

FAIR mariene data

Peter Thijsse (MARIS) – 5 juli 2022

Inhoud

- De FAIR metrics – GO-FAIR (kort overzicht)
 - Interpretatie van data betrouwbaarheid
- Gebruik en hergebruik van betrouwbare mariene data
 - Europees perspectief
- Hoe FAIR is data in de Digitwin NoordZee viewer?
- Hoe werkt SeaDataNet naar zo FAIR mogelijke data?

1. De FAIR metrics – Reusability indicator voor inschatten data betrouwbaarheid

Findable

- [F1. \(Meta\)data are assigned a globally unique and persistent identifier](#)
- [F2. Data are described with rich metadata \(defined by R1 below\)](#)
- [F3. Metadata clearly and explicitly include the identifier of the data they describe](#)
- [F4. \(Meta\)data are registered or indexed in a searchable resource](#)

Accessible

- [A1. \(Meta\)data are retrievable by their identifier using a standardised communications protocol](#)
- [A1.1 The protocol is open, free, and universally implementable](#)
- [A1.2 The protocol allows for an authentication and authorisation procedure, where necessary](#)
- [A2. Metadata are accessible, even when the data are no longer available](#)

Interoperable

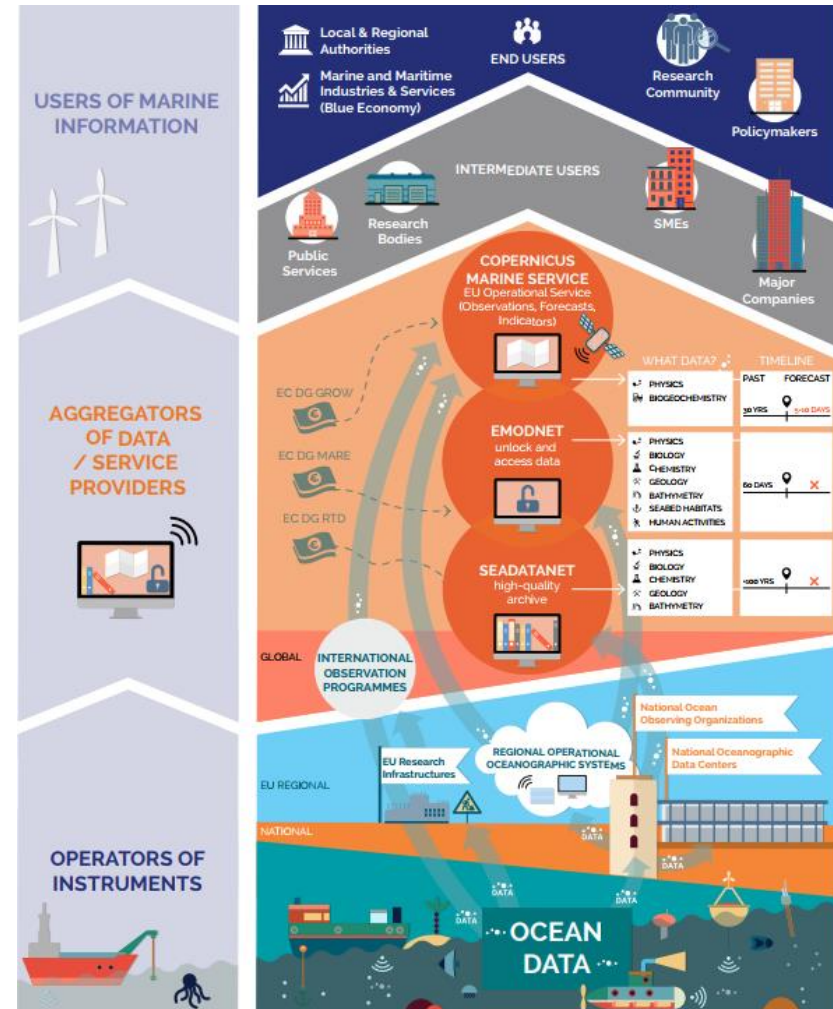
- [I1. \(Meta\)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.](#)
- [I2. \(Meta\)data use vocabularies that follow FAIR principles](#)
- [I3. \(Meta\)data include qualified references to other \(meta\)data](#)

Reusable

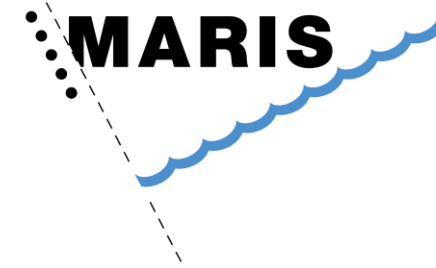
- [R1. \(Meta\)data are richly described with a plurality of accurate and relevant attributes](#)
 - Context, purpose of data collection, lab conditions, parameter settings, etc.
- [R1.1. \(Meta\)data are released with a clear and accessible data usage license](#)
- [R1.2. \(Meta\)data are associated with detailed provenance](#)
 - Where does the data come from, who collected it, how was it processed, which original data was included.
- [R1.3. \(Meta\)data meet domain-relevant community standards](#)
 - Formal data standard, combine various datasets

2. Gebruik en hergebruik van betrouwbare mariene data **MARIS**

- EU perspectief
- Intensieve observaties van de zee en oceanen
- Eerste gebruik: Lokaal, regionaal, national
- Hergebruik: Via nationale datacentra, EU aggregators
- Uiteindelijk richting eindgebruikers: machines en mens (industrie, research etc)
- FAIR data is een belangrijke sleutel om data goed herbruikbaar te maken. Dit start reeds bij de bron (metadata, unieke ID's etc.)



3. Hoe FAIR is data in de Digitwin NoordZee viewer?



Telecom cables

Rijkswaterstaat hosts a service called Elektra, telecom kabels op de Noordzee which is updated monthly. Last change was 2019-06-04. Checked 2019-10 by R. van 't Hart

Legend	URL
Digihaven WMS	https://geo-service.maris.nl/digihaven/wms
Metadata URL	https://www.nationaalgeoregister.nl/geonetwork/srv/du/catalog/search?metadata=66bac5b-05fa-4dce-a931-1938f9711c7
Date	2019/10



NGR Nationaal Georegister

Home / Zoeken / Kabels en leidingen - Elektra, telecom kabels op de Noordzee

Kabels en leidingen - Elektra, telecom kabels op de Noordzee

Brontype: Dataset

Bestand met elektra en telecom kabels die op de Noordzee gelegen zijn, waarbij de focus op het NCP gericht is. Informatie buiten het NCP is alleen te gebruiken als achtergrondlaag. Bij laatste revisie zijn een aantal kabels aangepast op basis van informatie van de providers, waarbij nu bij de aangepaste kabels ook de lussen (uitbijters) zijn opgenomen.

Over deze bron

Onderwerp	nutbedrijven communicatie
Gebruiksbeperkingen	Data buiten NCP is alleen geschikt voor grotere schaaltoepassingen (groter dan 1:750.000). Data binnen het NCP is te gebruiken bij kleinere schaaltoepassingen
Licenties	http://creativecommons.org/publicdomain/zero/1.0/deed.nl
Herzieningsfrequentie	1 x per kwartaal
Datum van de bron (aangemaakt)	28-11-2016
Datum van de bron (laatste wijziging)	15-07-2021

Technische informatie

Bron identificatie	5a0df9d2-8c6d-4099-9749-9f056e6feabc
Algemene beschrijving herkomst	Data wordt aangeleverd door de providers, eigenaren van de kabels.

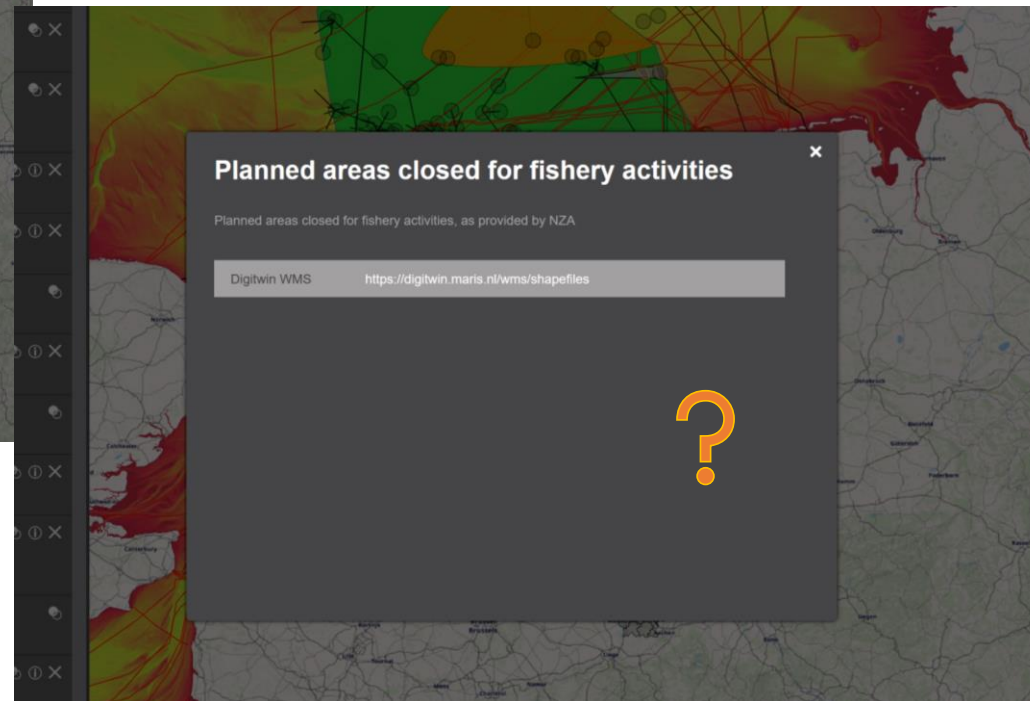
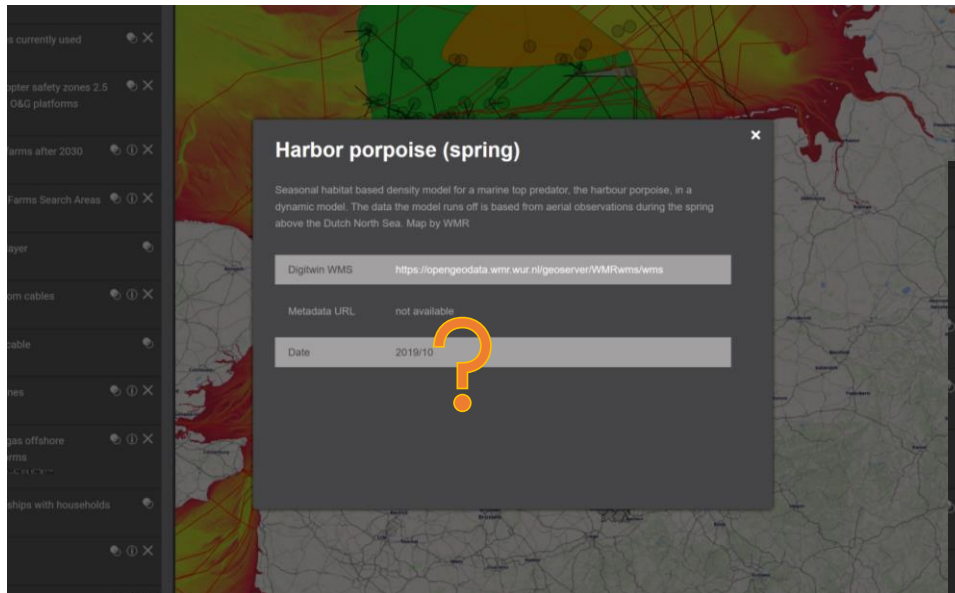
Metadata informatie

Metadata unieke identifier	66bac5b-05fa-4dce-a931-1938f9711c7
Brontype	Dataset
Metadata datum	08-09-2023
Metadata standaard naam	ISO 19115
Metadata standaard versie	Nederlandse metadata profiel op ISO 19115 voor geografie 2.1
Status validatie	Niet eerder gevalideerd (iso19115.geografie.2.0.0)

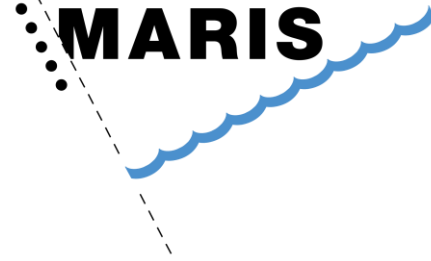
Deel op sociale media: Twitter, Facebook, LinkedIn, Email, RSS, Telegram

GeoCat Live 2022.4 Copyright Privacy Cookies

Maar er is ook ruimte voor verbetering..

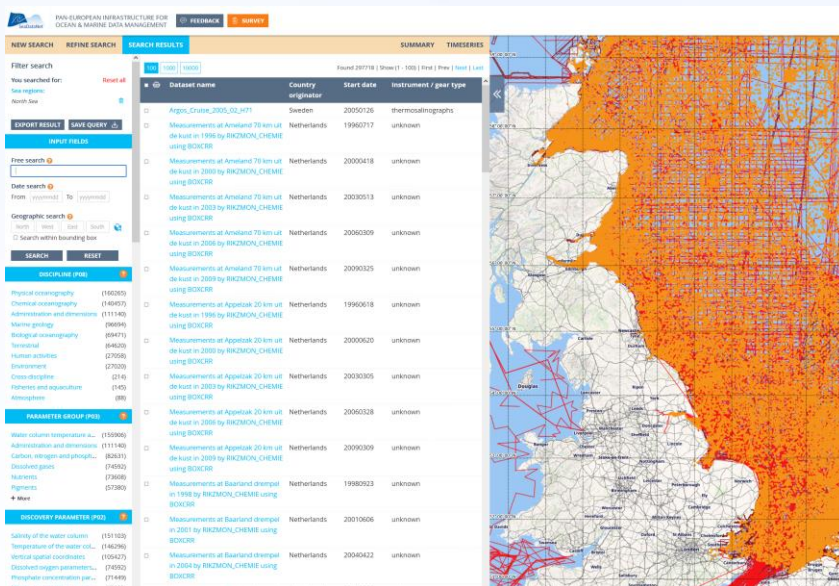


4. Hoe werkt SeaDataNet naar zo FAIR mogelijke data



- F: Geregistreeerde data discovery services voor mens en machine
- A: PID's, Open metadata, authenticatie laag voor download
- I: Standaard uitwisselformaten, community vocabulaires, links naar andere metadata
- R: Uitgebreide metadata over context (originator, instrument, parameters, link naar sensor), gebruikscondities, processing software en settings informatie, links naar brondata (bij data producten)

F&A: CDI Data Discovery and Access services for humans and machines



The screenshot displays the SeaDataNet search interface. On the left, there are filters for 'Filter search', 'Geographic search', 'Discover IRIS', 'Parameter Group (PIS)', and 'Discovery Parameter (PID)'. The main area shows a table of search results with columns for Dataset name, Country originator, Start date, and Instrument / gear type. A map on the right shows the North Sea region with a heatmap overlay.

Dataset name	Country originator	Start date	Instrument / gear type
Aggs_Cruise_2005_02_H71	Sweden	20050126	thermoclimographs
Measurements at Ameland 70 km ut de kust in 1996 by RIJZMOND_CHEMIE using BCKC99	Netherlands	19960717	unknown
Measurements at Ameland 70 km ut de kust in 2000 by RIJZMOND_CHEMIE using BCKC99	Netherlands	20000418	unknown
Measurements at Ameland 70 km ut de kust in 2003 by RIJZMOND_CHEMIE using BCKC99	Netherlands	20030313	unknown
Measurements at Ameland 70 km ut de kust in 2006 by RIJZMOND_CHEMIE using BCKC99	Netherlands	20060309	unknown
Measurements at Ameland 70 km ut de kust in 2009 by RIJZMOND_CHEMIE using BCKC99	Netherlands	20090325	unknown
Measurements at Appelsak 20 km ut de kust in 1996 by RIJZMOND_CHEMIE using BCKC99	Netherlands	19960618	unknown
Measurements at Appelsak 20 km ut de kust in 2000 by RIJZMOND_CHEMIE using BCKC99	Netherlands	20000620	unknown
Measurements at Appelsak 20 km ut de kust in 2003 by RIJZMOND_CHEMIE using BCKC99	Netherlands	20030305	unknown
Measurements at Appelsak 20 km ut de kust in 2006 by RIJZMOND_CHEMIE using BCKC99	Netherlands	20060328	unknown
Measurements at Appelsak 20 km ut de kust in 2009 by RIJZMOND_CHEMIE using BCKC99	Netherlands	20090309	unknown
Measurements at Baanland diepwal in 1998 by RIJZMOND_CHEMIE using BCKC99	Netherlands	19980923	unknown
Measurements at Baanland diepwal in 2001 by RIJZMOND_CHEMIE using BCKC99	Netherlands	20010606	unknown
Measurements at Baanland diepwal in 2004 by RIJZMOND_CHEMIE using BCKC99	Netherlands	20040422	unknown

<https://cdi.seadatanet.org/search>



The screenshot shows the SeaDataNet SPARQL endpoint interface. It includes a 'QUERY' section with a text input field for a SPARQL query and a 'GET RESULTS' button. Below the query field, there is an 'Output file format' dropdown menu. The 'SPARQL SERVICES' section lists various services, and the 'LINKS TO SPARQL 1.1 SPECIFICATIONS' section provides links to the full set of specifications.

Output file format: Any (server decides)

GET RESULTS

SPARQL SERVICES

This interface is designed to fetch a small amount of records, to retrieve all records access the service directly using your own SPARQL client. The general SPARQL query service is accessed directly using the SPARQL protocol at [seadatanet.org](#)

LINKS TO SPARQL 1.1 SPECIFICATIONS

The full set of SPARQL specification is:

- SPARQL Query language
- SPARQL Update
- SPARQL Protocol
- SPARQL Graph Store Protocol
- SPARQL Result formats
 - SPARQL Query Results (JSON Format) using BCKC99
 - SPARQL Query Results CSV and TSV Formats
 - SPARQL Query Results XML Format
- SPARQL Service Description
- SPARQL Federated Query
- SPARQL Endpoint Registers

© Copyright SeaDataCloud 2022

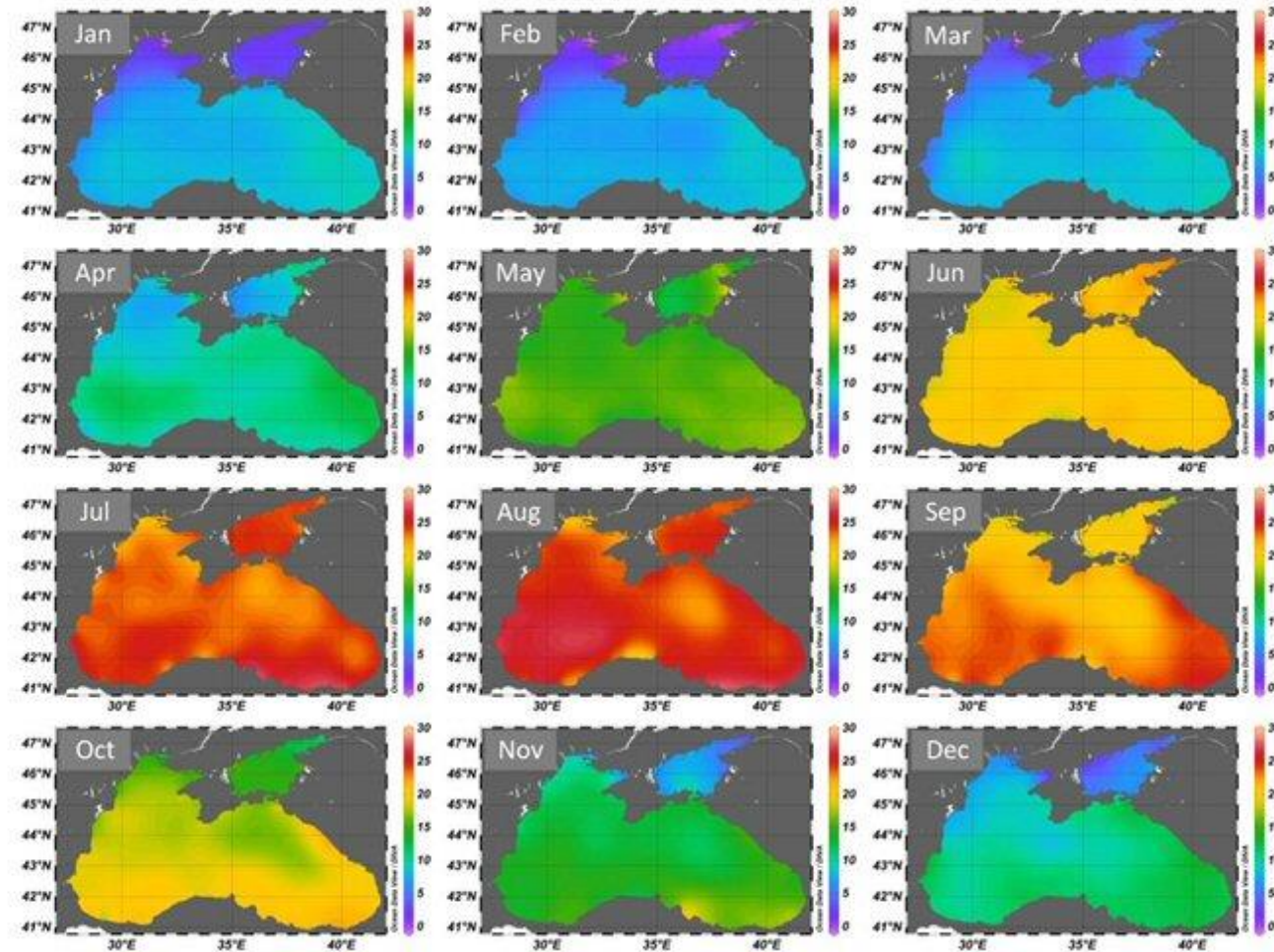
<https://cdi.seadatanet.org/sparql> (RDF, LinkedData)
+ API's for data access

F&A: Catalogue of SeaDataNet data products

Example of
SeaDataNet
climatologies:

Black Sea
monthly
variation of
temperature at
the surface for
the time period
1955 – 2019

All products in
catalogue with
DOI landing
pages



I: SeaDataNet standards

“Making Data and Services:

- ***Findable***
- ***Accessible***
- ***Interoperable***
- ***Re-usable***


for machines and people.”



- **Common standards for the marine domain**, adapting ISO and OGC standards and achieving INSPIRE compliance:
 - **Metadata formats for data sets, research cruises, monitoring networks, organisations, and research projects**
 - **Standard data exchange formats : ODV ASCII and NetCDF (CF)**, fully supported by controlled vocabularies
 - **Controlled Vocabularies** for the marine domain (>89.000 terms in 110+ lists), with international governance and web services
- Maintenance and dissemination of standard QA-QC procedures, together with IOC/IODE and ICES



R: Metadata optimized for Reusability (similar underway for products)

 PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN & MARINE DATA MANAGEMENT

The selected data set is described below with metadata. Access to the data set itself can be requested via the SeaDataNet portal that gives an overview and access to marine and ocean data sets acquired and managed by European organisations. Go to: <https://www.seadatanet.org>

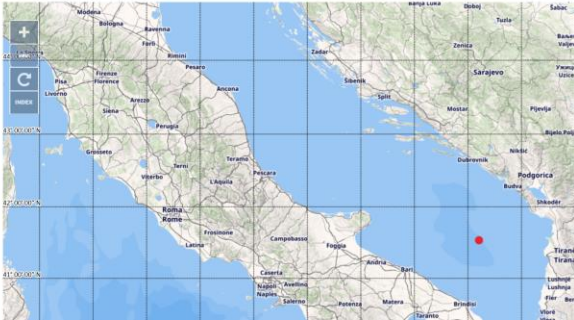
DETAILS

WHAT?

Data set name E2M3A-CTD-2m: station 00001 (ID 450230)
Discipline Chemical oceanography
 Physical oceanography
Parameter groups Dissolved gases
 Other physical oceanographic measurements
 Water column temperature and salinity
Discovery parameter Electrical conductivity of the water column
 Dissolved oxygen parameters in the water column
 Salinity of the water column
 Density of the water column
 Temperature of the water column
GEMET-INSPIRE themes Oceanographic geographical features
Abstract E2M3A-CTD-2m CTD stations acquired on 2017-03-24
Related EDMED dataset [Meteorological and oceanographic datasets collected by the E2M3A buoy in the South Adriatic Sea between 2002 onwards](#)
Data format Ocean Data View ASCII input Version 0.4
 Climate and Forecast Point Data NetCDF Version 1.0
Data set creation date 20220329

WHERE?

Map



WHEN?

Start date 20170324
Start time 11:00:00
End date 20190207
End time 12:00:01

HOW?

Instrument/gear category CTD
 dissolved gas sensors
 water temperature sensor
 salinity sensor
 Sea-Bird SBE 37 MicroCat SMP-CT-ODO with optional pressure (submersible) CTD sensor series
ship E2M3A-CTD-2m 00001
 450230
 20170324

WHO?

Data originator [National Institute of Oceanography and Applied Geophysics - OGS, Division of Oceanography](#)
Data custodian [National Institute of Oceanography and Applied Geophysics - OGS, Division of Oceanography](#)
Project name [European Multidisciplinary Seafloor and Water Column Observatory \(research project\)](#)

HOW TO GET DATA?

Data Distributor [National Institute of Oceanography and Applied Geophysics - OGS, Division of Oceanography](#)
Database reference

Access/ordering of data web data access with registration
Access restriction by negotiation

Website	Reference	Distribution method	Data size
https://modc.ogs.it/erddap/tabledap/E2M3A_TS.odv?txt=time,lattitude,longitude,depth,DOX1,TEMP,CNDC&time%3E=2017-04-07		download	
https://modc.ogs.it/sos/service?service=SOS&version=2.0.0&request=GetObservation&offering=CT_E2M3A		S2n-sos-restful-ts-api	

OTHER INFO

Quality info

Name	Date	Comment
COMMISSION REGULATION (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata	2008-12-04	See the referenced specification
COMMISSION REGULATION (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services	2010-12-08	See the referenced specification
Medar-Mediatlas Protocol	2001-12-01	See the referenced specification

The data centres apply standard data quality control procedures on all data that the centres manage. Ask the data centre for details.

CDI-METADATA

Lineage
CDI-record id 2951754

Tijd voor vragen en discussie

peter@maris.nl