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## Scientists Evaluate Coordinated Data at Workshop

The fourth meeting of the Coordinated Data Analysis Workshop (CDAW) 8 series was held September 23-25 at NSSDC with scientists attending from such diverse locations as London, California, New Mexico, Massachusetts, and Maryland. Many of the scientists have been attending CDAW workshops for 10 years. For CDAW 8.3, the participants directed their

efforts toward the definition and preparation of journal manuscripts that will describe the CDAW 8 analyses they have performed.

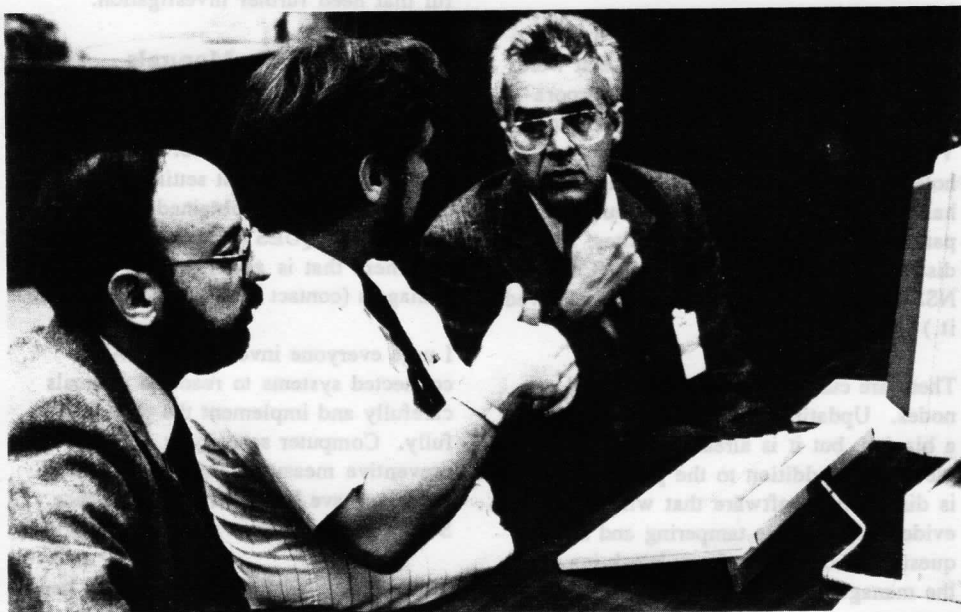
The CDAW concept evolved from the needs of the solar-terrestrial community to study simultaneous data tapes at many points in the large and complex magneto-

sphere, as well as on the earth's surface and outside the magnetosphere, to understand global magnetospheric processes. To satisfy this requirement and in specific support of the International Magnetospheric Study of 1976-1980, Dr. James Vette and colleagues at NASA developed the CDAW concept. Its significance is not only that any two, three, or more data sets can be displayed simultaneously and compared, but that the online data base is accessible during the workshop itself.

The CDAW 8 events were defined to take advantage of two unique data sets, the Dynamics Explorer (DE) auroral images and the deep magnetotail data from the International Sun-Earth Explorer 3 (ISEE 3), and to examine the relationship between them. A specific focus of CDAW 8 has been the question of the existence and role of plasmoids in magnetospheric substorms. The large-scale workings of the magnetosphere were studied, as were the microphysical processes that go on in the system.

A CDAW is a mechanism for a large group of scientists to interact with each other and share ideas as well as data. One goal of the CDAW process is to allow the individual scientist to participate in the context of a large, synergistic effort. Ac-

see CDAW, page 5



Bob Cornett

Robert McGuire (center) explains new CDAW interface to Howard Singer (left) and Robert McPherron (right).

## IN THIS ISSUE

Scientists Evaluate Coordinated Data at Workshop .....	1	University of California Setting Up AgRISTARS Archive .....	6
Message from the Director .....	2	Olsen Represents PCDS at Data Delivery Workshop .....	6
International Ultraviolet Explorer Data on SPAN .....	3	SPAN Supports Orbital Debris Studies .....	6
Space Station Symposium Attendees Discuss Issues, Visit Data Center .....	3	Bhartia New Manager of Science Support Group .....	6
Systems Analysis and Technical Support Group .....	4	First Catalog Interoperability Workshop Held at NSSDC .....	7
		Artificial Intelligence Lab Acquires Unique Workstation .....	7
		Calendar .....	7
		Online Information System for Astronomical Data .....	8

## Message from the Director

# Government Takes Steps To Curtail Illegal Computer Network Access

In the last five months, there has been a dramatic increase in the number of unauthorized access attempts to computer systems connected to a variety of networks all over the world. The systems that are the most vulnerable are connected to the international public packet switched networks such as GTE/Telenet in the United States. Recent changes in U.S. law have made unauthorized access to a computer system a federal offense (with up to three years in jail and a heavy fine).

On SPAN, there are four public network connections, located at NSSDC, Marshall Space Flight Center, Ames Research Center, and NASA Headquarters. The remaining SPAN nodes in the United States are connected by dedicated links, which provide better security because they form a "closed" system of well-defined users.

## Illegal Access in Europe

In Europe the situation is different because the public networks generally provide a cheaper communication service than dedicated links, and, therefore, many more nodes are exposed to the international community of computer pirates. Members of a computer "hacker" club (the Chaos Computer Club) in Hamburg, Germany, have successfully accessed a number of computer systems in Europe within the last year. This is well documented, since a German freelance newspaper reporter follows their activity closely and reports every detail. (I have the articles if you know how to read German.)

The increase in attempts by such groups has been prompted by a "bug" in the VAX/VMS 4.4 and 4.5 operating systems that allows an intruder to obtain privileges and hide his or her presence from regular system monitoring. This is what we all fear the most. No matter how secure we make our SPAN VAX systems, there is an unauthorized way in. What has made the situation worse is that the access procedures were printed in several computer trade magazines (the first, apparently, in German) earlier this year.

The first systems to get "hit" in Europe were those connected to BITnet and HEPnet. Around May, HEPnet systems in the United States were entered illegally, and the SPAN management team was alerted.

## NASA Computers Pirated

By early August, the SPAN systems connected to an international packet switched network began to see the effect of this increased knowledge in the hands of the general public. Two computers at NASA Headquarters were broken into through Telenet, and the Inspector General's Office was immediately notified. The network managers called on the FBI to investigate this situation and to prosecute the intruders. I will keep you informed about the FBI's progress.

In mid-September, after studying the European HEPnet and SPAN systems that were broken into, Digital Equipment Corporation (DEC) issued an upgraded patch to the VMS operating systems that will plug the hole and repair some of the damage. DEC has authorized NSSDC to distribute this patch to the SPAN-connected sites, and distribution is nearly complete. (Contact NSSDCA::NETMGR if you haven't received it.)

There are currently about 1200 SPAN nodes. Updating the computer systems is a big job, but it is already nearing completion. In addition to the patch, NSSDC is distributing software that will look for evidence of outside tampering and is requesting knowledge of any break-ins from the managers of SPAN-connected systems.

## Media Coverage

As everyone knows, many U.S. newspapers and newsmagazines have published stories on these "NASA secret network" break-ins. The ABC news network had a four-sentence report on the matter on Tuesday evening, September 16. What you may not be aware of is that the Hamburg Chaos Computer Club did an eight-minute spot on a TV program called *Panorama*

(like our 20/20-type news programs). The diligent German freelance reporter was doing his job and making sure other news agencies were aware of this "hot" story. During the program, the members of the Chaos Computer Club exposed the technique used to break into VAX systems and discussed the contents of two SPAN nodes at NASA Headquarters that were compromised.

In general, what the hackers wanted to do was to shut down all these computer networks, especially that "NASA secret network," SPAN. The worldwide sensation they anticipated didn't happen. SPAN is not a system that contains secret information, and this situation should remind us to continue with that policy. Hopefully, with the videotapes of the news report and the information we have turned over, the FBI should have all it needs to do its job and close these guys down.

Were we lucky in this case? The answer is definitely "yes!" With most of the nodes having reported in, there are only a handful that need further investigation.

## SPAN Security Manuals

SPAN security is always taken seriously and will continue to be so. There are two security manuals about setting up a SPAN node, which can be obtained from NSSDC (NSSDCA::REQUEST). One is a controlled document that is given only to system managers (contact NSSDCA::NETMGR).

I urge everyone involved in SPAN-connected systems to read the manuals carefully and implement the procedures fully. Computer security is a matter of preventive measures and implementing what we have learned from experience. Secure nodes produce a secure network.

These events will actually result in benefits to the entire NASA system, since the Office of Space Operations at NASA Headquarters is forming a task force to provide approved policies and procedures for dealing with unauthorized access to NASA computer systems. This topic is well worth pursuing in this era of information explosion and when looking toward the upcoming telescience activities for the Space Station.

James L. Green



## New Service Will Provide International Ultraviolet Explorer Data Via SPAN

NSSDC will soon be offering the International Ultraviolet Explorer (IUE) community another method of accessing IUE data. A network request service has been developed that will allow IUE archival data to be requested and transmitted by the Space Physics Analysis Network (SPAN) from NSSDC to the requester's node. For requesters desiring a small number of spectra, this will eliminate the need to send a tape for their images.

The data supplied will be in the Guest Observer (GO) format. This new service has been made possible by the recent software

modifications developed by E. Sullivan (GSFC) in cooperation with the IUE Observatory.

To acquire IUE data, a requester will log on to a captive account at NSSDC and execute a menu that will prompt for the necessary information. The requested spectra will be retrieved from an IBM 3850 mass storage system or a raw data tape archive and placed on local NSSDC systems. The requester will then be notified that the data are available for a specified period of time, during which the data may be copied via SPAN to his or her node. If the requested

spectra are not available from mass storage, the requester will receive a message describing the current status of the image.

In the past, magnetic tapes were sent with a written request for IUE archival data. After requested spectra were written to tape, they were returned to the requester. The new procedure is a much faster and easier method of requesting and receiving IUE data.

Further information on this new service may be obtained by telephone at (301) 286-6695 or 2899, via SPAN at NSSDCA::PERRY, or by writing to NSSDC (see address on last page).

Charleen Perry

## AIAA/NASA Symposium Participants Consider Space Station Information Systems Issues and Visit Data Center Facilities

The International Symposium on Space Information Systems in the Space Station Era, sponsored by the American Institute of Aeronautics and Astronautics and NASA, was held in Washington, DC, in June. NSSDC played a significant role in this meeting, which had a threefold focus of systems, technology, and management issues.

In a session entitled Customer Needs, chaired by NSSDC's Paul Smith, Francis Bretherton of the National Center for Atmospheric Research stressed the need for effective long-term management of earth science data to enable the study of variabilities on scales of decades. NSSDC is committed to provide such data management.

During one afternoon of the symposium, several busloads of attendees traveled to Goddard Space Flight Center to see any two of several areas of interest. About two dozen persons toured NSSDC, receiving an overview of our Data Center activities and then viewing the tape and film archives, computer facility, and photo lab.

Joe King

*Jim Green explains the optical disk system to a group of scientists touring the Data Center facilities.*

*(Right) Joe King greets NSSDC visitors. (Below) Paul Smith speaks at symposium.*



Photos by Bob Cornett

## Systems Analysis and Technical Support Group Central to Computer Operation

The Systems Analysis and Technical Support group provides user and technical support to the operational computer activities at NSSDC. As a subgroup of the Information and Computer Systems group, the staff is responsible for system programming on the NSSDC VAX and the Shuttle Environment data base VAX (SPAN node ENVNET::), user support, and general system monitoring. Staff members also write brief systems utilities programs and procedures manuals. Michael Bartman, Joe Seamone, Dolores Parker, Murray Itkin, and Russell Dunlap, all Science Applications Research (SAR) employees, compose this group.

Michael Bartman assumed responsibility as group leader in May. Bartman brings with him many years of experience with VAX computers from his work with Systems and Applied Sciences Corporation (SASC) and with Cray Research, on contract to the Naval Research Laboratory. His major field of expertise is in VAX/VMS system programming and operations. He is a software engineer and system manager, as well as a system and user problem solver.

Bartman's goals for the group are "...to streamline the VAX to the point where we're making maximum use of the current resources [and] to document the system so there are procedures for all the daily activities, meanwhile keeping the users happy as these goals are accomplished." Originally enrolled as an engineering major at Old Dominion University, he found his Fortran course so enjoyable that he graduated instead with a major in computer science.

Joe Seamone is "...the first line of fire between the user and the computer." If you want to set up an account on the NSSDC VAX or need a problem solved, Seamone would be the person to assist you. He joined the staff in June. As the tactical user support person, he is involved with resolving daily user problems with NSSDC's computers and coordinating and scheduling demonstrations.

A graduate of the University of Maryland with a B.S. in physical sciences and a major in meteorology, Seamone worked for the National Weather Service during the

precomputer days when the weather maps were hand-drawn. After the maps became computerized, he moved on to Goddard as a contractor. He has spent the last 11 years at Goddard involved in data analysis, programming, user support, and design and development of user friendly interfaces to applications software.

Seamone has had over six years of VAX experience and was the user support office task leader for the Land Analysis System and the Multiparallel Processor projects. "I really like the people here at NSSDC. I've worked with many of them before, and it was like coming home again," he says.

In May, Dolores Parker transferred from Goddard's Data Flow Technology Office (DFTO), where she was SAR's task leader for the developing DFT Network Information Center, to the Systems Support group, where she and Seamone make up the user support team. Whereas Seamone is the front-line person, Parker is the planning person. She is the coordinator of the support service as a whole and is concerned with identifying the needs of NSSDC users and finding ways to implement them.

Documenting system and operator procedures is high on Parker's list of priorities. This assignment meshes well with her

background, which includes a bachelor's degree in English, as well as computer training and six years of experience with applications and systems programming, systems analysis, design and development, and user support.

Parker says that the entire Systems Support group works together as a team. Different interface procedures are being developed, users' requests are being implemented, and the system has become more reliable, she states.

Since last March, Murray Itkin has been working for the Systems Support group as systems programmer, providing system management assistance. His expertise is in DCL and Fortran programming. Previously, he worked for SAR's parent company on a contract for the Peoples Republic of China to develop and install a Landsat ground station for the Chinese. Itkin was a member of a team that went to China for two months for the installation and training.

Russell Dunlap provides onsite hardware support for the computer activities at NSSDC. He installs and maintains all the electronic communication devices, such as the Macintosh and VT 52, 100, 200, and 240 compatibles, sets up networks, and maintains the optical disk drives. Dunlap also runs cables and reconfigures the Data Analysis Laboratory for demonstrations.

Barbara Goldberg

(Below) Dolores Parker, Mike Bartman, (right) Joe Seamone, and Murray Itkin.



Photos by Bob Cornett



CDAW, from page 1

cording to Dr. Robert H. Manka (National Science Foundation), convenor of CDAW 8.3 and cochairman of the program committee, "The sequence of the workshops is focused on the end result, which is publication." Before this workshop, two others in the CDAW 8 series were held that enabled the participants to become familiar with each other's data and to define the ideas and interpretations that will underlie the ensuing publications.

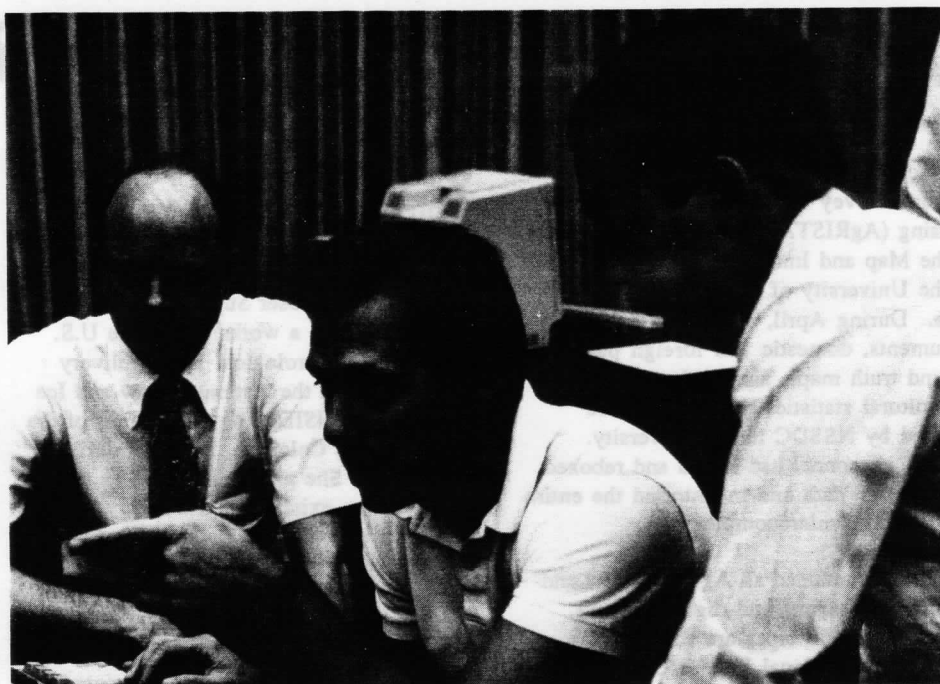
"The objective of CDAW is to pursue scientific truth, and the best way to do that is to have a free and open dialog," states Dr. Daniel Baker, Chief of the Laboratory for Extraterrestrial Physics at Goddard and cochairman of the program committee with Manka. Baker also believes that scientists appreciate NSSDC's role in providing the environment, the camaraderie, and the opportunity to concentrate on the scientific problem at hand.

Dr. Theodore Fritz of the Space Plasma Physics Group at the Los Alamos National Laboratory (LANL) became involved with the CDAW program at its inception when he attended CDAW 1 with Vette. Since then, he has attended almost every CDAW. He feels that the workshops give him the opportunity to discuss his current projects. Fritz particularly likes the small group approach because it allows him to explore the validity of a concept and determine whether it works.

Another LANL participant, Dr. Ronald Zwickl, says that these workshops bring scientists together who normally would not have the opportunity to work with one another and discuss topics of common interest. If the discussions are fruitful, a paper is written. He anticipates that meeting with the coauthors of papers in process from previous workshops will result in their completion.

Dr. Howard Singer of the Air Force Geophysics Laboratory in Bedford, Massachusetts, is involved in the technology for putting together multiple data bases to provide easy access for a better understanding of the physics of the magnetosphere. He is also interested in obtaining a clearer picture of the processes of substorm phenomena. Singer feels that the CDAWs make it easy to access data and correlate them with that of others.

Dr. Ian Richardson, from the Imperial Col-



Craig Goettsche (center) describes new graphics to Norm Schofield (left) and Howard Leckner (right). All are NSSDC staffers who played key roles in CDAW 8.3.

lege, London, came to the United States to contribute his ISEE 3 data to the workshop. Says Richardson, "It's easier to put the data together face-to-face."

According to Dr. Theodore Rosenberg of the Institute for Physical Science and Technology at the University of Maryland, "The CDAW is an excellent opportunity for scientists to get together informally to discuss common interests. In addition, being able to access the facilities at NSSDC is a decided plus." By combining the data in different ways, he suggests, the CDAW participants are attempting to feed off each other's perspectives of phenomena.

Rosenberg brought ground-based measurements of data obtained in the Antarctic and the Southern Hemisphere, which have turned out to be very useful for several events under study. He expects a number of papers to result from this meeting.

Dr. Antoinette Galvin from the University of Maryland, representing the Max Planck Institute/University of Maryland experiments on ISEE 1 and ISEE 3, feels that this workshop has provided her with a unique opportunity to see what others are doing. Galvin enjoys the informal setting, which enables her to discuss a broad range of topics as well as CDAW events with other scientists. She feels that it is very productive to bring scientists from

various experiments together to contribute ideas. Galvin believes that the workshop provides each participant with an opportunity to develop new ideas and to accomplish significant work.

As one of the organizers of CDAW 6, Professor Robert L. McPherron of UCLA expresses concern about the fate of the CDAW 6 data base, particularly because it presently exists on an older computer at NSSDC that could become obsolete at some point. The CDAW 6 data base is now four years old, and he thinks that it is at the point where it should be distributed.

McPherron would like the data put on read-only-memory compact disks (CD ROMs). The density on these disks is sufficiently high that each one can accommodate the equivalent of 30 digital tapes. He states that most of the third world is unable to access data because of the expense involved, and CD ROMs would be a relatively inexpensive way to obtain data.

According to Dr. Robert E. McGuire, who is currently directing the CDAW program at NSSDC, the fate of the CDAW 6 data base is also of concern to the Data Center. The feasibility and cost of moving these data is being studied.

McGuire feels CDAW 8 has been one of

see CDAW, page 8

## University of California Setting Up Archive of AgRISTARS Data

An archive of Agricultural Resources Inventory Survey Through Aerospace Remote Sensing (AgRISTARS) data is being set up at the Map and Imagery Laboratory Library at the University of California, Santa Barbara. During April, all remote sensing documents, domestic and foreign packets, ground truth maps, aircraft imagery, and agricultural statistics documents were shipped by NSSDC to the university. NSSDC personnel had sorted and reboxed some of the data and inventoried the entire data set on a microcomputer.

NSSDC has retained all AgRISTARS Landsat digital imagery and digital climate data. These 650 tapes are stored at the Washington National Record Center and are retrievable for users. An earlier article in the newsletter elicited virtually no user interest in the data.

NSSDC, after consultation with the Headquarters Program Office, chose the University of California to archive this large volume of data. It had the facility to house the data, the desire and ability to document and maintain the data base, and the willingness to make the data available to users within the university and throughout the user community. The analog data and imagery archived by the university contains Large Area Crop Inventory Experiment (LACIE) data as well as AgRISTARS data. The university will advertise the data when it has been organized and user requests can be filled.

G. R. Stonesifer



Pawan K. Bhartia

Bob Cornett

## --NEWSBRIEFS--NE

### Olsen Represents PCDS at Data Delivery Workshop

Lola M. Olsen of the Pilot Climate Data System (PCDS) User Support Office represented PCDS at a workshop on the U.S. Antarctic Meteorological Data Delivery System held at the National Snow and Ice Data Center (NSIDC) on the campus of the University of Colorado, Boulder, during September. She presented PCDS as part of a session on existing data delivery systems and also gave a demonstration of the system capabilities over the Space Physics Analysis Network (SPAN). Interest in the system centered on the feasibility of using PCDS for accessing Antarctic meteorological data. The workshop was sponsored by the National Science Foundation.

Lola Olsen

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### SPAN Supports Orbital Debris Studies

The Space Sciences Branch of the Solar System Exploration Division at Johnson Space Center (JSC) is studying orbital debris and its sources, using their data base that contains all element sets (Elsets) on

artificial earth satellites the United States Space Command makes available. Inputs for this data base are the modified North American Air Defense Command (NORAD) orbital element data sent to JSC three times a week in hard copy form.

Because of JSC's unique requirements for quick access to the orbital elements, electronic transmission is preferred. Many fragments from collisions and explosions lie in unstable orbits, making frequent Elset updates necessary. Also, when a "break-up" occurs, the latest Elsets must be available quickly to schedule radar and electro-optical observations of the fragments soon after the event.

In response to a request from JSC, Robert Lively (Goddard Space Flight Center), Kent Hills (NSSDC/SAR), and James L. Green (NSSDC) have worked out an arrangement whereby the unmodified orbital data are put on tape and given to NSSDC twice a week to transmit to JSC over the Space Physics Analysis Network (SPAN). The data received by JSC are not necessarily useful "as is" to other similar recipients and, therefore, will not be distributed by JSC to others. The activity has been going on for several months and is very successful.

Valerie L. Thomas

### Bhartia New Manager of Science Support Group

Dr. Pawan K. Bhartia joined Science Applications Research (SAR) in July to become the manager of the Science Support group. Highly respected for his expertise in stratospheric ozone remote sensing, he was a member of the team that discovered the Antarctic ozone hole in the NASA satellite data.

Of his new role Dr. Bhartia says, "I want the Science Support group to become more involved in overall NSSDC activities including the Pilot Climate Data System (PCDS) and future missions such as the Upper Atmosphere Research Satellite (UARS) and the Earth Observing System (EOS)."

Before coming to SAR, Dr. Bhartia was the project manager of the Nimbus 7 Data Analysis and Operations Support contract for SAR's parent company. Over his 10 years with the company, he worked in several climate remote-sensing areas as scientist, software developer, and manager.

Dr. Bhartia has a Ph.D. in physics and an M.S. in computer science, both from Purdue University. He is a member of the Algorithm Subcommittee of the NASA Ozone Trends Panel, the World Meteorological Organization experts committee on the Global Ozone Observation System, and the Nimbus 7 Solar Backscatter Ultraviolet Radiometer/Total Ozone Mapping Spectrometer experiment team.

Barbara Goldberg



# WSBRIEFS--NEWSBRIEFS--NE

## First Catalog Interoperability Workshop Held at NSSDC

The first Catalog Interoperability (CI) Workshop was held at NSSDC July 14-16. These workshops will be held semiannually and will bring together the CI Working Group and CI Advisory Group to discuss interoperability requirements and progress. Their goal is to interconnect NASA's (and perhaps other agencies') data systems and catalogs under a NASA Master Directory so that a researcher can search for, and have rapid online access to, information about data availability throughout the various systems, regardless of their science discipline or agency.

The CI Working Group is composed of representatives from selected NASA data systems and the National Oceanic and Atmospheric Administration, who work through electronic mail and biweekly teleconferences to develop an interoperable system. Participating NASA systems are the Master Directory, Pilot Climate Data System, Pilot Land Data System, NASA Oceans Data System, and Planetary Data System.

The CI Advisory Group is composed of scientists in diverse disciplines from academia, NASA, and other government agencies, who provide feedback from the scientist/user and non-NASA viewpoints. The advisory group generates reports to NASA detailing its recommendations resulting from the workshops.

The first workshop focused on the Master Directory and discussion of what is needed for interoperability in the more detailed levels of data information contained within extant catalogs and data systems. Priority was placed on immediate installation of the directory, which contains a limited amount of information about most of the currently important data sets in the various disciplines. It will have electronic links to the catalogs and data systems wherever possible, so that more detailed information may be immediately pursued. A Directory Interchange Format (DIF) data structure is being developed to assist in automated and manual methods of populating and updating the directory data base.

Evaluation of the DIF at the workshop indicated agreement on this approach.

The Master Directory will answer a limited set of user questions. Plans are for data set information to be retrievable by specifying source, project, discipline, measured parameters, etc. The information returned would give a brief description of the data set and pointers or links to further information. More detailed questions would require interaction with the catalogs. Discussions were begun about what questions should be answerable from that level and how best to provide the answers. This topic is large and intricate, and will be facilitated by standards in terminology, user interfaces, and data system functionality. More interaction will take place in the coming months and will culminate in detailed discussions at the next workshop in January.

Jim Thieman

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## Artificial Intelligence Lab Acquires Unique Workstation

The NSSDC Applied Artificial Intelligence Laboratory (NAAIL) has recently acquired and configured an extremely powerful and unique artificial intelligence workstation, which will be used for advanced data structure and scientific user interface research.

The system, a Sun 3, has a 32-bit architecture based on Motorola's MC68020 CPU chip and MC68881 math coprocessor running at 25 megahertz. The Sun has 16 megabytes of real memory, 572 megabytes of Winchester disk storage, a 1/4 inch cassette tape drive, a 1600 x 1280 monitor screen, and a 10 megabit per second Ethernet connection to Goddard's communication network (SESnet).

Currently installed software includes the expert system shell ART (Automatic Reasoning Tool 3.0), LISP (Sun Common LISP 2.0), and Figaro (Template's 3-D graphics package). In addition, Sun's standard UNIX package, C, Pascal, Assembly, Fortran '77, and RATFOR enhance the system software capabilities. The object-oriented C++ compiler from Oasis will also be added in the near future.

This system is being used primarily to provide a multitasking, multiuser environment for the development of intelligent data management capabilities and interfaces to the large, complex data bases at NSSDC. It is planned as a prototype for integration into the advanced system component of the Pilot Land Data System and for subsequent consideration for use by the Earth Observation System Data Information System (EOS DIS).

William J. Campbell

## CALENDAR

September 23-25	Coordinated Data Analysis Workshop 8.3 Goddard Space Flight Center
November 4-5	Pilot Land Data System Team Meeting Goddard Space Flight Center
November 17-18	TAE+ Planning Meeting Greenbelt, Maryland
November 18-20	Data Systems Users Working Group Meeting Lanham, Maryland
December 2-3	Pilot Land Data System Team Meeting Goddard Space Flight Center

## Astronomical Data Center Develops Online Catalog Information System

The Astronomical Data Center (ADC) at NSSDC has recently developed an online information system for astronomical catalogs. The system is built around the ADC Status Report on Machine-Readable Astronomical Catalogs and brief descriptions of the catalogs. Its purpose is to provide online information for all catalogs held at the ADC and allow for the submission of interactive requests for data.

The directory has three options to search for catalogs. First, catalogs are listed by the ADC number. The catalogs are grouped in the categories of the Centre de Données de Strasbourg's numbering system: positional data, photometric data, spectroscopic data, cross identification catalogs, combined and derived data, miscellaneous data, nonstellar and extended objects, and catalogs sorted by plate areas. Second, the catalogs can be displayed in alphabetical order according to a short title assigned to each. Third, the catalogs can be listed by keyword. More than 150 keywords have been selected relating to catalog types, objects (targets), main contents, and observational methods. Up to five keywords have been assigned to each catalog based mainly upon the primary

data contained in it, since the referencing of secondary data would not only confuse the location of specific catalogs but would result in the association of large numbers of keywords for many catalogs. However, in cases where the secondary data of a major catalog have been used as a frequent reference source for the data, an associated keyword may be included.

When a catalog is selected, the directory shows basic information about it: full title, author(s), reference(s), size, current status, and a brief description, if available. The directory also receives interactive requests for data. Catalogs smaller than 2 megabytes may be transmitted via electronic networks (SPAN or BITnet) if a requester so desires.

The directory is accessible over SPAN or by dialing NSSDC directly. Its SPAN node is NSSDCA and the user name is ADC. Contact NSSDC::NETMGR for the password. Any problems or suggestions concerning the system should be directed to Young Woon Kang at (301) 286-9793 or via SPAN at NSSDCA::KANG.

Young Woon Kang

### CDAW, from page 5

the most successful CDAW series. "We've been able to bring together an outstanding group of scientists, a rich data base that includes the unique deep tail data from ISEE 3, and a new and evolving data system to facilitate access to this data," he asserts.

Planning has already begun for the next series of solar-terrestrial CDAWs. The focus of this new series will be the data collected during the Polar Regions Outer Magnetosphere International Study (PROMIS) period, March through June 1986.

In the past, the analysis of simultaneous data was usually accomplished by working with whatever data were acquired and then trying (after the fact) to identify interesting periods when simultaneous data happened to be collected. PROMIS was a program that orchestrated the coordinated collection of simultaneous data from a number of key spacecraft and ground stations, with the specific scientific goal of obtaining

data to better illuminate the detailed connection between polar geophysical phenomena and magnetospheric processes. The result is an international collection of data with a much higher degree of simultaneity than usual.

Several views of the PROMIS data and data coverage are summarized in a series of six data books that have been assembled by NSSDC and the Los Alamos National Laboratory. These data contain many exciting opportunities for various studies that will fit naturally with the spirit and systems of the CDAW program.

The first meeting of this CDAW/PROMIS series is currently targeted for September 1988. Those interested in participating should contact the CDAW/PROMIS convenor, Dr. Robert H. Manka, at (202) 334-2760 or at NSSDCA::MANKA on SPAN; or Dr. Robert E. McGuire, (301) 286-7794, SPAN address NSSDCA::MCGUIRE.

Barbara Goldberg

## Data Inquiries

For information on submitting data to the Data Center or inquiries regarding availability, cost, and ordering procedures, researchers *within the United States* should contact:

### Submissions:

Dr. H. K. Hills  
National Space Science Data Center  
Code 633.8  
Goddard Space Flight Center  
Greenbelt, Maryland 20771  
Telephone: (301) 286-4106  
SPAN: NSSDCA::HILLS

### Requests:

National Space Science Data Center  
Code 633.4  
Goddard Space Flight Center  
Greenbelt, Maryland 20771  
Telephone: (301) 286-6695  
Telex: 89675 NASCOM GBLT  
TWX: 7108289716  
SPAN: NSSDC::REQUEST

Individuals residing *outside the United States* should contact Dr. James I. Vette for information on submissions. Inquiries to Dr. Vette and requests from outside the United States must be directed to:

World Data Center A for Rockets and Satellites  
Code 630.2  
Goddard Space Flight Center  
Greenbelt, Maryland 20771 USA  
Telephone: (301) 286-6695  
Telex: 89675 NASCOM GBLT  
TWX: 7108289716  
SPAN: NSSDC::REQUEST

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