Scientific Stewardship for Jason-2/3 Products:

NOAA Archive and Access Services



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NOAA National Centers for Environmental Information (NCEI) play an important institutional role as the US archives for oceanographic data.

- NCEI serves as the authoritative source within the US for
 - near real-time and
 - delayed-mode

Ocean Surface Topography Mission (OSTM) Jason-2 and Jason-3 products, providing rigorous long-term archival services,

 distributing data products to the scientific community as well as the public at large.















Late

Satellite

NOAA

Oceanography Group **NODC Jason Archive**

Latest Updates

- Data News
- xGDR Operations Messages

Introduction

This site contains an overview of the NOAA services being provided by the Satellite Oceanography Group of National Centers for Environmental Information (NCEI) for the Jason-2 (note: Jason-2 is also known as the Ocean Surface Topography Mission or OSTM) and Jason-3 satellites altimetry missions.

Background

The Jason-2 satellite launched 20 June 2008 and is the latest in a series of ocean altimeter missions designed to observe ocean circulation, sea level rise, and wave heights. Earlier altimeter missions include <u>Geosat</u> and <u>Geosat</u> <u>Follow-On</u> satellites, which flew in 1985-1989 and 1998-2008, respectively, and the <u>TOPEX/Poseidon</u> (1992-2005) and <u>Jason-1</u> (2001-present) missions, which were launched into the same orbit now occupied by Jason-2. Jason-3 is a follow-on mission to OSTM/Jason-2, which was launched on January 17, 2016. Jaosn-3 will secure the continuity of high quality ocean altimetry measurements in support of climate monitoring, operational oceanography and seasonal forecasting.

Jason-3 Level-2 X-GDR Data Access



- HTTP: <u>http://data.nodc.noaa.gov/jason3/</u>
- FTP: <u>ftp://ftp.nodc.noaa.gov/pub/data.nodc/jason3/</u>
- OPeNDAP: http://data.nodc.noaa.gov/opendap/jason3/
- THREDDS: http://data.nodc.noaa.gov/thredds/catalog/jason3/catalog.html

Jason-2 Level-2 X-GDR Data Access



- HTTP: <u>http://data.nodc.noaa.gov/jason2/</u>
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- OPeNDAP: <u>http://data.nodc.noaa.gov/opendap/jason2/</u>
- THREDDS: http://data.nodc.noaa.gov/thredds/catalog/jason2/catalog.html

Quality Monitoring of the Science Data

For deriving long-term quality measurements on Jason satellite data, we have developed a climate-oriented quality monitoring system. This system uses the <u>Rich Inventory</u> concept developed at NGDC, providing a searchable database for tracking and discovering data quality, metadata, and data set attributes. A near real time data quality check comprising of 8 statistics calculated on 23 parameters is performed as each Level-2 data file is ingested into NCEI's archives.

• Quality Monitoring: Jason-2/3 GDR and IGDR quality monitoring

Frequently Asked Questions (FAQ)

• What is the difference between the OGDR, IGDR and GDR?

A. The Operational Geophysical Data Record (OGDR) is produced within 1-2 hours of the satellite overflight. It has the lowest quality data and the most missing data. However, it is useful for time-critical applications. The Interim GDR is produced within 1-2 days of overflight. The orbital quality is far better. The science-quality "final" GDR is produced with a 60-day time lag. Note: A new, experimental OGDR is being produced at JPL within 7-9 hours of overflight. The quality of orbital information is equivalent to that of the IGDR. It is listed below.

Jason-2/3 Archive Quality Monitoring

Subscribe to RSS feed [What is RSS?]

<u>2015-Aug-10:Jason-2 IGDR product has been temporarily stopped</u>
 Jason-2 Cycle 261 IGDRs for passes 74 to 99 had large orbit errors and were withdrawn by
 CNES. Also, production of the IGDRs has temporarily stopped until the problem has been resolved.

Jason-2 xGDR Operations Messages

Subscribe to RSS feed [What is RSS?]

Files exist on the DDS but not in CLASS
 The following files exist on the DDS but not in ...

Archive Details

- 1. Requirements
- 2. Strategy
- 3. Submission Agreement
- 4. Services

Related altimeter datasets and products

These links will take you out of NCEI and we have no control over the content or whether these sites are kept up-to-date. Note that many of these sites require you to create a username and password in order to access the data.

- RADS (Radar Altimeter Database System) *
- High-quality experimental OGDRs from JPL. Note for RADS users: RADS incorporates these.
 - Jason-1
 - Jason-2
- <u>Envisat</u>
- CTOH: high-frequency along-track data and coastal products
- <u>PISTACH</u>: experimental coastal products for Jason-2
- <u>CNES Data Center</u> a sister site with the official Jason-2 xGDRs, auxiliary and ancillary data as well as similar records for TOPEX/Poseidon, Jason-1, Envisat, and Cryosat. Hosted by AVISO.
 AVISO (gridded products and improved delayed-mode products)
- LSA CryoSat IGDR: The NOAA/NESDIS Laboratory for Satellite Altimetry has been producing Level-2 IGDR from CryoSat mission and provides anonymous ftp access to the data

NCEI works with the CLASS (Comprehensive Large Array-Data Stewardship System) within NOAA.







NCEI provides scientific stewardship

- Data visualizations
- Mirror services within NOAA (reduced the latency) : A Mirror of Primary Datasets (OGDRs and IGDRs) which has reduced the latency of providing the OGDR to the public to under an hour;



Quality Control Rich Inventory Statistics



Quality Control Rich Inventory Statistics (Yongsheng Zhang)

- Extract metadata from granule headers and calculator descriptive statistics for the parameters in the files.
- Data anomalies are monitored and reported interested parties (archivist, producer and users).
- Made available as part of data discovery system.







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- Quality Control Rich Inventory Statistics
- NOAA CLASS/NCEI and CNES/SSALTO/SIPAD archive reconciliation services



ensures that both NOAA and CNES identically archive all the Jason-2/3 products consistently.



NCEI Archive reconciliation services

CNFS/SSALTO/

SIPAD

(Yongsheng Zhang)

NOAA/NCEI CLASS

			• • • • •	
Date	CLASS		SIPAD	
	unmatched	missing	unmatched	missing
Oct. 2014	2	0	2	0
Nov. 2014	3376	0	0	0
Dec. 2014	1809	2	0	0
Jan. 2015	1814	2	2	0
Feb. 2015	0	0	12	12
Mar. 2015	0	0	0	0
Apr. 2015	0	0	0	0
May 2015	0	0	0	0
Jun. 2015	0	0	0	0
Jul. 2015	75	75	75	0
Aug. 2015	32	32	77	0
Sep. 2015	0	0	0	0
Total	7208	111	168	12

- NCEI compares Jason-2/3 file types archived at CLASS versus SIPAD of CNES multi-mission ground segment (SSALTO).
- NCEI Cross-checks all files monthly and annually and helps to re-ingest into the archives any data files missing in CLASS or SIPAD.
- These comparisons facilitates consistent files matches for NOAA/CLASS and CNES/SSALTO/SIPAD.
- Implementation for Jason- 2/3 files are preformed monthly.





NOAA Jason User Communities (Broad)

- Protocols for data continue to show
 - ftp downloads are preferred by users, as is anonymous access.



Open Access System Restricted Access System .noaa.gov Q4 Volume 7019 GB Q4 Volume 855 GB Domain .noaa.gov other .gov Domain other .gov mil Domain .mil edu. Domain .edu .com Domain .com foreign (67 countries + .int) Domain foreign (CA, AU, IT) unknown Domain unknown



J3 Monthly FTP Summary

J3 Monthly WWW Summary





NOAA Jason User Communities (Broad)

USA Public Users USA Higher Education (colorado.edu UMD, MIT, ...)

- High Schools (Classroom Applications)
- Commercial (Googlebot.com Amazonaws.com, zinetcom.com)
- Networks (optonline.net)

NOAA, NASA, Navy, NSF

- NOAA Center for Satellite Applications and Research (STAR)
- NOAA Center for Weather and Climate Prediction (NCWCP)
- US Military Home land Security

National/Inte	ernational			
->Australia	Sweden			
China	Ireland			
France	Belarus			
Colombia	New Zealand			
Commercial	Taiwan			
Denmark	Spain			
Guatemala	Czech Republic			
Portugal	Ukraine, .			
Peru	•••			
Russia				
Germany	Other unresolved			
Thailand	domains			
India	*RADS			
Singapore	*Other			
Latvia				
United Kingdom				
Mozambique				
Chili				
Vietnam				
Indonesia				
Iran				
Japan				
China				

Research Products/Topics

- Sea Level Rise Response to climate change
- Global warming studies
- Sea Surface Height Anomalies
- Ccean Currents
- Ocean Wave Height and wave dynamics
- Ocean Bottom Topography
- Mesoscale Eddies
- Tropical cyclogenesis forecast
- Regional physical oceanography
- US and Non-US climate models and data assimilation
- Ocean Heat Content
- Arctic Sea Ice, ...





Future Products: A PIES Database to come *Sea Surface Height Variability from PIES (Pressure Inverted Echo Sounders) for groundtrack comparisons!

- PIES Time series comparisons reveal high correlation coefficients with Jason data (e.g., Baker-Yeboah,Watts, & Byrne, 2010, along the Agulhas Eddy Corridor)
 * Further analysis will be done using Jason 3 products.
- * Geopotential height integrated from the surface to a deep (4500 dbar) reference level has added value in understanding barotropic mass load vs steric.





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 GDR Seg Surface Height Anomaly, Cycle 260
- Product development and User Services

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- Jason-3 Products Handbook ^{IA}

Jason-2 Level-2 X-GDR Data Access

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(2015.07.24 - 2015.08.03)







Thank You



