

The Global Ocean Observing System



GOOS Observations Coordination Group (OCG) Data Implementation Strategy and Updates

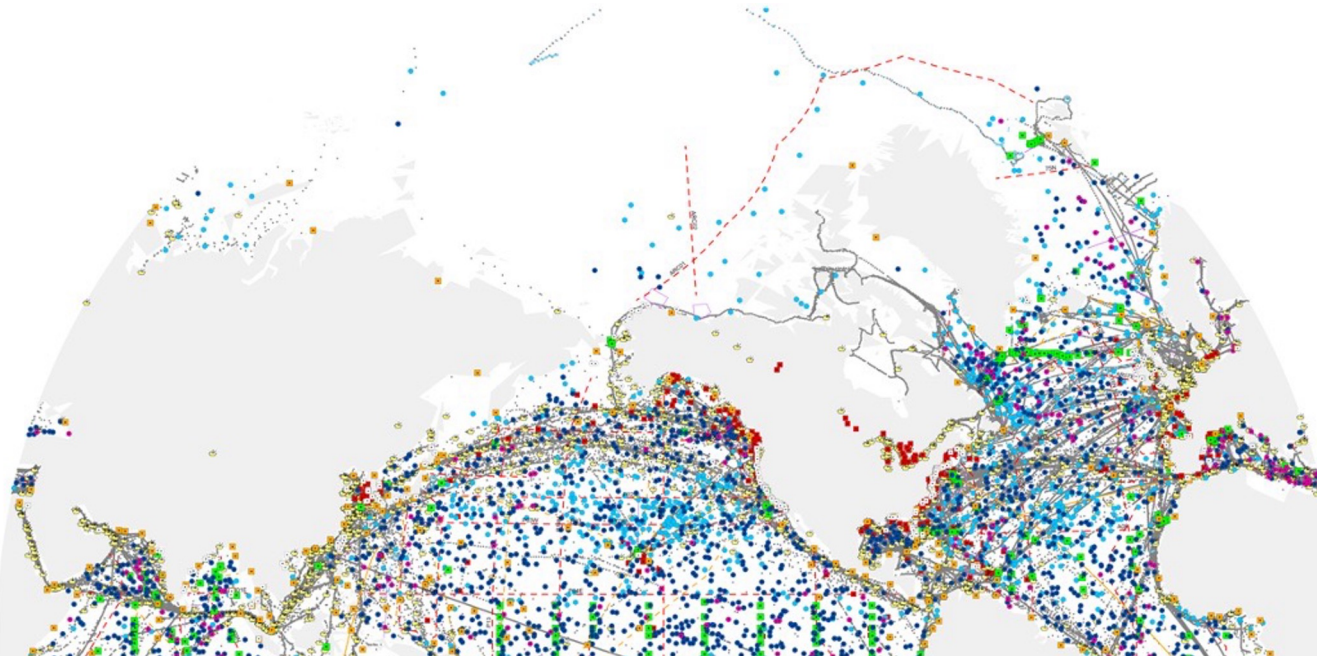
International Underwater Glider
Conference 2024














Kevin O'Brien
UW/CICOES, NOAA/PMEL
GOOS OCG Vice-chair for Data and Information

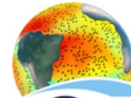
Mathieu Belbeoch, OceanOPS
Emma Heslop, GOOS Project Office

GOOS Today

- 84 countries, 8,400+ observing platforms
- More than 120,000 observations per day - operational systems
- 14+3 global networks and 12 BioEco EOY communities

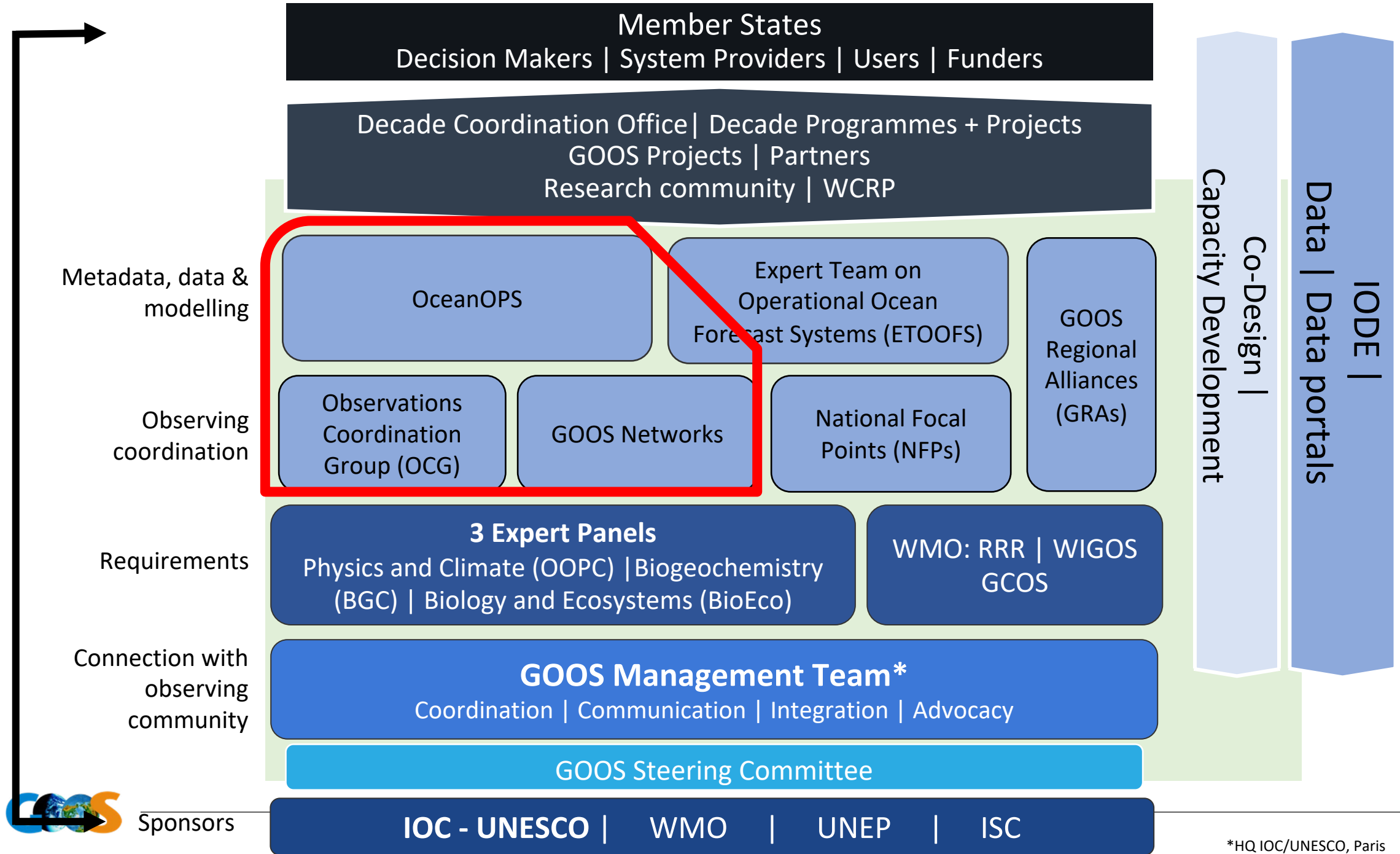


GOOS in situ networks ¹		Implementation STATUS ²	Data & metadata			Best practices ⁶
			REAL TIME ³	ARCHIVED DELAYED MODE ⁴	META-DATA ⁵	
 Ship based meteorological - SOT		★★☆	★★☆	★★☆	★★☆	★★☆
 Ship based oceanographic - SOT		★★☆	★★☆	★★☆	★★☆	★★☆
 Repeated transects - GO-SHIP		★★☆	Not applicable	★★☆	☆☆☆	★★☆
 Sea level gauges - GLOSS		★★☆	★★☆	★★☆	☆☆☆	★★☆
 Time series sites - OceanSITES		★★☆	Not applicable	★★☆	☆☆☆	★★☆
 Moored buoys - DBCP		★★☆	★★☆	★★☆	☆☆☆	★★☆
 Tsunami buoys - DBCP		★★☆	★★☆	★★☆	☆☆☆	★★☆
 HF radars		☆☆☆ Emerging	★★☆	☆☆☆	☆☆☆	★★☆
 Drifting buoys - DBCP		★★☆	★★☆	★★☆	☆☆☆	★★☆
 Profiling floats - Argo		★★☆	★★☆	★★☆	★★☆	★★☆
 Deep & biogeochemistry floats - Argo		☆☆☆ Emerging	★★☆	★★☆	★★☆	★★☆
 OceanGliders		☆☆☆ Emerging	★★☆	☆☆☆	☆☆☆	★★☆
 Animal borne sensors - AniBOS		☆☆☆ Emerging	★★☆	★★☆	☆☆☆	★★☆

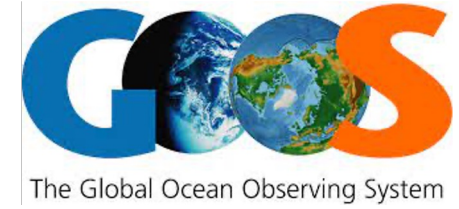


OceanOPS

www.ocean-ops.org/reportcard2023



Observations Coordination Group (OCG)



OCG targets 8 foci for coordination:

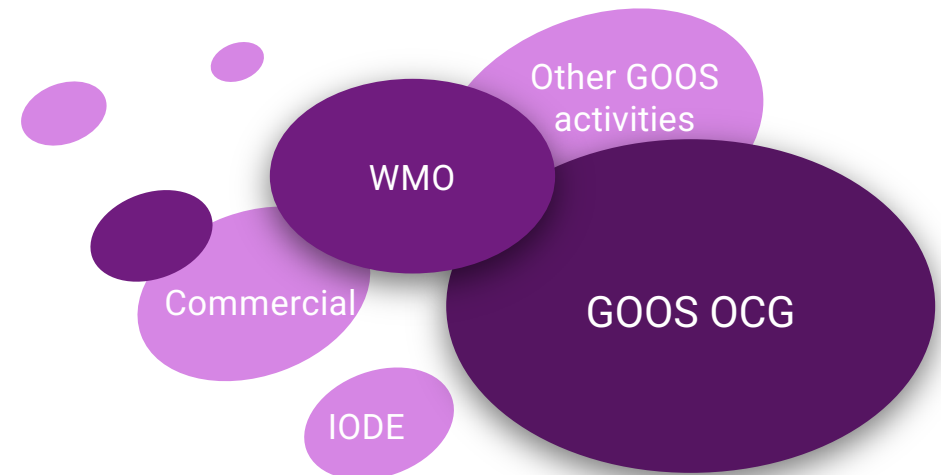
1. Requirements
2. Observing Advances
3. Standards and Best Practices
4. Data Management
5. OceanOPS
6. Metrics
7. Environmental Stewardship
8. Capacity Development

Global Ocean Observing Networks

Emerging global observing networks

Observations Coordination Group Executive
Chair

Vice Chairs – WMO/Technical, Standards and Best Practice, Data Management, Capacity Development



Achievements, important initiatives, evolving actions (May 2024)

Data/metadata integration discussion (5 March 2024)

OceanOPS/OCG, OBIS, BioEco Portal, and ODIS, discussed implementation, resource opportunities.

Best Practices

Adoption of Argo BP.
9 “GOOS endorsed” BPs available via the [Ocean Best Practices System repository](#)

Capacity Building

Medi-1 workshop, Ocean Observations side event at the 18th WMO Regional Association I Conference, equipment donations, PMO training workshop.

Impact Study

The 8th WMO Workshop on the Impact of Various Observing Systems on NWP. Awaiting outcomes!

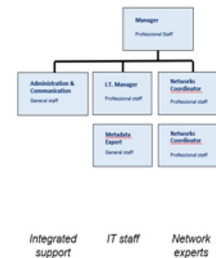
Data Implementation Strategy

- **OCG Cross Network Data Implementation Strategy** ([GOOS-296](#))
- ERDDAP seminar series
- Data and metadata integration



OceanOPS Restructuring

- Report Card 2023 ([oceanops.org/reportcard](#))
- OceanOPS restructuring document
- Roundtable March 2024



New networks expansion

- FVON, SmartCable, SOCONET → being new networks
- Bring together the potential emerging networks and existing networks → potential overlaps and opportunities.

OCG and Dialogues with Industry

- Dialogues with Industry Roadmap: Maturing the Ocean Enterprise to Deliver Essential Societal, Economic, and Environmental Benefits ([GOOS-294](#))
- Ocean Enterprise Initiative



Network readiness level

- Task Team on Metrics established, [ToR](#).
- Monthly meeting on the thematic discussion.
- Draft metrics on data and metadata

OCG-15 (13-17 May, Victoria, BC, Canada)

- 3 notable topics
- CIOOS + indigenous + ocean carbon
- Requirements + Co-design
- WIS 2.0
- Poster session, Cross panel discussion
- ...

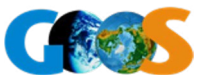
OCG DATA MAPPING

From GOOS SC:

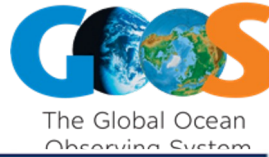
- **Question:** How can we collectively map data flows from GOOS to IODE and other data systems?
- **Action:** OCG to begin mapping data flow from OCG networks

OCG Data Mapping (*OCG Exec, OceanOPS, Ms. Chanmi Kim*)

- Developing basic mapping from the OCG network perspective
 - Have identified the data contacts from each network
 - Including structures such as GDACs/DACs
 - Identify where QC (near-real time, delayed mode) is implemented
 - Identify route into the global data distribution systems (GTS, data products, etc.)



OCG Cross-Network Data Implementation Strategy Released

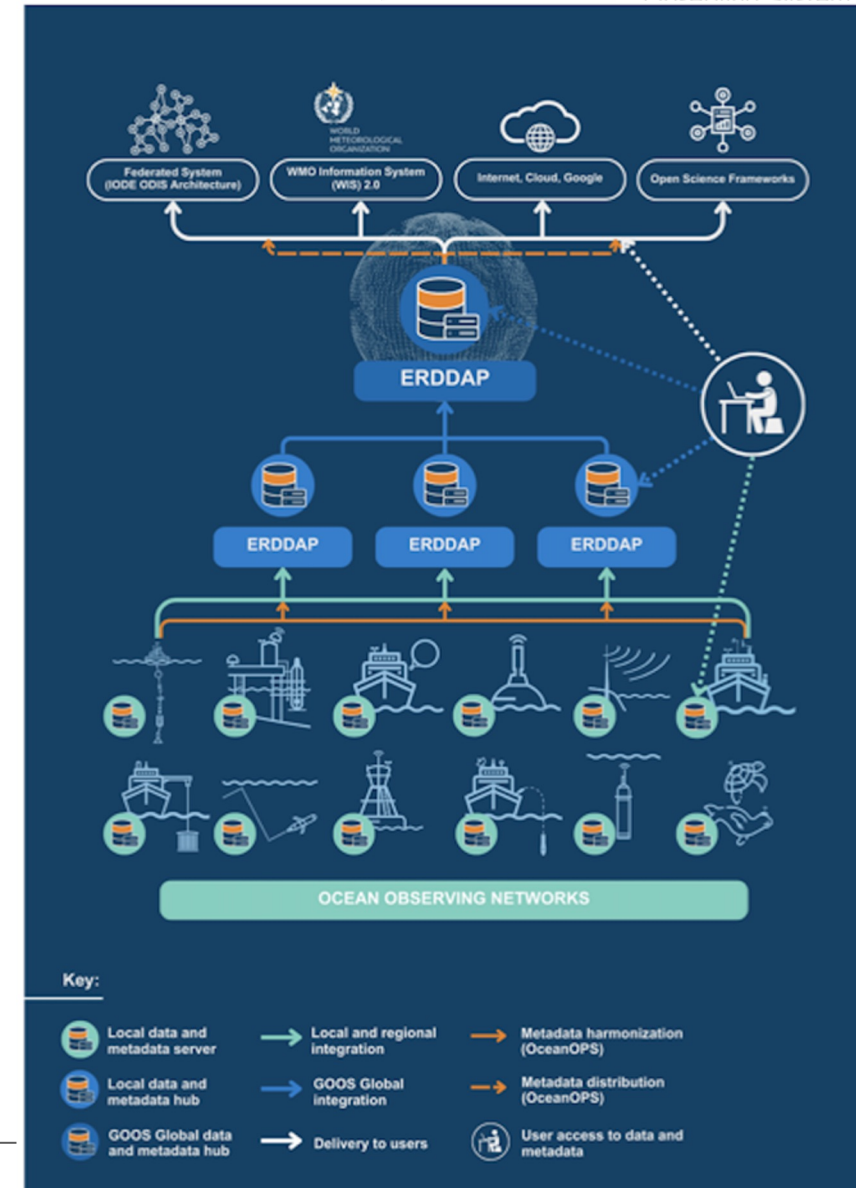


This Implementation Plan is an effort to define specific and actionable ways OCG network/programs can move towards FAIR compliance


- Improve (meta)data discovery, exchange, accessibility and usability for all stakeholders
- Improve access to distributed (meta)data endpoints through federated, uniform data services

GOOS OCG Data Implementation Requirements

Real Time Data		Metadata	
OCG-R1	Data shall be exchanged in real time (with minimum delay) via the WIS/GTS of the WMO in approved formats/templates.	OCG-R7	Networks shall have a defined uniform metadata content that includes at least the minimum OceanOPS requirements, thereby ensuring that they are compliant with the WIGOS metadata requirements. Note that OceanOPS is the authoritative source through which WIGOS metadata are submitted to OSCAR for all oceanographic and marine meteorological platforms.
OCG-R2	Data shall be available in real time or near-real time on the Internet through interoperable services (preferably ERDDAP) freely and without any restriction. Community agreed quality control procedures shall be applied in real-time and adjusted values made available when possible.	OCG-R8	Discovery and Use metadata shall be based upon a well-documented community standard, including a persistent and unique WMO/WIGOS identifier allocated by OceanOPS and use controlled vocabularies.
Delayed Mode Data		OCG-R9	Platform and Discovery metadata shall be exchanged with OceanOPS utilizing machine-2-machine services.
OCG-R3	Each network shall have at least one identified Global Data Repository. This Global Data Repository may be one or multiple (mirrored) repositories, or they may be data endpoints that can be federated into a virtual global repository.	Best Practices	
OCG-R4	Data and data products shall be available through publicly accessible ERDDAP services. These distributed ERDDAP services will be federated under a single OCG ERDDAP focal point.	OCG-R10	Each network should have an active data team.
OCG-R5	NetCDF is the preferred data file format, though ERDDAP services can act as a data format translator if needed.	OCG-R11	Each network should have identified best practices on data infrastructure and workflows and data Q.C.
OCG-R6	Additional platform metadata should be available through the Global Data Repository and harvestable by machine-2-machine services.	OCG-R12	Raw/real-time data, delayed mode data and data products should be archived and have unique identifiers created (i.e., Digital Object Identifier (DOI)) for citation and reuse.



OCG Federated ERDDAP™ Node

**ERDDAP**
Easier Access To GOOS Data

English ?
Brought to you by GOOS OCG

ERDDAP

ERDDAP is a data server that gives you a simple, consistent way to download subsets of scientific datasets in common file formats and make graphs and maps. This particular ERDDAP installation has oceanographic data (for example, data from satellites and buoys).

Easier Access to Scientific Data

Our focus is on making it easier for you to get scientific data.

Different scientific communities have developed different types of data servers.

For example, OPeNDAP, WCS, SOS, OBIS, and countless custom web pages with forms. Each is great on its own. But without ERDDAP, it is difficult to get data from different types of servers.

- Different data servers make you format your data request in different ways.
- Different data servers return data in different formats, usually not the common file format that you want.
- Different datasets use different formats for time data, so the results are hard to compare.

ERDDAP unifies the different types of data servers so you have a consistent way to get the data you want, in the format you want.

- ERDDAP acts as a middleman between you and various remote data servers. When you request data from ERDDAP, ERDDAP reformats the request into the format required by the remote server, sends the request to the remote server, gets the data, reformats the data into the format that you requested, and sends the data to you. You no longer have to go to different data servers to get data from different datasets.
- ERDDAP offers an easy-to-use, consistent way to request data: via the OPeNDAP standard. Many datasets can also be accessed via ERDDAP's [Screenshot](#) (WMS).

**ERDDAP**
Easier Access To GOOS DataEnglish ?
Brought to you by GOOS OCG

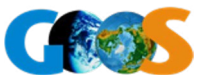
Implementation across the networks

- Paused the OCG data/metadata roundtables
- Instead, working directly with the networks has been more productive at this stage
- Moving forward, looking at having meetings/workshops focused on topics (metadata exchange, for example)
- Develop an OCG data task team (TT)

Focus on cross-network data issues, such as metadata exchange with OceanOPS, integration with WIS 2, etc

- Hosting ERDDAPTM Seminar Series and ERDDAPTM “how-to” resource collection

<https://goosocean.org/webinars/erddap-seminar-series/>



Webinar announcement

How to access ERDDAP data using R



20 June 2024 | 18:00 CEST

See what time it is for you

Online

Assessment of progress and gaps

- Excellent progress in implementation of ERDDAP™
- Still lots of gaps with metadata exchange
- In particular, implementation of machine-to-machine exchange of metadata with OceanOPS

From UG2 (2022) workshop Data Management breakout:

What is your long-term/overarching goal?

- All RT glider data distributed on GTS using TM 3-15-012 BUFR template
- Delayed mode glider data using OG1.0 NetCDF format
- Virtual GDAC using Federated ERDDAPTM services from distributed DACs
- Machine-to-Machine exchange of metadata with Glider DACs and OceanOPS



OceanGlider Recommendations and Next Steps

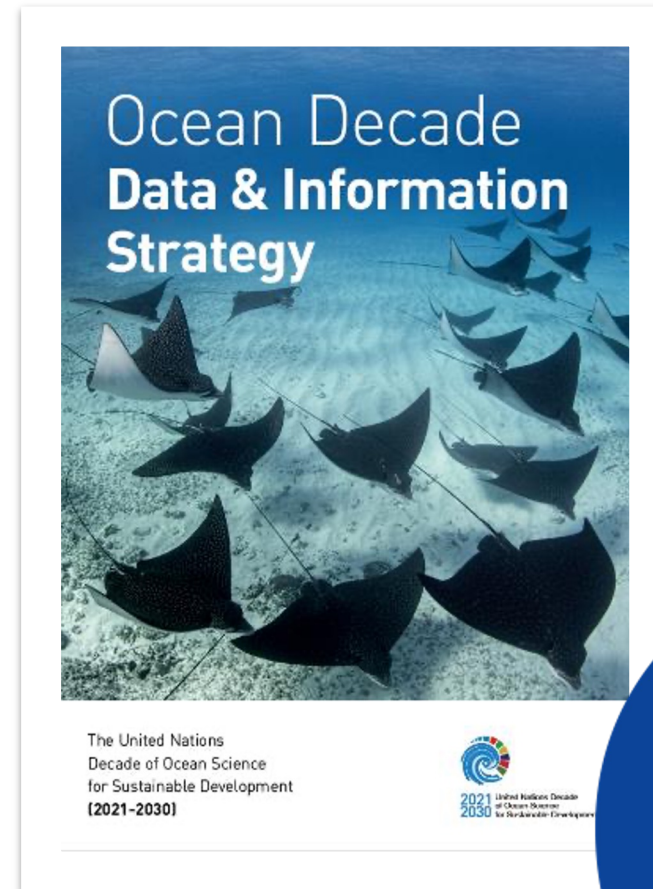
- Work with DACs to implement ERDDAP™ where needed
 - Can we provide access to a “collection” of gliders?
- Integrate these services with OceanOPS metadata exchange
 - Ensure that metadata content in ERDDAP™ data services complies to OceanOPS requirements
- OceanOPS is still the official source of metadata for OCG networks to things like OSCAR and WIGOS – Do OceanOPS metadata requirements need to adjust? (OCG task team)

OceanGlider Recommendations and Next Steps

- Are there particular areas of focus that the Networks want to highlight?
 - What issues in implementing the OCG strategy can OCG data team help with?
- What are barriers to implementing M2M metadata exchange with OceanOPS?
- We are looking to develop a cross-GOOS data Task Team
 - Metadata exchange
 - ERDDAPTM usage and issues
 - Connections to ODIS/WIS2/UN Decade, etc

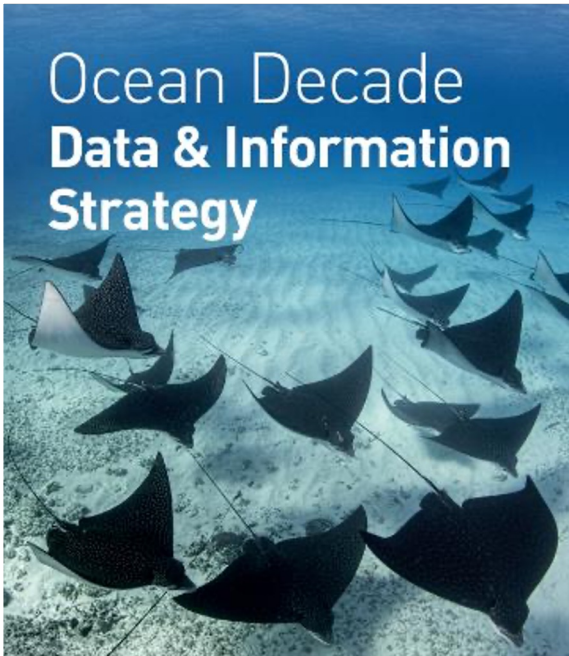
Links to the Community

- Glider User Community
- UN Decade Data Strategy
- IODE Ocean Data Information System (ODIS)



UN DECADE Data and Information Strategy, and the Data Implementation Plan

Ocean Decade Data & Information Strategy



The United Nations
Decade of Ocean Science
for Sustainable Development
(2021–2030)



Vision

A trusted, inclusive, and interconnected ocean data and information ecosystem that is actively used for decision making to support sustainable ocean management.

Mission

To catalyse a solution-oriented, global digital transformation for the digital ecosystem we need to overcome the Decade Challenges.

Strategic Objectives



1
Develop an ocean digital ecosystem that encourages the sharing and equitable access of multidisciplinary data, information and knowledge by all.



2
Improve data and information discovery and usability across the ocean digital ecosystem.



3
Build trust in data and information shared across the ocean digital ecosystem.



4
Prioritise digital solutions that support decisions for sustainable ocean management.



5
Expand, empower, and mobilise global communities to advance and maintain the ocean digital ecosystem.

Enablers

Technological Innovation // Partnerships // Durable Resourcing // Policy & Regulatory Frameworks

Implementation Plan



The United Nations
Decade of Ocean Science
for Sustainable Development
(2021–2030)



Commission
océanographique
intergouvernementale



2021
2030
Déennie des Nations Unies
pour les sciences océaniques
au service du développement durable

“Sparkly fountains need robust plumbing systems”

– Terry McConnell
G7 International Director

Especially if you want to connect them

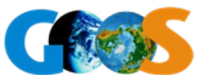
*The IP talks about this bit,
where the real/magic happens*



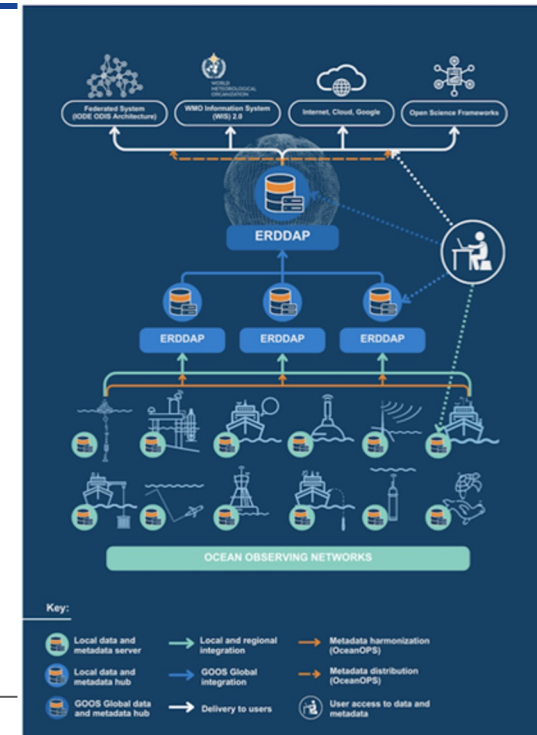
Integration with UN Decade Data Strategy

Ocean Decade Data Strategy Implementation

Action: Data publishers should deploy free and open (non-proprietary) data dissemination tools, capable of data mediation....services should provide data users easy access to enable discovery and use of data/metadata in preferred tools.....

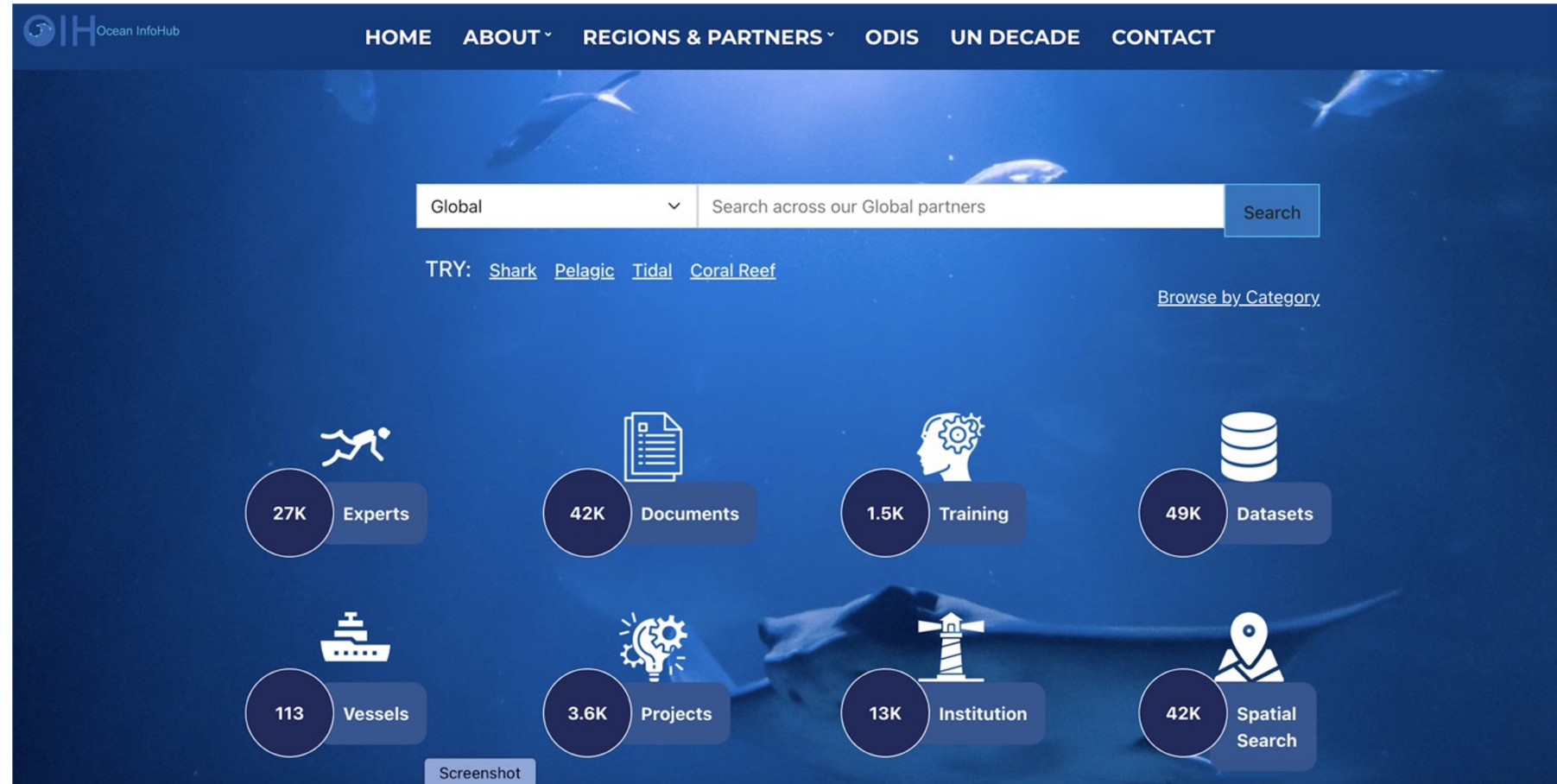


GOOS Cross-Network Data Implementation Strategy

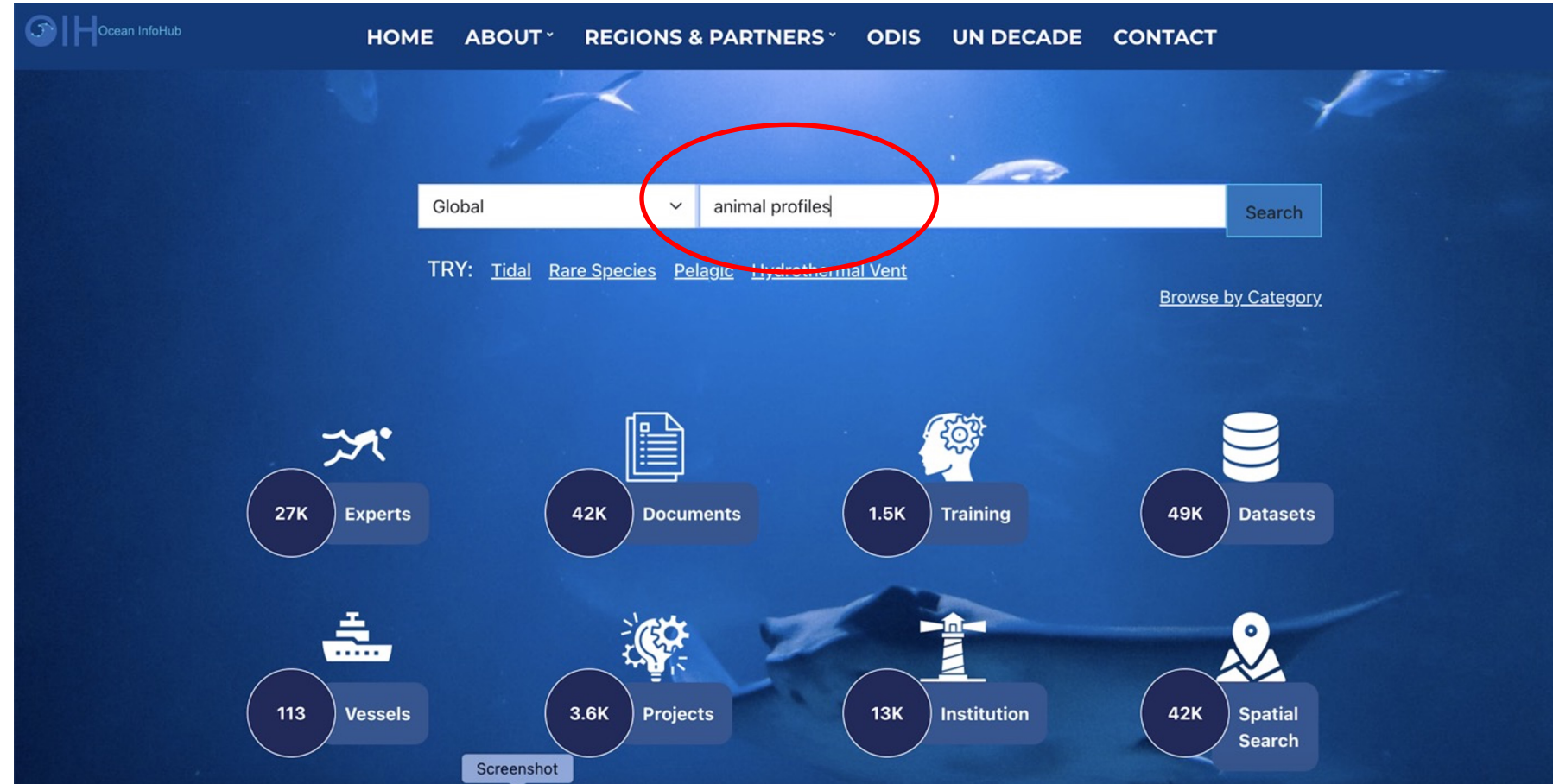


Integration with IODE Ocean Data and Information System (ODIS)*

**Federation of distributed
metadata catalogs to
further discovery and
access of ocean data*



Integration with IODE Ocean Data and Information System (ODIS)



Integration with IODE Ocean Data and Information System (ODIS)

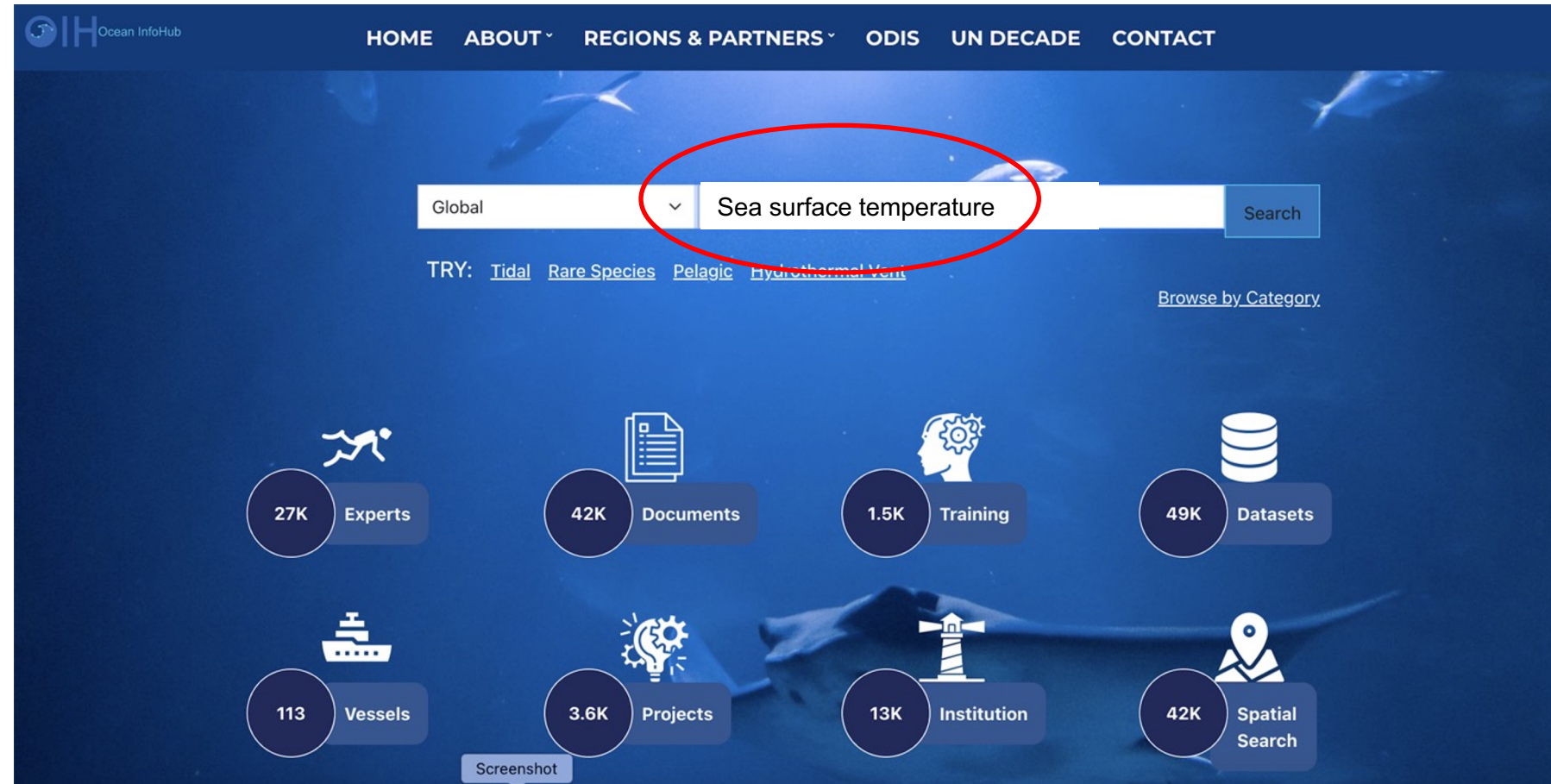
The screenshot displays the Ocean InfoHub (OIH) website interface. The top navigation bar includes links for HOME, ABOUT, REGIONS & PARTNERS, ODIS, UN DECADE, and CONTACT. Below this, a secondary bar shows counts for various categories: Documents (25), Experts (0), Institutions (0), Datasets (80), Training (4), Vessels (0), and Projects (0). A 'Spatial Search' button is highlighted with a '74' count.

The search results section shows a total of 80 results found. The primary result is 'MEOP animal profiles, v2024'. Below the title, the 'Name' is listed as 'MEOP animal profiles, v2024'. The 'License' section states: 'Follow MEOP data policy standards, cf. <http://www.meop.net/the-dataset/data-access.html>. Data available free of charge. User assumes all risk for use of data. User must display citation in any publication or product using data. User must contact PI prior to any commercial use of data.'

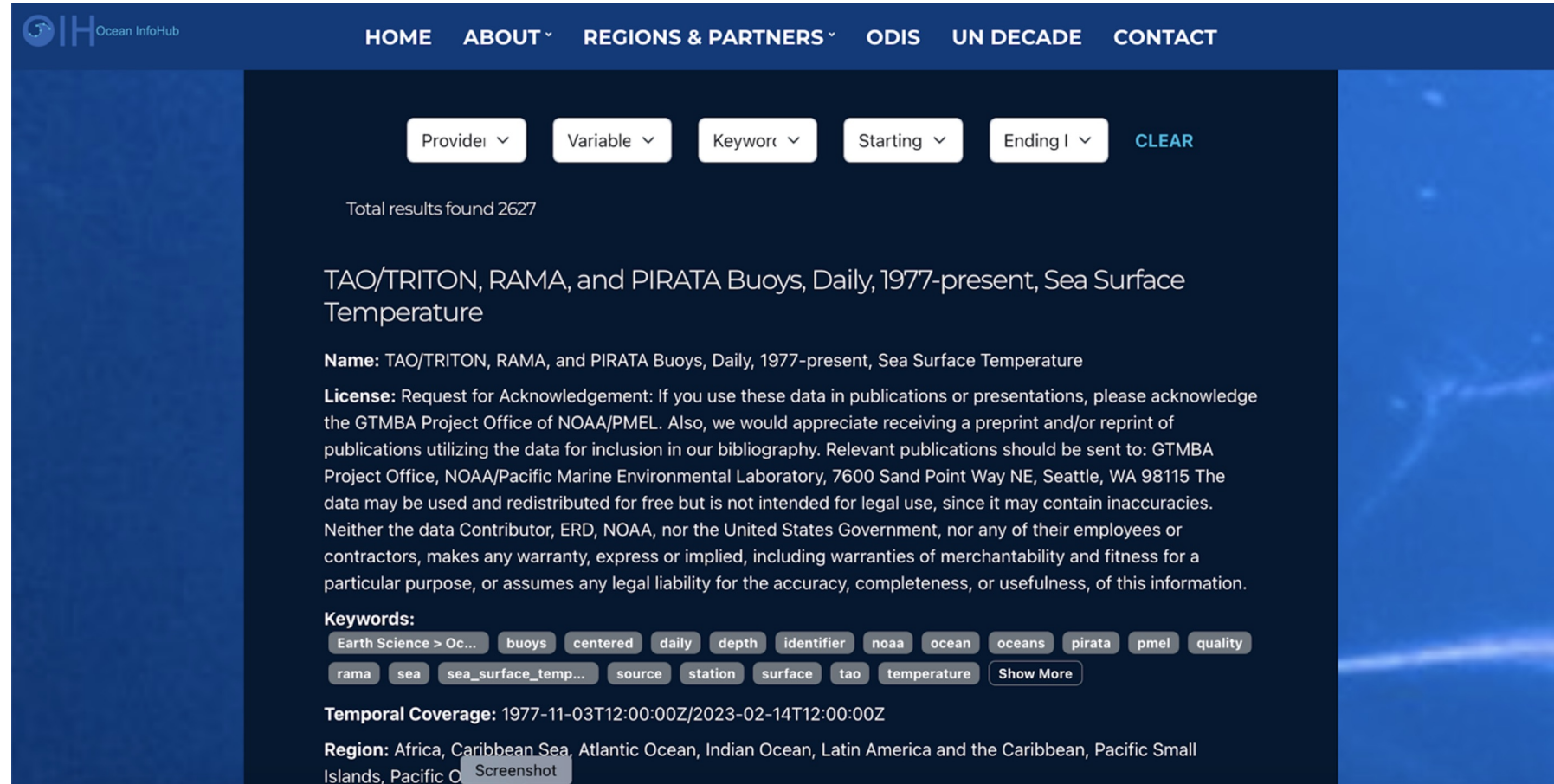
The 'Keywords' section lists various tags: CYCLE_NUMBER, DATA_CENTRE, DATA_MODE, DATA_STATE_INDI..., DATA_TYPE, DATE_CREATION, DATE_UPDATE, DC_REFERENCE, FORMAT_VERSION, HANDBOOK_VERSI..., INST_REFERENCE, JULD_LOCATION, JULD_QC, PI_NAME, PLATFORM_NUMBER, POSITIONING_SYS..., POSITION_QC, PROFILE_PRES_QC, PROFILE_PSAL_QC, and PROFILE_TEMP_QC. A 'Show More' button is located below the keywords.

The 'Temporal Coverage' is specified as '2004-01-27T11:49:00Z/2024-02-22T12:45:00Z'. The 'Region' is listed as 'Southern Ocean, Africa, Arctic Ocean, Caribbean Sea, Atlantic Ocean, Indian Ocean, Mediterranean Sea, Latin America and the Caribbean, Pacific Small Islands, Pacific Ocean'.

Integration with IODE Ocean Data and Information System (ODIS)



Integration with IODE Ocean Data and Information System (ODIS)



The screenshot shows the Ocean InfoHub (OIH) website interface. The top navigation bar includes links for HOME, ABOUT, REGIONS & PARTNERS, ODIS, UN DECADE, and CONTACT. Below the navigation bar, there are search filters for Provider, Variable, Keyword, Starting, and Ending, along with a CLEAR button. The search results indicate a total of 2627 results found. The primary result is titled "TAO/TRITON, RAMA, and PIRATA Buoys, Daily, 1977-present, Sea Surface Temperature". The description includes the name of the dataset and a detailed license statement regarding acknowledgment and usage. A list of keywords is provided, including "Earth Science > Oc...", "buoys", "centered", "daily", "depth", "identifier", "noaa", "ocean", "oceans", "pirata", "pmel", "quality", "rama", "sea", "sea_surface_temp...", "source", "station", "surface", "tao", "temperature", and a "Show More" button. The temporal coverage is specified as "1977-11-03T12:00:00Z/2023-02-14T12:00:00Z", and the region is listed as "Africa, Caribbean Sea, Atlantic Ocean, Indian Ocean, Latin America and the Caribbean, Pacific Small Islands, Pacific O". A "Screenshot" label is visible in the bottom right corner of the image area.

OIH Ocean InfoHub

HOME ABOUT REGIONS & PARTNERS ODIS UN DECADE CONTACT

Provider Variable Keyword Starting Ending I CLEAR

Total results found 2627

TAO/TRITON, RAMA, and PIRATA Buoys, Daily, 1977-present, Sea Surface Temperature

Name: TAO/TRITON, RAMA, and PIRATA Buoys, Daily, 1977-present, Sea Surface Temperature

License: Request for Acknowledgement: If you use these data in publications or presentations, please acknowledge the GTMBA Project Office of NOAA/PMEL. Also, we would appreciate receiving a preprint and/or reprint of publications utilizing the data for inclusion in our bibliography. Relevant publications should be sent to: GTMBA Project Office, NOAA/Pacific Marine Environmental Laboratory, 7600 Sand Point Way NE, Seattle, WA 98115 The data may be used and redistributed for free but is not intended for legal use, since it may contain inaccuracies. Neither the data Contributor, ERD, NOAA, nor the United States Government, nor any of their employees or contractors, makes any warranty, express or implied, including warranties of merchantability and fitness for a particular purpose, or assumes any legal liability for the accuracy, completeness, or usefulness, of this information.

Keywords:

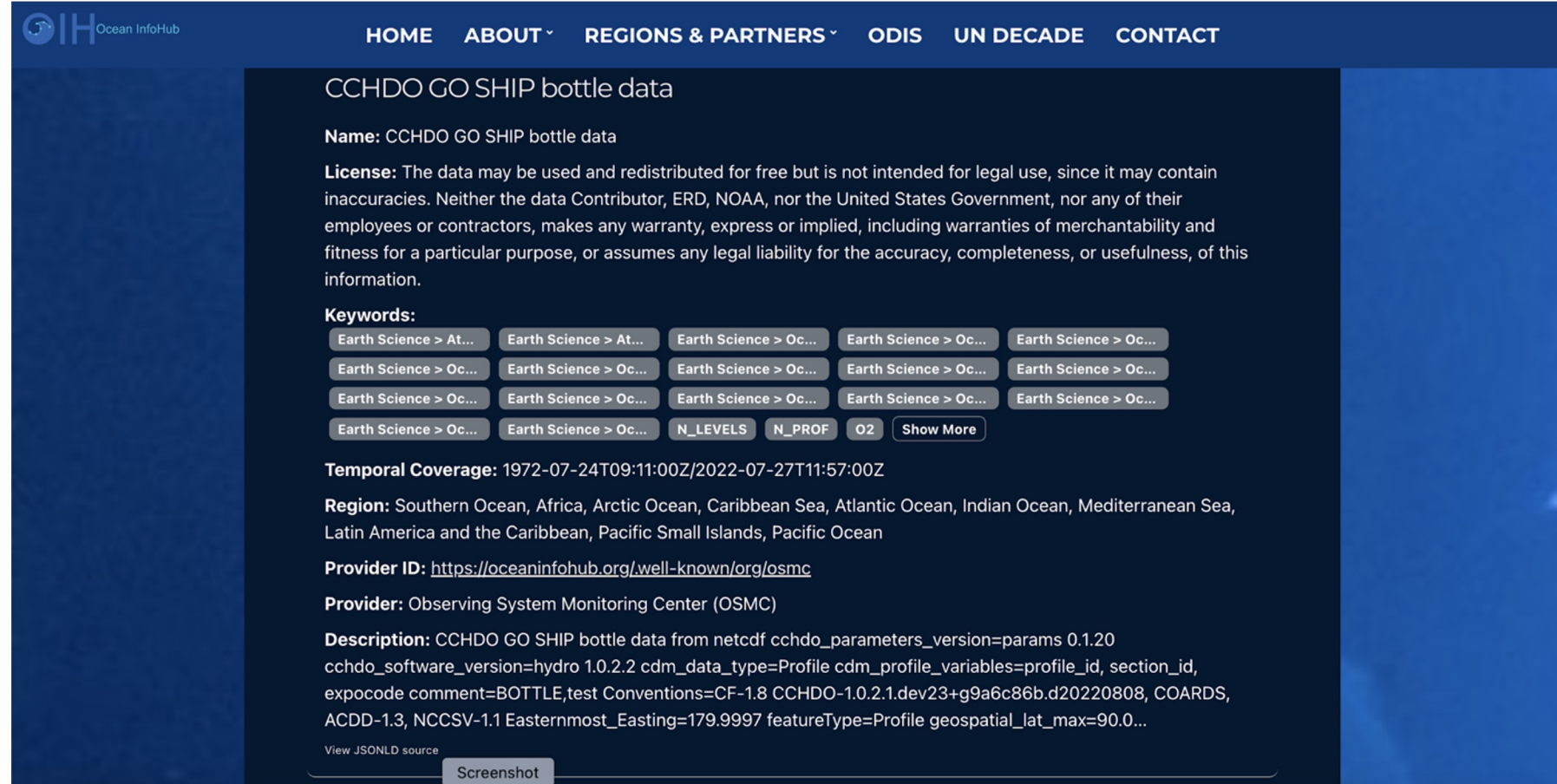
Earth Science > Oc... buoys centered daily depth identifier noaa ocean oceans pirata pmel quality rama sea sea_surface_temp... source station surface tao temperature Show More

Temporal Coverage: 1977-11-03T12:00:00Z/2023-02-14T12:00:00Z

Region: Africa, Caribbean Sea, Atlantic Ocean, Indian Ocean, Latin America and the Caribbean, Pacific Small Islands, Pacific O

Screenshot

Integration with IODE Ocean Data and Information System (ODIS)



The screenshot displays the Ocean InfoHub (OIH) website interface. The header includes the OIH logo and navigation links: HOME, ABOUT, REGIONS & PARTNERS, ODIS, UN DECADE, and CONTACT. The main content area is titled "CCHDO GO SHIP bottle data". Below the title, the "Name" is listed as "CCHDO GO SHIP bottle data". The "License" section states that the data is for free use but not for legal purposes. The "Keywords" section features a grid of tags, including "Earth Science > At...", "Earth Science > Oc...", "N_LEVELS", "N_PROF", "O2", and a "Show More" button. The "Temporal Coverage" is specified as "1972-07-24T09:11:00Z/2022-07-27T11:57:00Z". The "Region" is listed as "Southern Ocean, Africa, Arctic Ocean, Caribbean Sea, Atlantic Ocean, Indian Ocean, Mediterranean Sea, Latin America and the Caribbean, Pacific Small Islands, Pacific Ocean". The "Provider ID" is a URL, and the "Provider" is the "Observing System Monitoring Center (OSMC)". The "Description" provides technical details about the data format and conventions. At the bottom, there are links for "View JSONLD source" and a "Screenshot" button.

NAME: CCHDO GO SHIP bottle data

LICENSE: The data may be used and redistributed for free but is not intended for legal use, since it may contain inaccuracies. Neither the data Contributor, ERD, NOAA, nor the United States Government, nor any of their employees or contractors, makes any warranty, express or implied, including warranties of merchantability and fitness for a particular purpose, or assumes any legal liability for the accuracy, completeness, or usefulness, of this information.

Keywords:

Earth Science > At... Earth Science > At... Earth Science > Oc... Earth Science > Oc... Earth Science > Oc...
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Earth Science > Oc... Earth Science > Oc... N_LEVELS N_PROF O2 Show More

Temporal Coverage: 1972-07-24T09:11:00Z/2022-07-27T11:57:00Z

Region: Southern Ocean, Africa, Arctic Ocean, Caribbean Sea, Atlantic Ocean, Indian Ocean, Mediterranean Sea, Latin America and the Caribbean, Pacific Small Islands, Pacific Ocean

Provider ID: <https://oceaninfohub.org/well-known/org/osmc>

Provider: Observing System Monitoring Center (OSMC)

Description: CCHDO GO SHIP bottle data from netcdf cchdo_parameters_version=params 0.1.20 cchdo_software_version=hydro 1.0.2.2 cdm_data_type=Profile cdm_profile_variables=profile_id, section_id, expocode comment=BOTTLE,test Conventions=CF-1.8 CCHDO-1.0.2.1.dev23+g9a6c86b.d20220808, COARDS, ACDD-1.3, NCCSV-1.1 Easternmost_Easting=179.9997 featureType=Profile geospatial_lat_max=90.0...

[View JSONLD source](#) [Screenshot](#)

Integration with IODE Ocean Data and Information System (ODIS)

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OIH Ocean InfoHub

HOME ABOUT REGIONS & PARTNERS ODIS UN DECADE CONTACT

25 Documents 0 Experts 0 Institutions 80 Datasets 4 Training 0 Vessels 0 Projects

74 Spatial Search

Provider Variable Keyword Starting Ending I CLEAR

Total results found 80

MEOP animal profiles, v2024

Name: MEOP animal profiles, v2024

License: Follow MEOP data policy standards, cf. <http://www.meop.net/the-dataset/data-access.html>. Data available free of charge. User assumes all risk for use of data. User must display citation in any publication or product using data. User must contact PI prior to any commercial use of data

Keywords:

CYCLE_NUMBER DATA_CENTRE DATA_MODE DATA_STATE_INDI... DATA_TYPE DATE_CREATION DATE_UPDATE

DC_REFERENCE FORMAT_VERSION HANDBOOK_VERSI... INST_REFERENCE JULD_LOCATION JULD_QC PI_NAME

PLATFORM_NUMBER POSITIONING_SYS... POSITION_QC PROFILE_PRES_QC PROFILE_PSAL_QC PROFILE_TEMP_QC

Show More

Temporal Coverage: 2004-01-27T11:49:00Z/2024-02-22T12:45:00Z

Region: Southern Ocean, Africa, Arctic Ocean, Caribbean Sea, Atlantic Ocean, Indian Ocean, Mediterranean Sea, Latin America and the Caribbean, Pacific Small Islands, Pacific Ocean

Integration with IODE Ocean Data and Information System (ODIS)

Ocean Infohub x ERDDAP - MEOP animal profile: x +

osmc.noaa.gov/erddap/tabledap/MEOP_profiles.html

ERDDAP Easier Access To GOOS Data English Brought to you by GOOS OCG

ERDDAP > tabledap > Data Access Form

Dataset Title: **MEOP animal profiles, v2024** [RSS](#)

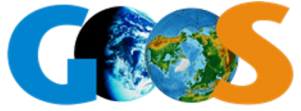
Institution: MEOP (Dataset ID: MEOP_profiles)

Information: [Summary](#) | [License](#) | [FGDC](#) | [ISO 19115](#) | [Metadata](#) | [Background](#) | [Subset](#) | [Make a graph](#)

Variable ☐ Check All ☐ Uncheck All

Variable	Optional Constraint #1	Optional Constraint #2	Minimum or a List of Values	Maximum
<input checked="" type="checkbox"/> deployment_code	>=	<=		
<input checked="" type="checkbox"/> wmo_platform_code	>=	<=		
<input checked="" type="checkbox"/> smru_platform_code	>=	<=		
<input checked="" type="checkbox"/> species (Species type)	>=	<=		
<input checked="" type="checkbox"/> DATA_TYPE	>=	<=		
<input checked="" type="checkbox"/> FORMAT_VERSION	>=	<=		
<input checked="" type="checkbox"/> HANDBOOK_VERSION	>=	<=		
<input checked="" type="checkbox"/> REFERENCE_DATE_TIME	>=	<=		
<input checked="" type="checkbox"/> DATE_CREATION	>=	<=		
<input checked="" type="checkbox"/> DATE_UPDATE (Date of update of this file)	>=	<=		
<input checked="" type="checkbox"/> PLATFORM_NUMBER (Float unique identifier)	>=	<=		
<input checked="" type="checkbox"/> PROJECT_NAME	>=	<=		
<input checked="" type="checkbox"/> PI_NAME	>=	<=		
<input checked="" type="checkbox"/> CYCLE_NUMBER (Float cycle number, 1)	>=	<=	1	2893
<input checked="" type="checkbox"/> DIRECTION	>=	<=	A	A
<input checked="" type="checkbox"/> DATA_CENTRE	>=	<=		
<input checked="" type="checkbox"/> DC_REFERENCE	>=	<=		
<input checked="" type="checkbox"/> DATA_STATE_INDICATOR	>=	<=	D	D
<input checked="" type="checkbox"/> DATA_MODE	>=	<=		
<input checked="" type="checkbox"/> INST_REFERENCE (Instrument type)	>=	<=		
<input checked="" type="checkbox"/> WMO_INST_TYPE (Coded instrument type)	>=	<=		
<input checked="" type="checkbox"/> time (UTC)	>= 2024-02-15T00:00:00Z	<= 2024-02-22T12:45:00Z	2004-01-27T11:49:00Z	2024-02-22T12:45:00Z
<input checked="" type="checkbox"/> JULD_QC (Quality on Date and Time)	>=	<=	1	1
<input checked="" type="checkbox"/> JULD_LOCATION (UTC)	>=	<=	2004-01-27T11:49:00Z	2024-02-22T12:45:00Z
<input checked="" type="checkbox"/> latitude (degrees_north)	>=	<=	-78.66	87.7764
<input checked="" type="checkbox"/> longitude (degrees_east)	>=	<=	-179.9998	179.9984
<input checked="" type="checkbox"/> POSITION_QC	>=	<=	1	1
<input checked="" type="checkbox"/> POSITIONING_SYSTEM	>=	<=		
<input checked="" type="checkbox"/> PROFILE_PRES_QC	>=	<=	A	A
<input checked="" type="checkbox"/> PROFILE_PSAL_QC	>=	<=	A	A
<input checked="" type="checkbox"/> PROFILE_TEMP_QC	>=	<=	A	A
<input checked="" type="checkbox"/> PRES (SEA PRESSURE, decibar)	>=	<=	0.0	2552.0
<input checked="" type="checkbox"/> PRES_QC (quality flag)	>=	<=	1	9
<input checked="" type="checkbox"/> PRES_ADJUSTED (SEA PRESSURE, decibar)	>=	<=	0.0	2552.0
<input checked="" type="checkbox"/> PRES_ADJUSTED_QC (quality flag)	>=	<=	1	9
<input checked="" type="checkbox"/> PRES_ADJUSTED_ERROR (SEA PRESSURE, decibar)	>=	<=		
<input checked="" type="checkbox"/> TEMP (degree_Celsius)	>=	<=	-7.801476	932.5018
<input checked="" type="checkbox"/> TEMP_QC (quality flag)	>=	<=	1	9
<input checked="" type="checkbox"/> TEMP_ADJUSTED (degree_Celsius)	>=	<=	-4.915466	31.98509
<input checked="" type="checkbox"/> TEMP_ADJUSTED_QC (quality flag)	>=	<=	1	9
<input checked="" type="checkbox"/> TEMP_ADJUSTED_ERROR (degree_Celsius)	>=	<=	0.03	0.4
<input checked="" type="checkbox"/> PSAL (PRACTICAL SALINITY, PSU)	>=	<=	-0.006794212	22614.28
<input checked="" type="checkbox"/> PSAL_QC (quality flag)	>=	<=	1	9
<input checked="" type="checkbox"/> PSAL_ADJUSTED (PSU)	>=	<=	4.065279	39.05772
<input checked="" type="checkbox"/> PSAL_ADJUSTED_QC (quality flag)	>=	<=	1	9
<input checked="" type="checkbox"/> PSAL_ADJUSTED_ERROR (PRACTICAL SALINITY ERROR, 1e-3)	>=	<=	0.05	0.4
<input checked="" type="checkbox"/> data_assembly_center	>=	<=		
<input checked="" type="checkbox"/> reference_file_name (Name of reference file)	>=	<=		
<input checked="" type="checkbox"/> nation (Name of nation)	>=	<=		
<input checked="" type="checkbox"/> meop_platform_code	>=	<=		





The Global Ocean Observing System

Thank you

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