2006 ANNUAL STATISTICS AND HIGHLIGHTS REPORT FOR THE NATIONAL SPACE SCIENCE DATA CENTER

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PREFACE

The National Space Science Data Center, as noted in its charter, serves as the permanent archive for NASA's Office of Space Science (OSS). A major component of its mission is to ensure future data accessibility and usability. NSSDC also provides current data access, complementary to the efforts of other NASA/OSS "active archives," in support of the NASA and international astrophysics and space physics research enterprises. Finally, NSSDC is a conduit for the general public and education community to acquire NASA space science data that may interest them.

For the year 2006 we report on the activities of the NSSDC. As much as possible, we report the same statistics as in previous years to enable interested parties who wish to compare accomplishments year-to-year. Nevertheless, as NSSDC evolves, some statistical tables have been updated to better reflect current operations. This report covers only NSSDC. In 2002 and earlier years we reported jointly on NSSDC and the Sun-Earth Connection Active Archive (SECAA) of the Space Physics Data Facility (SPDF), who were organizational peers within the GSFC Space Sciences Data Operations Office (SSDOO) and co-located with a number of shared resources. More recently these two organizations have been funded from separate offices within NASA. They are now under separate parent organizations, NSSDC within the Solar Systems Exploration Division and SPDF within the Earth-Sun Exploration Division. Note also that many statistics herein are only comparable to those from the 2005 report, the first to reflect a major revamp of our central NIMS database.

NSSDC is pleased to issue this 2006 Annual Report describing the 2006 growth and evolution of NSSDC's data archives, access pathways, and other tools and services, as well as the access to those data and services by NSSDC's customer communities. This report has been made WWW-accessible in the hope that readers will avail themselves of the opportunity to link to the services reported herein.

I welcome suggestions from users for improvements to this Annual Report and to NSSDC services.

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1. INTRODUCTION

This report characterizes NSSDC's data holdings, metadata holdings, access pathways, and value-added data products, tools, and services at the end of 2006, with a focus on the 2006 activities leading to that end-of-year state. In addition, this report characterizes the nature and access to NSSDC's data and services by its many users from various communities. It is assumed the reader will have a general familiarity with NSSDC and its mission. For more information see the top NSSDC web page is at http://nssdc.gsfc.nasa.gov/ .

In 2005 we assembled an external user group, the NSSDC User Group (NUG), which meets annually to advise us on our short and long range goals. The group's first report from Dec 2005 is on line and can be linked to from the NSSDC homepage. Reports from successive meetings, not yet available at the time of this report, will be linked from the same site.

In May 2006 the NSSDC was included within the NASA Headquarters Senior Review, conducted periodically to review NASA archives, among other things. While the details are outside the scope of this Annual Report, the results look favorable for NSSDC continuity.

2. SOME SELECTED STATISTICS

Shown below are key statistics for 2006 or totals as of 12/31/06:

Volume of data at NSSDC: 49.2 TB
Distinct datasets: 4435
Distinct digital media volumes: 60,424
Media Volumes arriving in 2006: 1475
Data volume reaching NSSDC during 2006: 12.5 TB
Datasets with 2006-arriving data: 67
Files downloaded from NSSDC via ftp: 2,736,865
    From Photo_Gallery specifically: 936,039
Executions of Geophysical models & Ephemerides: 146,121
Number of offline requests satisfied: 182

IMPORTANT NOTES:
The statistics herein are NOT comparable to their equivalents in reports earlier than 2005. As explained in the 2005 NSSDC Annual Report, this discontinuity was introduced by improvements and entry updates in the NIMS database, which contains the NSSDC supporting information.

In prior years we cataloged scientific journal publications which acknowledged NSSDC data or services as contributing to their analyses. Such catalogs are by nature incomplete, including just the papers that came to the attention of our staff from a few key journals. Most science journals in which NSSDC data or services may have been used were not routinely reviewed by our staff and some authors do not cite the use of NSSDC data/services. In 2006 we suspended systematic cataloging of NSSDC dependent publications, thus have eliminated from this report Table 15, the number of new bibliographic references, and the list of publications, which was previously appended.

3. HIGHLIGHTS

The center of this report is the 14 Tables which summarize NSSDC activities in 2006. In most cases these numbers speak for themselves, though it is irresistible to address a few highlights.

The most important result of NSSDC's 2006 continuing activities is the preservation of growing space science data volumes, ensuring their continuing and future accessibility to the space science, education and general public communities. NSSDC's archive has now grown to 45.9 TB of space science data and an additional 3.3 TB of Earth science data. During 2006, 12.5 TB of data were added to the NSSDC.

In 2001 NSSDC began using its reengineered data management approach, which stores data as Archive Information Packages (AIPs; bundles of data files and companion attribute files as prescribed by the ISO/CCSDS Archive Reference model) written to DLTs. Its first application was for migration of NSSDC Data Archive and Dissemination System (NDADS) data files, which was essentially completed in 2003. About half the AIPs constituent data and attribute files also were written to a unix-based RAID magnetic disk environment for external user access. The IMAGE spacecraft project was the first to use NSSDC-provided software to prepare AIPs for submission to NSSDC and ingestion to the permanent archive. This facilitates an automated NSSDC data ingest and management pipeline. The approach will hopefully be replicated with other missions and individuals preparing data for NSSDC submission to support the rapidly growing data ingest volumes. Toward this goal we have installed a beta version of the software for JPL.

During 2006 we moved from DLT media to Super DLTs (SDLTs) for our near line archive data. We have adopted a 10 year media refresh cycle, so also have started planning for the migration from DLTs to SDLTs in the near future.

The NSSDC continues to lead within the Consultative Committee for Space Data Systems for the widespread adoption of the Reference Model for an Open Archival Information System (OAIS). This standard provides a conceptual model of a digital archive, including a functional view and an information view. The model establishes initial criteria for recognition of a true archival function and should lead to improved archival implementations, provide a basis for further standardization, and provide more cost-effective vendor support. Its use has been considered by an ever growing variety of organizations including data centers, libraries, national archives, and commercial organizations around the world.

In 2006 the NASA Sun-Earth Connection Education Forum (SECEF) team, with major NSSDC participation, prepared for and orchestrated Sun-Earth Day held March 29, 2006. The theme was "Eclipse In A Different Light" and featured live broadcasts of a total solar eclipse from Turkey. Many thousands packets of information were sent to teachers, scientists and others for Sun-Earth Day programs, reaching hundreds of thousands of people with live webcasts; this year podcasts also were made available for the first time. SECEF also sponsored a number of workshops and teacher professional development events reaching thousands of teachers, girl scouts, amateur astronomers, and the general public in partnership with SEC missions, museums, science centers,

and planetariums as well as science and educational professional societies. The SECEF web site for Sun-Earth Day is at http://sunearth.gsfc.nasa.gov/ .

4. DATA MANAGED AT NSSDC AND 2006 INFLOW AND OUTFLOW

There are several ways to characterize the multi-disciplinary NSSDC archive. Byte counts are a common metric for modern archives and will be reported herein. Numbers of distinct datasets and numbers of media volumes managed are also very important. The diversity of datasets and of media types relates to the intellectual and technical heterogeneity of the archive, respectively, and we shall report on these also.

For the remainder of this section we will present this variety of statistics in tables, similar in format to prior years' reports, though recognizing that the content of some tables will not be comparable to those for years earlier than 2005 because of the NIMS database changes in 2005 (see Sec. 2 above). We intersperse brief discussions, highlighting occasional specifics from individual tables.

Table 1. Counts of NSSDC Datasets on December 31, 2006

Discipline	Digital	Non-Digital	Total
Astronomy	226	77	303
Space/Solar Phys	1245	666	1911
Planetary	669	761	1430
Earth	123	131	254
Other (incl Ephem)	99	438	537
Total	**2362**	**2073**	**4435**

By the end of 2006 NSSDC was managing 4,435 distinct datasets and accompanying documentation packages. Table 1 indicates the disciplines from which these datasets come and whether the datasets are digital or non-digital. By dataset count space physics is the dominant discipline, accounting for nearly half of NSSDC's holdings. This reflects that in its early years NASA launched a preponderance of space physics missions and also that space physics spacecraft typically carry more independent experiments than do astrophysics missions.

NSSDC manages almost as many non-digital (e.g. film, microfilm and microfiche) datasets as digital datasets, though in recent years newly arriving data has been all digital. NSSDC also has generated digital versions for some of its film archive, often in response to requests.

Table 2. State of the NSSDC Archive December 31, 2006

	All Digital Data (TB)
Astrophysics	16.69
Space Physics	22.93
Planetary	6.09
Earth Science	3.30
Other	0.20
Total	**49.21**

Table 2 is a different characterization of the NSSDC archive, showing byte counts for the entire digital archive. Some of the byte counts are estimates, involving assumptions about the mean numbers of bytes on various media types for some datasets. The numbers for 2006 show a shift among the disciplines with the receipt of a large archive of high energy astrophysics data and the beginning of the CDAWeb (i.e. space physics) contributions to NSSDC. We expect a shift again next year with large planetary datasets coming. For such planning information the NSSDC Archive Plan is available within the NSSDC website.

Table 3. Data Ingested to Nearline Permanent Archive

	2004		2005		2006	
	AIPs	**GB**	***AIPs***	**GB**	***AIPs***	**GB**
IMP8	*8,158*	0.53	*2,357*	0.36	-	-
ISIS	*26,853*	11.33	*1*	-	*45344.00*	25.40
DE	-	-	*512*	0.32	-	-
IMAGE	*3,336*	45.85	*3,294*	43.76	*1043.00*	16.13
ISEE	*4,998*	6.74	*3,034*	2.57	-	-
SAMPEX	*528*	3.43	-	-	-	-
ULYSSES	*8,405*	17.49	*971*	1.02	-	-
WIND	*337*	0.27	*395*	0.32	*361.00*	0.29
RHESSI	*8,833*	677.88	*11,100*	796.08	*9826.00*	698.04
SNOE	*63,345*	0.89	-	-	-	-
LEGACY DATA	*6*	0.03	-	-	-	-
ALOUETTE			*26,410*	16.31	*60668.00*	37.26
CDAWEB			*2352*	626.61	*3805.00*	769.91
SAN MARCO					*1790*	0.04
Totals	***124,799***	**764.45**	***50,426***	**1487.35**	***122,837***	**1547.08**

Data are also being moved from NSSDC's traditional offline archive to a near line archive based on DLT and SDLT jukeboxes attached to unix and linux servers, respectively. Data are newly archived in Archive Information Packages (AIPs), which hold data files and companion attribute files and are media-independent and platform-independent. These are defined as per the AIP concept of the ISO/CCSDS Open Archival Information System reference model. Table 3 shows the volumes of data ingested to this portion of the archive for 2004-6; the total of data stored as AIPs has reached 6.08 TB.

Table 4. Space Physics Data FTP Accessible from NSSDC on December 31, 2006

SPACECRAFT	ftp://nssdcftp/spacecraft_data GB
ACE	16.17
CRRES	34.06
DE	186.64
HELIOS	1.16
IMAGE	260.99
IMP	34.40
ISEE	17.08
ISIS	170.48
MAGSAT	1.87
OMNI	14.57
PIONEER	2.00
RHESSI	1.98
SAMPEX	57.39
ULYSSES	228.52
VOYAGER	28.27
WIND	23.80
Others*	4.33
TOTAL	**1083.72**

* Others total includes spacecraft with <1Gb data each, including AE-C,-D,-E, AEROS, Alouette, ARCAD, Explorers 22 & 31, Galileo, Genesis, Hinotori, Mariner 10, OGO, Prognoz 6,7, & 9, San Marco, SNOE, and additional Soviet spacecraft; SWAS not included as per 2005 MOU with LAMBDA.

About half of the data stored in AIPs are made network-accessible from NSSDC for the convenience of some portions of the user community. Table 4 lists by project NSSDC's network-accessible Space Physics data as of 31 December 2006.

Table 5. Counts of Volumes* at NSSDC Archive on Dec 31, 2006

	Astro Physics	Space Physics	Planetary Science	Earth Science	TOTAL
4-mm Tape	330	92	3	97	522
8-mm Tape	189	503	74		766
9-Track Tape	529	2,658	3,720	17,290	24,197
3480 Cartridges	491	1,938	1,126	2,707	6,262
DLT	65	31	2		98
CD-ROM	47	590	1,095	12	1,744
CD-WO	465	20,514	4,113	42	25,134
DVD			14		14
DVD Write Once	507	735	167		1,409
12 Worm		4			4
M-O Disk	274				274
TOTAL	**2,897**	**27,065**	**10,314**	**20,148**	**60,424**

* Backup volumes and those not attributable to these 4 disciplines are not included.

Table 5 characterizes the digital media types managed at NSSDC, not including backup copies. It should be noted that most volumes are replicable and have one backup volume. For the commercially pressed CDs, "CD-ROMs," NSSDC typically holds several extra copies. If more are needed, a CD duplicator is available.

Table 6. Photographic Data Products at NSSDC by Discipline

Discipline	Micro film	Micro fiche	Film (feet)	Film (Frames)	Reels	Slides
Astrophysics	6,020	18,524	100	63,459		121
Earth Science	1,430		4,200	236,066		
Planetary Science	3,294	6,345	143,214	392,122	259	25
Space Physics	20,195	14,669	4,640	4,379		41,509
Communications	183					
Other	162					
Totals	**31,284**	**39,538**	**152,154**	**696,026**	**259**	**41,555**

Table 6 lists NSSDC's photographic archive holdings by disciplines and by form factor. This has been unchanged for the last few years, as new data have all arrived in digital form. NSSDC has digitized some of its film products, concentrating on those requested most often, though it is so far a level of effort task spurred by occasional student help.

4.1 Data Inflow

Tables 7 and 8 characterize the inflow of digital data to NSSDC during 2006.

Table 7. Media Arriving at NSSDC During 2006*

	Astro Physics	Space Physics	Planetary Science	Total
4-mm Tape	73	0	0	73
DLT	40	0	0	40
CD-ROMS	0	154	5	159
CD-WO	0	374	495	869
DVD	120	195	19	334
3480s	0	0	0	0
Totals	**233**	**723**	**519**	**1475**

* Ephemeris and Other data not included.

Table 7 characterizes the in-flowing media types by discipline. As in recent years, CD-WO media (CD-Write Once as opposed to pressed CD-ROMs) clearly dominate input media type overall.

Table 8. Data Arriving at NSSDC During 2006

Astrophysics	GB	Planetary	GB	Space Physics	GB
FUSE	298.55	Deep Impact	12.79	ACE	5.93
GALEX	73.00	Deep Space 1	7.08	Alouette	37.06
HEASARC	9,500.00	Galileo Orbiter	0.00	CDAWeb	759.46
		ISEE 3	1.16	Cluster II	27.50
		IUE	1.45	FAST	268.91
		Mars Global Surveyor	265.67	Genesis	0.00
		2001 Mars Odyssey	53.64	Geotail	120.40
		McDonald Obs Comet	0.00	IMAGE	15.28
		Stardust	3.03	ISEE	0.00
		Vega 1	0.19	ISIS	23.19
				Polar	373.45
				RHESSI	684.03
				San Marco	0.04
				Ulysses	2.54
				Wind	0.24
Totals	**9,871.55**		**345.01**		**2,318.02**
		GRAND TOTAL	**12,534.58**		

Table 8 shows by project the data volumes that NSSDC received in 2006, approximately 12.5 TB of new data via a combination of electronic deliveries and on media. Dominating the counts are data from the HEASARC and RHESSI, plus CDAWeb data from the SPDF Active Archive. During 2006 NSSDC received more than 1.5 TB of data electronically, in addition to the data arriving on the media reported above in Table 7.

4.2 Data Outflow

Much of the data outflow discussed in NSSDC Annual Reports before 2003 was activity within SPDF, which maintains the Active Archive for NASA Space Physics missions. Recognizing this distinction, the activities of CDAWeb, etc, now are covered in SPDF reports elsewhere.

NSSDC provides user access to its data holdings with network-accessible data for chosen datasets and, in addition, through a user support infrastructure for the mailing of offline digital and non-digital data volumes. Most electronic interfaces are accessible through NSSDC's WWW home page and include special WWW-based interfaces to specific datasets or groups thereof and ftp pathways to a range of data files maintained permanently on NSSDC disks. The CDF-formatted data underlying CDAWeb are at ftp://cdaweb.gsfc.nasa.gov/ while all other data are at ftp://nssdcftp.gsfc.nasa.gov/ . Because NSSDC and SPDF have been and are still co-located since the latter's inception, nssdcftp is and remains a shared resource.

Table 9. 2006 Access Statistics to Geophysical Models & Services

GEOPHYSICAL MODELS	Accesses*
Corrected Geomagnetic Coordinates, and Related Parameters	15,560
International Reference Ionosphere Model (IRI)	63,069
MSIS Atmospheric Model	54,610
International Geomagnetic Reference Field Model (IGRF)	7,008
User-Oriented Service Based on External (T_89,T_96) and Internal (IGRF) Geomagnetic Field Models	2,450
Trapped Particles Model	3,424
Total, Geophysical Models and Ephemerides	**146,121**

* These counts are software executions, yielding results for user-specified criteria. They do not include ftp-downloads of corresponding software.

Table 9 reports statistics on the usage of NSSDC's executable geophysical models services. The models service lets users specify a model, a spatial point of interest, and any other parameters on which the model depends, and have the model parameters computed at the point or along a profile through the point of interest. Table 9 shows that there were over 146,000 such computations done by NSSDC customers in 2006.

Table 10. Number of Files Downloaded via FTP

	2002	2003	2004	2005	2006
Photo Gallery	1,516,658	1,633,333	1,277,133	1,190,555	936,039
Spacecraft Data	746,008	572,791	468,580	1,154,900	802,438
Geophysical Models	95,957	110,191	92,063	96,901	116,081
All others on nssdcftp	179,277	438,834	721,474	1,166,818	882,307
Total	**2,537,900**	**2,755,149**	**2,559,250**	**3,609,174**	**2,736,865**

A great many NSSDC datasets and other information services are held permanently on disk for ftp access. The reader is invited to review all these services from the ftp link on the NSSDC home page. Table 10 gives the annual counts of files downloaded, both overall and for selected directories with high activity. The Photo Gallery is of high public interest and once again received the greatest number of accesses. Downloading by researchers via ftp of data files from the spacecraft_data subdirectory had increased greatly in 2005 and for 2006 sustained much of this increase, showing the high interest in and great value of these services provided by NSSDC and SPDF on this shared resource. Ftp downloads related to modeling software is also included.

WWW access statistics are frequently misleading, insofar as they usually individually count the many files (buttons, etc.) that make up a page. Nevertheless, WWW accesses are indicative of the continuing use of the WWW-provided NSSDC services. In 2006 there was an average of 9.8 million monthly error-free accesses to NSSDC's web pages, slightly lower than 11.4M for 2005. Total hits averaged monthly also decreased to 11.0M for 2006, compared to 13.1M for 2005.

Table 11. NSSDC User Community (Offline Requests Only) for CY 2006

Affiliation Category	Total Requests	Percent
No Affiliation [General Public]	63	34.6
Non_US	32	17.6
US Academic Institutions	26	14.3
US Private Industry	17	9.3
NASA/GSFC	28	15.4
NASA Centers, Excluding GSFC	12	6.6
Other Government Agencies	2	1.1
Miscellaneous	2	1.1
Total	**182**	**100**

NSSDC encourages electronic dissemination to all users whenever possible. The dominant mode of dissemination of data to the research communities is via the internet, so that offline data dissemination has gradually decreased. Still, in 2006 NSSDC responded to 182 (compared to 223 in 2006) distinct requests for "traditional" products. Table 11 characterizes that user community. To a very large extent it is the U.S. and international general public, the education enterprise, publishers, etc. and their desire for NASA imagery that have accounted for most of NSSDC's offline request activity.

Table 12. Number of Requests for Offline Data by Discipline

DISCIPLINE	Data Set Requests 1968 - 2006	Data Set Requests 2006
Astrophysics	11427	33
Earth Science	7150	7
Planetary Science	47402	118
Space & Solar Physics	9127	26
Ephemeris	96	5
Other	43	0
TOTAL	**75245**	**189**

Table 12 gives the counts of requests for offline datasets from various disciplines in 2006, and as integrated over NSSDC's history. Note particularly the dominance of planetary data over both time scales. This is largely associated with lunar and planetary image data that are widely requested by the general public. The number of requests is slightly larger than in Table 11 because some requests are for data/items related to more than one discipline, so are double counted.

Tables 13a,b,c. NSSDC Offline Data Dissemination Statistics 2002-2006

Table 13a

Offline	2002	2003	2004	2005	2006
DVDs	---	46	10	11	26
CDs	1741	1813	793	689	846
Films	1114	215	221	450	97
Videotapes	211	112	105	41	19
Magnetic tapes	5	0	0	0	6
TOTAL Items Sent	**3071**	**2186**	**1129**	**1191**	**994**

Table 13a (above) shows the most recent 5-year history of NSSDC's offline data request activity by media type. The dominant mode of offline digital data dissemination continues to be by CD. The downward trend in total media disseminated is presumably because more members of the general public are able to access NSSDC's data electronically. Beginning in 2005 NSSDC began tracking data requests by types of "items" within four broader categories defined in the Notes below. Table 13b shows the distribution of data served within these categories for 2005 and 2006 and Table 13c the distribution of the items by discipline for the same years. Both Tables 13b and 13c allow us to show the substantial distribution of data via ftp, even though these statistics include only ftp data that was posted in response to a request and not already posted.

Table 13 b

ITEMS	2005	2006
DISCs	700	872
PRINTED	531	534
OTHER	265	119
FTP	2585	14318
TOTAL	**4081**	**15843**

Table 13c

DISCIPLINE	2005	2006
Astrophysics	1237	4395
Planetary	1928	3401
Space Physics	660	8040
Other	256	7
TOTAL	**4081**	**15846**

NOTES:
DISCs include CDs & DVDs
PRINTED materials include Photos, Posters, Maps, Documents
OTHER media include Microfilm, Microfiche, Tapes, Videos
FTP include Data, Documents, & Photos posted for FTP download, not files already posted

5. ADDITIONAL NSSDC SERVICES

In addition to its archive of scientific data and the variety of data interfaces characterized in the preceding sections, NSSDC offers a number of additional services, which are described below.

5.1 NSSDC Information Management System

The NSSDC Information Management System (NIMS) encompasses most of the separate databases that NSSDC has used to track data and information through the years. The NSSDC has a long term goal of incorporating its off-line data inventory system into NIMS, a major effort already begun.

Table 14. NIMS/JEDS Database Statistics for CY 2006

Subpartition	Number of Records as of 12/31/06	Number Added in 2006
Spacecraft	6,225	83
Experiment	5,307	73
Dataset	5,125	35
Totals	**16,657**	**191**

Number of spacecraft with experiment records - 1,061
Number of experiments with datasets at NSSDC - 1,552
Additional datasets associated only with spacecraft, not experiments - 629
Additional datasets that are not associated with spacecraft/experiment - 81

NIMS identifies virtually all launched spacecraft, the experiments carried by many of these spacecraft, and datasets from these spacecraft primarily as archived at NSSDC. This portion of the database is the source of information for many of NSSDC's WWW information pages. The NSSDC Master Catalog (NMC) dynamically generates WWW pages so that the latest information is presented to the user. A number of discipline and project pages are based on information derived from NIMS or utilize the NMC to generate such information.

5.2 NASA/Science Office of Standards and Technology (NOST) at NSSDC

NOST's mission is to facilitate the recognition and use of standards to reduce cost/benefit ratios in the exchange and management of scientific data among NASA entities and the scientific communities they serve. NOST's Web Home Page is at http://ssdoo.gsfc.nasa.gov/nost/ . The NOST strategy is to play a coordinating role in helping the science disciplines identify new standards requirements. NOST participates in partnerships with them, other agencies, and industry on facilitating the adoption of leading-edge technologies with national or international visibility that can be tailored to meet NASA science information management and exchange requirements, and it assists in the process of moving these technologies toward standards with commercial support.

NOST operates NASA's highest level Control Authority office in accordance with the applicable Consultative Committee for Space Data Systems (CCSDS) and ISO standards to formally

archive data descriptions for interchange and long term preservation. NOST also participated in the development of draft CCSDS/ISO standards applicable to multi-discipline and sub-discipline information interchange. The WWW is the ideal forum for the worldwide standards work. The reader is referred to http://www.ccsds.org/ for specifics.

5.3 SPASE

Our effort continues as a participant in the development of the Space Physics Archive Search & Exchange (SPASE), the dictionary which will be the common language among space physics archives as we move into the age of VOs. Version 1.1.0 of SPASE was released on August 31, 2006. More information can be found at http://www.spase-group.org/ which also has a link from NSSDC through its VO Portal.

5.4 Virtual Observatories (VOs)

As the designated permanent archive for the Office of Space Science (OSS), with over 30 years experience in managing and preserving digital information comprising thousands of datasets, NSSDC is acutely aware of the need to acquire and preserve data and adequate documentation to ensure they are independently understandable and usable for current and future researchers. This remains our primary mission. But in this era of Virtual Observatory concepts for more seamless access to data, NSSDC must also play a larger role, especially for data not available from Active Archives. NSSDC will expend considerable effort becoming part of the Virtual Observatories.

Glossary

ACE	Advanced Composition Explorer
ADC	Astronomical Data Center
AE	Atmospheric Explorer
AEROS	AERONomy Satellite
AIP	Archive Information Package
ARCAD	Arc Aurorale et Densite
CANOPUS	Canadian Auroral Network for the OPEN Program Unified Study
CCSDS	Consultative Committee for Space Data Systems
CD-ROM	Compact Disk-Read Only Memory
CD-WO	Compact Disk-Write Once
CDAW	Coordinated Data Analysis Workshop
CDF	Common Data Format
COBE	Cosmic Background Explorer
CRRES	Chemical Release and Radiation Effects Satellite
DARN	Dual Auroral Radar Network
DE	Dynamics Explorer
DLT	Digital Linear Tape
DTD	Data Type Description
DVD	Digital Versatile Disk (originally, V = video)
DVD-WO	Digital Versatile Disk-Write Once
FAST	Fast Auroral SnapshoT
FTP	File Transfer Protocol
GB	Gigabyte
GOES	Geostationary Observational Environmental Satellite
GSFC	Goddard Space Flight Center
IDA	Interactive Data Archive
IMAGE	Imager for Magnetopause-to-Aurora Global Exploration
IMP	Interplanetary Monitoring Platform
ISEE	International Sun-Earth Explorer
ISIS	International Satellite for Ionosphere Studies
ISO	International Organization for Standardization
ISTP	International Solar-Terrestrial Physics
JEDS	Java Experiments, Datasets, Spacecraft
JRAND	Java Request and Name Directory
KP	Key Parameters
LANL	Los Alamos National Laboratory
MAGSAT	MAGnetic field SATellite
M-O	Magneto-optic
MSIS	Mass Spectrometer and Incoherent Scatter
NASA	National Aeronautics and Space Administration
NDADS	NSSDC Data Archive and Distribution System
NEAR	Near Earth Asteroid Rendezvous
NIMS	NSSDC Information Management System
NMC	NSSDC Master Catalog
NOST	NASA/Science Office of Standards and Technology
NSSDC	National Space Science Data Center
NVO	National Virtual Observatory
OAIS	Open Archival Information System

OMNI	Interplanetary Medium Data (not an acronym)
OSO	Orbiting Solar Observatory
OSS	Office of Space Science
RAID	Redundant Array of Independent Disks (or I = “Inexpensive”)
SAMPEX	Solar Anomalous and Magnetospheric Particle Explorer
SPASE	Space Physics Archive Search & Exchange
SEC	Sun Earth Connection
SECAA	Sun Earth Connection Active Archive
SECEF	Sun Earth Connection Education Forum
SNOE	Student Nitrogen Oxide Explorer
SOHO	Solar and Heliospheric Observatory
SSC	Satellite Situation Center
SWAS	Submillimeter Wave Astronomy Satellite
TB	Terabyte
TRF	Technical Reference File
WORM	Write-Once, Read-Many
WWW	World Wide Web
XDF	eXtensible Data Format
XML	eXtensible Markup Language