

National Polar Data Center (NPDC)

National Centre for Polar and Ocean Research
(NCPOR)



User Manual v 1.4

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1. Introduction

The NPDC <https://npdc.ncpor.res.in/npdc/homepage.action>, established in 2014, plays a crucial role in the management and collaborative dissemination of data generated through India's Polar Program. The scientific dataset and information represent important resources of irreplaceable nature in the field of scientific research. Effective data management is not a peripheral activity, but a fundamental element of contemporary scientific practice, integral to the validity and reproducibility of research findings. The expeditions generated vast amounts of data essential to solving complex scientific issues and advancing knowledge of polar and ocean science in the context of the NCPOR. These data cover a wide range of fields, including glaciology, meteorology, oceanography and atmospheric science. We collaborate with national and international institutions, networks, and scientists to provide data management and analysis services, as well as actively participate in scientific research.

Figure 1 provides a detailed representation of the process through which polar datasets are collected from research stations, including Maitri, Bharati, Himadri, Himansh, and Southern Ocean expeditions. The datasets, encompassing both near real-time and non-real-time data, are transmitted to the Data/FTP server and are systematically archived at NPDC to facilitate efficient data dissemination and future accessibility for research purposes.

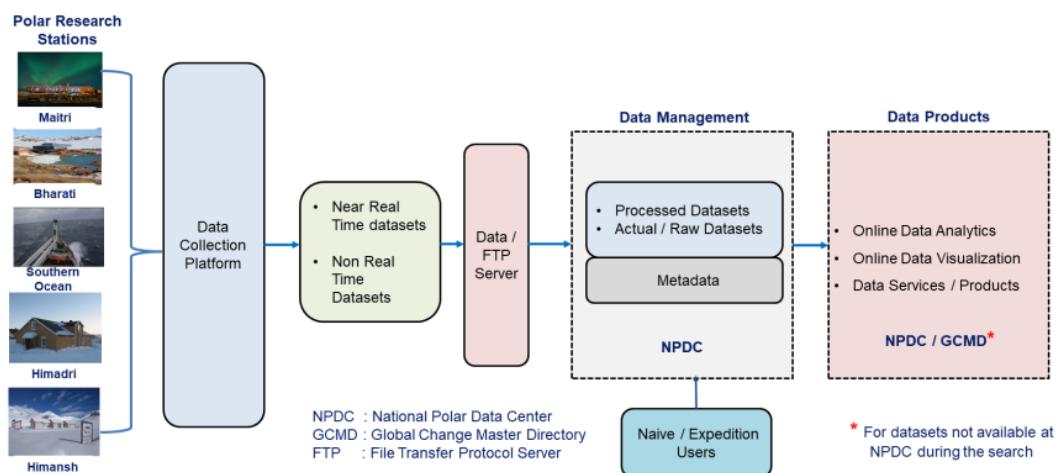


Figure 1: Overall function view of the NPDC
(click on the link / text to view the image)

1.1. How to submit datasets including metadata at NPDC

The datasets are primarily submitted by the expedition members who have participated in the Indian polar expeditions. Each submission is closely linked with the online project proposal form, which must be filled out prior to the expedition. This ensures that all data collected during the expedition is associated with the specific research objectives outlined in the proposal.

Once the expedition is successfully completed, the principal investigator (PI) is responsible for submitting the collected datasets along with the associated metadata to the National Polar Data Centre (NPDC). This submission process helps maintain a structured and organized archive of scientific data for future use and analysis. Figure 2 provides a brief overview of the dataset submission process at NPDC, outlining the steps from the initial proposal submission by expedition members to the final submission of datasets and metadata by the principal investigator (PI) after the expedition's completion.

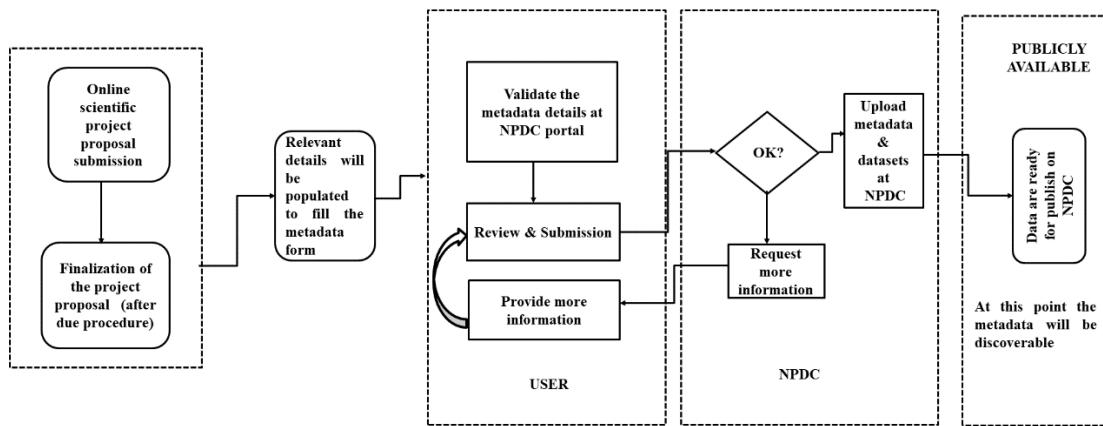


Figure 2: Flow diagram for datasets submission at NPDC
([click on the link / text to view the image](#))

1.2. Home Page of the NPDC

<https://npdc.ncpor.res.in/npdc/homepage.action>

Figure 3 below illustrates the homepage of the NPDC portal, providing an overview of its layout

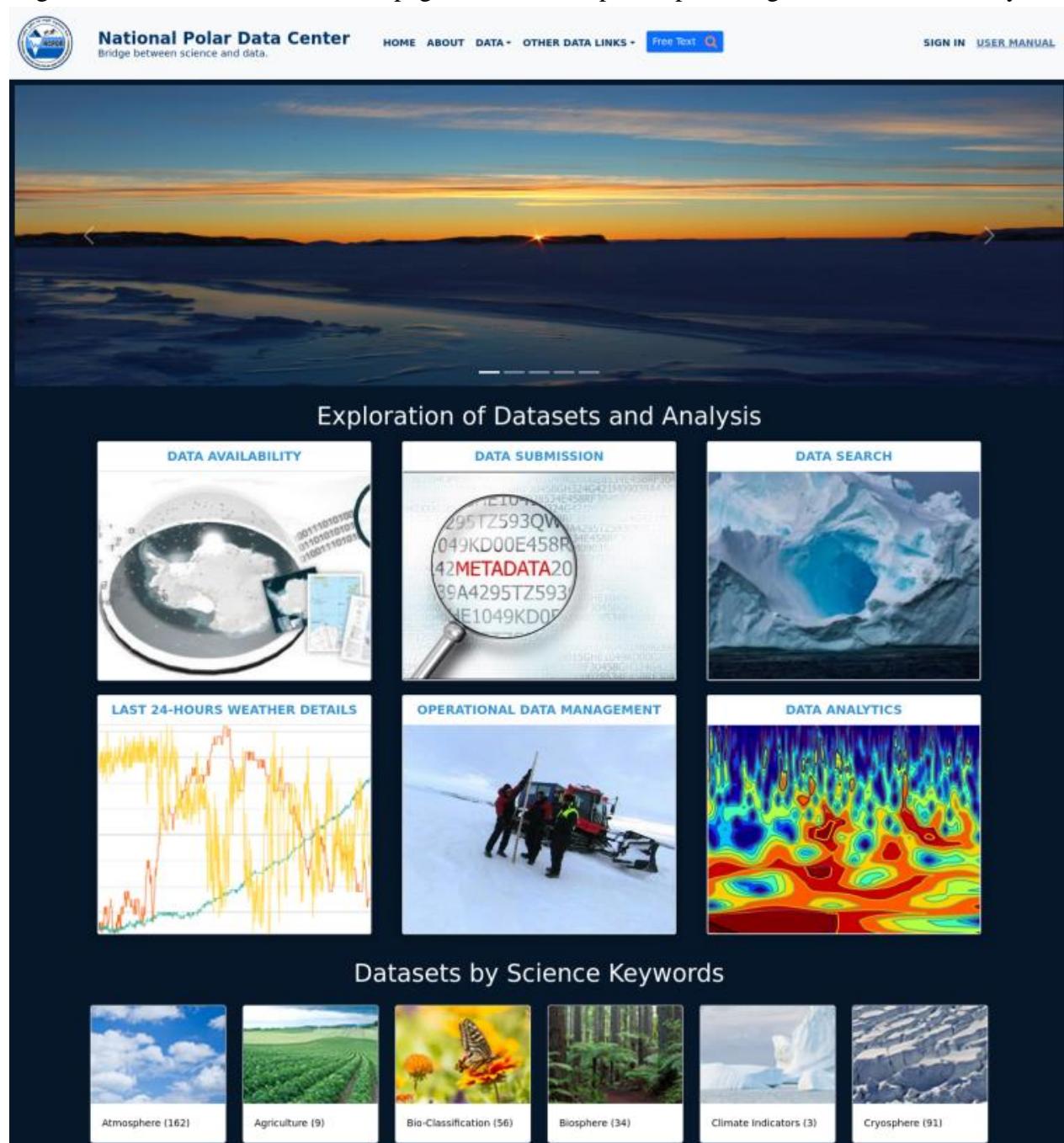


Figure 3: [Homepage of NPDC](https://npdc.ncpor.res.in/npdc/homepage.action)
(click on the link / text to view the image)

1.3. How to sign up as a new user

To register as a user on the NPDC portal, please click on the "Sign-In" menu located at the top right corner of the homepage. Figure 4 shows the sign-in page for a new user with NPDC for submitting collected datasets.

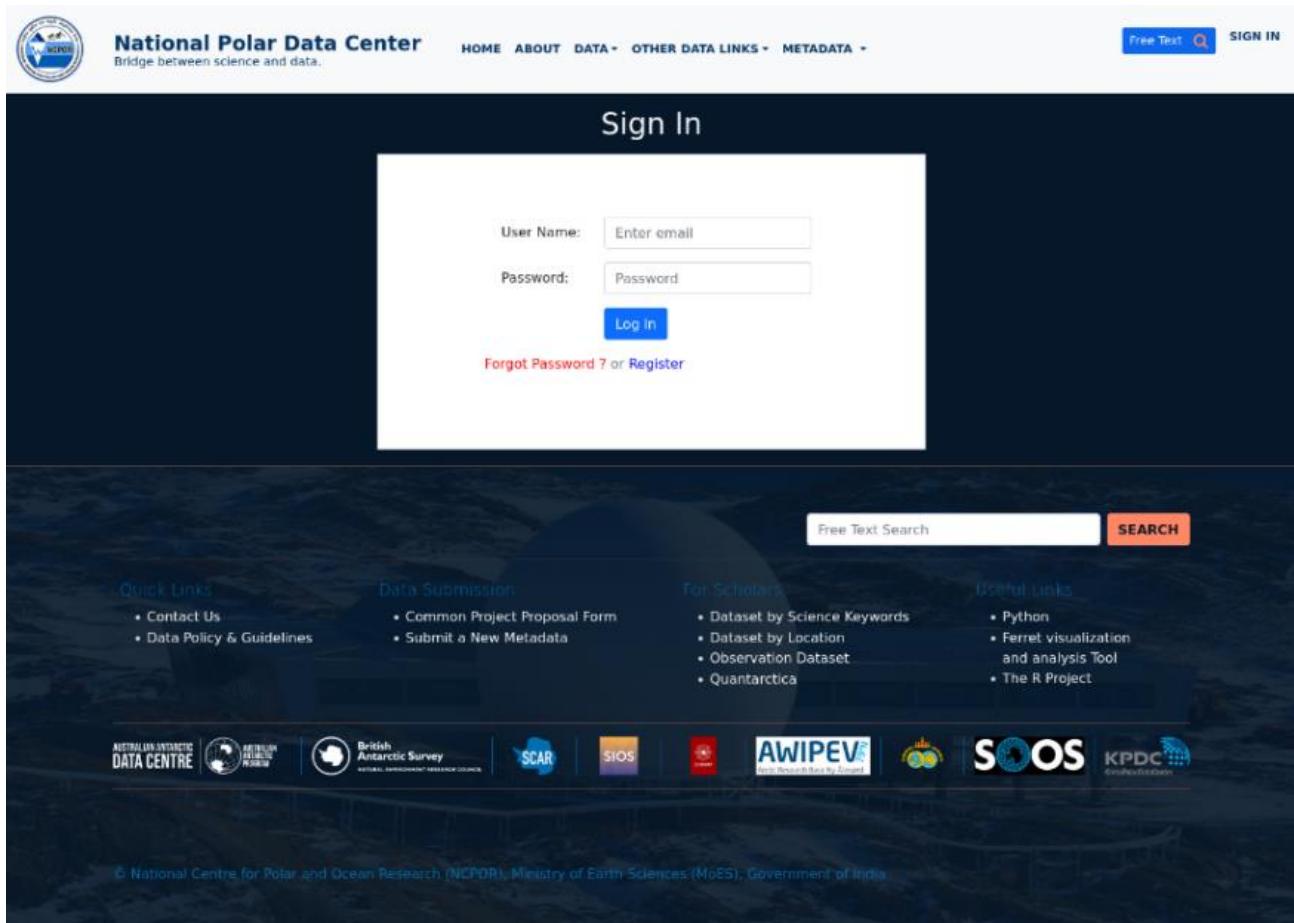


Figure 4: [Sign-in page](#)
(click on the link / text to view the image)

1.4. Type of users

There are two user types. The first one is registered user and second one is general user.

1.4.1. General User

These users are general user those who are looking for datasets pertaining to Polar regions for their academic / research purpose. The users might not be required to registered user in the NPDC portal.

1.4.2. Registered User

These are the users who are associated with NCPOR for participating Indian Scientific Expedition to Antarctic, Arctic, Southern Ocean and Himalayas and those who collect the datasets from the polar regions. They upload metadata along with actual / processed datasets at NPDC. For registration, please go to user registration section.

1.5. User Registration

Click on the Register link on the sign-in page to create an account. After successful registration, you will receive an email, and another will be sent once your account is activated. Please check your email, including your spam or junk folder, in case the messages were delivered there. Figure 5 illustrates the user's registration page at NPDC.

The screenshot shows the 'User Registration Form' on the National Polar Data Center (NPDC) website. The form is divided into several sections:

- User Details:** Fields include Title (e.g., Doctor PhD), First Name, Last Name, and Preferred Name.
- Login Details:** Fields include Valid EmailId (Username@e-mail.id), Confirm EmailId, Password, and Confirm Password.
- Organisation/Inst.**: Fields include Designation, Organisation Name, Organisation website link URL, and Personal profile link/URL (page of Organisation).
- Contact Details:** Fields include Address (Communication address), Alternate e-mail, Mobile number, and a Captcha verification code (bing7usv Verify Z).
- Buttons:** Submit and Reset.

At the bottom of the page, there is a footer with links to Contact Us, Data Policy & Guidelines, Common Process-Protocol Form, Submit New Records, Share by Reference Keyword, Dataset by Location, Observation Dataset, Python, Raster visualization and analysis tool, and The H Project. It also features logos for AAD, British Antarctic Survey, SOOS, AWIPEV, SOOS, and KPDC.

Figure 5: User's Registration Form
(click on the link / text to view the image)

2. Search/Browse Datasets.

2.1. Free Text Search

Any user may do free text search / browse dataset by clicking on the “FREE TEXT” (top right corner) search. Figure 6 presents the free text search for the given datasets.

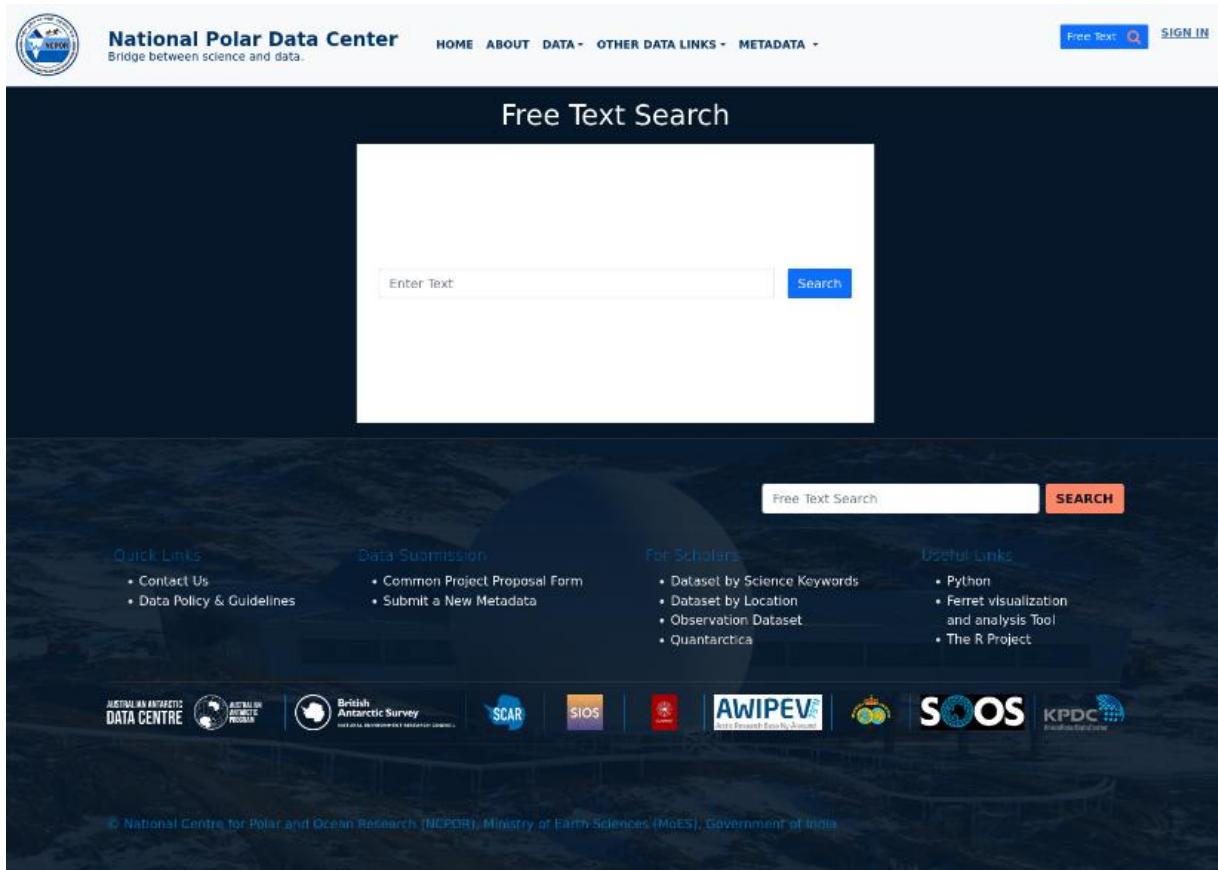


Figure 6: Free Text Search
([click on the link / text to view the image](#))

2.2. Browse by Scientific Keywords

By clicking on the Data (Top Menu) → Search For Datasets → Browse By Keyword. Figure 7 shows the free text search for the given datasets

The screenshot displays the homepage of the National Polar Data Center (NPDC). At the top, there is a navigation bar with links for HOME, ABOUT, DATA+, OTHER DATA LINKS+, and METADATA+. A search bar is located at the top right, with a placeholder 'Free Text' and a magnifying glass icon. To the right of the search bar is a watermark reading 'GOVWEBSITE.NPDC.NESI.IN'. Below the navigation bar, the main title 'Discover Data Sets by Science Keywords' is centered. The page features a grid of 12 categories, each with a thumbnail image and a brief description:

Category	Entries	Description
Atmosphere (157 entries)	Clouds, Air Quality, Atmospheric Temperature, Atmospheric Wind, Altitude,...	
Biosphere (32 entries)	Aquatic Ecosystems, Terrestrial Ecosystems, Endangered Species,...	
Cryosphere (91 entries)	Glaciers, Methane, Sea Ice, Topography, Glacier Retreat,...	
Land Surface (62 entries)	Biogeoclimatology, Hydrology, Ground, Soil, Geomorphology,...	
Solid Earth (39 entries)	Geochemistry, Natural Resources, Glaciology, Volcanoes, Minerals,...	
Climate Indicators (3 entries)	Oceanic Indices, Bright Precipitation Indices,...	
Oceans (95 entries)	Aquatic Sciences, Ocean Optics, Bathymetry, Seafloor Topography,...	
Biological Classification (50 entries)	Animals, Microorganisms, Fungi, Plants, Fossils, Pollen,...	
Paleoclimate (84 entries)	Ice Core Records, Oceanic paleo Records, Land Records,...	
Human Dimensions (150 entries)	Economic Resources, Infrastructure,...	
Sun-Earth Interactions (19 entries)	Ionosphere, Magnetosphere, Ion Wind, Solar Activity,...	
Agriculture (9 entries)	Agricultural chemicals, Irrigation, Water Use, Soil Science,...	
Spectral/Engineering (6 entries)	Spectroscopy Engineering, Gamma Ray, Remote Sensing,...	

Below the grid, there is a search bar labeled 'Free Text Search' and a red 'SEARCH' button. At the bottom of the page, there are links for 'About Us', 'Data Submission', 'For Contributors', and 'Our Links'. Logos for various partners like SCAR, SIOS, AWIPEV, SOOS, and KIPDC are also present. A footer note states: '© National Centre for Polar and Ocean Research (NCPOR), Ministry of Earth Sciences (MoES), Government of India'.

Figure 7: Browse By Scientific Keywords
(click on the link / text to view the image)

2.3. Browse by Location

By clicking on the Data (Top Menu) → Search For Datasets → Browse By Location. Figure 8 shows the browse by location for the given datasets.

The screenshot shows the 'Browse by Location' section of the National Polar Data Center website. At the top, there's a navigation bar with the logo, 'National Polar Data Center', 'Bridge between science and data.', 'HOME', 'ABOUT', 'DATA', 'OTHER DATA LINKS', a search bar ('Free Text' with a magnifying glass icon), and links for 'SIGN IN' and 'USER MANUAL'. Below the navigation is a dark header with the text 'Browse by Location'. Underneath is a horizontal menu with four options: 'ANTARCTIC' (which is highlighted with a blue background), 'ARCTIC', 'SOUTHERN OCEAN', and 'HIMALAYA'. The main content area is a table with the following data:

Sl.No	Location	# Datasets	View Details
1	Bharati	62	click to view
2	Central Dronning Maud Land	4	click to view
3	Dakshin Gangotri	60	click to view
4	India Bay - Prydz bay	1	click to view
5	Indian Ocean	2	click to view
6	Larsemann Hill	29	click to view
7	Maitri	308	click to view
8	Maitri and Bharati	48	click to view
9	Princess Astrid Coast	2	click to view
10	Queen Maud Land	24	click to view
11	Schirmacher and Larsemann Hills	2	click to view
12	Schirmacher Oasis	78	click to view
13	Southern Ocean	19	click to view
14	Voyage and Maitri	7	click to view

Figure 8: Browse By Location
(*click on the link / text to view the image*)

2.4. Observation Datasets Search

To search for datasets, click on "Data" in the top menu, then select "Search For Datasets" and "Data Availability." Figure 9 shows how to use the data search feature on the portal <https://data.ncpor.res.in/>. Through this, users can search for datasets by polar region for easier access and retrieval.

The screenshot shows the homepage of the Indian Polar Meteorological Data Portal. At the top, there is a logo for NCPOR (National Centre for Polar and Ocean Research) and the text "Indian Polar Meteorological Data Portal" and "National Polar Data Center". Below this, a banner says "DATA AVAILABILITY". A navigation bar includes links for "Antarctic - Weather Data", "Antarctic - Environmental Data", "Arctic - Env & Mooring Data", "SOE Data", and "Himalayan Data". The main content area is titled "Maitri" with coordinates "(70°45'01.65"S, 11°43'01.45"E)". A sub-section titled "Atmospheric Datasets" lists four datasets:

Dataset	Institute	Duration	Download
All Sky Imager Data	Indian Institute of Geomagnetism (IIG)	01/01/2020 - 31/12/2021	Request Data Data Details
Atmospheric Data (OTT - PARASIVE)	NCPOR	01/01/2018 - 31/12/2021	Get Data Data Details
Automatic Weather Station Datasets	India Meteorological Department (IMD)	01/01/1985 - 19/12/2016	Get Data Data Details
	Snow and Avalanche Study Establishment (SASE)	23/02/2006 - 31/12/2015	Get Data Data Details

Figure 9: [Dataset's search](#)
(click on the link / text to view the image)

2.5. Scientific Voyage Details

To view scientific voyage details, click on "Data" in the top menu, then select "Search For Datasets" and "Scientific Voyage Details." Figure 10 shows the voyage details for the Southern Ocean Expedition (SOE) up to the 10th expedition.

The screenshot shows the "Scientific Voyage Details" page from the National Polar Data Center. The header includes the NPD logo, "National Polar Data Center", "Bridge between science and data.", "HOME", "ABOUT", "DATA", "OTHER DATA LINKS", "METADATA", "Free Text", "SIGN IN", and a search bar. The main content area is titled "Scientific Voyage Details" and displays a table of voyage details:

Voyage Name	Cruise Name	Ship Name
ISOE-9	Indian Southern Ocean Expedition (ISOE)	MV SA Agulhas
ISOE-8	Indian Southern Ocean Expedition (ISOE)	ORV Sagar Nidhi
ISOE-7	Southern Ocean Expedition 2013	ORV Sagar Nidhi
ISOE-6	06th National Expedition to Southern Ocean	ORV Sagar Nidhi
ISOE-5	Southern Ocean Expedition 2011	ORV Sagar Nidhi
ISOE-4	Southern Ocean Expedition 2010	ORV Sagar Nidhi
ISOE-3	Southern Ocean Expedition-2009	R.V Akademik Boris Petrov
ISOE-2	Special Expedition to Larsemann Hills, Antarctica & Southern Ocean	R.V Akademik Boris Petrov
ISOE-10	10th Indian Sector of Southern Ocean Expedition	S A AGULHAS
ISOE-1	Pilot Expedition to Southern Ocean	ORV Sagar Kanya

Below the table, there is a search bar labeled "Free Text Search" and a "SEARCH" button. At the bottom, there are sections for "Quick Links", "Data Submission", "For Scholars", and "Useful Links".

Figure 10: [Scientific Voyage Details](#)
(click on the link / text to view the image)

3. Data details

Expedition members / registered users can submit datasets to NPDC and have the privilege to update their previously submitted datasets. The submitted datasets can be viewed in PDF and also machine readable format i.e., in XML formats. To submit datasets online, please use the following link: https://npdc.ncpor.res.in/npdc/submit_new_dataset.action. Figure 11 shows the view of the datasets along with metadata.

The screenshot displays the NPDC dataset metadata page for "Studies on the Increase in Seismicity in the Antarctic Plate: Observations from BB Seismological Observatory (BBST) at Wettby, Antarctica during 2010-11E".

Title: Studies on the Increase in Seismicity in the Antarctic Plate: Observations from BB Seismological Observatory (BBST) at Wettby, Antarctica during 2010-11E.

Abstract: The present seismological Observatory was established in 1997 at Wettby in Central Dronning Maud Land, East Antarctica (75°57' south, 016°57' east) primarily to monitor the seismicity in and around Antarctica. The space and time distribution of earthquake occurrences and other basic general parameters, magnitudes of earthquakes, velocity inversion for lithospheric structures and earthquake source analysis. The observatory has been upgraded during the 20th Indian Thwaites Glaciers Scientific Expedition to Antarctica (December 2005 to February 2007), to obtain updated good quality digital broadband seismic data by continuously being acquired.

Purpose: The classic Triple junction in the Indian Ocean named as Nansen Triple Junction (NTJ) where the three plates Sverdrup Antarctic, Makgadikgadi Plateau and West Antarctic meet, makes an interesting study of sources of seismicity for the Indian Ocean and hence the Indian Plate tectonics. The three mid-ocean ridge (MOR) systems that form the Triple junction are (i) South West Indian Ridge (SWIR), (ii) Southwest Indian Ridge (SWIR), and (iii) Central Indian Ridge (CIR) are its main features. The SWIR and CIR are the most active and they strongly dominate the propagation of coupling local and plate boundary to ocean plates.

Basic Information:

Release Date:	6/19/2010
Generating Center:	
Data Set Progress:	Complete
Data Set Language:	
All Topic Categories:	

Category: Seismology

Topic: Seismology

ISO Topic: Seismology

Personnel:

Name:	Dr. T.M. Vaishnavi Rao
e-mail:	tkv@igcar.gov.in
Organization:	National Geophysical Research Institute (NGRI)

Keywords:

- + Contact Us
- + Data Policy & Guidelines
- + Common Project Proposal Form
- + Submit a New Metadata
- + Dataset by Scientific Keywords
- + Dataset by Location
- + Observation Dataset
- + Quaternary
- + Python
- + Raster visualization and analysis Tool
- + The R Project

Logos: GEOFACADEMY, GEOFACADEMY, AWIPEV, SCOS, KPODC

Figure 11: Sample Metadata
(click on the link / text to view the image)

4. How to submit datasets

To submit new datasets, click on "Data" in the top menu, then select "Submit Your Data" and choose "New Datasets." A metadata form will open where you can enter the required information and submit the data for the relevant expedition. Figure 12 shows how the form looks for submitting datasets and metadata

The screenshot displays the "ONLINE METADATA FORM" interface. At the top, there's a header with the "National Polar Data Center" logo and text "Bridge between science and data.", followed by navigation links: HOME, ABOUT, DATA, OTHER DATA LINKS, and a search bar. To the right are links for "SUBMISSION@NCPOR.REC.IN" and "USER MANUAL".

The main form area contains the following sections:

- Expedition Type:** Options include Antarctic, Arctic, Southern Ocean, and Himalaya.
- Metadata Title:** Input field.
- Science Keywords:** Categories and Topics dropdown menus.
- ISO Topic:** Select dropdown menu.
- Expedition Year:** Select dropdown menu.
- Expedition No:** Input field.
- Project Details:** Project Number, Project Name input fields.
- Summary Abstract:** Input field.
- Purpose:** Input field.
- Dataset Citations:** Fields for Creator, Editor, Title, Series Name, Release Date, Release Place, Version, and Online Resource.
- Scientist Details:** Fields for First Name, Middle Name, Last Name, E-mail, Phone, Mobile Number, Institute/Organisation, Address, City, Country, Postal Code, State.
- Instrument Details:** Short name and Long name input fields.
- GPS Data Collection:** A section asking "Whether GPS is used for Data Collection?" with options Yes, No, and Not Applicable. "Yes" is selected.
- Data Set Progress:** A dropdown menu showing "Not Started".
- Location Category:** Fields for Region, Type, and Subregion.
- Data Resolution:** Fields for Latitude Resolution (Deg, Min, Sec), Longitude Resolution (Deg, Min, Sec), Horizontal Resolution, Range, Vertical Resolution, Vertical Resolution, Range, Temporal Resolution, Temporal Resolution, and Range.
- Platform:** Short name and Long name input fields.

At the bottom of the form are three buttons: PREVIEW, RESET, and SAVE AND NEXT.

Figure 12: Sample Metadata Form
(click on the link / text to view the image)

4.1. Upload Dataset for the corresponding submitted metadata

You can upload the actual or processed datasets after filling in the necessary metadata entries in the NPDC portal for the corresponding datasets. If the actual / processed dataset is not yet ready, it can be uploaded later using the dashboard. Figure 13 demonstrates how to upload actual or processed datasets to the NPDC portal, along with the associated metadata.

The screenshot shows the 'Dataset Upload' section of the NPDC website. It includes fields for 'Metadata Title', 'Expedition', 'Add Actual/Processed Dataset' (with a 'Browse...' button), and 'Old Data if available'. A note below the 'Add Actual/Processed Dataset' field specifies file types and size limits. At the bottom is an 'Upload and Submit' button.

Figure 12: Upload Actual/Processed Data
(click on the link / text to view the image)

4.2. Datasets cum Metadata saved Successfully

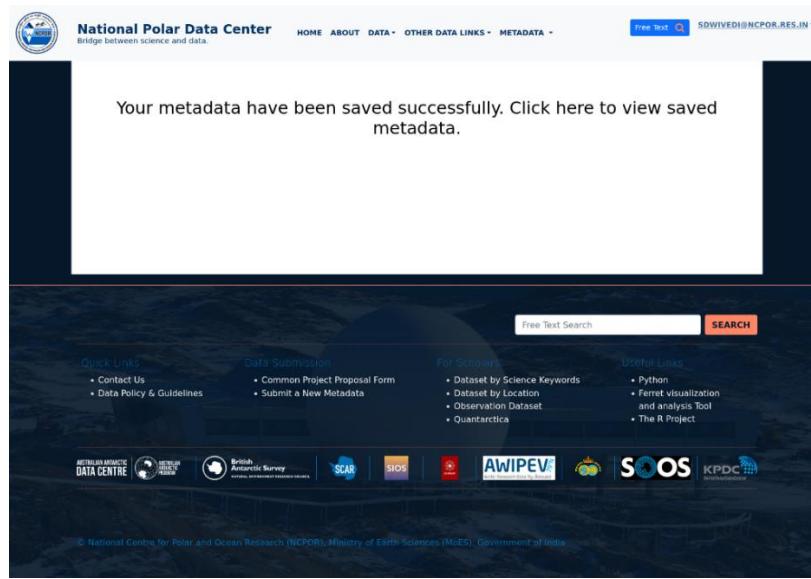


Figure 13: Datasets cum metadata save information
(click on the link / text to view the image)

Once the data and metadata are uploaded, they will be published on the NPDC portal for public access after following due procedures. Figure 14 illustrates the process following the submission

of datasets and metadata. Users have the privilege to update both the datasets and metadata if any additions or modifications are required.

4.3. Dataset Dashboard

A dashboard feature is available, allowing users to update or modify datasets and metadata at any time. Figure 15 illustrates the user's view of the dashboard for updating and modifying datasets, metadata, and other related information.

The screenshot shows the 'Recently Submitted Metadata Details' section of the dataset dashboard. It displays a table of saved and incomplete metadata entries:

Saved and Incomplete Metadata				
SI No.	Title	Submitted On	Updated On	Dataset
1	Test Upload Aug 8 2024	08-08-2024 Edit	08-08-2024 Edit	Upload
2	Meta-data Title The title of the data set described by the metadata e.g. "Hourly Tidal Observations from the Coast of India , 1942-1986.	09-09-2024 Edit		Upload

Below the table, there is a search bar with 'Free Text Search' and a 'SEARCH' button. The page footer includes links to various organizations and useful tools, such as SCAR, SIOS, AWIPEV, SOOS, and KPDC.

*Figure 15: Dataset Dashboard
(click on the link / text to view the image)*

Document Revision History

Version	Date	Description of Changes	Prepared by
1.0	9 th Sept 2024	Initial Release / Draft	Shubham Dwivedi
1.1	25 th Sept 2024	Reviewed initial release	V S Samy
1.2	30 th Dec 2024	Modified the document	Shubham Dwivedi
1.3	3 rd Jan 2025	Reviewed & corrected the document as suggested by Dr. J. Turner	V S Samy
1.4	23 rd Jan 2025	Updated the Figure 2	V S Samy