new data products augment their predecessors and include some calibration refinements. Specifically, the Project Data Sets provide all-sky, full spectral range Diffuse Infrared Background Experiment (DIRBE) and Far Infrared Absolute Spectrophotometer (FIRAS) coverage, DIRBE polarimetry, and the first two years of Differential Microwave Radiometer (DMR) data. Calibrated, time-ordered data are also available. The DMR project data sets were released in June 1994; the DIRBE and FIRAS project data sets were released in early October. Except for the time-ordered data, the DMR pixel-sorted data, and the DIRBE weekly sky maps, all of the files were made accessible from the NSSDC's anonymous ftp site within two days of their receipt. CD-recordables containing the DMR pixel-sorted data and the DIRBE weekly sky maps were produced within a few weeks of the data delivery dates. Two more CD-recordables are planned, one replicating the DIRBE files kept online and another replicating the FIRAS files kept online, including a supplementary set of FIRAS files due to be delivered in mid November. All of the data are available on 8mm or 4mm tape, and most of the project data sets are presented in FITS binary tables.

Launched November 18, 1989, the COBE satellite was developed by NASA's Goddard Space Flight Center and carried three instruments to measure the diffuse infrared and microwave radiation from the early universe to the limits set by our astrophysical environment. FIRAS compares the spectrum of the cosmic microwave background radiation with a precise blackbody, DMR maps the cosmic radiation precisely, and DIRBE searches for cosmic infrared background radiation.

More information about the COBE mission and instruments and overviews of the new COBE data products are available either by anonymous ftp in the "cobe" directory at nssdca.gsfc.nasa.gov (128.183.36.23), or from the World Wide Web at the Uniform Resource Locator (URL) address http://www.gsfc.nasa.gov/astro/cobe/cobe_home.html. The latter is recommended if you have access to a Mosaic client. If there is sufficient interest in the scientific community and if funding permits, additional data products, designed to enhance the utility of the Project Data Sets, will be developed. To register your interest or ask questions, please contact the author at:

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NSSDC Archives SAMPEX Data

by Sardi Parthasarathy

The Solar Anomalous Magnetospheric Particles Explorer (SAMPEX) is the first of the Small Explorers (SMEX) spacecraft series. In July 1992, it was launched into a near-polar orbit with four instruments—a low-energy ion composition analyzer (LEICA), a heavy ion large telescope (HILT), a mass spectrometer telescope (MAST), and a proton/electron telescope (PET)—that together provide overlapping fluxes of cosmic rays in the energy range of about 1-400 MeV/nucleon for all elements between hydrogen and iron, with good isotopic resolution. SAMPEX investigators have been able to determine the atomic charge composition of a number of elements through rigidity cut-off calculations involving model magnetic fields.

During early 1995, NSSDC expects to receive the 30-sec averages of count rates and fluxes from many mass/energy channels (2.1 GB/year) and similar data averaged over the polarcap during each pass (15 MB/year). The first installment will cover July 1992–July 1993. These are written at the project office, in self documenting SFDU/CDF format. They will be available on NSSDC's near-online NDADS mass store system for downlinking either in CDF format or as a generically transformed ASCII version.

NSSDC has been archiving the high-resolution Level-1 data (Master Data File) in the Caltech-created Tennis format, provided by the project office on rewritable optical disks, as one file per day, and about 10 days per disk. However, distribution of the disks will be delayed until NSSDC finishes reviewing the disks for completeness and makes the accessing software and user guide as easy to use and understand as possible. For the interim, the Project Office at the University of Maryland will support reasonable access requests to this data level; the Project Scientist is Dr. Glen Mason.

For more information about the status of SAMPEX data at the NSSDC, please contact the author via Internet at sardi@nssdca.gsfc.nasa.gov.

New OMNI Data Book

by Joe King

NSSDC has just issued *Supplement 5* of its *Interplanetary Medium Data Book,* which contains plots and listings of hourly averaged solar wind magnetic field and plasma parameters from 1988 through the end of 1993. In contrast to earlier data books of the series, this one contains data from only one spacecraft, IMP 8—the only near-Earth solar wind spacecraft operating during the years covered. The data are from the instruments of Ronald Lepping (GSFC) and Alan Lazarus (MIT). In a few years, the next data book will be issued with data from IMP-8 and the newly launched WIND spacecraft.

The data presented in the data book are from NSSDC's OMNI database, which is available electronically and, for data through mid-1991, on CD-ROM. OMNI now spans over 30 years, starting with the 1963 IMP 1 spacecraft. Copies of the *Interplanetary Medium Data Book* (NSSDC/WDC-A-R&S 94-08) are available from NSSDC's Request Coordination Office at (301) 286-6695 or request@nssdca.gsfc.nasa.gov on Internet.

Summer Students & Faculty Lend a Hand

by Valerie Thomas

The summer of 1994 was an exciting time for 20 summer staff members in the Space Science Data Operations Office (SSDOO). Many of these employees, who ranged from high school and graduate students to high school teachers and university professors, were introduced to the World Wide Web (WWW) for the first time and developed applications that used Mosaic, the user-friendly multimedia interface that provides easy electronic access to information by simply pointing and clicking. This article provides an overview of the many valuable projects and tasks completed by the summer employees, including developing a photo catalog, incorporating a greater degree of intelligence into WWW servers using "n-gram" processing, developing an Education Server Resource WWW page, supporting the NASA Automated Systems Incident Response Capability (NASIRC), and working on projects that involved databases, mathematical models, computer systems, and analysis of space science data.

Archiving, Retrieving, & Tracking Mission Data

by David Silberberg

The Systems Development Section of NSSDC's support team is responsible for developing and maintaining systems that archive and retrieve data and track information about all NASA science missions. It's also responsible for standards development and tracking through the NASA/Science Office of Standards and Technology (NOST). This article provides details on the various tasks supported by the Systems Development Section, including Information Systems, NSSDC Storage Systems, NOST, and the Life Sciences interface. It also describes how the section is responsible for the bulk of the new System X effort to unify NSSDC's meta-database interfaces and data archive.

Life Sciences Data Archive Prototype Ready for Delivery

by Elise Blaese

The NASA Life Science (LS) program expects to be generating increasing data volumes as it continues with LS-dedicated space shuttle missions, and anticipates the space station era. In order to assure public accessibility to the appropriate data from these missions, the Life and Biomedical Sciences Division at NASA/HQ is guiding the development of the Life Science Data Archive (LSDA). A prototype LSDA, with a focus on data from the 1991 SLS-1 mission, has just been developed with coordination by NASA/Johnson Space

Center and with important input from LS-relevant project personnel at JSC and at NASA/Ames Research Center, as well as NSSDC.

NSSDC has designed and implemented the online portion of the LSDA, based on World Wide Web access to the Life Science Master Catalog (LSMC). The LSMC is a tuned version of the NSSDC Master Catalog, which has been community-accessible via NSSDC's NODIS account for some years now. It was determined by the LSDA managers that NSSDC's tuning of the LSDA database would be much more cost effective for LSDA than building a new LSMC "from scratch." After HQ and Project approval, the LSMC will be made publicly accessible. One pathway of access will be from the NSSDC WWW home page at URL http://nssdc.gsfc.nasa.gov/.

Astronomical Data Center Update

by Nancy Roman

The Astronomical Data Center (ADC) is changing some of its activities to keep up with modern technology. This includes adopting a standard form for its documents, which mirrors the one developed by the Centre Donnees de Strasburg, with which many routine activities can be handled by software. The ADC has put the abstracts of its documents on the World Wide Web and plans to make it easy for users to search for and request catalogs on the Web. Preparation of a second CD-ROM is underway, and the ADC is now archiving major tables from journals, as well as larger catalogs.

ADC's quarterly electronic newsletter informs interested users about ADC activities in greater detail. If you would like to be added to the distribution list, please send E-mail to listserv@hypatia.gsfc.nasa.gov, and in the body of the message, enter this command: SUBSCRIBE ADC-NEWS Full name (use your real name rather than your E-mail address). Previous issues of the ADC newsletter are also available upon request.

New NSSDC Data Listing Ready

The latest listing of all NSSDC-held data has been issued and is now available from NSSDC's Request Coordination Office. The publication identification number is NSSDC/WDC-A-R&S 94-09. It was prepared by Dick Horowitz and Joe King and is dated October 1994.

Planetary Data System Offers New Data Products

by Dave Williams

Users of planetary data CD-ROMs may have noticed an emblem with the inscription "PDS" and "Planetary Data System" embossed on the disks. These CD-ROMs are produced by PDS or by flight projects using PDS archive standards and support. They include peer-reviewed planetary science data plus documentation that make the data usable by the science community now and in the future. PDS products are available on CD-ROM, CD-Write Once discs, tape, and electronically. In addition to PDS publications and archive standards, PDS provides science expertise and special processing to planetary scientists. The PDS and NSSDC work together to archive and distribute NASA's planetary data. This collaborative relationship for the archive and distribution of data to the scientific, educational, and general community is a good example of shared data handling responsibilities. Further information about PDS is available on the World Wide Web (WWW), and most of the nodes are accessible through it. PDS is rapidly expanding its information available on the WWW. The URL for the PDS home page is http://stardust.jpl.nasa.gov/.

CDF V2.5 Underway

by Greg Goucher and Jason Mathews

Version 2.5 of the Common Data Format (CDF) software and documentation has been completed and should be ready for users in early 1995. CDF 2.5 has been ported to the Macintosh running MacOS. A version of the library is available for Symantec THINK C and Macintosh Programmers Workshop (MPW) C and Fortran applications. In addition, create/write access for a CDF file with any supported encoding is now supported on all platforms. For a complete list of changes, please access the CDF2.5 CHANGES.doc or the Release Notes documents from the anonymous ftp accounts via ftp or the World Wide Web CDF home page at URL http://nssdc.gsfc.nasa.gov/cdf_home.html. This new home page provides access to the CDF User Support office via an automated mailing system and to the anonymous ftp accounts from which the software and documentation can be copied.

NOST News

by John Garrett and Barry Schlesinger

The new full-time NASA/Science Office of Standards and Technology (NOST) Librarian is Ann Lipscomb. The Management Council of CCSDS has approved two new Panel 2 documents, *SFDU—Control Authority Data Structures (CADS) Recommendation* and a new version of *SFDU—Control Authority Procedures Report,* which contain tutorial information on the content of the CADS report. Both should be available within a month. The prototype CCSDS World Wide Web pages are now accessible, providing general information, organizational descriptions, charters, and document lists. Users also can access the text of all CCSDS recommendations and reports.

The new NOST Technical Panel has made a draft for revisions to the Definition of FITS NOST Standard available for review and comment. The panel will respond to all incoming comments and announce its actions to the Usenet sci.astro.fits newsgroup, the associated fitsbits exploder, and the wgas and heafits mailing lists. The text it finally adopts will be incorporated in the NOST Definition of FITS, producing version 1.1.

Searching for Data Information at a Directory Level

by Jim Thieman

For many years, NSSDC has operated and continues to operate the NASA Master Directory (NMD). This service enables the research and general community to quickly find information about and the location of data of interest, especially in the space sciences. Recently, network tools, such as the World Wide Web and Gopher, have provided data- and information-finding capabilities similar to those of the NMD. Could these new tools possibly replace the NMD? This article discusses that question as well as various approaches to obtaining directory information.

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 at right. Your comments are welcome.

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To discuss the archiving of data at NSSDC, contact:

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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:

Request Coordination Office
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 online services (NODIS), log on:

TELNET: *128.183.36.23*
Username: *NODIS*

To access NSSDC's WWW home page, enter this URL:

http://nssdc.gsfc.nasa.gov/

To access NSSDC's education home page, enter this URL:

http://www.gsfc.nasa.gov/education/education_home.html

New Data Arrive

by Joe King

Since the last issue of *NSSDC News*, these data sets have arrived at NSSDC: COBE FIRAS and DIRBE data (see article on page 1), Ulysses radio wave plots, and ASCA X-ray data. Data flows to NSSDC continued for IUE, Magellan F-BIDR on CD-WO and gravimetry data, Mariner 10 images on CD-WO, Nimbus 7 ERB data, Yohkoh solar X-ray data, and ISEE 1&2 magnetometer data. The following data sets have been ingested to NSSDC's nearline system (NDADS) for network accessibility:

- **Astrophysics/Astronomy Data**
  ASCA, IUE, OSO 8, ROSAT, VELA 5B, CGRO/BATSE, ASTRO-1 UIT & WUPPE, and ADC catalogs
- **Space Physics Data**
  DE, Yohkoh, and IMP 8

FTP Access to NDADS Data

Procedures for accessing NDADS data holdings via FTP from ndadsd.gsfc.nasa.gov/port=9121 are described in the full article.

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