

Obtaining Jason-2 IGDRs from NOAA/CLASS

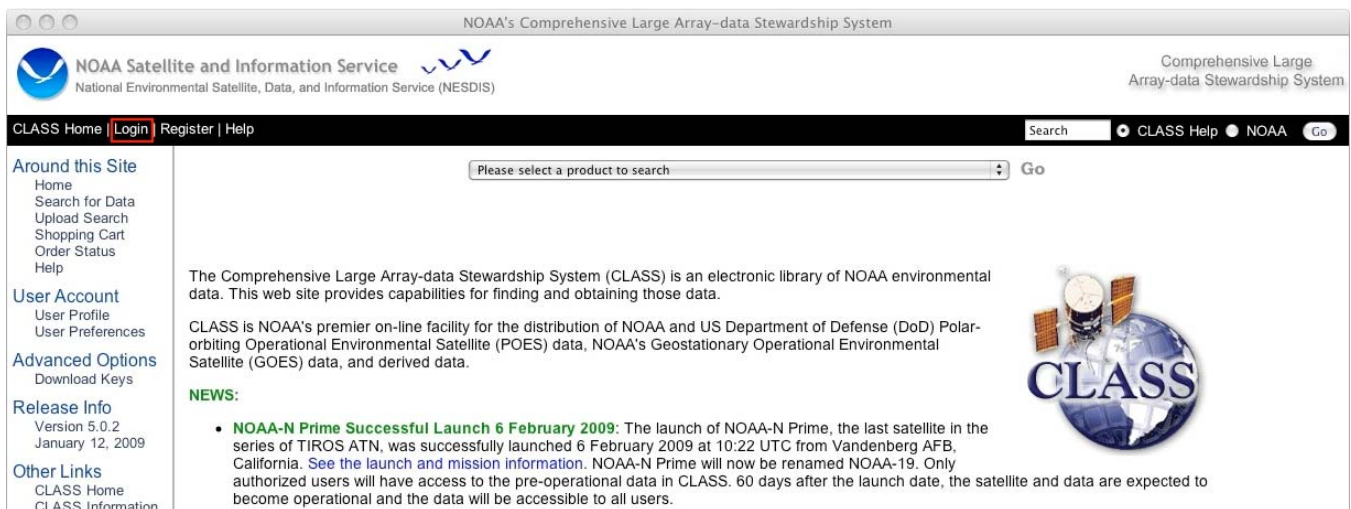
John L. Lillibridge - NOAA/OSTM Project Scientist

2009-02-13

When a new altimetry user needs to get started with Jason-2 datasets, they typically want all previous data as well as access to new data going forward. In this tutorial we'll assume that the user is interested in the Level-2 Interim Geophysical Data Records (IGDRs) - past, present, and future. The following steps lead you through obtaining all existing data, setting up a subscription for incoming data, and how to manage the download and filing of the IGDRs on the local workstation.

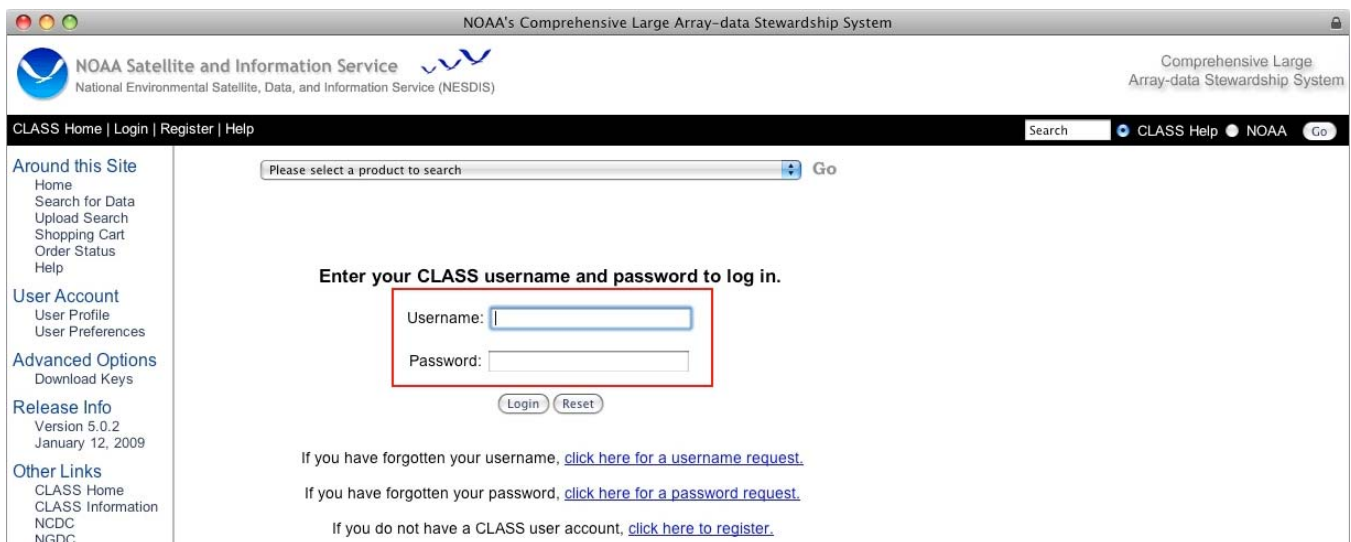
Step 1 - Obtaining previous data

After obtaining a CLASS user ID, login to the CLASS website <http://www.class.noaa.gov> and click on the 'Login' link in the upper left-hand corner of the main CLASS web page:



The screenshot shows the NOAA CLASS website homepage. The header includes the NOAA Satellite and Information Service logo and the text "National Environmental Satellite, Data, and Information Service (NESDIS)". The main navigation bar contains links for "CLASS Home", "Login", "Register", and "Help". A search bar is located on the right. The left sidebar lists various site features under "Around this Site", "User Account", "Advanced Options", "Release Info", and "Other Links". The main content area features a search bar with the placeholder text "Please select a product to search" and a "Go" button. Below this, there is a description of the CLASS system and a "NEWS" section with a bullet point about the NOAA-N Prime launch. A large "CLASS" logo with a satellite image is on the right.

Enter the Username and Password:



The screenshot shows the NOAA CLASS website login page. The header and navigation bar are identical to the previous screenshot. The main content area features a search bar with the placeholder text "Please select a product to search" and a "Go" button. Below this, there is a section titled "Enter your CLASS username and password to log in." with a red box around the "Username:" and "Password:" input fields. Below the input fields are "Login" and "Reset" buttons. At the bottom, there are links for "click here for a username request", "click here for a password request", and "click here to register".

Note that the 'Login' link has changed to 'Logout', indicating a successful login. Select 'J2-XGDR' from the top-center pull-down menu, and click on the 'Go' button:

NOAA's Comprehensive Large Array-data Stewardship System

NOAA Satellite and Information Service
National Environmental Satellite, Data, and Information Service (NESDIS)

CLASS Home | **Logout** | Help

Search CLASS Help NOAA Go

OSTM/Jason-2: Level-2 Geophysical Data Records (partially restricted)(J2-XGDR) Go

The Comprehensive Large Array-data Stewardship System (CLASS) is an electronic library of NOAA environmental data. This web site provides capabilities for finding and obtaining those data.

CLASS is NOAA's premier on-line facility for the distribution of NOAA and US Department of Defense (DoD) Polar-orbiting Operational Environmental Satellite (POES) data, NOAA's Geostationary Operational Environmental Satellite (GOES) data, and derived data.

NEWS:

- NOAA-N Prime Successful Launch 6 February 2009:** The launch of NOAA-N Prime, the last satellite in the series of TIROS ATN, was successfully launched 6 February 2009 at 10:22 UTC from Vandenberg AFB, California. [See the launch and mission information.](#) NOAA-N Prime will now be renamed NOAA-19. Only authorized users will have access to the pre-operational data in CLASS. 60 days after the launch date, the satellite and data are expected to become operational and the data will be accessible to all users.

CLASS

Around this Site
Home
Subscriptions
Search for Data
Upload Search
Shopping Cart
Order Status
Help

User Account
User Profile
User Preferences

Advanced Options
Download Keys

Release Info
Version 5.0.2
January 12, 2009

Other Links
CLASS Home

This takes you to the main J2-XGDR search page. Select 'Jason-2 Interim GDR in NetCDF Format' for the IGDRs:

NOAA's Comprehensive Large Array-data Stewardship System

NOAA Satellite and Information Service
National Environmental Satellite, Data, and Information Service (NESDIS)

CLASS Home | Logout | Help

Search CLASS Help NOAA Go

OSTM/Jason-2: Level-2 Geophysical Data Records (partially restricted)(J2-XGDR) Go

Search - J2-XGDR

Data Description

OSTM/Jason-2: Level-2 Geophysical Data Records - The level 2 geophysical data records derived from instruments aboard the JASON-2 satellite and are available as 3 datatypes: Operational Geophysical Data Records (OGDR), Interim Geophysical Data Records (IGDR) and final Geophysical Data Records (GDR). The OGDRs are near-real-time records and are generated every 3-5 hours. They are based on orbits from DORIS propagator and forecast meteorological fields for the geophysical corrections. The IGDRs are based on preliminary DORIS ephemeris, analyzed meteorological grids, and preliminary auxiliary data files. They have a data latency of 1 - 2 days. The S-IGDR is a superset of the IGDR, containing the original radar echo "waveform" data. The GDRs are based on final high-precision DORIS (perhaps combined with GPS) ephemeris, final meteorological grids, ancillary and auxiliary data files. S-GDR is a superset of the GDR, containing the waveform data. They are generated every 10 days. Sea Surface Height Anomaly (SSHA) files are available for IGDR and GDR. All files are available in NetCDF format and the OGDR is also available in BUFR format.

Details - Metadata, Documentation

Temporal
Search by: ☒ Date ☐ Cycle

Start Date
(format: YYYY-MM-DD) 2009-02-05 [B3]

Start Time
(format: HH:MM:SS) 00:00:00

End Date
(format: YYYY-MM-DD) 2009-02-12 [B3]

End Time
(format: HH:MM:SS) 23:59:59

Specify the range of the times for: ☐ Each Day Or ☒ The Entire Range Of Days

Advanced Search

Pass
[]

Datatype

- ☐ Jason-2 Interim Sensor GDR in NetCDF Format
- ☐ Jason-2 Final GDR Sea Surface Height Anomaly
- ☐ Jason-2 Final GDR in NetCDF Format
- ☐ Jason-2 Final Sensor GDR in NetCDF Format
- ☐ Jason-2 Interim GDR Sea Surface Height Anomaly
- ☒ Jason-2 Interim GDR in NetCDF Format
- ☐ Jason-2 Near Real-Time Operational GDR Sea Surface Height Anomaly
- ☐ Jason-2 Near Real-Time Operational GDR in BUFR Format
- ☐ Jason-2 Near Real-Time Operational GDR in NetCDF Format

Node

- ☐ Ascending (odd pass number)
- ☐ Descending (even pass number)
- ☐ Either

Reset Order Now Search Save Criteria Load Criteria Dataset Name

To change the search criteria from a Date range to a Cycle range, click on the 'Cycle' radio button. Note that there are 254 IGDRs per 10-day cycle, and the maximum number of items per order is 500. To simplify matters, place a single order for each cycle as shown below, using Cycle-15 as an example:

NOAA Satellite and Information Service

National Environmental Satellite, Data, and Information Service (NESDIS)

CLASS Home

Logout

Help

Search

CLASS Help

NOAA

Go

Around this Site

Home

Subscriptions

Search for Data

Upload Search

Shopping Cart

Order Status

Help

User Account

User Profile

User Preferences

Advanced Options

Download Keys

Release Info

Version 5.0.2

January 12, 2009

Other Links

CLASS Home

CLASS Information

NCDC

NGDC

NESDIS

NOAA

DOC

OSTM/Jason-2: Level-2 Geophysical Data Records (partially restricted)(J2-XGDR)

Go

Search - J2-XGDR

Data Description

OSTM/Jason-2: Level-2 Geophysical Data Records - The level 2 geophysical data records derived from instruments aboard the JASON-2 satellite and are available as 3 datatypes: Operational Geophysical Data Records (OGDR), Interim Geophysical Data Records (IGDR) and final Geophysical Data Records (GDR). The OGDRs are near-real-time records and are generated every 3-5 hours. They are based on orbits from DORIS propagator and forecast meteorological fields for the geophysical corrections. The IGDRs are based on preliminary DORIS ephemeris, analyzed meteorological grids, and preliminary auxiliary data files. They have a data latency of 1 - 2 days. The S-IGDR is a superset of the IGDR, containing the original radar echo "waveform" data. The GDRs are based on final high-precision DORIS (perhaps combined with GPS) ephemeris, final meteorological grids, ancillary and auxiliary data files. S-GDR is a superset of the GDR, containing the waveform data. They are generated every 10 days. Sea Surface Height Anomaly (SSHA) files are available for IGDR and GDR. All files are available in NetCDF format and the OGDR is also available in BUFR format.

Details - Metadata, Documentation

Temporal

Search by: ☐ Date ☒ Cycle

Cycle: 15

Advanced Search

Pass

Datatype

☐ Jason-2 Interim Sensor GDR in NetCDF Format

☐ Jason-2 Final GDR Sea Surface Height Anomaly

☐ Jason-2 Final GDR in NetCDF Format

☐ Jason-2 Final Sensor GDR in NetCDF Format

☐ Jason-2 Interim GDR Sea Surface Height Anomaly

☒ Jason-2 Interim GDR in NetCDF Format

☐ Jason-2 Near Real-Time Operational GDR Sea Surface Height Anomaly

☐ Jason-2 Near Real-Time Operational GDR in BUFR Format

☐ Jason-2 Near Real-Time Operational GDR in NetCDF Format

Node

☐ Ascending (odd pass number)

☐ Descending (even pass number)

☐ Either

Reset

Order Now

Search

Save Criteria

Load Criteria

Dataset Name

Click on the 'Order Now' button, to go immediately to the Shopping Cart screen:

The screenshot shows the NOAA CLASS Shopping Cart interface. The header includes the NOAA logo and the text "NOAA Satellite and Information Service" and "National Environmental Satellite, Data, and Information Service (NESDIS)". The main content area is titled "Shopping Cart" and displays the following information:

- Total size of selected data sets: 2012266293 Bytes
- You will be notified at: John.Lillibridge@noaa.gov
- Number of data sets: 391
- Order Comment:
- Cost: Free
- Delivery Method: Electronic (FTP - Free)

Below this information are buttons for "PlaceOrder", "Commit Changes", "Remove All", and "Reset". The "PlaceOrder" button is highlighted with a red box.

Below the buttons is a section titled "Order Now Criteria for J2-XGDR" with the text "Estimated 391 hits. Estimated size 2012266293 bytes." and a table with the following data:

Datatype	JAIGDR
Start Date:	
Start Time:	
End Date:	
End Time:	
Cycle	15
Pass	

At the bottom of the table, it says "Delivery Preferences to be applied are set User Preferences".

Click on the 'Place Order' button and you will receive an Order Confirmation. Note the number shown highlighted below, as you can use it later to download this cycle's worth of IGDRs:

The screenshot shows the NOAA CLASS Order Confirmation interface. The header is the same as the previous screenshot. The main content area is titled "Shopping Cart" and displays the following information:

- Confirmation:**
- Thank you for placing your order with the Comprehensive Large-Array data Stewardship System.
- Your confirmation number is: 10058624 (highlighted with a red box)
- When data becomes available, you will be notified at this address: John.Lillibridge@noaa.gov.

Below the confirmation information is a section titled "Data Usage Survey" with the text "We are collecting information on data usage. This is a voluntary survey. What will be the primary use of the product/service?" and a form with radio buttons for "Education", "Scientific research", "Business", "Personal", "Legal", and "Other". There is a "Submit" button at the bottom of the survey.

When you receive e-mail notification that the order is complete, you can ftp all the IGDRs with a client like lftp, using the CLASS ftp site and the order number shown above:

lftp mirror ftp.class.ngdc.noaa.gov/10058624 (for this example using Cycle-15 IGDRs).

Continue to place orders for each of the cycle's of data that are desired. There will be a separate order number/download directory for each order. Managing the ftp sessions from CLASS to your local workstation, including filing into cyclic subdirectories, is discussed further in Step 3 below. Once all orders have been completed, click on the Logout link in the upper left and/or close the browser window to the CLASS web site.

Step 2 - Setting up subscriptions for new data

The next step is to set up a subscription so that all new IGDRs received by CLASS are automatically queued for download by the user. A new user must first request subscription services for their account, by sending an e-mail to the CLASS help desk: info@class.noaa.gov.

Once this request has been processed, as 'Subscriptions' menu item will appear on the left hand side of the main CLASS window, after the user has logged in (see main screen pictures above).

Begin managing subscriptions by clicking on the 'Subscription' menu item. Again select 'J2-XGDR' from the pull-down menu, and click on the 'Add New' button:

The screenshot shows the NOAA's Comprehensive Large Array-data Stewardship System (CLASS) interface. The top navigation bar includes the NOAA logo, the text "NOAA Satellite and Information Service National Environmental Satellite, Data, and Information Service (NESDIS)", and a search bar. The left sidebar contains a menu with "Around this Site" (Home, Subscriptions, Search for Data, Upload Search, Shopping Cart, Order Status, Help), "User Account" (User Profile, User Preferences), and "Advanced Options" (Download Keys). The main content area is titled "Subscriptions" and features a dropdown menu with "OSTM/Jason-2: Level-2 Geophysical Data Records (partially restricted)(J2-XGDR)" and an "Add New" button. Below this, a message states: "You currently have no subscriptions defined. To add a new subscription, select a product from the 'Please select a product for new subscription' dropdown list, then click the 'AddNew' button." A list of subscription email addresses is shown, including "John.Lillibridge@noaa.gov".

Select the 'Interim GDR in NetCDF Format' product, and click on the 'Delivery Options >>' button:

The screenshot shows the "Subscription Search Criteria - J2-XGDR" page in the NOAA CLASS interface. The top navigation bar and left sidebar are identical to the previous screenshot. The main content area is titled "Subscription Search Criteria - J2-XGDR" and includes a "Subscription Enabled" checkbox (checked). Below this is a text input field for "J2-XGDR Subscription". The "Advanced Search" section contains a "Pass" input field and a "Node" section with radio buttons for "Ascending (odd pass number)", "Descending (even pass number)", and "Either". The "Datatype" section lists several options, with "Jason-2 Interim GDR in NetCDF Format" selected and highlighted by a red box. Other options include "Jason-2 Interim Sensor GDR in NetCDF Format", "Jason-2 Final GDR Sea Surface Height Anomaly", "Jason-2 Final GDR in NetCDF Format", "Jason-2 Final Sensor GDR in NetCDF Format", "Jason-2 Interim GDR Sea Surface Height Anomaly", "Jason-2 Near Real-Time Operational GDR Sea Surface Height Anomaly", "Jason-2 Near Real-Time Operational GDR in BUFR Format", and "Jason-2 Near Real-Time Operational GDR in NetCDF Format". At the bottom, there are "Cancel", "Delivery Options >>", and "Reset" buttons.

If you prefer not to receive e-mail notifications for your subscription, select the two 'No' radio buttons. Click on the 'Save' button to save your preferences:

NOAA's Comprehensive Large Array-data Stewardship System

NOAA Satellite and Information Service
National Environmental Satellite, Data, and Information Service (NESDIS)

Comprehensive Large Array-data Stewardship System

CLASS Home | Logout | Help

Search CLASS Help NOAA Go

Around this Site
Home
Subscriptions
Search for Data
Upload Search
Shopping Cart
Order Status
Help

User Account
User Profile
User Preferences

Advanced Options
Download Keys

Subscription Services Delivery/Extraction Options

Notification Preferences
I want to receive by email a summary of my order when processing is complete ☒ No ☐ Yes

Delivery Preferences
Include digital signature when available ☒ No ☐ Yes

Cancel << Search Criteria Printable Listing **Save** Reset

Your subscription for IGDRs, in this example, is now enabled. Typically a group of ~13 IGDRs are received daily around 1900 UTC. Note that setting up a subscription will NOT download previous files, only those coming in after the subscription is enabled. You must follow Step 1 above in order to obtain older datasets. If you return to modify your subscription later, you will see a screen like the following. Click on the link in the subscription name to make modifications to an existing subscription:

NOAA's Comprehensive Large Array-data Stewardship System

NOAA Satellite and Information Service
National Environmental Satellite, Data, and Information Service (NESDIS)

Comprehensive Large Array-data Stewardship System

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Upload Search
Shopping Cart
Order Status
Help

User Account
User Profile
User Preferences

Advanced Options
Download Keys

Release Info
Version 5.0.2
January 12, 2009

Subscriptions

Please select a product for new subscription Add New

Enable Disable Delete The Enable, Disable, and Delete buttons act on subscriptions checked below. For more information, see the subscription help pages.

	Enabled	Subscription Name (Click name for subscription details)
<input type="checkbox"/>	Yes	J2-XGDR Subscription

The following subscription email addresses are associated with this account:

- John.Lillibridge@noaa.gov

Step 3 - Managing FTP downloads and filing of datasets

Once online (shopping cart) orders have been placed, and/or subscription orders have been filled, the requested datasets will be made available from CLASS ftp servers. Online orders are available from the CLASS server at NGDC, in a subdirectory with the name of the order number. For example:

```
ftp://ftp.class.ngdc.noaa.gov/#####
```

Subscription orders are available from the CLASS server at NSOF, in the subscription directory, in a subdirectory with the user's Username. For example:

```
ftp://ftp.class.noaa.gov/sub/User.Name
```

Presently files provided by subscription have a CLASS order number prefix which most users will want to strip off. A future version of the CLASS system will likely eliminate this annoyance, but it isn't difficult to remove the unwanted prefix. Additionally, all Level-2 Jason-2 datasets (OGDR/IGDR/GDR) are accompanied by XML-metadata files. In the next major CLASS release it will be possible to order data alone, XML-metadata alone, or both. But for now the orders will routinely supply both the file and its accompanying metadata. The use of smart ftp clients like 'lftp' and a few simple Unix shell scripts can easily deal with both the prefix and metadata issues, as well as routinely filing IGDRs into cyclic directories.

The following lftp command file, kindly provided by Remko Scharroo, downloads subscription based files from the CLASS NSOF ftp server, avoids downloading the XML-metadata, and places all of the files in a local directory 'class':

```
open ftp.class.noaa.gov/sub  
mirror --parallel=5 -x xml -e -L User.Name class
```

The following Unix bash-shell script sorts these downloaded files into cyclic directories, and removes the CLASS order number prefix:

```
#!/bin/bash  
#####  
# The purpose of the script is to sort all newly arrived  
# IGDR/GDR files into separate directories per cycle.  
# The sorted files are hard links to the unsorted files.  
#  
# The source directory is given as argument to the script  
# The cycle directories are created as {i,}gdr/c???  
#  
# 27-Aug-2008 - Created by Remko Scharroo  
#####
```

alldirs=

Repeat this process for different file types

for type in IPN GPN ; do

case \$type in

IPN) dir=igdr ;;

GPN) dir=gdr ;;

**) dir=\$type ;;*

esac

List the new files

newdir=`ls -dt \$dir/c??? | head -1`

if [[\${#newdir} > 0]] ; then

*files=(`find \$1 -name "*JA2_\${type}_" -newer \$newdir -print`)*

else

*files=(`find \$1 -name "*JA2_\${type}_" -print`)*

fi

echo "\$dir: \${#files[@]} file(s) to sort ..."

Store all listed files in the appropriate directories

Example file name:

class/L0254093.JA2_IPN_2PTP005_137_20080826_003922_20080826_013535

n=0

for file in \${files[@]} ; do

destfile=\${file/#JA2/JA2}

destdir=\$dir/c\${destfile:12:3}

mkdir -p \$destdir

ln -f \$file \$destdir/\$destfile

alldirs=`ls -d \$alldirs \$destdir | sort -u`

done

done