

## Cruise Data Guidance

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### Purpose

As a part of GRIIDC’s mission to ensure a data and information legacy, GRIIDC submits data generated from research cruises to the National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information (NCEI) for long-term archiving. NCEI requires data be submitted with specific documentation and file structure. This guidance provides information about the types of cruise data to submit to GRIIDC, supporting documentation that is required, and the file structure required for data submission. By submitting data to GRIIDC with the required documentation and file structure you will help facilitate the submission of your data to NCEI. GRIIDC will not accept cruise data without the required documentation or without the required file structure.

### Types of Cruise Data to Submit to GRIIDC

The following data should be submitted as separate datasets to GRIIDC for each cruise:

System Type	Description/Examples
ADCP	Acoustic Doppler Current Profiler measuring ocean currents at stations or using transects
CTD	Conductivity, temperature, pressure, and other sensors in the water column
Echosounder	Single, dual, or split-beam sonar; may be fixed frequency or chirped; measures depth to seafloor or midwater reflectors, shallow sediment profile, and/or water column image
Expendable Probe	XBT, XCTD, XSV, and/or XCP launched from hand or deck unit
Fluorometer	Fluorescence (usually for phytoplankton)
Gravimeter	Gravity field
Magnetometer	Magnetic field
Underway	<ul style="list-style-type: none"> <li>• Meteorological data (wind speed/direction, temperature, humidity, turbulence, precipitation, radiation, etc.)</li> <li>• Navigation data (time, position, and motion e.g. Global Navigation Satellite System [D/GPS, GLONASS], Vertical/altitude Reference Unit [IMU/MRU], Speed log, and Gyrocompass)</li> <li>• ADCP underway data</li> <li>• Flow-through data (CTD, fluorometers and other sensors, thermosalinograph [TSG])</li> </ul>
Multibeam	Hull-mounted multiple beamforming sonar measures swath bathymetry, amplitude, and/or backscatter as well as water column image

pCO2	Partial pressure of dissolved carbon dioxide
SSV	Sea surface sound velocimeter
Winch	Wire tension, speed, payout, etc. recorded for vessel safety

### CTD Data

CTD data should be submitted in ASCII or NetCDF format. Common ASCII file extensions include .txt, .cnv, and .csv. In addition to these files, providers should submit all available raw files (e.g., .hex, .bin) and processed files (.hdr, .bl, .ros) together with configuration files (.psa, .con, .xmlcon).

### Underway Data

Underway data can be submitted as multiple datasets; however, the navigation files should be included in each dataset. If underway data is submitted as one dataset, please separate data types using folders.

### Samples Collected During Cruise

If samples are collected during a cruise for analysis in the lab, for example genetic or chemical analysis, these data should be submitted as a separate dataset.

If samples are collected during a cruise and exposed to manipulated conditions in the lab, these data should be submitted as a separate dataset.

### Cruise Data Submission Example:

R/V Pelican departs from St. Petersburg, Florida on May 16, 2023 and returns June 1, 2023. This cruise collected CTD, ADCP, and meteorological (met) data while underway. Sediment cores were obtained from ten sites for analysis of concentration of polycyclic aromatic hydrocarbons in the lab. Plankton tows were completed at five sites and species will be enumerated in the lab under light microscopy. Fish were caught via trawls and were measured in the field, and genetic and contaminant analysis will be performed in the lab. Water samples were taken to measure water quality parameters through lab analysis.

In this example, at least seven datasets would be submitted to GRIIDC:

- Dataset 1: CTD, ADCP, met data, navigation data
- Dataset 2: Sediment core PAH analysis
- Dataset 3: Species identified from plankton tows using light microscopy images
- Dataset 4: Species of fish caught and trawl information
- Dataset 5: Genetic analysis of fish caught
- Dataset 6: Contaminant analysis of fish caught
- Dataset 7: Water quality parameters

### Dataset requirements

- Excel files should not contain any color formatting, formulas, graphs, signatures, or designs.
- Please use the Cruise Data Documentation Excel template for data documentation. Additional documentation can be submitted as a readme file (text format). Please do not submit a Word document.
- All headers and acronyms should be defined in the metadata or readme file. Please include definitions of all parameters and units.
- Please use a CF compliance checker for NetCDF files.
- Avoid leaving blank cells in spreadsheets. If blank cells are necessary, please define them (e.g., data not collected, below detection limits, etc…) in the descriptive information.
- Datasets for different cruise ID’s should be submitted as separate datasets.

### Required Documentation

Specific documentation is required for cruise dataset submissions. A data documentation file must be submitted with each cruise dataset. This file should contain descriptive information about the contents of the dataset and include explanations of the folder structure and contents of folders and files. Please use the data documentation template to provide the required information:

#### Cruise Information Section:

- Start Date of Cruise: Formatted YYYYMMDD
- End Date of Cruise: Formatted YYYYMMDD
- Cruise purpose
- Sea name: Name of the body of water where samples were collected.
- Chief Scientist First Name Last Name

**Keyword Section:** The next section of the data documentation focuses on keywords that NCEI uses to facilitate search.

- **Observation Type:** Provide at least one observation type from the table below. Please include “profile” for data packages containing CTD profile data.

aerial photography	ice hole sampling	sediment analysis
atlas	imagery	site samples
benthic	in situ	surface measurements
Benthic FOCE-type study	integrated profiles	surface underway
biological	laboratory analysis	survey
chemical	laboratory experiments	survey – biological
composition & location	manual sample collection	survey - coral reef
continuous	marine mammal observation	survey – swimmer/diver
current measurements	meteorological	time series
current measurements – surface currents	model output	time series profile

daily maximum	moored buoy	tows
derived products	navigational	tows – oblique tows
discrete sample	optical	tows – plankton tows
documentation only – no observation type	physical	tows – undulating tows
drifting buoy	phytoplankton abundance	tows – vertical tows
fish examination	plankton	trawl
geological	pore water chemistry	underway
geophysical	profile	undulating profile
GIS product	pump cast	visual estimate
height of breaking surf	satellite data	visual observation
ice core	satellite photography	water chemistry

- **Instrument Type:** Provide at least one instrument type that was used to collect the data.  
*Examples:* CTD, Thermosalinographs, Multibeam Swath Bathymetry System
- **Datatype:** Provide at least one word or short phrase that describes the type of data.  
*Examples:* Water temperature, conductivity, turbidity, northward sea water velocity, weather observations
- **Platform:** Please include at least one platform name. If you are submitting data collected from a ship, this should be the ship name.  
*Examples:* Weatherbird II, Pelican

**People and Institution Section:** Include a list of people that are important to the dataset. This will facilitate search by people and institutions via NCEI.

- **People:** Contributors to the dataset. Please add at least one and include the following information:  
Last name, First name  
Organization/Institution  
Role (Primary point of contact, point of contact, principal investigator, collaborator)  
Email address
- **Collecting Institution:** The institution(s) that collected the data. This is usually the same as the PI's institution.  
*Example:* Harte Research Institute for Gulf of Mexico Studies, Texas A&M University – Corpus Christi
- **Author List:** Provide an ordered list of authors who should be included in the citation for the dataset. This may or may not include the people listed above. The format should be: Last name,

First name (or first initial); Last name, First name (or first initial). Please separate authors using a semicolon.

*Example:* Carson, Rachel; Jones, E.

**Folder and File Information Section:** A description of each folder and the files in each folder should be provided. Specifically:

- A definition of any folder or file naming conventions used.
- If multiple versions of the same data are included (example: .csv and .xlsx) information about the differences between the files.
- If processed and raw data are included, information about which folders and files contain raw data and which folders and files contain processed data.

### Dataset File Structure

The structure for cruise data files is provided below for a few of the different cruise data types. The documentation folder can contain any available supporting documentation for the dataset, including but not limited to, cruise reports, station location maps/images, latitude and longitude files, data dictionaries, and navigation logs. The same documentation files may be provided for all datasets from the same cruise. The only required file in this folder is the data documentation file described in the previous section of this document.

### Dataset 1: CTD Data

PELICAN\_CTD\_20230810-20230812.zip

Folder: Documentation

Cruise\_Data\_Documentation\_20230811.xlsx\*

DataDocumentationReadme.txt

CruiseReport.docx

StationCoordinates.xlsx

Folder: Data

Folder: CTD

CTD20230811.cnv

CTD20230811.hdr

CTD20230811.hex

CTD20230811.ros

CTD20230811.txt

CTD20230811.xml

CTD20230811.xmlcon

CTD20230811\_RawData.csv

CTD20230811\_Downcast.csv

CTD20230811\_Binned\_Averages.csv

## Dataset 2: Meteorological and Navigation Data

PELICAN\_Met\_20230810-20230812.zip

Folder: Documentation

Cruise\_Data\_Documentation\_20230812.xlsx\*

DataDocumentationReadme.txt

Folder: Data

Folder: Met

WS-1-Barometer-Device-DRV\_20230810.Raw

WS-1-Derived-True-Wind-Average-Speed-10-Seconds-DRV\_20230810.Raw

WS-1-Derived-True-Wind-DRV\_20230810.Raw

Folder: Navigation

ASHTECH-\$GPGGA-RAW\_20230518-123000.Raw

ASHTECH-\$GPHDT-RAW\_20230518-123000.Raw

ASHTECH-\$GPVTG-RAW\_20230518-123000.Raw

## Dataset 3: Longline Fisheries Data

PELICAN\_Longline\_20230810-20230812.zip

Folder: Documentation

Cruise\_Data\_Documentation\_20230811.xlsx\*

DataDocumentationReadme.txt

Folder: Data

FishCatch20230811.csv

## Additional Information

If you would like to provide more specific keywords for each section of the data documentation file, please reference the vocabularies for each keyword listed below. In your data documentation file please add the name of the vocabulary above the keyword list.

Seanames GCMD:

[https://gcmd.earthdata.nasa.gov/KeywordViewer/scheme/locations?gtm\\_scheme=locations](https://gcmd.earthdata.nasa.gov/KeywordViewer/scheme/locations?gtm_scheme=locations)

Seanames NODC:

<https://www.nodc.noaa.gov/General/NODC-Archive/seanamelist.txt>

Instrument Type GCMD:

[https://gcmd.earthdata.nasa.gov/KeywordViewer/scheme/instruments?gtm\\_scheme=instruments](https://gcmd.earthdata.nasa.gov/KeywordViewer/scheme/instruments?gtm_scheme=instruments)

Science Keywords GCMD:

[https://gcmd.earthdata.nasa.gov/KeywordViewer/scheme/all/e9f67a66-e9fc-435c-b720-ae32a2c3d8f5?gtm\\_keyword=EARTH%20SCIENCE&gtm\\_scheme=Earth%20Science](https://gcmd.earthdata.nasa.gov/KeywordViewer/scheme/all/e9f67a66-e9fc-435c-b720-ae32a2c3d8f5?gtm_keyword=EARTH%20SCIENCE&gtm_scheme=Earth%20Science)

Climate and Forecast Standard Names Table:

<https://www.ncei.noaa.gov/archive/archive-management-system/OAS/bin/prd/jquery/project>

Data Type GCMD:

[https://gcmd.earthdata.nasa.gov/KeywordViewer/scheme/Earth%20Science?gtm\\_scheme=Earth%20Science](https://gcmd.earthdata.nasa.gov/KeywordViewer/scheme/Earth%20Science?gtm_scheme=Earth%20Science)

Instruments GCMD:

[https://gcmd.earthdata.nasa.gov/KeywordViewer/scheme/instruments?gtm\\_scheme=instruments](https://gcmd.earthdata.nasa.gov/KeywordViewer/scheme/instruments?gtm_scheme=instruments)

[https://gcmd.earthdata.nasa.gov/KeywordViewer/scheme/all/fb0b9fcd-5c96-4989-8c64-a479bbbed83ab?gtm\\_keyword=Projects&gtm\\_scheme=projects](https://gcmd.earthdata.nasa.gov/KeywordViewer/scheme/all/fb0b9fcd-5c96-4989-8c64-a479bbbed83ab?gtm_keyword=Projects&gtm_scheme=projects)

Platforms - ICES: [http://seadatanet.maris2.nl/v\\_bodc\\_vocab\\_v2/search.asp?lib=C17](http://seadatanet.maris2.nl/v_bodc_vocab_v2/search.asp?lib=C17)

Platforms - NODC: <https://www.nodc.noaa.gov/cgi-bin/OAS/prd/platform>

Project Name - NODC: <https://www.nodc.noaa.gov/cgi-bin/OAS/prd/project>