Contents of the NASA Ocean Data System Archive

Version 11-90

Elizabeth A. Smith
Ruby A. Lassanyi

Editors

November 15, 1990

NASA
National Aeronautics and Space Administration
Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California
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NODS
NASA Ocean Data System
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Abstract

The National Aeronautics and Space Administration (NASA) Ocean Data System (NODS) archive at the Jet Propulsion Laboratory (JPL) includes satellite data sets for the ocean sciences and global-change research to facilitate multidisciplinary use of satellite ocean data. Parameters include sea-surface height, surface-wind vector, sea-surface temperature, atmospheric liquid water, and surface pigment concentration. NODS will become the Data Archive and Distribution Service of the JPL Distributed Active Archive Center for the Earth Observing System Data and Information System (EOSDIS) and will be the United States distribution site for Ocean Topography Experiment (TOPEX)/POSEIDON data and metadata.
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Introduction

Welcome to the National Aeronautics and Space Administration (NASA) Ocean Data System (NODS).

Data are the lifeblood of the ocean sciences, and only satellites provide data on a global scale. It is widely accepted that long time series of key oceanographic variables with global coverage, such as sea-surface height, surface wind, sea-surface temperature, and surface-layer phytoplankton abundances, are needed for ocean-sciences research. Unrestricted and timely access to these data is critical to the success of many programs, including Tropical Ocean Global Atmosphere (TOGA), World Ocean Circulation Experiment (WOCE), Global Ocean Flux Studies (GOFS), Earth Observing System (EOS), and the International Geosphere–Biosphere Program (IGBP). Because NODS preserves data products for a long time and distributes high-level data sets, the cumulative value of data collection efforts will be better realized. Sharing data at a central location enables the creation of new data sets by merging two or more existing data sources.

The NODS archive includes satellite data sets for the ocean sciences and global-change research to facilitate multidisciplinary use of satellite ocean data. NODS will become the Data Archive and Distribution Service of the Jet Propulsion Laboratory (JPL) Distributed Active Archive Center for the Earth Observing System Data and Information System (EOSDIS) and will be the United States distribution site for Ocean Topography Experiment (TOPEX)/POSEIDON data and metadata.

NODS is devoted to the archiving and distribution of satellite ocean measurements related to altimetry, scatterometry, and microwave radiometry (excluding frozen-ocean applications) and has identified the following applications urgently needed by ocean scientists:

(1) Access to high-level satellite ocean data sets

(2) Rapid delivery of data

(3) Temporal- and spatial-data subsetting services
(4) User-friendly access to information about NODS data via electronic networks to the Master Directory at NASA Goddard and to inventories

(5) Inventories to facilitate data-granule location and ordering

(6) CD-ROMs containing single- and multi-sensor ocean data

(7) Reprocessed high-level satellite ocean data sets

(8) Standards for classifying, documenting, and archiving data to facilitate access to data

(9) Practices that encourage researchers to share high-level data products within the oceanographic community

NODS looks forward to hearing from you. Please contact NODS regarding details of data-set granularity, available distribution media, and formats. Referenced documentation may be obtained from the open literature or by contacting the JPL Document Review Group for copies of JPL Internal Documents. Questions about NODS, requests for data, and comments or suggestions are welcomed. Please contact us at the addresses or phone numbers listed below.

For NODS information:
Jet Propulsion Laboratory
NASA Ocean Data System
M/S 300-320
4800 Oak Grove Drive
Pasadena, CA 91109, U.S.A.

NODS.JPL on OMNET
STANS::RAL on SPAN
818-354-0906 (Ruby Lassanyi)
818-354-6980 (Elizabeth Smith)
TELEX: 675429 (Attention: NODS)
FAX: 818-393-6720 (Attention: NODS)

For copies of JPL Internal Documents:
Jet Propulsion Laboratory
Document Review Group
M/S 111-120
4800 Oak Grove Drive
Pasadena, CA 91109, U.S.A.

818-354-3187 (Document Review Group)
Sea-Surface Height

1. **Geos-3 Altimeter**
data type: Geophysical data record
coverage: 14 April 1975–1 December 1978, global
smallest granule: Specific periods and regions
data set volume: 170 MB

2. **Seasat Altimeter**
data type: Sensor data record
coverage: 7 July 1978–10 October 1978, global
smallest granule: 1 orbit
data set volume: 440 MB

3. **Seasat Altimeter**
data type: Geophysical data record
coverage: 7 July 1978–10 October 1978, global
smallest granule: Specific periods and regions
data set volume: .350 MB = 14 tapes

4. **Geosat Altimeter**
data type: Zlotnicki-Fu interpolated along track
coverage: 6 November 1986–26 September 1989, global
smallest granule: Specific periods and regions
data set volume: 560 MB = 6 tapes
Surface-Wind Vector (and Sigma-Naught)

1. **Seasat Scatterometer**
   - data type: Sensor data record
   - coverage: 7 July 1978–10 October 1978, global
   - smallest granule: 1 orbit
   - data set volume: 8000 MB

2. **Seasat Scatterometer**
   - data type: Geophysical data record
   - coverage: 7 July 1978–10 October 1978, global
   - smallest granule: Specific periods and regions
   - data set volume: 340 MB

3. **Seasat Scatterometer**
   - data type: Carsey and Pihos gridded, 100-km-by-100-km, polar, daily, unattenuated, sigma-naught statistics (mean, standard deviation, minimum, maximum)
   - coverage: 7 July 1978–10 October 1978, north and south polar grids
   - smallest granule: Entire data set (1 tape)
   - data set volume: 149 MB
4. **Seasat Scatterometer**

data type: Wentz forward and aft sigma-naught data collocated into 50-km-by-50-km cells

coverage: 7 July 1978–10 October 1978, global

smallest granule: 6 days (1 tape)

data set volume: 1767 MB = 16 tapes


5. **Seasat Scatterometer**

data type: Atlas et al. dealiased, gridded, 100-km-by-100-km, surface-wind vectors (SASS 1 algorithm with atmospheric general circulation model)

coverage: 7 July 1978–10 October 1978, global

smallest granule: Entire data set (2 tapes, binary; 4 tapes, EBCDIC)

data set volume: 635 MB


6. **Seasat Scatterometer**

data type: Wentz, Atlas, and Freilich dealiased, gridded, 100-km-by-100-km, surface-wind vectors (SASS 2 algorithm)

coverage: 7 July 1978–10 October 1978, global

smallest granule: Entire data set (2 tapes)

data set volume: 258 MB

7. **Seasat Scatterometer**
data type: JPL-UCLA-AES dealiased, gridded, 1-degree-by-1-degree, 6-hourly, surface-wind vectors (SASS 1 algorithm)
smallest granule: Entire data set (1 tape)
data set volume: 54 MB

8. **Seasat Scatterometer**
data type: Chelton et al. gridded, 2.5-degree-by-2.5-degree, monthly, surface-wind vector (from Atlas et al. dealiased, surface-wind vectors; see Surface-Wind Vector, page 6, item 5)
coverage: 7 July 1978–10 October 1978, global
smallest granule: One month, global (1 tape)
data set volume: 0.5 MB

9. **DMSP Special-Sensor Microwave Imager**
data type: Atlas 6-hourly, surface-wind vectors (directions assigned) at SSM/I data locations
coverage: June 1987–July 1988, global
smallest granule: One month, global (1 tape)
data set volume: 11 tapes
10. **Atlas Gridded, Surface-Wind Analysis**

**data type:** Atlas gridded, 2-degree-latitude-by-2.5-degree-longitude, 6-hourly, surface-wind analysis combining SSM/I winds, ship, and buoy reports and model first-guess winds

**coverage:** June 1987–July 1988, global

**smallest granule:** One month, global (1 tape)

**data set volume:** 11 tapes

Surface-Wind Speed

1. **Geos-3 Altimeter**
   - data type: Geophysical data record
   - coverage: 14 April 1975–1 December 1978, global
   - smallest granule: Specific periods and regions
   - data set volume: 170 MB

2. **Seasat Altimeter**
   - data type: Sensor data record
   - coverage: 7 July 1978–10 October 1978, global
   - smallest granule: 1 orbit
   - data set volume: 440 MB

3. **Seasat Altimeter**
   - data type: Geophysical data record
   - coverage: 7 July 1978–10 October 1978, global
   - smallest granule: Specific periods and regions
   - data set volume: 350 MB
4. **Seasat Scanning**, **Multichannel Microwave Radiometer**
   - data type: Sensor data record
   - coverage: 7 July 1978–10 October 1978, global
   - smallest granule: 1 orbit
   - data set volume: 5680 MB

5. **Seasat Scanning**, **Multichannel Microwave Radiometer**
   - data type: Geophysical data record
   - coverage: 7 July 1978–10 October 1978, global
   - smallest granule: Specific periods and regions
   - data set volume: 170 MB

6. **DMSP Special-Sensor Microwave Imager**
   - data type: Wentz geophysical tapes, daily, 25-km-by-25 km cells of wind speed
   - coverage: July 1987–December 1988, global
   - smallest granule: Two weeks, global (1 tape)
   - data set volume: 2758 MB = 35 tapes
<table>
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<tr>
<th>data type</th>
<th>Wentz SSM/I collocated with Geosat</th>
</tr>
</thead>
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<tr>
<td>coverage</td>
<td>July 1987–December 1989, global</td>
</tr>
<tr>
<td>smallest granule</td>
<td>Entire data set (1 tape)</td>
</tr>
<tr>
<td>data set volume</td>
<td>150 MB = 1 tape</td>
</tr>
</tbody>
</table>
Surface-Wind Stress Vector

1. Seasat Scatterometer
   data type: Chelton et al. gridded, 2.5-degree-by-2.5-degree, monthly, wind stress (from Atlas et al. dealiased, surface-wind vectors; see Surface-Wind Vector, page 6, item 5)
   coverage: 7 July 1978–10 October 1978, global
   smallest granule: One month, global (1 tape)
   data set volume: 0.5 MB
Integrated Water Vapor

1. **Seasat Scanning**, **Multichannel Microwave Radiometer**
   - data type: Sensor data record
   - coverage: 7 July 1978–10 October 1978, global
   - smallest granule: 1 orbit
   - data set volume: 5680 MB

2. **Seasat Scanning**, **Multichannel Microwave Radiometer**
   - data type: Geophysical data record
   - coverage: 7 July 1978–10 October 1978, global
   - smallest granule: Specific periods and regions
   - data set volume: 170 MB

3. **NOAA Tiros Operational Vertical Sounder**
   - data type: Emery et al. gridded, 1-degree-by-1-degree, weekly, vertically integrated water vapor
   - coverage: 1 January 1987–16 August 1987, global
   - smallest granule: Entire data set (1 tape)
   - data set volume: 4 MB
4. DMSP Special-Sensor Microwave Imager

data type: Emery et al. gridded, 1-degree-by-1-degree, weekly, vertically integrated water vapor

coverage: 15 July 1987–16 August 1987, global

smallest granule: Entire data set (1 tape)

data set volume: 4 MB


5. DMSP Special-Sensor Microwave Imager

data type: Wentz geophysical tapes, daily, 25-km-by-25-km cells of integrated water vapor

coverage: July 1987–December 1988, global

smallest granule: Two weeks, global (1 tape)

data set volume: 2758 MB = 35 tapes


6. Fleet Numerical Oceanographic Center

data type: Wet and dry tropospheric corrections as applied to the Zlotnicki-Fu Geosat altimeter data (see Sea-Surface Height, page 3, item 4)

coverage: 8 November 1986–28 December 1988, global

smallest granule: Entire data set (2 tapes)

data set volume: 284 MB

7. **DMSP Special-Sensor Microwave Imager**

- **data type:** Wentz SSM/I collocated with Geosat
- **coverage:** July 1987–December 1989, global
- **smallest granule:** Entire data set (1 tape)
- **data set volume:** 150 MB = 1 tape
Atmospheric Liquid Water

1. **Seasat Scanning, Multichannel Microwave Radiometer**
   - data type: Sensor data record
   - coverage: 7 July 1978–10 October 1978, global
   - smallest granule: 1 orbit
   - data set volume: 5680 MB

2. **Seasat Scanning, Multichannel Microwave Radiometer**
   - data type: Geophysical data record
   - coverage: 7 July 1978–10 October 1978, global
   - smallest granule: Specific periods and regions
   - data set volume: 170 MB

3. **DMSP Special-Sensor Microwave Imager**
   - data type: Wentz geophysical tapes, daily, 25-km-by-25-km cells of atmospheric liquid water
   - coverage: July 1987–December 1988, global
   - smallest granule: Two weeks, global (1 tape)
   - data set volume: 2758 MB = 35 tapes
4. **DMSP Special-Sensor Microwave Imager**

- **data type:** Wentz SSM/I collocated with Geosat
- **coverage:** July 1987–December 1989, global
- **smallest granule:** Entire data set (1 tape)
- **data set volume:** 150 MB = 1 tape
Sea-Surface Temperature

1. **Seasat Scanning, Multichannel Microwave Radiometer**
   - data type: Sensor data record
   - coverage: 7 July 1978–10 October 1978, global
   - smallest granule: 1 orbit
   - data set volume: 5680 MB

2. **Seasat Scanning, Multichannel Microwave Radiometer**
   - data type: Geophysical data record
   - coverage: 7 July 1978–10 October 1978, global
   - smallest granule: Specific periods and regions
   - data set volume: 170 MB

3. **Seasat Visible and Infrared Radiometer**
   - data type: Sensor data record
   - coverage: 7 July 1978–10 October 1978, global
   - smallest granule: 1 orbit
   - data set volume: 2400 MB
4. **TIROS-N/NOAA** Advanced, Very-High-Resolution Radiometer

data type: U. Miami/RSMAS gridded, 18-km-by-18-km, weekly, interpolated, multichannel sea-surface temperature

coverage: October 1981–March 1990, global

smallest granule: Specific regions and weekly

data set volume: 4760 MB = 34 tapes; 1 tape = 12 weeks

reference:


(c) NASA Ocean Data System (1990), "A User's Guide to the NOAA AVHRR MCSST Data Set Produced by The University of Miami/School of Marine and Atmospheric Science," Unpublished Manuscript.
Phytoplankton Pigment Concentration

1. **Nimbus-7 Coastal-Zone Color Scanner (West Coast Time Series)**

   - **data type:** Abbott and Zion images of phytoplankton pigment concentration
   - **coverage:** 27 February 1979–16 June 1986
     20N–55N, 105W–140W
   - **smallest granule:** 1 image per day; high resolution (tile), low resolution (mosaic), and cloud image
   - **data set volume:** 2700 MB

   **note 1:** Single scattering Rayleigh atmospheric correction used

   **note 2:** All data available on magnetic tape from M. Abbott, College of Oceanography, Oregon State University, Corvallis, OR 97331
   [M.ABBOTT/OMNET]

   **note 3:** Data from 27 February 79–31 December 81 available on CD-ROM together with software for use on IBM PC and Apple Macintosh computers
1. **Seasat Scanning, Multichannel Microwave Radiometer**

data type: Carsey and Pihos gridded, 100-km-by-100-km, polar, daily, brightness-temperature statistics (mean, standard deviation, minimum, maximum)

coverage: 7 July 1978–10 October 1978, north and south polar grids

smallest granule: Entire data set (1 tape)

data set volume: 70 MB

IMAGIC

IMAGIC is an image processing software package for the Apple Macintosh and was written by Dr. Charles Norris and Dr. William Emery, Colorado Center for Astrodynamics Research, Campus Box 431, University of Colorado, Boulder, CO 80309.

IMAGIC is useful for working with any type of data that can be viewed as two-dimensional images. Though written primarily to process satellite-derived imagery, IMAGIC can also be used for visualization of numerical data and for medical image processing.

IMAGIC runs on any Apple Macintosh computer with a color monitor. This includes the Macintosh II, Macintosh IIx, Macintosh IIcx, and the new Macintosh IIci. The program requires that your Macintosh be running System 6.0 or later. Two megabytes of RAM and a hard disk are also recommended.
CD-ROM Technical Information

NODS has compiled a set of references to help those receiving data products on CD-ROM learn more about CD-ROM technology, hardware requirements, and availability. The references are taken from the following sources:

1) "The Voyager Uranus Imaging CD-ROMs" by Eric Elaison of the U.S. Geological Survey, Flagstaff, AZ and Michael Martin of the Planetary Data System (PDS) at the Jet Propulsion Laboratory, Pasadena, CA. This document was produced by the PDS and is available from JPL/NODS at the address given in the Introduction, page 2.

2) CD-ROM EndUser, a monthly magazine published by DDRI, 6609 Rosecroft Place, Falls Church, VA 22043-1828, (703) 241-2131.
The National Aeronautics and Space Administration (NASA) Ocean Data System (NODS) archive at the Jet Propulsion Laboratory (JPL) includes satellite data sets for the ocean sciences and global-change research to facilitate multidisciplinary use of satellite ocean data. Parameters include sea-surface height, surface-wind vector, sea-surface temperature, atmospheric liquid water, and surface pigment concentration. NODS will become the Data Archive and Distribution Service of the JPL Distributed Active Archive Center for the Earth Observing System Data and Information System (EOSDIS) and will be the United States distribution site for Ocean Topography Experiment (TOPEX)/POSEIDON data and metadata.

7. Key Words (Selected by Author(s))
   Biological Oceanography
   Dynamic Oceanography
   Meteorology and Climatology
   Physical Oceanography

18. Distribution Statement
   Unlimited/Unclassified