S-MODE Datasets & Cloud Access

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Jet Propulsion Laboratory, California Institute of Technology

https://podaac.jpl.nasa.gov/

December 1, 2022
S-MODE Open Data Workshop
PO.DAAC Manages NASA's oceanographic and hydrologic data

Measurements include:
- Gravity
- Ocean winds
- Sea surface temperature
- Ocean surface topography
- Sea surface salinity
- Circulation

https://podaac.jpl.nasa.gov/
Prerequisite:
Earthdata Login: [https://urs.earthdata.nasa.gov/](https://urs.earthdata.nasa.gov/)
PO.DAAC Portal
PO.DAAC Portal: [https://podaac.jpl.nasa.gov/](https://podaac.jpl.nasa.gov/)

Data in Action: Sea Surface Height grids with different spatial resolutions

Since the beginning of the 1990s, satellite altimeters have been measuring sea surface height (SSH) from space.
PO.DAAC Portal: https://podaac.jpl.nasa.gov/

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PO.DAAC S-MODE Website: https://podaac.jpl.nasa.gov/S-MODE
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PO.DAAC S-MODE Website: [https://podaac.jpl.nasa.gov/S-MODE](https://podaac.jpl.nasa.gov/S-MODE)

<table>
<thead>
<tr>
<th>Dataset Name</th>
<th>Processing Level</th>
<th>Start/Stop</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-MODE Shipboard Acoustic Doppler Current Profiler Measurements Version 1</td>
<td>NA</td>
<td>2021-Aug-01 to Present</td>
<td>netCDF-4</td>
</tr>
<tr>
<td>S-MODE Shipboard Bottle Data Version 1</td>
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<td>S-MODE Shipboard Thermosalinograph and Meteorology Measurements Version 1</td>
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<tr>
<td>S-MODE Shipboard Radiometer Measurements Version 1</td>
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### S-MODE Datasets Currently Available

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<th>Dataset Name</th>
<th>Processing Level</th>
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<th>Number of Files</th>
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**Coming in December**
## PO.DAAC S-MODE Website: [https://podaac.jpl.nasa.gov/S-MODE](https://podaac.jpl.nasa.gov/S-MODE)

### Dataset Information

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S-MODE Shipboard Acoustic Doppler Current Profiler Measurements Version 1
(SMODE_LX_SHIPBOARD_ADCP_V1)

**Version**: 1

**Processing Level**: NA

**Start/Stop Date**: 2021-Aug-01 to Present

**Short Name**: SMODE_LX_SHIPBOARD_ADCP_V1

**Description**: This dataset contains Acoustic Doppler Current Profiler (ADCP) measurements from the Sub-Mesoscale Ocean Dynamics Experiment (S-MODE) during a pilot campaign conducted approximately 300 km offshore of San Francisco over two weeks in October 2021. S-MODE aims to understand how ocean dynamics acting on short spatial scales influence the vertical exchange of physical and biological variables in the ocean. The ADCP was mounted to the bottom of the hull of the R/V Oceana during cruise OC2108A, and measures horizontal and vertical currents, as well as acoustic backscatter from approximately 3 m to 50 m depth.
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(SMODE_LX_SHIPBOARD_ADCP_V1)

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Processing Level: NA
Start/Stop Date: 2021-Aug-01 to Present
Short Name: SMODE_LX_SHIPBOARD_ADCP_V1
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Status: ACTIVE
Short Name: SMODE_LX_SHIPBOARD_ADCP_V1
Collection Concept ID: C2110184929-POCLOUD
Spatial Coverage:
N: 38.1°
S: 36.3°
E: -122.9°
W: -125.4°
PO.DAAC Portal Dataset Landing Page:
https://podaac.jpl.nasa.gov/dataset/SMODE_LX_SHIPBOARD_ADCP_V1
Home » Dataset Discovery

S-MODE Shipboard Acoustic Doppler Current Profiler Measurements Version 1
(SMODE_LX_SHIPBOARD_ADCP_V1)

DIRECT ACCESS

- Browse Granule Listing
  - https://cmr.earthdata.nasa.gov/virtual-directory/collections/C2110184929-POCLOUD
  - Browse and download granules over HTTPS using the virtual directories

- Search Granules
  - Browse granule search results in Earthdata Search

DIRECT S3-ACCESS

- Available for access in-region with AWS Cloud
  - Region
    - us-west-2
  - Bucket/Object Prefix: Information
    - podaac-ops-cumulus-protected/SMODE_LX_SHIPBOARD_ADCP_V1/

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EARTHDATA Search
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PO.DAAC Data Downloader
PO.DAAC Data Downloader
https://github.com/podaac/data-subscriber

Scripted Access to PO.DAAC Data in the cloud – Video tutorial
PO.DAAC Data Downloader
https://github.com/podaac/data-subscriber

Scripted Access to PO.DAAC Data in the cloud – Video tutorial
# PO.DAAC Data Downloader

## Installation

Both subscriber and downloader require Python >= 3.7.

The subscriber and downloader scripts are available in the [pypi python repository](https://pypi.org/project/podaac-data-subscriber/), it can be installed via pip:

```
pip install podaac-data-subscriber
```

You should now have access to the downloader and subscriber Command line interfaces:

```
$ podaac-data-subscriber -h
```

```

$ podaac-data-downloader -h
```

```

Note: If after installation, the `podaac-data-subscriber` or `podaac-data-downloader` commands are not available, you may need to add the script location to the PATH. This could be due to a User Install of the python package, which is common on shared systems where python packages are installed for the user (not the system). See [installing to the user site](https://docs.python.org/3/tutorial/index.html#installing-to-the-user-site) and [user installs](https://docs.python.org/3/distutils/setupscript.html#installing-to-the-user-site) for more information on finding the location of installed scripts and adding them to the PATH.
PO.DAAC Data Downloader
https://github.com/podaac/data-subscriber

Includes two tools:
- Subscriber
- Downloader

For S-MODE data use the Downloader
PO.DAAC Data Downloader
https://github.com/podaac/data-subscriber

Data Downloader: Bulk or one-time Scripted Access to PODAAC data

The PO.DAAC Data downloader is a python-based tool for bulk and one-off (or non-often) downloading of data from the PO.DAAC archive. Use this script if you want to download data based on a space or time every once and a while.

For installation and dependency information, please see the top-level README.


optional arguments:
-h, --help show this help message and exit
-c COLLECTION, --collection-shortcutname COLLECTION
  The collection shortcutname for which you want to retrieve data.
-d OUTPUTDIRECTORY, --data-dir OUTPUTDIRECTORY
  The directory where data products will be downloaded.
-cycle SEARCH_CYCLES
  Cycle number for determining downloads. can be repeated for multiple cycles
-sd STARTDATE, --start-date STARTDATE
  The ISO date time before which data should be retrieved. For Example, --start-date 2021-01-14T00:00:00
-ed ENDDATE, --end-date ENDDATE
  The ISO date time after which data should be retrieved. For Example, --end-date 2021-01-14T00:00:00
-f, --force
  Flag to force downloading files that are listed in OMR query, even if the file exists and checksums
-b BBOX, --bounds BBOX
  The bounding rectangle to filter result in. Format is W Longitude,S Latitude,E Longitude,N Latitude spaces. Due to an issue with parsing arguments, to use this command, please use the -b"-180,-90,180,90" when calling from the command line. Default: "-180,-90,180,90".
**Earthdata Script to create .netrc file**

**Note: netrc file**

The netrc used within the script will allow Python scripts to log into any Earthdata Login without being prompted for credentials every time you run. The netrc file should be placed in your HOME directory. To find the location of your HOME directory

On UNIX you can use

```bash
echo $HOME
```

On Windows you can use

```bash
echo %HOMEDRIVE%\%HOMEPATH%
```

The output location from the command above should be the location of the `.netrc` (`.netrc` on Windows) file.

The format of the `netrc` file is as follows:

```plaintext
machine urs.earthdata.nasa.gov
        login <your username>
        password <your password>
```

for example:

```plaintext
machine urs.earthdata.nasa.gov
        login podaac\user
        password podaacIsAwesome
```
PO.DAAC Data Downloader
https://github.com/podaac/data-subscriber

Run in terminal:

```bash
$ podaac-data-downloader -c SMODE_LX_DRIFTER_POSITIONS_V1 -d mydata -sd 2021-01-01T00:00:00Z -ed 2022-01-01T00:00:00Z
```
PO.DAAC Data Downloader
https://github.com/podaac/data-subscriber

Run in terminal:

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```

directory to download files into
PO.DAAC Data Downloader
https://github.com/podaac/data-subscriber

Run in terminal:

```
$ podaac-data-downloader -c SMODE_LX_DRIFTER_POSITIONS_V1 -d mydata -sd 2021-01-01T00:00:00Z -ed 2022-01-01T00:00:00Z
```

start date
PO.DAAC Data Downloader
https://github.com/podaac/data-subscriber

Run in terminal:

```bash
$ podaac-data-downloader -c SMODE_LX DRIFTER POSITIONS_V1 -d mydata -sd 2021-01-01T00:00:00Z -ed 2022-01-01T00:00:00Z
end date
```
PO.DAAC Data Downloader

https://github.com/podaac/data-subscriber

Run in terminal:

```
podaac-data-downloader -c SMODE_LX_DRIFTER_POSITIONS_V1 -d mydata -sd 2021-01-01T00:00:00Z -ed 2022-01-01T00:00:00Z
```
Additional Resources
Resources & User Community Support

- **One stop for PO.DAAC Cloud Information**: [Cloud Data page](https://podaac.jpl.nasa.gov/cloud-datasets) with About, Cloud Datasets, Access Data, FAQs, Resources and Migration information
- Ask questions or find resources: [PO.DAAC in the CLOUD Forum](https://podaac.jpl.nasa.gov/cloud-datasets)
- Cloud user migration overview, guidance, and resources: [PO.DAAC Webinar](https://podaac.jpl.nasa.gov/cloud-datasets)
- Search and get access links: [Earthdata Search Client](https://podaac.jpl.nasa.gov/cloud-datasets) and [guide](https://podaac.jpl.nasa.gov/cloud-datasets)
- Search and get access links: [PO.DAAC Cloud Earthdata Search Portal](https://podaac.jpl.nasa.gov/cloud-datasets)
- Browse cloud data in web-based browser: [CMR Virtual Browse](https://podaac.jpl.nasa.gov/cloud-datasets) and [guiding video](https://podaac.jpl.nasa.gov/cloud-datasets)
- Scripted data search end-point: [Earthdata Common Metadata Repository (CMR) API](https://podaac.jpl.nasa.gov/cloud-datasets)
- Enable data download or access: [Obtain Earthdata Login Account](https://podaac.jpl.nasa.gov/cloud-datasets)
- Download data regularly: [PO.DAAC Data Subscriber Access video](https://podaac.jpl.nasa.gov/cloud-datasets) and [PO.DAAC Data Subscriber instructions](https://podaac.jpl.nasa.gov/cloud-datasets)
- [Bulk Download guide](https://podaac.jpl.nasa.gov/cloud-datasets)
- [OPeNDAP in the cloud](https://podaac.jpl.nasa.gov/cloud-datasets)
- PO.DAAC scripts and notebooks: [PO.DAAC Github](https://github.com/podaac)
- How to get started in the AWS cloud (e.g. set up an instance): [Earthdata Cloud Primer](https://podaac.jpl.nasa.gov/cloud-datasets)
- How to [set up your own Jupyter Hub, Jupyter Lab, or Jupyter Notebooks in AWS cloud](https://podaac.jpl.nasa.gov/cloud-datasets).
- Basic How-To tutorials for searching for cloud data and accessing data in the cloud (AGU workshop 2021):
  - Search and get access links from Earthdata Search
  - Earthdata login Authentication (scripted)
  - Direct data access in the cloud (without download)