National Space Science Data Center

NSSDCNEWS

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NSSDC Future and NASA/OSS Reorganization Intertwine

By Joseph King

Possible NSSDC "privatization" has been addressed in recent issues of the *NSSDC News* . NSSDC was one of 11 groups NASA-wide studied by a NASA committee headed by Dr. Al Diaz as candidates for new university-affiliated institutes. The Diaz committee concluded that NSSDC did not fit its institute model and suggested an NSSDC-specific group address NSSDC's future.

As a separate NASA development consistent with general federal and NASA downsizing, NASA/ Headquarters' Office of Space Science (OSS) is being reorganized. OSS's Information Systems Office is NSSDC's sponsor. The previously existing discipline-specific Astrophysics, Space Physics, and Solar System Exploration Divisions are being largely merged into a single science division.

Reporting to the NASA associate administrator for OSS will be a "Board of Directors" (senior OSS officials) representing four themes: The Galaxy and the Universe, Astronomical Search for Origins and Planetary Systems, Solar System Exploration, and The Sun-Earth Connection. OSS will also have three division-level organizations for Advanced Technology and Mission Studies, Mission and Payload Development, and Research Program Management. Most of the OSS program scientists will be in this latter division as will be the responsibility for coordinating the OSS Data Management and Archiving Program.

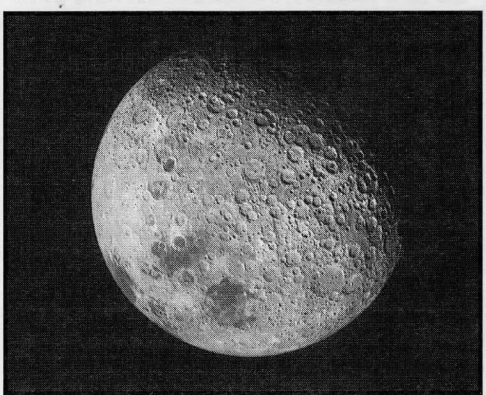
To help define optimal approaches to the management of NASA science data in the face of this OSS reorganization and downscaling and to define the future of NSSDC as an important element of that data management, OSS has created an ad hoc group of scientists across the OSS discipline domain and other potential data users to make recommendations to OSS on the future of its data enterprise. This group will be headed by Dr. Jeff Linsky of the University of Colorado and is expected to deliver a report by about June 1996.

It is expected that after the near-term activities of this ad hoc group, a more permanent community-based group will be formed to advise OSS concerning its information systems and data operations activities and to monitor the implementation of recommendations of the initial ad hoc group.

Making NASA's Photographic Data Available on the Web

By Edwin Bell and David Williams

NSSDC holds over 500,000 lunar and planetary photographs from missions dating back to the 1960s. To make a representative sampling of these more immediately accessible to the scientific community and to the general public, NSSDC has created the WWW-accessible Photo Gallery. From its initial 37 images the photo gallery has grown to 201 images of all the planets, several asteroids and comets, the Sun, several astronomical objects, and even images of various spacecraft. To date, there have been over 650,000 retrievals of the full-resolution images and over 200,000 accesses to the NSSDC Photo Gallery Home Page. The demand is such that it has become clear there is a need for many more images. To address this issue, the NSSDC is producing an online image catalog that will be accessible via the World Wide Web.



This Apollo 16 image of the far side of the Moon is one of many images in the NSSDC Photo Gallery.

This catalog initially will feature about 400 to 500 images covering all the planets and most of the missions for which images are available. NSSDC hopes to increase this number to about 1,000 by the end of 1996. Each image in the catalog will be presented on a Web page in approximately a 4 x 5-inch size with associated metadata and a short caption with capability for ordering hard copy versions. The catalog is expected to be WWW-accessible by the end of March.

The NSSDC Photo Gallery can be seen at *URL* http://nssdc.gsfc.nasa.gov/photo_gallery/photogallery.html. The URL of the more extensive image catalog will be announced in the "What's New" section of the NSSDC Home Page (http://nssdc.gsfc.nasa.gov/) when it is available.

SOHO Spacecraft Produces Exciting New Solar Data

By David Batchelor

The SOHO (Solar and Heliospheric Observatory) spacecraft, launched December 2, 1995, carries a complement of 12 instruments for the recording of high quality images and spectra of solar phenomena as well as sensors for the study of the solar wind as it arrives in near-Earth space. The SOHO spacecraft has successfully taken up a "halo orbit" around the L1 libration point located about 1% of the way from the Earth to the Sun.

The SOHO mission is making unprecedented use of the World Wide Web to provide access to the coming mission data and to documentation and analysis software. Browse and archive data will soon be available to users who start at the SOHO Home Page (http://sohowww.nascom.nasa.gov/). Already sample images from the Extreme Ultraviolet Imaging Telescope (EIT) can be found on the Solar Data Analysis Center Home Page (http://umbra.nascom.nasa.gov/).

The SOHO mission is carried out at Goddard Space Flight Center in the Goddard building also occupied by the Space Science Data Operations Office (SSDOO) including NSSDC. This proximity facilitates close cooperation between the SOHO archive and SSDOO personnel. Dr. David Batchelor of the Space Physics Data Facility in SSDOO provided technical and solar discipline-specific support for the SOHO operations center when the mission began.

ADC Announces New CD-ROM

By Gail Schneider and David Leisawitz

During the 187th Meeting of the American Astronomical Society (AAS), held January 14-18, 1996, in San Antonio, Texas, the Astronomical Data Center (ADC) announced the availability of its new Selected Astronomical Catalogs, Volume II CD-ROM. In the succeeding month 437 copies of the CD-ROM were distributed, including 91 from the Astrophysics Data Facility (ADF) exhibit booth at the AAS.

The catalogs contained on this CD-ROM cover a variety of subjects and were selected because they are large or frequently requested. They are documented according to the standard adopted by the NASA ADC and the Centre de Données astronomiques de Strasbourg (CDS) in France. Included on each CD-ROM are software tools useful for browsing and/or extracting data from the catalogs.

The list of catalogs on the Selected Astronomical Catalogs, Volume II can be accessed via ftp://adc.gsfc.nasa.gov/pub/adc/cd-rom/vol2.txt. The ADC's Internet service can be reached at *URL* http://adc.gsfc.nasa.gov/

CDF Library Version 2.6 Available

By Gregory Goucher

Updates to the Common Data Format (CDF) include Version 2.6 of the CDF library and the development of a World Wide Web (WWW)-based data system called CDAWeb. CDAWeb is accessible at *URL* http://bolero.gsfc.nasa.gov/cdaweb/cdaw9/.

New features of Version 2.6 of the CDF library, scheduled for an alpha release in early March 1996, will consist of data compression, sparse records, and three compression algorithms supported under the alpha release (Huffman, Adaptive Huffman, and Run Length Encoding of Zero's). Staff expect in the future to support the Rice algorithm. In addition to the new features, enhancements have been made to the internal indexing scheme of the library in an attempt to provide more efficient and higher throughput for data access.

Diverse Education Projects Identified

By James Thieman and Nathan James

The Space Science Data Operations Office (SSDOO) and Hughes STX education and outreach committees met in joint session on January 30, 1996, to discuss their activities with Dr. Richard Fahey. The chair of the Space Sciences Directorate Education and Outreach Committee, Dr. Fahey spoke about his philosophy of education and outreach and some of his plans for the future. He stressed his belief that NASA personnel should be working together with teachers in pairing arrangements to improve science education.

A few of the existing on-going projects described by the SSDOO and Hughes STX committees' members are INSPIRE, a program for high school students to bring the excitement of observing natural and man-made radio waves in the audio region; creation of a set of World Wide Web pages for the lay person describing an exploration of the Earth's magnetosphere; and the creation of the "Schoolyard Solar System" to give students a concept of the size of the solar system.

The IACG 1st Campaign Begins

By James Green

The Inter-Agency Consultative Group (IACG) has officially begun a multispacecraft, multiagency coordinated science campaign to study magnetotail energy flow and non-linear dynamics. The science objectives of the 1st Campaign will address various aspects of boundary region structures, quiescent configurations of the magnetosphere and tail systems, and the origin of plasma in the plasma sheet.

The IACG core missions involved in the 1st campaign are the GEOTAIL (Institute of Space and Aeronautical Science-Japan [ISAS]), WIND (NASA), Interball-Tail, (the Space Research Institute of the Russian Academy of Sciences [IKI]), Interball-Auroral (IKI), and POLAR (NASA) spacecraft.

At the IACG meeting in Sapporo, Japan, on September 6, 1995, a number of time intervals in October 1995 to January 1996 were selected for the first phase of the 1st Campaign.

A major mechanism for disseminating information about the IACG campaigns is the World Wide Web at *URL* http://iacg.org. Questions about becoming part of the IACG 1st Campaign can be directed to James L. Green at green@nssdca.gsfc.nasa.gov.

The World Wide Web: Interactive Interface to Scientific Data

By Jason Mathews

Three data systems known as OMNIWeb, COHOWeb, and CDAWeb are among the WWW-based systems developed at NSSDC and the Space Physics Data Facility (SPDF) for providing interactive access to and visualization of scientific data.

The NSSDC OMNIWeb data system was created in late 1994 for enhanced access to near-Earth solar wind field and plasma data of the OMNI data set. It addressed the need of researchers to access a single data set (OMNI) with visualization and retrieval capabilities over the Web. It was designed with a generic framework in mind to support any data set conforming to the NSSDC Common Data Format (CDF) data standard.

The COHOWeb system provides similar access to the deep-space solar wind Coordinated Heliospheric Observations (COHO) data and reuses many of the ideas and the software from OMNIWeb. However, COHOWeb represents a more evolved and generalized implementation of a WWW-based data system and is easily expandable since data can simply be "plugged" into the system without changing the underlying software.

CDAWeb goes one step beyond OMNIWeb and COHOWeb in providing a generic interface not tied to a single data set nor a few data sets but generated from an index of many possible data sets. Therefore, CDAWeb is extendible to large amounts of data, which are independent from the user interface. A key initial use of CDAWeb will be for the CDAW 9 data base now reformatted to International Solar-Terrestrial Physics (ISTP) standards.

NSSDC Makes Geophysical Models WWW-Accessible

By Natalia Papitashvili, Dieter Bilitza, and Joseph King

As a new service NSSDC is now providing World Wide Web (WWW)-based accessibility to information about a wide range of models as well as to the ability to execute the International Reference Ionosphere (IRI) model, the Mass Spectrometer and Incoherent Scatter neutral atmosphere model Extended version 1990 (MSISE90), the International Geomagnetic Reference Field (IGRF) model, and the external-source magnetospheric magnetic field model of N. Tsyganenko (T89C).

For the most part these models execute in either of two modes. In one mode users interactively specify a time and spatial point of interest and are provided all the model parameters for that time and place. In the other mode parameter profiles vs. user-selected independent variables are returned.

The IRI model has a special feature that enables users to generate profiles of peak parameters (D, E, F1, F2 heights, density, critical frequency). NSSDC's T89C code provides parameters not only at the point specified but also at the point of magnetic conjugacy to the specified point and at the equatorial crossing point of the model magnetic field line that passes through the specified location.

It is anticipated that additional models will become WWW-accessible and -executable. The presently available models are all accessible from *URL* http://nssdc.gsfc.nasa.gov/space/model/models_home.html.

NOST News

By John Garrett

NOST is currently heading the U.S. efforts in the archiving standards work sponsored by the Organization for Standardization (ISO) and the Consultative Committee for Space Data Systems (CCSDS). Readers can browse an overview of U.S. contributions starting at *URL* http://bolero.gsfc.nasa.gov/nost/isoas/us/overview.

The Second U.S. Workshop on ISO Archiving Standards was held at the MITRE offices in Greenbelt, Maryland. Meeting minutes, the participants list, submitted papers, etc., can be accessed starting at *URL* http://bolero.gsfc.nasa.gov/nost/isoas/us02/ws.html. The major topic was continued development of an archiving reference model. The current draft Archiving Reference Model has been authored by NOST staff members Louis Reich and Don Sawyer.

The Third U.S. Workshop, held at Archives II in College Park, Maryland, on March 19 and 21, 1996, was also a meeting of those actively working on development of the reference model. Outputs from that meeting will be submitted to the Second International Workshop to be held in Pasadena, California, on April 29 and 30, 1996. Those wishing to contribute to these efforts may register their interest by filling out the form at http://bolero.gsfc.nasa.gov/nost/isoas/us/registration_form.html. Readers unable to access the World Wide Web form can respond by E-mail to Don Sawyer at sawyer@ncf.gsfc.nasa.gov.

In addition, NOST has completed the CCSDS internal draft of a Data Entity Dictionary Specification Language. Readers can obtain more information or get a copy of the working draft by contacting Don Sawyer by E-mail at sawyer@ncf.gsfc.nasa.gov.

EMS Automates Conference Peer Review Process

By Jason Mathews

The Electronic Management System (EMS) is a WWW-based front-end to access information stored in an Oracle data base with a hierarchy of process steps in a hypertext menu structure that breaks down a complex set of processes into a manageable step-by-step list of operations.

An EMS was developed at NSSDC for the International World Wide Web (WWW) Conference Committee (IW3C2) and was used by that committee's staff for the following conference activities: 1. Authors' submittal of their papers to the system via FTP, 2. reviewers' entry of their evaluations into the system via a WWW-based form, and 3. the conference committee's decision of what papers to accept from the evaluations and reports generated by the system.

CD-ROM Catalog Update

By Jennifer Ash-Poole

The April 1996 version of the *NSSDC CD-ROM Catalog* will be available April 1, 1996, from NSSDC's Request Coordination Office. Several CD-ROM sets have new volumes, including ROSAT, Magellan FMAPs, Voyager, and Galileo. NSSDC's newest CD-ROM is the Selected Astronomical Catalogs, Volume II, from NSSDC's Astronomical Data Center.

Also, as of January 1996 each CD-ROM is now $10.00 (no Request Handling Fee). The CD-Recordables are $43.00 with a $30.00 Request Fee per order. There is a $5.00 shipping fee for foreign orders.

SAMPEX Data Arrive at NSSDC

By R. Parthasarathy

Solar Anomalous Magnetospheric Particle EXplorer (SAMPEX), NASA's first SMall EXplorer (SMEX), was launched in 1992 to provide cosmic ray fluxes over the polar cap and radiation belt fluxes. The University of Maryland, under the lead of Dr. Glenn Mason, provides scientific and data management leadership for the project.

SAMPEX carries four instruments which in aggregate cover nuclei over a wide Z range and over an energy range from a few to hundreds of MeV/n: the Low Energy Ion Composition Analyzer (LICA; University of Maryland), the MAss Spectrometer Telescope (MAST; Caltech), the Proton/Electron Telescope (PET; Caltech), and the Heavy Ion Large Telescope (HILT; Max Planck, Garching).

The full resolution level-1 data are stored at NSSDC on erasable optical disks, although these data are not yet readily usable.

Four more immediately usable higher-level data products (30-sec averages and polar cap averages of all rates and selected fluxes) are becoming accessible from the NSSDC's NASA Data Archive and Distribution Service (NDADS) through the Space Physics data Catalog (SPyCAT) at *URL* http://nssdc.gsfc.nasa.gov/space/ndads/spycat.html. By mid-April 1996 NSSDC expects to have these data available in ASCII at least to the middle of 1993. The flux data are also being cast in Common Data Format (CDF) but are not yet available as such.

ADC Establishes a Scientific Steering Committee

By Nancy Roman

The first meeting of the Astronomical Data Center (ADC) Scientific Steering Committee took place on February 6 of this year. The committee has been established to provide input concerning ways in which ADC services might be improved. Also the committee will suggest priorities among many activities and services that the ADC realizes would improve its value to its customers. The committee provided a number of helpful suggestions. Its primary interest, presently beyond ADC's capabilities, is in a system to search for a single astronomical object or a group of objects across the archive without retrieving each catalog individually. An amateur astronomer was included in the committee to represent that large user community.

New Planetary Data and WWW Pages Available

By David Williams

Available at NSSDC are both new planetary data and new World Wide Web (WWW) planetary pages. New data include the final volumes (25 and 26) of the International Halley Watch Series, more Magellan F-MAP CD-ROMs, a Magellan gravimetry CD-ROM, Galileo CD-ROM Volume 16, the first two volumes of the new Voyager CD-ROM set containing images of Saturn, and Version 1.5 of the Welcome to the Planets CD-ROM containing a *Teacher's Curriculum Guide.*

New planetary WWW pages include new mission pages (Stardust, Venera, Mars Surveyor '98 Orbiter and Lander, and Mars Global Surveyor Experiment information) and information pages (Comet Hale-Bopp, Comet Hyakutake). Updated pages include those on Chiron, planetary fact sheets, Galileo entry probe, and Near Earth Asteroid Rendezvous (NEAR). Pages on NASA off-line resources, the Russian Mars '96 mission, and additions to planetary fact sheets and the Chiron Perihelion campaign pages are in the future.

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.

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Username: NODIS

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