

NSSDC WDC-A-R&S 93-27

NASA SPACE AND EARTH SCIENCE DATA ON CD-ROM

August 1993

Version 2.0

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Hughes STX Corporation
A subsidiary of Hughes Aircraft Corporation

National Space Science Data Center (NSSDC)
World Data Center-A for Rockets and Satellites (WDC-A-R&S)
National Aeronautics and Space Administration
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Greenbelt, Maryland 20771



Contents

Foreword	v
Data Sets from the NSSDC	1
Einstein Observatory CD-ROM	1
Galileo Cruise Imaging on CD-ROM.....	2
International Halley Watch.....	3
IRAS Sky Survey Atlas	4
Infrared Thermal Mapper (IRTM).....	4
Magellan (MIDR).....	4
Magellan (ARCDRs)	6
Magellan (GxDRs)	7
Mars Digital Image Map (MDIM).....	8
Outer Planets Fields & Particles Data.....	9
Pre-Magellan.....	9
Selected Astronomical Catalogs, Volume I.....	10
TOMS Gridded Ozone Data	11
TOMS Ozone Image Data.....	11
TOMS Update	12
Viking Orbiter Images of Mars	13
Voyager Image.....	14
Hardware Information	15
Software Information	17
Ordering from the NSSDC	19
CD-ROM Order Form	21
Charge and Service Policy	23
Data Sets Available from Other Locations	25



Foreword

The National Space Science Data Center (NSSDC) is very interested in facilitating the widest possible use of the scientific data acquired through the National Aeronautics and Space Administration (NASA) spaceflight missions. Therefore, we have participated with projects and data management elements throughout the NASA science environment in the creation, archiving, and dissemination of data using Compact Disk-Read Only Memory (CD-ROM). This CD-ROM technology has the potential to enable the dissemination of very large data volumes at very low prices to a great many researchers, students and their teachers, and others. This catalog identifies and describes the scientific CD-ROMs now available from NSSDC.

Joseph H. King
Head, NSSDC
August 1993

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Data Sets from the NSSDC

Einstein Observatory CD-ROMs

The Einstein Observatory (EO) was a satellite-based imaging X-ray telescope with sensitivity in the energy band 0.2-3.5 keV; it operated from November 1978 to April 1981.

The Einstein Observatory Database of HRI X-ray Images (Image Data)

This two CD-ROM set contains data from the 870 images observed by the High Resolution Imager (HRI) on the Einstein Observatory. These image data contain the number of photons detected in each pixel (without any smoothing or background subtraction) in FITS format. Relevant analysis software, auxiliary data files, and documentation are included on the discs.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Einstein Data Center
Smithsonian Astrophysics Observatory
60 Garden Street
Cambridge, MA 02138
(617) 495-7169
EDPO@CFA.HARVARD.EDU

NSSDC ID 78-103A-02F
Quantity 2
Cost \$26.00+ \$9.00 (Software) + \$2.50 (USA)
or \$10.00 (Overseas) Shipping/Handling
Software FITS Table Browser (DOS), or NIH
IMAGE 1.44 for EO with FITS reader
(Mac)

The Einstein Observatory Database of HRI Images in Event List Format (Binary Data)

These CD-ROMs contain more detailed information on the HRI image data, such as X-ray arrival time and full-resolution HRI pixel position, for each X-ray detected by the HRI and included in the HRI images in the CD-ROM set above. The data conform to the n-dimensional binary table extension (BINTABLE) to FITS that has been adopted by the US ROSAT Data Center. Relevant display software, auxiliary data files, and documentation are included on the discs.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Einstein Data Center
Smithsonian Astrophysics Observatory

60 Garden Street
Cambridge, MA 02138
(617) 495-7169
EDPO@CFA.HARVARD.EDU

NSSDC ID 78-103A-02G
Quantity 2
Cost \$26.00 + \$9.00 (Software) + \$2.50 (USA)
or \$10.00 (Overseas) Shipping/Handling
Software FITS Table Browser (DOS), or NIH
IMAGE 1.44 for EO with FITS reader
(Mac), and FITSIO package.

The Einstein Observatory Catalog of IPC X-ray Sources (Image Data)

The three CD-ROMs contains 3,935 images observed by the Imaging Proportional Counter (IPC) on the Einstein Observatory. The data files conform to the FITS format for both images and tabular data. Relevant display software, auxiliary data files, and documentation are included on the discs.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Einstein Data Center
Smithsonian Astrophysics Observatory
60 Garden Street
Cambridge, MA 02138
(617) 495-7169
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NSSDC ID 78-103A-04E
Quantity 3
Cost \$32.00 + \$9.00 (Software) + \$2.50 (USA)
or \$10.00 (Overseas) Shipping/Handling
Software FITS Table Browser (DOS), or NIH
IMAGE 1.44 for EO with FITS reader
(Mac)

The Einstein Observatory Database of IPC X-ray Images in Event List Format (Binary Data)

This set of four CD-ROMS contains more detailed information, such as X-ray arrival time, photon pulse height bin, and full-resolution IPC pixel position, for each photon detected by the IPC and included in the IPC images in the CD-ROM set above. The data conform to the n-dimensional binary table extension (BINTABLE) to FITS that has been adopted by the US ROSAT Data Center. Relevant display software, auxiliary data files, and documentation are included on the discs.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Einstein Data Center
Smithsonian Astrophysics Observatory
60 Garden Street
Cambridge, MA 02138
(617) 495-7169
EDPO@CFA.HARVARD.EDU

NSSDC ID 78-103A-04F
Quantity 4
Cost \$38.00 + \$9.00 (Software) + \$2.50 (USA) or \$10.00 (Overseas) Shipping/Handling
Software FITS Table Browser (DOS), or NIH IMAGE 1.44 for EO with FITS reader (Mac), and FITSIO package.

The Einstein Observatory IPC Slew Survey (Binary Data)

The IPC Slew Survey was constructed wholly from data acquired when the EO was slewing between one pointed observation and the next. The Slew Survey covers \approx 80% of the sky. This CD-ROM contains source lists, 1303 sky bin photon event data, auxiliary data, relevant analysis software and documentation. The sky bin data files conform to the n-dimensional table extension (BINTABLE) to the FITS format.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Einstein Data Center
Smithsonian Astrophysics Observatory
60 Garden Street
Cambridge, MA 02138
(617) 495-7169
EDPO@CFA.HARVARD.EDU

NSSDC ID 78-103A-04G
Quantity 1
Cost \$20.00 + \$9.00 (Software) + \$2.50 (USA) or \$10.00 (Overseas) Shipping/Handling
Software FITS Table Browser (DOS), or FITSIO package.

The Einstein Observatory SSS, MPC, and FPCS Products (Binary Data)

This CD-ROM contains astronomical data products derived from observations made with the EO Solid State Spectrometer (SSS), the Monitor Proportional Counter (MPC) and the Focal Plan Crystal Spectrometer (FPCS). The SSS and MPC data files are summary spectra and light curves, and the FPCS files contain lists of every photon detected during each observation and summary spectra. The data files conform to the n-dimensional table (BINTABLE)

extension to the FITS format. Documentation on the data files is included on the disc.

Contact: NSSDC Coordinated Request and User Support Office

Originator: High Energy Astrophysics Archive Research Center
NASA Goddard Space Flight Center
Code 668
Greenbelt, MD 20771
(301) 286-4682
HEASARC@HEASRC.GSFC.
NASA.GOV

NSSDC ID 78-103A-05C/03D/01C
Quantity 1
Cost \$20.00 + \$9.00 (Software) + \$2.50 (USA) or \$10.00 (Overseas) Shipping/Handling
Software FITS Table Browser (DOS) and FITSIO package.

NOTE

- The cost of all the Einstein Observatory subsets (all 13 discs) is \$92.00.
- The NIH IMAGE 1.44 for EO with FITS reader is available from the NSSDC.
- The FITSIO software package is not available from the NSSDC but can be obtained via anonymous FTP from tetra.gsfc.nasa.gov.

Galileo Cruise Imaging on CD-ROM

Images of Venus, Earth and the Moon taken from the Galileo spacecraft is now available on 5 CD-ROMs.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Planetary Data System
NASA/Jet Propulsion Laboratory
Mail Stop 525-3610
4800 Oak Grove Drive
Pasadena, CA 91109
(818) 306-6130
PDS_OPERATOR@JPLPDS.JPL.
NASA.GOV

NSSDC ID 89-084B-10C
Quantity 5
Cost \$44.00 + \$9.00 (software) + \$2.50 (U.S.A.) or \$10.00 (overseas) shipping/handling
Software IMDISP (DOS) or Image4PDS (Mac)

NOTE

- The total cost of the set is \$44.00. You may request any subset or a combination of discs at a cost of \$20.00 for the first and \$6.00 for each additional.
- Discs for this set span from vol. 2 to vol. 6.

INFORMATION

This collection of images consists of all images acquired by Galileo since its launch. Included are images of Verus, the Moon, and the Earth taken during Galileo's cruise phase. These images are available only on CD-ROMs. The images are in what is called raw experiment data record, or REDR, format. The original telemetry data has been processed into raster-formatted files. Multiple versions of some files, derived from separate downlinks or playbacks, have been merged to produce a file containing the best data. Each disc contains roughly 800 images. Each image is stored as a VICAR file with an accompanying, detached PDS label for each image. Also included are documentation files which contain a description of the organization and contents of each disc and the definition of the labels. Each CD-ROM has been formatted according to the ISO 9660 level 1 Interchange Standard and file attributes are specified by Extended Attribute Records (XARs). Thus, they can be read by a variety of computer systems (e.g., IBM, PC, Macintosh, Sun, and VAX).

RELATED DOCUMENTS

- (1) Galileo Fact Sheet (B41979-000A).
- (2) Galileo Software Interface Specification (SIS) document for raw experiment data records from the solid-state imaging experiment (B41977-000A).
- (3) Galileo SIS document for SSI REDR data on CD-ROM (B41978-000A).

International Halley Watch

Comet Giacobini-Zinner data from the International Halley Watch. One test disc was published in compressed Flexible Image Transport System (FITS) and Planetary Data System (PDS) format along with ASCII text. These data are now included on volume 24 of the International Halley Watch CD-ROM set.

Comet Halley data from the International Halley Watch. Twenty-four discs contain data in compressed Flexible Image Transport System (FITS) table format and Planetary Data System (PDS) format along with ASCII text.

Contact: NSSDC Coordinated Request and
User Support Office

Originator: Dr. Edwin Grayzeck
Astronomy Program

University of Maryland
College Park, MD
(301) 405-1539
GRAYZECK@ASTRO.UMD.EDU

NSSDC ID XD-B3A
Quantity 24
Cost \$158.00 + \$9.00 (software) + \$2.50 (U.S.A.)
or \$10.00 (overseas) shipping/handling
Software IMDISP (DOS) or Image4PDS (Mac)

NOTE

- The total cost of the set is \$158.00. You may request any subset or a combination of discs at a cost of \$20.00 for the first and \$6.00 for each additional.

INFORMATION

This set consists of the data gathered as a result of the International Halley Watch (IHW) effort. The data are available only on CD-ROM. The first 24 volumes make up the entire remote sensing (ground-based, airborne, and Earth-orbiting) component of the effort. Volumes 25 and 26 (due by the end of 1993) will comprise the in situ observations made by the various spacecraft sent to intercept comets Halley and Giacobini-Zinner. The various IHW disciplines (astrometry, infrared, large-scale phenomena, near-nucleus studies, photometry/polarimetry, radio, spectroscopy/spectrophotometry, amateur observations, and meteor studies) are all represented on the discs.

The data are provided with FITS headers and PDS labels, both separate from the data files. The CD-ROMs can be read on several different platforms, including DEC VAX or MicroVAX under VMS, SUN, Macintosh, and IBM PC computers. The imaging data on the CD-ROMs can be displayed by a number of different utilities (notably IMDISP for IBM PC compatibles and Image4PDS or CD Browser for Macintoshes, all available separately from NSSDC).

SUBSET INFORMATION

- Volumes 1-18 hold wide-field images archived by the Large-Scale Phenomena discipline.
- Volumes 19-23 hold data from Astronomy, Infrared Studies, Large-Scale Phenomena (subsample images), Meteor Studies, Near-Nucleus Studies, Photometry and Polarimetry, Radio Studies, Spectroscopy, and Spectrophotometry, and Amateur Observation.
- Volume 24 holds data from "Trial Run" targets P/Crommelin and P/Giacobini-Zinner.
- Ideal sample disc for K-12 educators is Volume 18. For others useful sample disc is Volume 20.

RELATED DOCUMENTS

- (1) The International Halley Watch Atlas of Large-Scale Phenomena (B42171-000A).

(2) The Comet Halley Archive Summary Volume (B42170-000A).

(818) 306-6130
PDS_OPERATOR@JPLPDS.JPL.
NASA.GOV

IRAS Sky Survey Atlas

InfraRed Astronomical Satellite (IRAS) Sky Survey Atlas (ISSA) from the Infrared Processing and Analysis Center (IPAC). ISSA is comprised of coded and three individual hours confirmation (HCON) 12.5 x 12.5 degree images, centered every ten degrees, with 1.5 minute pixels. Images are in Flexible Image Transport System (FITS) format. Initial release in January 1992 contains four discs covering absolute ecliptic latitudes greater than 50 degrees. Remaining images covering the lower latitude sky will be released later.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Dr. Sherry Wheelock
Infrared Processing and Analysis Center
California Institute of Technology
Mail Code 100-22
Pasadena, CA 91125
(818) 584-2902
WHEELLOCK@IPAC.CALTECH.EDU

NSSDC ID 83-004A-01m
Quantity 4
Cost \$38.00 + \$9.00 (software) + \$2.50 (U.S.A.)
or \$10.00 (overseas) shipping/handling
Software FITS Table Browser (DOS) or Browser (Mac)

NOTE

- Sorry, we cannot break up the set and provide only one disc.
- The disks for the lower latitudes have not yet been released.

Infrared Thermal Mapper (IRTM)*

Viking Orbiter Infrared Thermal Mapper data from the Planetary Data System. One disc (non-imaging) was available in VAX/VMS and Planetary Data System (PDS) format.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Planetary Data System
NASA/Jet Propulsion Laboratory
Mail Stop 525-3610
4800 Oak Grove Drive
Pasadena, CA 91109

NSSDC ID 75-075A-02C/083A-02C
Quantity 1

NOTE

- * This disc is being remade by PDS. Please check back in six months.

INFORMATION

This data set, derived from the Viking Orbiter Infrared Thermal Mapper (IRTM) data set, has been binned in both space and time. It consists of two complementary portions, water ice cloud observations and surface observations. An algorithm for detecting clouds was employed, based upon the contrasts among the brightness temperatures derived from the 7 micrometer (T7), 9 micrometer (T9), 11 micrometer (T11), and 20 micrometer (T20) IRTM channels. Water ice clouds were identified by their characteristic thermal signature (negative T11-T20 and positive T7-T20 or T9-T20 brightness temperature contrasts).

The IRTM observations in which clouds were detected were binned at 2 x 2 degree spatial (latitude, longitude) resolution for every 10 degrees in aerocentric solar longitude (Ls). Each Ls bin is further divided into 3 Mars Cloud And Surface Observation Data at PDS Derived From The Viking Orbiter Infrared Thermal Mapper daytime hour bins each spanning 4 hours. For the cloud observations, the data set catalogs differences in brightness temperature sensed by the various IRTM channels, Lambert and phase-corrected albedos, the number of cloud observations in each bin, and the standard deviations of the measurements in each bin (normalized by the number of points in the bin). The surface observations were also binned at 2 x 2 degree spatial (latitude, longitude) resolution for every 10 degrees in Ls. Each Ls bin is further divided into 6 hour bins each spanning 4 hours.

The data set catalogs differences in brightness temperature sensed by the various IRTM channels, Lambert and phase-corrected albedos, the number of observations in each bin, and the standard deviations for the measurements in each bin (normalized by the number of points in the bin). Detailed information about this dataset is available from the Planetary Data System catalog.

Magellan (MIDR)

Venus data from the Magellan Project and the Planetary Data System (PDS). Mosaic Image Data Records are available on 80 discs in VICAR2 and PDS format.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Planetary Data System
NASA/Jet Propulsion Laboratory
Mail Stop 525-3610
4800 Oak Grove Drive
Pasadena, CA 91109
(818) 306-6130
PDS_OPERATOR@JPLPDS.JPL.
NASA.GOV

<u>NSSDC ID</u>	<u>NAME</u>	<u>QUANTITY</u>
89-033B-01F	MIDR full resolution (F-MIDR)	53 ⁽¹⁾
89-033B-01C	MIDR compressed once (C1-MIDR)	25 ⁽¹⁾
89-033B-01D	MIDR compressed twice (C2-MIDR)	09 ⁽¹⁾
89-033B-01E	MIDR compressed thrice (C3-MIDR)	02 ⁽¹⁾
Quantity	80 ⁽²⁾	
Cost	\$494 + \$9.00 (software) + \$2.50 (U.S.A.) or \$10.00 (overseas) shipping/handling	
Software	IMDISP (DOS) or Image4PDS (Mac)	

NOTE

- The total cost of the set is \$494.00. You may request any subset or a combination of discs at a cost of \$20.00 for the first and \$6.00 for each additional.
- (1) Some discs have full resolution, compressed once, and compressed twice images, but the total number of discs available is 80.
- (2) Disc 67 contains F-MIDR images and errata on the previous 66 discs.

INFORMATION

(89-033B-01F) Full resolution F-MIDR

Full-resolution Mosaic Image Data Records (F-MIDR) consist of SAR mosaics generated from F-BIDRs (i.e., with 75 meters/pixel). Each F-MIDR is in a sinusoidal equal area projection and has an origin at 0 degrees latitude, with the central meridian defined as the longitude bisecting the mosaic.

Each F-MIDR has 7,168 lines (aligned with latitudes) and 8,192 samples, arranged as 56 1,024 x 1,024 files. F-MIDRs have been generated for key terrains on the planet, regions where high spatial resolution is required for analysis. The 1,024 x 1,024 files have a VICAR2 format with embedded VICAR2 labels.

The data have been placed on CD-ROMs with documentation, detached Planetary Data System labels, and summary tabular information. Over the course of the first mapping cycle, approximately 220 F-MIDRs will have been generated, covering about 15% of Venus and constituting about 12.3 Gbytes of data.

F-MIDRs also exist as photoproducts that have had a linear contrast enhancement applied. A single enhancement has been applied to all F-MIDR photoproducts. Photoproducts are generated from the 7K x 8K assemblage of files, so there is one photoproduct per F-MIDR. Finally, in some cases a cross track seam removal process has been applied. See the CONTENTS.TAB file on the relevant MIDR CD-ROM volume for information on which MIDRs have been seam-corrected.

The following CD-ROM volumes contain F-MIDRs: 1, 3-11, 13, 15, 17-18, 23-29, 32, 35, 36, 38, 39, 42, 45, 46, 49, 50, 52, 53, 55, 56, 58, 59, 62-68, 70-77, 80.

(89-033B-01C) Compressed once C1-MIDR

Compressed Once Mosaic Image Data Records (C1-MIDRs) consist of mosaics generated from compressed basic image data records (C-BIDRs).

C1-BIDRs have been generated by computing 3 x 3 pixel arithmetic moving averages from the F-BIDRs. Each C1-MIDR is in a sinusoidal equal area projection and has an origin at 0 degrees latitude, with the central meridian defined as the longitude bisecting the mosaic. Each C1-MIDR has 7K lines (aligned with latitudes) and 8K samples, arranged as 56 1K x 1K files. C1-MIDRs, with their 225 m pixel widths, are designed to cover the planet at reasonably high resolution and high signal to noise. Each C1-MIDR has been corrected for cross-track shading (i.e., for seams) by a feathering procedure. The 1K x 1K files have a VICAR2 format with embedded VICAR2 labels.

The data have been placed on CD-ROMs with documentation, detached Planetary Data System labels, and summary tabular information. Over the course of the first mapping cycle, 184 C1-MIDRs will be generated for a total volume of 10.3 Gbytes.

C1-MIDRs also exist as photoproducts that have had a linear contrast enhancement applied. Photoproducts are generated from the 7K x 8K assemblage of files, so there is one photoproduct per C1-MIDR. Finally, in some cases a cross track seam removal process has been applied. See the CONTENTS.TAB file on the relevant MIDR CD-ROM volume for information on which MIDRs have been seam-corrected.

The following CD-ROM volumes contain C1-MIDRs: 2, 12, 14, 16, 19, 20, 21, 22, 30, 31, 33, 34, 37, 40, 41, 43, 47, 48, 54, 57, 60, 61, 69, 78, 79.

(89-033B-01D) Compressed twice C2-MIDR

Compressed Twice Mosaicked Image Data Records (C2-MIDRs) consist of mosaics generated by computing 3 x 3

pixel arithmetic moving averages from the C1-MIDRs. Each C2-MIDR is in a sinusoidal equal area projection and has an origin at 0 degrees latitude with the central meridian defined as the longitude bisecting the mosaic.

Each C2-MIDR has 7,168 lines (aligned with latitudes) and 8,192 samples, arranged as 56 1,024 x 1,024 files on CD-ROM. C2-MIDRs, with their 675 m pixel widths, are designed to cover the planet at reasonably high resolution and high signal to noise. The 1,024 x 1,024 files have a VICAR2 format with embedded VICAR2 labels. The data have been placed on CD-ROMs with documentation, detached Planetary Data System labels, and summary tabular information. One C2-MIDR frame covers 45 degrees of latitude and longitude. Thirty-four C2-MIDRs were generated during the first mapping cycle.

C2-MIDRs also exist as photoproducts that have had a linear contrast enhancement applied. Photoproducts are generated from the 7K x 8K assemblage of files, so there is one photoproduct per C2-MIDR. Finally, in some cases a cross track seam removal process has been applied. See the CONTENTS.TAB file on the relevant MIDR CD-ROM volume for information on which MIDRs have been seam-corrected.

The following CD-ROM volumes contain C2-MIDRs: 30, 33, 34, 37, 43, 51, 54, 61, 69.

(89-033B-01E) Compressed thrice C3-MIDR

Compressed Thrice Mosaic Image Data Records (C3-MIDRs) consist of mosaics generated by computing 3 x 3 pixel arithmetic moving averages from the C2-MIDRs.

Each C3-MIDR is in a sinusoidal equal area projection and has an origin at 0 degrees latitude, with the central meridian defined as the longitude bisecting the mosaic. Each C1-MIDR has 7,168 lines (aligned with latitudes) and 8,192 samples, arranged as 56 1,024 x 1,024 files on CD-ROM. C3-MIDRs, with their 2.025 km pixel widths, are designed to cover the planet at reasonably high resolution and high signal to noise. The 1,024 x 1,024 files have a VICAR2 format, with embedded VICAR2 labels.

The data have been placed on CD-ROMs with documentation, detached Planetary Data System labels, and summary tabular information. One C3-MIDR frame covers 80 degrees in latitude and 120 degrees in longitude. No C3-MIDRs were generated during the first mapping cycle. C3-MIDRs also exist as photoproducts that have had a linear contrast enhancement applied.

Photoproducts are generated from the 7K x 8K assemblage of files, so there is one photoproduct per C3-MIDR. Finally, in some cases a cross track seam removal process has been applied. See the CONTENTS.TAB file on the

relevant MIDR CD-ROM volume for information on which MIDRs have been seam-corrected.

The following CD-ROM volumes contain C3-MIDRs: 69, 79.

Please refer to the F-BIDR (MGN-V-RDRS-5-BIDR-FULL-RES-V1.0) data set description for more details on radiometric and geometric processing of Magellan SAR data.

RELATED DOCUMENTS

- (1) Magellan Fact Sheet (B40119-000A).
- (2) Magellan Resources document (B40117-000A).
- (3) Software Interface Specification (SIS) document for mosaicked image data records (B39656-000A).

Magellan (ARCDRs)

The Altimetry and Radiometry Composite Data Records (ARCDRs). These data are available on 15 discs.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Planetary Data System
NASA/Jet Propulsion Laboratory
Mail Stop 525-3610
4800 Oak Grove Drive
Pasadena, CA 91109
(818) 306-6130
PDS_OPERATOR@JPLPDS.JPL.
NASA.GOV

NAASC ID 89-033B-01B
Quantity 15
Cost \$94.00 + \$9.00 (software) + \$2.50 (U.S.A.)
or \$10.00 (overseas) shipping/handling
Software IMDISP (DOS) or Image4PDS (Mac)

NOTE

The total cost of the set is \$94.00. You may request any subset or a combination of discs at a cost of \$20.00 for the first and \$6.00 for each additional.

INFORMATION

(89-033B-01B) ARCDRS

This data set contains along track estimates of elevation, Fresnel reflectivity, surface roughness, brightness temperature, and emissivity derived from Magellan altimeter and radiometer data.

Elevation is derived by fitting the altimeter echo from the fan beam antenna as a function of time to Hagfors' radar backscatter model templates. Elevation, surface Fresnel reflectivity, and surface RMS slopes are extracted simultaneously. Brightness temperature and emissivity are derived from the HGA antenna in its side-looking mode. Radar backscatter images from the HGA are used to correct Fresnel reflectivity measurements for the extent of diffuse as opposed to quasi-specular scatter.

For more information refer to Software Interface Specification Document (Peter G. Ford, 1989, Altimetry and Radiometry Composite Data Record, MIT-MGN-ARCDR SIS Version 2.2, 40 p.) that is included on ARCDR CD-ROMs. Times are in Temps Dynamique Baricentrique (TDB) units.

RELATED DOCUMENTS

- (1) Magellan Fact Sheet (B40119-000A).
- (2) The documentation for how to run the ARCDRLIST program (B40288-000A).
- (3) Software Interface Specification (SIS) document for the Magellan altimetric and radiometric composite data records (B40289-000A).
- (4) Explanation of the structure of the ARCDR CD-ROMs (B40290-000A).

Magellan (GxDRs)

The Global Data Records (GxDRs). This CD-ROM includes global topographic slope, emissivity, and reflectivity data, available on a single disc.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Planetary Data System
NASA/Jet Propulsion Laboratory
Mail Stop 525-3610
4800 Oak Grove Drive
Pasadena, CA 91109
(818) 306-6130
PDS_OPERATOR@JPLPDS.JPL.
NASA.GOV

NSSDC ID 89-033B-01G/H/I/J
Quantity 1
Cost \$20.00 + \$9.00 (software) + \$2.50 (U.S.A.) or \$10.00 (overseas) shipping/handling
Software IMDISP (DOS) or Image4PDS (Mac)

INFORMATION

(89-033B-01G) GxDRs

Global Emissivity Data Record (GEDR): The emissivity of a surface is defined as the thermal power emitted by that surface divided by the power emitted by a black body of the same size and at the same physical temperature. The polarization direction is horizontal (E-field tangential to surface), and the emissivity is not corrected for incidence angle or surface roughness or tilt. To make the GEDR images, Magellan radiometer data, in the form of readings of antenna noise temperature, are corrected for antenna sidelobe effects and for emission and absorption by the Venus atmosphere. The component reflected from the surface is modeled as a specular reflection with power reflection coefficient equal to (1 - emissivity). The location and planetary radius at the antenna boresight intercept point are derived from GTDR images, and the physical surface temperature is calculated using the adiabatic model of Kliore et al., 1985. The data are then filtered to remove low-frequency instrument calibration errors and re-sampled into sinusoidal, Mercator, and north and south polar stereographic projections at a resolution of about 5 x 5 kilometers per pixel.

Global Reflectivity Data Record (GREDR): The power reflection coefficients are derived by fitting altimeter echoes from the fan-beam altimetry antenna as a function of time to Hagfors' radar backscatter model templates. The values are then corrected for the presence of multiple echo peaks and further corrected for diffuse scattering using backscatter data obtained by the side-looking mode of the Magellan radar. The reflectivities are then filtered to remove low-frequency instrument calibration errors and re-sampled into sinusoidal, Mercator, and north and south polar stereographic projections at a resolution of about 5 x 5 kilometers per pixel.

Global Slope Data Record (GSDR): The surface meter-scale slopes are derived by fitting altimeter echoes from the fan-beam altimetry antenna as a function of time to Hagfors' radar backscatter model templates. The data are then re-sampled into sinusoidal, Mercator, and north and south polar stereographic projections at a resolution of about 5 x 5 kilometers per pixel.

Global Topographic Data Record (GTDR): The range to surface is derived by fitting altimeter echoes from the fan-beam altimetry antenna as a function of time to Hagfors' radar backscatter model templates. The ranges are subtracted from the spacecraft radial coordinate (derived from Doppler tracking), yielding measurements of planetary radius. The data are filtered to remove low-frequency errors in the in-plane elements of each spacecraft orbit and then re-sampled into sinusoidal, Mercator, and north and south polar stereographic projections at a resolution of about 5 x 5 kilometers per pixel. A fifth image contains estimates of the absolute accuracy of the radius values in each pixel of the sinusoidal projection. This is derived by taking the root mean square of (a) the statistical accuracy anticipated from the template fitting and (b) the systematic errors estimated

from the in-plane element filtration. Note that this is the absolute topographic accuracy—the relative errors are much smaller (about ten to 15 meters in relatively flat areas).

RELATED DOCUMENTS

- (1) Magellan Fact Sheet (B40119-000A).
- (2) Software Interface Specification (SIS) document for the Magellan altimetric and radiometric global data records (B40597-000A).
- (3) Explanation of the structure of the GxDR CD-ROMs (B40596-000A).

Mars Digital Image Map (MDIM)

Mosaicked Digital Image Map (MIDM) of the Martian surface taken by the Viking Orbiter spacecraft. This model was put together by the Planetary Data System (PDS) at the Jet Propulsion Laboratory (JPL), the Mars Observer project, and the U.S. Geological Survey (USGS). This CD-ROM set is not to be confused with the Viking Orbiter CD-ROM set released earlier. The Viking Orbiter CD-ROM contains raw Viking images only. The MIDM CD-ROMs are images compiled from the raw Viking images that were further processed to reduce radiometric and geometric distortions and to form geodetically controlled mosaicked images. The data are stored as digital maps at 1/256 degree/pixel resolution (231 meters) and 1/64 degree/pixel resolution (943 meters). Also included are air-brushed maps of the entire planet of Mars at 1/16 degree/pixel resolution (3.69 km).

Contact: NSSDC Coordinated Request and User Support Office

Originator: Dr. Eric Eliason
USGS Geological Division
2255 North Gemini Drive
Flagstaff, AZ 86001
(602) 556-7113
ASTROG::EELIASON

NSSDC ID 75-075A-01f/083A-01C
Quantity 13
Cost \$92.00 + \$2.50 (U.S.A.) or \$10.00 (overseas) shipping/handling
Software Software on CD-ROM or use IMDISP (DOS) or Image4PDS (Mac)

NOTE

- The cost of the set is \$92.00. You may request any subset or a combination of discs at a cost of \$20.00 for the first and \$6.00 for each additional.
- Volume 14 containing color images in GIF format will be available soon.

SUBSET INFORMATION

- The original subset consists of volumes 1-6.
- Volumes 8-13 form the new color subset.
- Volume 7 contains Mars DTM/DEM.

INFORMATION

(75-075A-01f) MDIM

This data set contains a digital image map of Mars that is a cartographic extension of a previously released set of CD-ROM volumes containing individual Viking Orbiter Images (PDS data sets VO1/VO2-M-VIS-2-EDR-V2.0 [NSSDC IDs 75-075A-01c and 75-083A-01a] and VO1/VO2-M-VIS-2-EDR-BR-V2.0 [NSSDC IDs 75-075A-01d and 75-083A-01b]).

The data in these earlier data sets are pristine in that they were processed only to the extent required to view them as images. They contain the artifacts and the radiometric, geometric, and photometric characteristics of the raw data transmitted by the spacecraft. This new volume set, however, contains cartographic compilations made by processing the raw images to reduce radiometric and geometric distortions and to form geodetically controlled Mosaicked Digital Image Models (MDIMs). It contains digitized versions of an airbrushed map of Mars as well as a listing of all IAU-approved feature names.

Special geodetic and photogrammetric processing has been performed to derive rasters of topographic data or Digital Terrain Models (DTMs). Because the photometric processing used in this MDIM was oversimplified, quantitative radiometric analysis on these data is not possible.

The MDIM CD-ROM collection serves two purposes. First, the image collection serves as a data base for interactive map browser applications. Secondly, the CD-ROM volume set provides a dense delivery medium to build higher-derived cartographic image products such as special map series and planning charts for the Mars Observer Project. This set contains seven volumes.

Volume 1 contains images of the Vastitas Borealis Region of Mars, 373 image files covering the entire north polar region of Mars southward from the pole to a latitude of 42.5 degrees north. Polar Stereographic projection images of the north pole area from 80 to 90 degrees are located in the POLAR directory on this disk.

Volume 2 contains images of the Xanthe Terra Region of Mars, 412 image files covering the region of Mars from 47.5 degrees north latitude to 47.5 degrees south latitude, and 0 degrees longitude to 90 degrees west longitude.

Volume 3 contains images of the Amazonis Planitia Region of Mars, 412 image files covering the region of Mars from 47.5 degrees north latitude to 47.5 degrees south latitude, and 90 degrees west longitude to 180 degrees west longitude.

Volume 4 contains images of the Elysium Planitia Region of Mars, 412 image files covering the region of Mars from 47.5 degrees north latitude to 47.5 degrees south latitude, and 180 degrees west longitude to 270 degrees west longitude.

Volume 5 contains images of the Arabia Terra Region of Mars, 412 image files covering the region of Mars from 47.5 degrees north latitude to 47.5 degrees south latitude, and 270 degrees west longitude to 0 degrees west longitude.

Volume 6 contains images of the Planum Australe Region of Mars, 373 image files covering the entire south polar region of Mars northward from the pole to a latitude of 42.5 south latitude. Polar Stereographic projection images of the south pole area from 80 to 90 degrees are located in the POLAR directory on this disk.

Volume 7 contains the Digital Topographic Map of Mars, MDIMs of the entire planet at 1/64, 1/16, DTMs of the entire planet at 1/64, 1/16, and the digitized airbrush map of Mars at 1/16 and 1/4 degrees/pixel.

Volumes 8-13 consists of multi-look color MDIMs at 1/64 degrees/pixel. The regions covered by volumes 8-13 are the same as those covered by volumes 1-6, but the planet wide coverage is less complete. Each area is covered by three images of the same region, each through a different filter. Volumes 14 and 15 will contain multi-look color MDIMs, too, but are to be stored in Graphics Interchange Format (GIF).

Each of the first six volumes contains MDIMs of the areas specified at resolutions of 1/256 degrees/pixel (231 m) and at 1/64 degrees/pixel (943 m). Volumes 1 and 6 also contain MDIM coverage of the entire planet at 1/16 degrees/pixel (3.69 km). Each of the six volumes also includes a digitized airbrush map of the entire planet at 1/16 degrees/pixel (3.69 km) and at 1/4 degrees/pixel. The Sinusoidal Equal-Area Projection is used as the map projection for this image collection. The tiling layout of the 1/64 degrees/pixel digital models is the same on the first six volumes.

Note that the 1/64 degrees/pixel MDIM segments that appear in Volumes 1 through 6 are duplicated in their entirety on Volume 7. All of the resolution compressions were done by averaging, not by subsampling. A gazetteer of IAU-approved feature names, referenced by latitude/longitude coordinates, is included as a table file on each of the seven volumes.

Outer Planets Fields & Particles Data

From the Planetary Data System (PDS). Two discs are available with data from the magnetometer, plasma, plasma wave, cosmic ray, planetary radio astronomy, and low-energy charge particle experiments.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Planetary Data System
NASA/Jet Propulsion Laboratory
Mail Stop 525-3610
4800 Oak Grove Drive
Pasadena, CA 91109
(818) 306-6130
PDS_OPERATOR@JPLPDS.JPL.
NASA.GOV

NSSDC ID XM-11A
Quantity 2
Cost \$26.00 + \$2.50 (U.S.A.) or \$10.00 (overseas)
shipping/handling
Software N/A

NOTE

- This set is now available.

INFORMATION

Data spans from 1985-11-08 to 1989-09-27

This data set consists of various magnetic field, plasma, radio wave, and energetic particles data sets available from the Planetary Data System (PDS) plasma interactions node. The first two volumes consist of data obtained during the Voyager 2 Uranus and Neptune Flybys. Included are multiple data sets from the magnetometer (MAG), plasma (PLS), plasma wave (PWS), cosmic ray (CRS), planetary radio astronomy (PRA), and low-energy charge particle (LECP) experiments. Data from each experiment are available at several resolutions and time spans. Subsequent additions to this set are expected to include data from Voyager 1 and 2 and Pioneer 10 and 11 for Jupiter and Saturn.

Pre-Magellan

Data from the Magellan Project and the Planetary Data System (PDS). One disc was made with radar data for Venus, Mercury, Mars, Earth, and the Moon. Also included on the disc are gravity data obtained through the Pioneer-Venus Orbiter and the Viking Orbiters.

Contact: NSSDC Coordinated Request and
User Support Office
Originator: Magellan Data Products Support Office
Washington University
Department of Earth & Planetary Sciences
Campus Box 1169
One Brookings Drive
Saint Louis, MO 63130-4899
(314) 935-5493
MGNSO@WUNDER.WUSTL.EDU

NSSDC ID XD-B2A
Quantity 1
Cost \$20.00 + \$9.00 (software) + \$2.50 (U.S.A.) or
\$10.00 (overseas) shipping/handling
Software See information below.

NOTE

- This disc is currently out of stock but is expected soon. Please call for status.

INFORMATION

Data spans from 1968-11-09 to 1988-07-27

This data set is a collection of selected Earth-based radar data of Venus, the Moon, Mercury, and Mars; Pioneer Venus radar data; airborne radar images of Earth; and line of sight acceleration data derived from tracking the Pioneer Venus Orbiter and Viking Orbiter 2. Included are 12.6 cm wavelength Arecibo Venus radar images, 12.6 to 12.9 cm Goldstone Venus radar images and altimetry data, together with altimetry, brightness temperature, Fresnel reflectivity and rms slopes derived from the Pioneer Venus Radar Mapper. For the Moon, Haystack 3.8 cm radar images and Arecibo 12.6 and 70 cm radar images are included. Mars data include Goldstone altimetry data acquired between 1971 and 1982 and a raster data set containing radar units that model Goldstone and Arecibo backscatter observations. Mercury data consist of Goldstone altimetry files.

The terrestrial data were acquired over the Pisgah lava flows and the Kelso dune field in the Mojave Desert, California, and consist of multiple frequency, multiple incidence angle views of the same regions.

Data set documentation is provided with references that allow the reader to reconstruct processing histories. The entire data set collection and documentation are available on a CD-ROM. The data set collection is similar to the kinds of data that Magellan produced (89-033B-01C, 89-033B-01D, 89-033B-01E).

A list of the hardware and software that may be used to read this CD-ROM can be obtained from the PDS Geosciences Discipline Node.

Selected Astronomical Catalogs, Volume I

The two disc set contains 114 astronomical catalogs chosen with the cooperation of the astronomical data centers in China, France, the Federal Republic of Germany, Japan, and the U.S.S.R. One disc contains data in Flexible Image Transport System (FITS) table format. The other disc contains the same data in ASCII format.

Contact: NSSDC Coordinated Request and
User Support Office

Originator: Mr. Lee Brotzman
NASA/Goddard Space Flight Center
Code 630
Greenbelt, MD 20771
(301) 286-6953
BROTZMAN@NDADSA.GSFC.NASA.GOV

NSSDC ID GA-16AV
Quantity 2
Cost \$26.00 + \$9.00 (software) + \$2.50 (U.S.A.) or
\$10.00 (overseas) shipping/handling
Software FITS Table Browser (DOS) or Browser (Mac)

NOTE

- The ASCII disc can be read using any editor that can import an ASCII file.
- Sorry, but we cannot break up the set and provide only one disc.

INFORMATION

The ADC CD-ROM, Selected Astronomical Catalogs, Volume I, contains 114 of the most often requested and scientifically useful astronomical catalogs in the ADC archives, including several significant new releases, such as the Astrogaphic Catalog Reference Stars (Corbin & Urban 1991), IRAS Faint Source Catalog, Version 2.0 (IPAC 1990), and preliminary versions of the General Catalog of Trigonometric Stellar Parallaxes (van Altena et al. 1991), the Catalog of Nearby Stars (Gliese et al. 1991), and the Fifth Edition of the Bright Star Catalog (Hoffliet and Warren 1991), which were prepared especially for this CD-ROM release.

The catalogs appearing on the ADC CD-ROM were chosen with the cooperation of the astronomical data centers in China, France, Germany, Japan, and the USSR. The International Astronomical Union has lent valuable support in the form of a grant to defray costs of distributing the data to small institutions in developing countries that might otherwise have difficulty in acquiring and using such large volumes of data.

One disc in the two-disc set contains flat ASCII text file versions of the catalogs, while the other contains the same data in FITS table format. Software is available from the

ADC for browsing through the FITS-formatted datasets. The FITS Table Browser can read standard FITS tables and select fields to display by name, filter records by boolean comparisons of field values, and extract selected fields into text files.

Computer-readable documentation is included with each catalog in the form of printable ASCII text files and, for some catalogs, as LaTeX input files. In preparation for the CD-ROM, all catalogs were inspected and certain fields, such as object names and coordinates, have been reformatted for more homogeneity between datasets. For instance, all Durchmusterung catalog identifiers have been placed in a single uniform format. The FITS table headers were constructed such that field identifiers and physical units (TTYPE and TUNIT keywords, respectively) are consistent for all catalogs.

A complete listing of all catalogs appearing on the ADC CD-ROM can be obtained by anonymous FTP to host HYPATIA.GSFC.NASA.GOV, in directory /pub/cdrom, file adc_cdrom.txt. This file also can be delivered by E-mail, by sending a request via E-mail to LISTSERV@HYPATIA.GSFC.NASA.GOV. In the body of the request (NOT the subject line), put the following ONLY:

GET PUB ADC_CDRUM.TXT

The file will be sent to you automatically. [LISTSERV](mailto:LISTSERV@HYPATIA.GSFC.NASA.GOV) is an automated mail delivery system. Entering any text other than the exact request as listed above will cause an error to occur.

TOMS Gridded Ozone Data

Nimbus 7 Total Ozone Mapping Spectrometer (TOMS) ozone data from the Upper Atmospheric Research Program (UARP.) This disc contains Version 6 daily ozone and statistical data in ASCII format covering a period from 11/01/78 to 12/31/88.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Mr. Richard D. McPeters
NASA/Goddard Space Flight Center
Code 916
Greenbelt, MD 20771
(301) 286-3832
MCPETERS@PACF.GSFC.NASA.GOV

NSSDC ID 78-098A-09Z
Quantity 1
Cost \$20.00 + \$2.50 (U.S.A.) or \$10.00 (overseas) shipping/handling

Software See information below.

INFORMATION

(78-098A-09Z) TOMS Gridded Ozone Data CD-ROM

This CD-ROM contains Total Ozone Mapping Spectrometer (TOMS) data from the Nimbus 7 spacecraft. The disc contains daily ozone data in ASCII format from November 1, 1978, to December 31, 1988, gridded into 1 degree latitude zones by 1.25 degree longitude zones. Latitude zones range from 90 degrees south to 90 degrees north in 1 degree increments. Longitude data ranges from 180 degrees west to 180 degrees east in 1.25 degree increments. In addition to ozone values there is a statistical data file containing daily and monthly area weighted zonal means, standard deviations, minima and maxima for each zone. The disc was written specifically for an IBM PC (or compatible) computer.

TOMS Ozone Image Data

Nimbus 7 Total Ozone Mapping Spectrometer (TOMS) ozone data from the Upper Atmospheric Research Program (UARP.) This disc contains color images of ozone in daily and monthly averages covering a period from 11/01/78 to 3/31/91.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Mr. Richard D. McPeters
NASA/Goddard Space Flight Center
Code 916
Greenbelt, MD 20771
(301) 286-3832
MCPETERS@PACF.GSFC.NASA.GOV

NSSDC ID 78-098A-09a
Quantity 1
Cost \$20.00 + \$2.50 (U.S.A.) or \$10.00 (overseas) shipping/handling
Software Software on CD-ROM
Usable on DOS environment only
See detailed information below.

INFORMATION

(78-098A-09a) TOMS Ozone Image Data CD-ROM

This CD-ROM contains Total Ozone Mapping Spectrometer (TOMS) data from the Nimbus 7 spacecraft. This disc contains color images of daily and monthly average ozone from November 1, 1978, to March 31, 1991. It also contains image display software so that the data can be displayed in three projections: simple latitude/longitude

projection, north polar projection, or south polar projection. Multiple images can be displayed simultaneously or in series, the image data can be re-scaled, and one of five pre-defined color palettes can be selected or new color palettes created. The TOMS image disc was written specifically for an IBM PC (or compatible) and requires a VGA graphics board. A 386 or better computer is recommended.

TOMS Update

Nimbus 7 Total Ozone Mapping Spectrometer (TOMS) ozone data from the Upper Atmospheric Research Program (UARP.) This disc contains gridded ozone, image ozone, ozone overpass, SBUV, and daily zonal mean ozone updated data.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Mr. Richard D. McPeters
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Code 916
Greenbelt, MD 20771
(301) 286-3832
MCPETERS@PACF.GSFC.NASA.GOV

NSSDC ID 78-098A-09b/c/d/e/f
Quantity 1
Cost \$20.00 + \$2.50 (U.S.A.) or \$10.00 (overseas) shipping/handling
Software See detailed information below.

INFORMATION

(78-098A-09b) TOMS Gridded Ozone Data Update

Data spans from 1989-01-01 to 1992-01-31

The gridded Total Ozone Mapping Spectrometer (TOMS) data from Nimbus 7 (GRIDTOMS) are the first data set on the third TOMS CD-ROM volume. The GRIDTOMS data set extends the GRIDTOMS measurements archived on the first TOMS CD-ROM volume (78-098A-09Z) from January 1, 1989, through January 31, 1992. The first GRIDTOMS data set covers the time period from November 1, 1978, through December 31, 1988.

TOMS measures ozone by measuring the solar ultraviolet irradiance scattered from the Earth's atmosphere. Total column ozone is inferred from the differential absorption of scattered solar ultraviolet radiation. Ozone is calculated from the ratio of two wavelengths where one wavelength is strongly absorbed by ozone and the other is weakly absorbed.

Ozone is measured in a 50 km square field of view (FOV) of the TOMS instrument. The instrument collects 35 measurements every eight seconds as it scans from right to left, giving about 200,000 ozone measurements every day. The individual measurements that comprise the GRIDTOMS data set are averaged into grid cells 1 degree in latitude by 1.25 degrees in longitude. The software on the CD-ROM was written specifically for an IBM PC (or compatible).

(78-098A-09c) TOMS Image Ozone Data Update

Data spans from 1989-01-01 to 1992-01-31

The gridded image Total Ozone Mapping Spectrometer (TOMS) data from Nimbus 7 (TOMSIMG) are the second data set on the third TOMS CD-ROM volume. The TOMSIMG data set extends the TOMSIMG images archived on the second TOMS CD-ROM volume (78-098A-09a) from January 1, 1989, through January 31, 1992. The first TOMSIMG data set covers the time period from November 1, 1978, through March 31, 1991.

The TOMSIMG data set contains daily, monthly, and yearly images of TOMS ozone data in three projections (simple latitude/longitude, south polar, and north polar). Multiple images can be displayed simultaneously or in series, and the user can re-scale the data and select one of five pre-defined color palettes or create a new color palette.

The TOMSIMG data are derived from the 1 degree by 1.25 degree GRIDTOMS data and are smoothed to 2 degree by 5 degree resolution. The software on the third CD-ROM TOMS volume was written specifically for an IBM PC (or compatible) computer, and the image software requires a VGA graphics board.

(78-098A-09d) TOMS Ozone Overpass Data

Data spans from 1978-11-01 to 1992-01-31

The individual ozone data (OVERPASS) from the Nimbus 7 Total Ozone Mapping Spectrometer (TOMS) are the third data set on the third TOMS CD-ROM volume. This data set contains individual TOMS measurements most nearly coincident with specific geographic locations. The data include ozone measurements in Dobson units for 333 sites.

The OVERPASS data set covers the time period from November 1, 1978, through January 31, 1992. The list of sites was compiled to accommodate varied interests including Dobson sites, M83 sites, a selection of large cities, launch sites, and other general or scientific interest sites. The criteria for selecting the TOMS data point closest to a site are as follows: (1) The TOMS FOV must be within 1 degree of latitude and 1 degree of longitude of the ground site; (2) the overpass selection is weighted to select near-nadir passes; and (3) flagged ozone data are used only if non-flagged data are not available.

All of the data are in ASCII format. Each data record includes the date, scan position, time, latitude, and longitude of the TOMS measurement; total ozone in Dobson units (milli-atm-cm); reflectivity (%); solar zenith angle; and a data quality flag. Software and documentation is included on the CD-ROM. The software on the CD-ROM was written specifically for an IBM PC (or compatible) computer.

(78-098A-09e) SBUV MG-II Index/Solar UV Flux

Data spans from 1978-11-01 to 1987-03-31

The solar measurements from the Solar Backscatter Ultraviolet (SBUV) experiment on Nimbus 7 and SBUV/2 on NOAA 9 and NOAA 11 is the fourth data set on the third TOMS CD-ROM volume. The SOLAR data were collected by the SBUV and SBUV/2 for the period November 1, 1978, through January 31, 1992.

The data set consists of composite Magnesium II (Mg II) index, scale factor data, and reference solar spectrum data. The composite Mg II index is a daily measurement of the solar ultraviolet variability using the Mg II absorption feature at 280 nm. The Mg II index can be used in conjunction with the composite scale factors to estimate solar irradiance variations at any wavelength in the 170 to 400 nm wavelength range.

The Mg II index is a dimensionless quantity measuring mid-ultraviolet solar activity. It is a ratio of irradiances, where the numerator consists of the average of three consecutive wavelength samples at the core of the unresolved Mg II h & k doublet at 280 nm, and the denominator is the average of two pairs of consecutive wavelengths equally spaced approximately 3 nm from the core wavelength.

The Mg II index was constructed from SBUV data on Nimbus 7 and SBUV/2 data on NOAA 9 and NOAA 11. The Nimbus 7 Mg II index data are from November 1978 to March 1987. The NOAA 9 Mg II index data are from March 1985 to September 1990. The NOAA 11 Mg II index data are from February 1990 to January 1992.

The composite Mg II index data are referenced to the NOAA 9 SBUV/2 absolute reference scale. The data set consists of the composite daily Mg II index data. A five-day binomial-weighted average has been applied to the data set. The Mg II data are in ASCII format, and the data records contain the year, day of year, Julian day (beginning 1 January 1978), and the Mg II index value.

The composite scale factors data set contains scaling factors that can be used to estimate the solar irradiance variability at other UV wavelengths. The scale factor data are a combination of the best results for Nimbus 7, NOAA 9, and NOAA 11. The composite scale factor data are in ASCII and consist of the wavelength (170 to 400 nm) at 1 nm

spacing, the composite scale factor, and the weighted average of standard deviation values.

The reference solar spectrum is the absolute solar spectral irradiance values in the mid-UV wavelength region for Nimbus 7. The spectrum is an average of five separate spectra taken from November 7-12, 1978, and interpolated to a 0.2 nm grid using a cubic spline. The solar irradiance data are in ASCII and consist of the wavelength (170 to 400 nm) at 0.2 nm spacing, and the irradiance in W/cm²/cm.

(78-098A-09f) TOMS Daily Zonal Mean Ozone Data

Data spans from 1978-11-01 to 1992-01-31

The zonal average Total Ozone Mapping Spectrometer (TOMS) data from Nimbus 7 (ZONALAV) are the last data set on the third TOMS CD-ROM volume. The data consist of two files: Northern and Southern Hemisphere, each containing ten-degree zonally averaged ozone data from November 1, 1978, through December 31, 1991. Each data record consists of the date and ten-degree total ozone zonal averages in Dobson units centered at 5, 15, 25, 35, 45, 55, and 65 degrees for each hemisphere. There are no data poleward of 70 degrees. Documentation is included on the CD-ROM.

Viking Orbiter Images of Mars

From the Planetary Data System (PDS). Fourteen image discs are available with compressed and browse images.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Planetary Data System
NASA/Jet Propulsion Laboratory
Mail Stop 525-3610
4800 Oak Grove Drive
Pasadena, CA 91109
(818) 306-6130
PDS_OPERATOR@JPLPDS.JPL
NASA.GOV

NSSDC ID 75-075A-01c/d and 75-083A-01a/b
Quantity 14
Cost \$98.00 + \$9.00 (software) + \$2.50 (U.S.A.) or \$10.00 (overseas) shipping/handling
Software IMDISP (DOS) or Image4PDS (Mac)

NOTE

- The total cost of this set is \$98.00. You may request any subset or a combination of discs at a cost of \$20.00 for the first and \$6.00 for each additional.

INFORMATION

<u>Vol. Number</u>	<u>Frame Numbers</u>
1	122S01-166S24
2	167S01-210S42
3	211S01-251S30
4	252S01-321S72
5	319S12-363S56
6	365S01-405S30
7	406S11-436S36
8	437S01-467S36
9	468S01-485S24
10	003A01-038A32
11	039A01-070A32
12	071A01-105A48
13	106A01-212A64
14	214A01-272A36

See section on MDIM for the difference between the Viking CD-ROM set and the MDIM set. All volumes of the Viking set contain both browse and compressed images.

Voyager Image

Voyager Spacecraft to the Outer Planets from the Planetary Data System (PDS). This 12-disc set contains four subsets of compressed and browse images. Each subset of three discs is dedicated to one of the four systems explored by Voyager 1 and 2.

Contact: NSSDC Coordinated Request and User Support Office

Originator: Planetary Data System
 NASA/Jet Propulsion Laboratory
 Mail Stop 525-3610
 4800 Oak Grove Drive
 Pasadena, CA 91109
 (818) 306-6130
 PDS_OPERATOR@JPLPDS.JPL.
 NASA.GOV

NSSDC ID 77-076A-01X, 77-084A-01Q/076A-01W
 77-084A-01P/076A-01V, 77-076A-01f
Quantity 12
Cost \$86.00 + \$9.00 (software) + \$2.50 (U.S.A.) or
 \$10.00 (overseas) shipping/handling
Software IMDISP (DOS) or Image4PDS (Mac)

NOTE

- The total cost of the set is \$86.00. You may request any subset or a combination of discs at a cost of \$20.00 for the first and \$6.00 for each additional.
- A very popular subset is Volumes 3, 5, 8, and 12, which include the browse images.

INFORMATION

<u>System</u>	<u>Volume</u>	<u>Number of Images</u>
Uranus	Vols. 1 - 3	6,538
Saturn	Vols. 4 - 5	4,000
Jupiter	Vols. 6 - 8	6,000
Neptune	Vols. 9 -12	10,000

These discs are organized chronologically, with the first disc consisting primarily of pre-encounter images and the last consisting primarily of post-encounter images. Each disc contains directories organized by the object observed (e.g., Neptune, rings, a particular satellite) or for calibration or unclassifiable images. If there are more than 100 images of a particular object on the disc, the images are further divided into subdirectories based upon their image number. The images are the full-resolution (800 pixels by 800 scan lines) digital images returned by the Voyager imaging subsystem (ISS) cameras. No additional processing has been performed to enhance the images. The full resolution images (on all 12 volumes) are compressed to permit more data to be stored on each volume. Decompression software for several platforms (VAX/VMS, IBM PC, and Macintosh) in several programming languages is available on the discs. The Macintosh decompression software is provided as a binhexed archive. The last volume in the set (Vols. 3, 5, 8, 12) also contains all of the images found on all 12 discs in a browse format. Browse images consist of every fourth pixel of every fourth scan line, resulting in an image that is 200 pixels by 200 scan lines. These browse images are not stored in a compressed format and so can be used by software to locate quickly an image of interest prior to decompressing the full-resolution image. Browse images are located within a separate directory on the disc with individual subdirectories based on the objects observed below that.

Hardware Information

This summary includes various types of computers that may be used to read PDS CD-ROMs. PDS engineers have tested these drives using PDS CD-ROM titles. Anyone contemplating purchase of a new CD-ROM drive should check on the following capabilities listed below.

- Seek time of 300 milliseconds or less.
- 64K buffer in the drive or on the controller card.
- Double speed reading (300 Kilobytes per second).
- Compatibility with CD-ROM XA for multi-media applications.
- Compatibility with PHOTO-CD, especially support for multi-session CDs.

Digital Equipment Corporation (DEC) VAX or MicroVax running VMS

Drive: Digital Equipment Corporation (DEC) RRD42, RRD40 or RRD50

Driver: DEC VMS CD-ROM driver V5.5 and up. For VMS V5.4 or earlier, contact PDS user support for the driver.

An alternative to the DEC driver software is a set of programs written by USGS Flagstaff personnel that perform directory operations, display text files, and copy text and binary files from a CD-ROM. The programs may be copied from the PDS VAX via SPAN. The files for handling the USGS Flagstaff CD-ROM interface software for a VAX/VMS system are in the directory

```
JPLPDS::DISK$USER1:[CDROM.VAX]. There are three source files:  
CDROM_UTILITY_SUBROUTINES.COM  
CDROM_VMS_UTILITY_PROGRAMS.COM  
CDROM_TAE_UTILITY_PROGRAMS.COM
```

The programs can be built by executing the CDROM_UTILITY_SUBROUTINES procedure followed by either the CDROM_VMS or CDROM_TAE procedure depending on whether you want to use the programs under VAX/VMS or under the TAE (Transportable Applications Executive) user interface. For more information, contact Eric Eliason at the address below.

```
Eric Eliason  
U.S. Geological Survey  
Astrogeology Branch  
2255 N. Gemini Drive  
Flagstaff, AZ 86001  
(602)556-7113  
SPAN: ASTROG::EELIASON
```

Digital Equipment Corporation VAX or MicroVAX running Ultrix

Drive: DEC RRD42, RRD40, or RRD50

Driver: Supplied with Ultrix 3.1

Internet users can obtain a copy of the "cdio" software package via anonymous ftp from the "space.mit.edu" server in the file named "src/cdio.shar".

IBM PC running MS-DOS

Drive: Toshiba (v. 2.2.1), Hitachi, Sony, NEC, Pioneer or compatible.

Driver: Microsoft MSCDEX version 2.0 or later (2.21 is the latest version).

Apple Macintosh

Drive: Apple CD SC Plus (3.1.1b3), Toshiba (1.4), NEC (2.25), Pioneer DRM600 CLD Access (1.1b1).

Driver: Apple CD-ROM driver, or vendor specific driver.

Sun Micro (SunOS 4.0x and earlier)

Drive: Delta Microsystems SS-660 (SONY)
Driver: Delta Microsystems driver

For questions concerning this driver, contact Denis Down at Delta Microsystems, (415)-449-6881.

Sun Micro (SunOS 4.0.3 and later)

Drive: Sun Microsystems
Driver: SunOS sr.o driver

A patch must be made to SunOS before the Sun driver can access any CD-ROM files containing Extended Attribute Records, e.g. most of the files on these disks. A copy of this patch is available to Internet users via anonymous ftp from the "space.mit.edu" server in the file named "src/SunOS.4.x.CD-ROM.patch".

Silicon Graphics IRIS

Drive: SGI CD-ROM Drive
Driver: SGI CD-ROM driver

A patch must be made to SGIOS before the SGI driver can access any CD-ROM files containing Extended Attribute Records, e.g. most of the files on these disks. A copy of this patch is available by calling the PDS user support. This patch is not needed for Version 4.0.5 and above.

IBM RS6000

In order to access PDS CD-ROMs, you need to contact IBM user support for the driver at 1-800-426-7378. AIX 3.2 and above will work with PDS CD-ROMs.

Additional Information

JPL's Data Distribution Laboratory has produced "Catalog of Scientific CD-ROM Publications". This document describes the Planetary CD-ROM collections and the various CD-ROM titles produced by government agencies. It also identifies software which is available for displaying and processing these data sets. The catalog can be ordered from the address below.

PDS Operator
MS 525-3610
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109
(818) 306-6130
NSI/DECnet: JPLPDS::PDS_OPERATOR
internet: pds_operator@jplpds.jpl.nasa.gov

For information about CD-ROM Hardware and Software:

Data Distribution Laboratory
MS 525-3610
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109
(818) 306-6303
Internet: DDL@stargate.jpl.nasa.gov

For information about the Magellan CD-ROM products:

Magellan/PDS Support Office
Dr. Edward A. Guinness
Washington University
Campus Box 1169
St. Louis, MO 63130
(314) 935-5493
SPAN: WUNDER::GUINNESS
Internet: guinness@wunder.wustl.edu
NASAMAIL: EGUINNESS

Software Information

The following shareware software may be obtained from the NSSDC. The cost is \$9.00 per copy and is provided on a "as is" basis. These shareware and others are also available via anonymous FTP from the sites listed below. Because of the dynamic and changing nature of FTP sites, no claim is made on the availability of these software from any of the sites at any given time.

- AMES.ARC.NASA.GOV
- STARHAWK.JPL.NASA.GOV
- DELCANO.MIT.EDU
- WUARCHIVE.WUSTL.EDU

IMDISP (DOS)

CPU	IBM PC, XT, AT or better
Video	CGA, EGA, VGA, SVGA (Orcid, ATI, Everex, Trident), PGA
RAM	256 Kb minimum, more strongly recommended, extended/expanded memory supported
Disk	Hard drive & CD-ROM drive required

This is a command-driven image utility program that allows a wide variety of operations. Software features include display, browse, palette manipulation, image filtering, histogram, plotting, multiple image buffers, batch files, profile, refresh, set, stretch, and text and supports PDS, FITS, VICAR, GIF, and raster formats. Each function has several arguments that allow the user to select different parameters. Please note that IMDISP is distributed by the NSSDC as unsupported software.

Image4PDS (Mac)

This is a modified version of the National Institute of Health software called Image. For full operation Image4PDS requires a Mac II (x, cx, ci) with at least 2 Mb of memory, but 4 Mb or more is recommended for doing animation, for simultaneously displaying more than a handful of pictures, or for running under MultiFinder. Image4PDS also requires an 8-bit video card capable of displaying 256 colors or shades of gray. Image4PDS directly supports or is compatible with large monitors, flatbed scanners, film recorders, graphics tables, PostScript laser printers, phototypesetters, and color printers. Software features include standard file and edit menu; area, length, and point measurements; plots and histograms; palette selections; flip, rotate, and scale functions; image filtering and enhancements; 3D plot, video capture, movie, and animate functions; as well as many others. Please note that Image4PDS is distributed by the NSSDC as unsupported software.

FITS Table Browser (DOS)

The Astronomical Data Center (ADC) FITS Table Browser (FTB) displays the contents of standard Flexible Image Transport System (FITS) table extension files on IBM PC/AT/XT-compatible MS-DOS computers. It was written specifically to accompany the ADC CD-ROM Selected Astronomical Catalogs, Vol. I, FITS Table Version (Brotzman & Gessner 1991) but also works with FITS tables stored on other direct access media. FTB allows for searching, selectively displaying, extracting, and printing columns from standard FITS tables.

Browser (Mac)

System (for text)	6.03 or later
System (for images)	6.03 or later 32-bit quickdraw required
Finder	6.03 or later
Fonts	Chicago 12, Geneva 9-12, Monaco 9-12
CPU	All 680 x 0
Math Processor	Not required
RAM	1 Mb minimum, more strongly recommended
Disk	Hard drive & CD-ROM drive required

This program is a utility to allow easy access to data coded in FITS or PDS format. Browser will OPEN or IMPORT files with .HDR;1, TXT;1, .HDX;1, .TAB;1, .IBG;1, .IBX;1, and .HDX;1 extensions as well as PDS files. Program features include export to spreadsheet and PICT file, view and manipulation, data base linking, and arbitrary image processing.



Ordering from the NSSDC

CD-ROMs where the NSSDC Coordinated Request and User Support Office is listed as the contact are available from the National Space Science Data Center, Code 633.4, Goddard Space Flight Center, Maryland 20771. Other CD-ROMs are available from the listed contacts and data centers. Please use the order form enclosed to send in your request. Include check, International Money Order, or credit card information.

Cost

The cost of the first CD-ROM from any data set is \$20.00; each additional CD-ROM from the same set is another \$6.00. Each software package is \$9.00.

Payment

Payment may be made using VISA, MASTERCARD, AMERICAN EXPRESS, check, or International Money Order. Please make check or International Money Order payable to HUGHES STX CORPORATION in U.S. dollars. Requesters in the U.S. add \$2.50 for shipping and handling. Those from outside the U.S. add \$10.00. Send your requests to the appropriate address below.

For Requests Within the U.S.

Coordinated Request and User Support Office
National Space Science Data Center
Code 633.4
Goddard Space Flight Center
Greenbelt, Maryland 20771

For Requests Outside the U.S.

Coordinated Request and User Support Office
World Data Center-A for Rockets and Satellites
Code 633.4
Goddard Space Flight Center
Greenbelt, Maryland 20771, U.S.A.

Telephone: (301) 286-6695
FAX: (301) 286-1771
E-mail: (DECNET) NSSDCA::REQUEST
(INTERNET) request@nssdca.gsfc.nasa.gov

Attention: International Requesters

Please enclose the International Money Order, check, or credit card information with the order form. Do not send the check or International Money Order under separate cover.

Attention: Requesters with Network Access

Requesters with network access can check the status of the CD-ROM holdings and request CD-ROMs by using option 15 on the NSSDC On-line Data and Information Service (NODIS). NODIS is a free on-line data and information service provided by the NSSDC. To connect to NODIS, please follow the steps below.*

From NSI/DECnet(SPAN)

SET HOST NSSDCA
USERNAME: NSSDC

Via Modem

Dial 301-286-9000
CONNECT 1200 (or 2400 or 300)
Enter return a few times
ENTER NUMBER
MD
CALLING 55201 (or 55202)
Enter return a few times
USERNAME: NSSDC

From INTERNET

Telnet nssdca.gsfc.nasa.gov
USERNAME: NSSDC

From OMNET

GO TO NSSDC

* *Italics* indicate the response of the computer.

PRECEDING PAGE BLANK NOT FILMED





CD-ROM ORDER FORM

NATIONAL SPACE SCIENCE DATA
 CENTER
 CODE 633.4
 GODDARD SPACE FLIGHT CENTER
 GREENBELT, MARYLAND 20771, U.S.A.

WORLD DATA CENTER - A
 FOR ROCKETS AND SATELLITES
 CODE 633.4
 GODDARD SPACE FLIGHT CENTER
 GREENBELT, MARYLAND 20771, U.S.A.

TELEPHONE (301) 286-6695
 FAX (301) 286-1771
 E-MAIL NSSDCA::REQUEST OR
 REQUEST@NSSDCA.GSFC.NASA.GOV

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IMDISP 5.25"

FITB 5.25"

Browser 5.25"

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IMDISP 3.5"

FITB 3.5"

Browser 3.5"

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Charge and Service Policy

National Space Science Data Center World Data Center-A for Rockets and Satellites

The purpose of the National Space Science Data Center (NSSDC) is to provide data and information from space and Earth science flight experiments for studies beyond those performed by the principal investigators. These services are available to foreign requesters through the World Data Center-A for Rockets and Satellites (WDC-A-R&S). Normally, a charge is made to cover the cost of reproducing and processing the requested data. However, as resources permit, the NSSDC director may waive the charge for modest amounts of data when they are to be used for scientific studies or specific college-level educational purposes and when they are requested by an individual affiliated with one of the following:

1. NASA installations, NASA contractors, or NASA grantees.
2. Other U.S. government agencies, their contractors, or their grantees.
3. Accredited universities or colleges.
4. State or local governments.
5. Nonprofit organizations.

For CD-ROMs the NSSDC director may waive charges for up to six discs per year for persons qualifying under the terms of the paragraph above. For those not eligible for the fee waiver, the cost of CD-ROMs from NSSDC is \$20.00 for the first disc and \$6.00 for each additional disc per order, per data set. Microcomputer software for display of some CD-ROM data is available for \$9.00 per disk, to defray reproduction and handling costs. NSSDC has a strong interest in sharing scientific data with K-12 educators. Therefore, NSSDC will provide a sample disc at no cost to those educators who cannot pay the normal \$20.00 fee.

Disclaimer of Warranty

The data, documentation, media, and other items (hereafter "products") and services that are furnished pursuant to NASA Contract NAS5-30960 are provided on an "as is" basis. Neither NASA nor Hughes STX Corporation makes any warranty whatsoever with regard to the products or services, their suitability, or accuracy. NASA and Hughes STX Corporation expressly disclaim all warranties including but not limited to the warranties of Merchantability and Fitness for a Particular Purpose.

IN NO EVENT SHALL EITHER NASA OR HUGHES STX CORPORATION BE LIABLE FOR ANY DAMAGES INCLUDING BUT NOT LIMITED TO DIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES.

Revised 6/15/92

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Data Sets Available from Other Locations

THE CD-ROM SETS LISTED IN THIS SECTION MAY BE OBTAINED DIRECTLY FROM THE CONTACTS LISTED.

THE NSSDC DOES NOT ARCHIVE THESE CD-ROM SETS.

NASA AMES RESEARCH CENTER

- The Stratosphere-Troposphere Exchange Project (STEP) Data on CD-ROM
- The Airborne Antarctic Ozone Experiment (AAOE), Including Halley Bay Ozonesonde Data on CD-ROM
- The Airborne Arctic Stratospheric Expedition (AASE) and the Meteorological Measurement System (MMS) Data CD-ROM's

Contact: Steven Gaines
NASA Ames Research Center
MS 245-3
Moffett Field, CA 94035
(415) 604-4546
GAINES@HECTOR.ARC.NASA.GOV

NASA GODDARD SPACE FLIGHT CENTER

- The International Satellite Cloud Climatology Project (ISCCP) Monthly Cloud Products on CD-ROM
- The Greenhouse Effect Detection Experiment (GEDEX) Global and Regional Selected Data Sets Version 1 on CD-ROM

Contact: Global Change Data Center
DAAC User Support Office
NASA/GSFC
Code 935
Greenbelt, MD 20770
(301) 286-3209
DAACUSER@NSSDCA.GSFC.
NASA.GOV

NASA JET PROPULSION LABORATORY

- Tropical Ocean Global Atmosphere (TOGA) Meteorological and Oceanographic Data Sets for 1985 and 1986, on CD-ROM

- University of Miami/RSMAS Global and Regional Gridded NOAA Advanced Very High Resolution Radiometer Multichannel Sea Surface Temperatures
- Goddard Space Flight Center Global and Regional Gridded NIMBUS-7 Coastal Zone Color Scanner Pigment Concentration Data (Monthly averages and climatologies)
- West Coast Time Series Coastal Zone Color Scanner Pigment Concentration from the NIMBUS-7

Contact: Ruby Lassanyi
MS 300-323
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109
(818) 354-0906
STANS::DATASPEC

NOAA NATIONAL CLIMATIC DATA CENTER

- Hourly, 15-Minute, and Observed Daily Precipitation Data/Charts
- National Climate Information Disc--Volume I, on CD-ROM
- International Station Meteorological Climate Summary on CD-ROM
- Daily Cooperative/First Order Summary of the Day and Month, and Summary of the Day Form 5670

Contact: Thomas Ross
NOAA/NESDIS/NCDC
Federal Building
37 Battery Park Avenue
Asheville, NC 28801-2733
(704) 259-0994

NOAA NATIONAL GEOPHYSICAL DATA CENTER

- Carbon/Carbonate Data (DSDP)
- Paleontology Data (DSDP)
- Age Profile Data (DSDP)
- Sediment Chemistry Data from DSDP

- Sediment Description Data from DSDP
- Deep Sea Drilling Project (DSDP) Hardrock Data
- Deep Sea Drilling Program (DSDP) Digital Well Log
- Lithologic Data from Pacific Ocean DSDP Cores
- Interstitial Water Chemistry from DSDP
- DSDP Density-Porosity and Gamma Ray Attenuation Porosity Evaluator (GRAPE)
- Paleomagnetic Data for Sediments and Hardrocks (DSDP)
- Gulf of Mexico Imagery from GLORIA Side Scan Sonar System
- DST Geomagnetic Indices
- X-Ray Mineralogy Data From DSDP
- The Global Ecosystems Database Version 0.1 from the Environmental Protection Agency and the National Geophysical Data Center on CD-ROM
- Solar and Geomagnetic Data

Contact: User Services
NOAA/NESDIS/NGDC
325 Broadway
Boulder, CO 80303
(303) 497-6215
9555::RCONKRIGHT

NOAA NATIONAL OCEANOGRAPHIC DATA CENTER

- Geosat Crossover Difference Data (1985-87)
- National Oceanographic Data Center's Pacific Ocean Temperature-Depth and Salinity Profiles on CD-ROM

Contact: National Oceanographic Data Center
User Services Branch
NOAA/NESDIS E/OC21
1825 Connecticut Avenue, NW
Washington, DC 20235
(202) 606-4549
NODC::SERVICES

NOAA NATIONAL OPERATIONAL HYDROLOGIC REMOTE SENSING CENTER

- Airborne and Satellite Snow Cover Data for 1990 and 1991 Covering the United States and Southern Canada on CD-ROM

Contact: Dan Lipinski
National Operational Hydrologic Remote
Sensing Center
Office of Hydrology
6301 - 34th Avenue South, Room 112
Minneapolis, MN 55450-2985
(612) 325-3258

DOE CARBON DIOXIDE INFORMATION ANALYSIS CENTER

- Atmospheric CO₂ Concentrations - The Canadian Background Air Pollution Monitoring Network (BAPMoN), CDIAC NDP-034
- Carbon Dioxide Concentrations at Baring Head, New Zealand
- Atmospheric CO₂ Concentrations - The CSIRO Monitoring Program: Surface Data for Cape Grim, Tasmania, CDIAC NDP-010
- Climatic Data for Northern Hemisphere Land Areas, 1851-1980, CDIAC NDP-012
- Surface Air Temperature Anomalies for the Northern Hemisphere: The Russian Dataset, CDIAC NDP-015
- Monthly Mean Pressure Reconstructions for Europe (1780-1980) and North America (1858-1980), CDIAC NDP-025
- Geochemical Ocean Section Study (GEOSECS) Atlantic, Pacific, Indian, and Mediterranean Radiocarbon Data, CDIAC NDP-027
- Global Surface Air Temperature Variations: 1851-1984, CDIAC NDP-003/R1
- Antarctic Surface Temperature and Pressure Data, CDIAC NDP-032
- Atmospheric CO₂ Concentrations - The CSIRO (Australia) Monitoring Program from Aircraft for 1972-1981, CDIAC NDP-007
- Historical Sunshine and Cloud Data in the United States, CDIAC NDP-021/R1
- Transient Tracers in the Oceans (TTO) - Hydrographic Data and Carbon Dioxide Systems with Revised Carbon Chemistry Data, CDIAC NDP-004/R1

- Climatic Data for Selected U.S. and Canadian Stations, 1941-1980, CDIAC NDP-016
- Tree Ring Chronology Indexes and Reconstructions of Precipitation in Central Iowa, USA, CDIAC NDP-002
- Estimates of CO₂ Emissions from Fossil Fuel Burning and Cement Manufacturing Based on UN Energy Statistics, U.S. Bureau of Mines CDIAC NDP-030
- Global Paleoclimatic Data for 6000 Year B.P., CDIAC NDP-011
- Global and Hemispheric Annual Temperature Variations Between 1861 and 1988, CDIAC NDP-022/R1
- Volcanic Loading: The Dust Veil Index, CDIAC NDP-013
- Global Geographic Information System Database of Storm Occurrences and Other Climatic Phenomena Affecting Coastal Zones, CDIAC NDP-035
- Annual and Seasonal Global Temperature Anomalies in the Troposphere and Lower Stratosphere, 1958 - Summer 1986, CDIAC NDP-008/R1
- The IBM Mainframe and PC Version of the IEA-ORAU Long-Term Global Energy CO₂ Model Including Input Data, CDIAC CMP-002
- Average Total Snowfall Data for Selected U.S. Stations for 1868-1986, CDIAC NDP-031
- Climatological Data for Clouds Over the Globe from Surface Observations, CDIAC NDP-026
- Carbon Dioxide Concentrations at Mauna Loa Observatory, Hawaii, 1958-1986, CDIAC NDP-001/R1
- United States Historical Climatology Network (HCN) Serial Temperature And Precipitation Data, CDIAC NDP-019 and CDIAC NDP-042
- The Early and Updated Versions of the Global Grid Point Surface Air Temperature Anomaly Data Set: 1851-1990, CDIAC NDP-020
- Atmospheric CO₂ Concentrations Derived from Flask Samples Collected at U.S.S.R. Operated Sampling Sites, CDIAC NDP-033
- Two Long-Term Instrumental Climatic Data Bases of the People's Republic of China, CDIAC NDP-039
- Carbon Dioxide Enrichment: Data on the Response of Cotton to Varying CO₂, Irrigation, and Nitrogen in Phoenix, Arizona, CDIAC-037
- CDIAC's Numeric Data Package Collection Featuring Selected Data Sets Relevant to Studies of Greenhouse Gases and Climate on CD-ROM
- A Coastal Hazards Data Base for the U.S. East Coast, CDIAC NDP-043A
- The Global Historical Climatology Network: Long-Term Monthly Temperature, Precipitation, Sea Level and Station Pressure Data, CDIAC-041
- Indian Ocean Radiocarbon: Data from the INDIGO 1, 2, and 3 Cruises, CDIAC NDP-036
- Atmospheric Methane Concentrations-The NOAA/CMDL Global Cooperative Flask Sampling Network, CDIAC NDP-038
- Major World Ecosystem Complexes Ranked By Carbon In Live Vegetation: A Database, CDIAC NDP-017
- Annual and Seasonal Global Variation in Total Ozone and Layer - Mean Ozone, 1958-1986, CDIAC NDP-023
- Carbonate Chemistry of the Weddell Sea from the Weddell Polynya Expedition (WEPOLEX-81), CDIAC NDP-028
- Carbonate Chemistry of the North Pacific Ocean from the North Pacific Shuttle Experiment (NORPAX) and NOAA Dynamics Cruises, CDIAC NDP-029
- Atmospheric Carbon Dioxide Concentrations - The NOAA/GMCC Flask Continuous Sampling Network, CDIAC NDP-005
- Production of Carbon Dioxide from Fossil Fuel Burning by Fuel Type, 1860-1982, CDIAC NDP-006
- Worldwide Organic Soil Carbon and Nitrogen Data, CDIAC NDP-018

Contact: Tom Boden
 Environmental Sciences Division
 Oak Ridge National Laboratory
 Building 1000, MS-6335
 Oak Ridge, TN 37830-9984
 (615) 574-0390
 BITNET > CDP@ORNLSTC

USGS EROS DATA CENTER

- Conterminous U.S. AVHRR Bi-Weekly Composites
- Digital Line Graphs (DLG) from 1:2,000,000 Scale Maps
- 1:2,000,000-Scale Hydrologic Unit Maps

- Digital Chart of the World
- Global Experimental Bi-Weekly and Monthly Normalized Difference Vegetation Index (NDVI) Based on NOAA AVHRR Data on CD-ROM

Contact: Customer Services
EROS Data Center
Customer Services Section
U.S. Geological Survey
Sioux Falls, SD 57198
(605) 594-6151
EROS@EROSA.CR.USGS.GOV

USGS NATIONAL GEOMAGNETIC INFORMATION CENTER

- Magnetic Observatory Data on CD-ROM

Contact: Donald Herzog
U.S. Geological Survey
Box 25046
MS 968 Denver Federal Center
Denver, CO 80225-0046

USGS UNIVERSITY OF MARYLAND

- Joint Education Initiative (JEDI) Earth Science Education CD-ROM

Contact: Bill Johnson
Joint Education Initiative
3433 A. V. Williams Building
University of Maryland
College Park, MD 20742-3281
(301) 405-2324

NATIONAL SNOW AND ICE DATA CENTER

- Scanning Multichannel Microwave Radiometer (SMMR) Arctic and Antarctic Sea Ice Concentrations on CD-ROM at NSIDC
- Scanning Multichannel Microwave Radiometer (SMMR) Polar Radiances on CD-ROM at NSIDC
- Special Sensor Microwave/Imager (SSM/I) Brightness Temperature Grids on CD-ROM at NSIDC
- Special Sensor Microwave/Imager (SSM/I) Sea Ice Concentration Grids on CD-ROM at NSIDC

Contact: Claire Hanson
National Snow and Ice Data Center
(NSIDC)
CIRES, Campus Box 449
University of Colorado
Boulder, CO 80309
(303) 492-5171
KRYOS::HANSON

GALE ERICA DATA CENTER

- Experiment on Rapidly Intensifying Cyclones Over the Atlantic (ERICA) Field Study, on CDROM
- The Genesis of Atlantic Lows Experiment (GALE), on CDROM

Contact: Chuck Browne
GALE/ERICA Data Center
Department of Physics and Atmospheric Science
Drexel University
Philadelphia, PA 19104
(215) 895-2786
EDC@CONVEX.DREXEL.EDU

RUTGERS UNIVERSITY

- U.S. Army Corps of Engineers Construction Engineering Research Laboratory (USA/CERL) Global GRASS 1 CD-ROM Data Set

Contact: Scott Madry
Cook College Remote Sensing Center
Global Dataset Project
Box 231, College Farm Road
Rutgers University
New Brunswick, NJ 08903-0231
(908) 932-9631
MADRY@ZODIAC.RUTGERS.EDU

UNIVERSITY OF WASHINGTON

- North American Observational Data for July-December 1987 on CD-ROM
- World WeatherDisc, Climate Data for the Planet Earth since 1700

Contact: Clifford Mass
Department of Atmospheric Sciences
AK-40

University of Washington
Seattle, WA 98195
(206) 524-4314
CLIFF@ATMOS.WASHINGTON.EDU

UNIVERSITY OF COLORADO

- Space Science Sampler

Contact: Mr. Randal Davis
LASP, Campus Box 392
University of Colorado
Boulder, CO 80309
(303) 492-6867
FAX: 492-5105

ASTRONOMICAL SOCIETY OF THE PACIFIC

- Guide Star Catalog (GSC) Version 1.1

Contact: Astronomical Society of the Pacific
HST Orders Department
390 Ashton Avenue
San Francisco, CA 94112

or

GSC Distribution Officer/SLARS
Space Telescope Science Institute
3700 San Martin Drive
Baltimore, MD 21218
SCIVAX::GSCDIST (SPAN)
GSCDIST@STSCI.EDU (ARPA)
GSCDIST@STSCI.BITNET (BITNET)

Attention: Requesters with Network Access

Requesters with network access seeking data on CD-ROM or other media may find useful information in the **NASA - Master Directory on NODIS**. Please see page 19 for instructions on how to connect to NODIS.

