



Agenzia nazionale per le nuove tecnologie,
l'energia e lo sviluppo economico sostenibile

L'infrastruttura SeaDataNet, il formato dei dati e dei metadati

JRU EMSO-ITALIA

Riunione *Working Group Data Management*

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Leda Pecci (ENEA)



SeaDataNet

Un'infrastruttura pan-europea dedicata alla gestione dei dati marini e oceanografici in collaborazione con i NODC (National Oceanographic Data Center) e produttori di dati di 34 paesi che si affacciano sui mari europei.



SDN fornisce accesso a dati multidisciplinari di qualità standardizzata e prodotti di dati, oltre a servizi, compresi cataloghi delle organizzazioni marine, delle attività di ricerca e monitoraggio legate al mare.

Chimica

Geofisica

**Geologia
Marina**

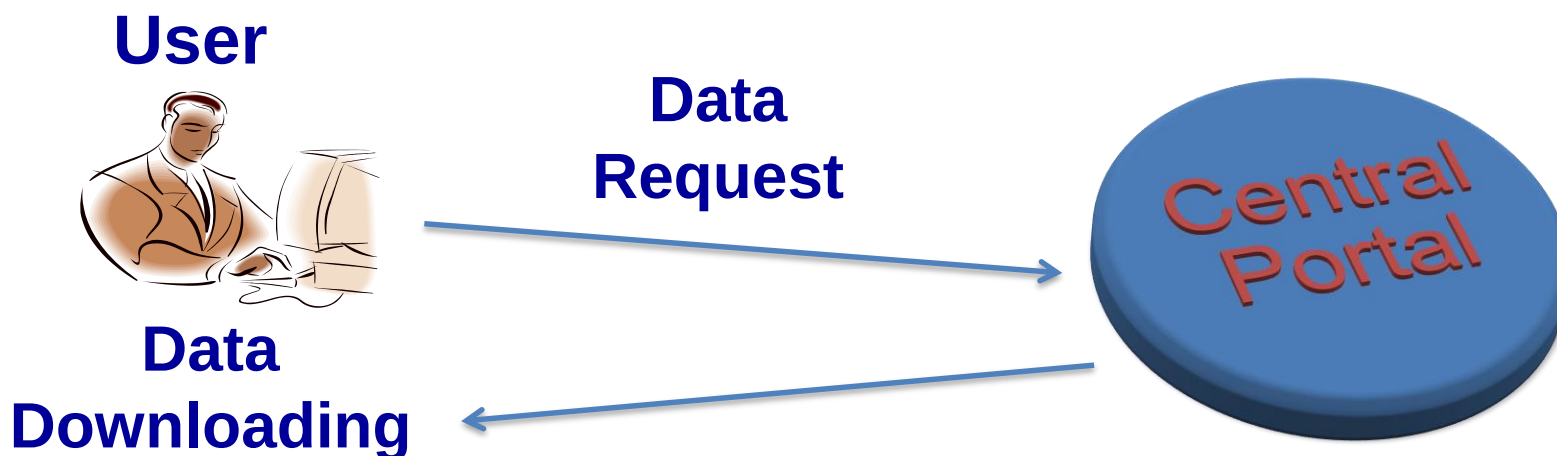
Biologia

Meteorologia

**Oceanografia
Fisica**

SeaDataNet

Infrastruttura semi-distribuita che utilizza il cloud e, parzialmente, una replicazione dei dati



Fonte di dati

Circa 155 centri di data ← ≈ 650 produttori di dati

<https://www.seadatanet.org/>

Vocabolari

Vocabolari controllati utilizzati in tutti i metadatabase e formati di dati (interoperabilità) organizzati con governance internazionale, interfacce utente e servizi web



PAN-EUROPEAN INFRASTRUCTURE FOR
OCEAN & MARINE DATA MANAGEMENT

BODC VOCAB LIBRARY

BODC WEBSERVICES V2 (LIBRARIES) CL12

Library	Thesaurus	Title	Alt Title	Version	Members	Modified
C16		SeaDataNet sea areas	SDN sea areas	9	127	11/7/2012 2:00:06 AM
C17		ICES Platform Codes	ICES Platforms	709	5571	3/13/2018 2:00:03 AM
C19		SeaVoX salt and fresh water body gazetteer	SeaVoX water bodies	17	263	2/21/2018 2:00:03 AM
C32		International Standards Organisation countries	ISO countries	7	251	1/14/2016 2:00:02 AM
C34		Activity purpose categories	Purpose categories	4	22	8/27/2011 3:00:05 AM
C35		European Nature Information System Level 3 Habitats	EUNIS3 Habitats	1	56	2/19/2010 2:01:37 AM
C36		Monitoring activity legislative drivers	Monitoring drivers	8	91	6/21/2017 3:00:03 AM
C37		Ten-degree Marsden Squares	Marsden-10	3	612	1/9/2009 2:00:05 AM
C38		SeaDataNet Ports Gazetteer	SeaDataNet Ports	61	4912	12/5/2017 2:00:02 AM
C39		World Meteorological Organisation sea	WMO sea states	1	10	9/30/2009 3:01:08 AM

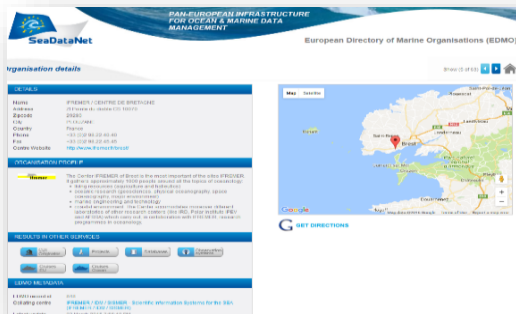
Cataloghi di metadati

File in formato XML conformi allo standard ISO-19115 o ISO-19139

EDMO Organisations



EDMERP
Projects



CSR
Research cruises



EDIOS
Observing
programmes



CDI
Data index
Data index (2 276 264)



EDMED
Data sets

Cataloghi di metadati



Hide map Export Country Service provided 50 100 200 500 Go Display all selected records Only selected records in results list Show (1 - 50 of 5000)

Name	Country	CDI-DC	CDI-ORG	CSR	EDMERP	EDMED	EDIOS	Eurofleets	POGO	SIMORC
"El Toruno" Research and marine species culture	Spain									
(Inland Fisheries Ireland) Cullion Fish Farm	Ireland									

Collegamenti tra organizzazioni e altri cataloghi

Cataloghi di metadati

5 standard SeaDataNet consigliati da IOCE / IODE:

1. Modello dati SeaDataNet Cruise Summary Report (CSR)
2. Codifica XML SeaDataNet Cruise Summary Report (CSR)
3. Modello dati SeaDataNet Common Data Index (CDI)
4. Codifica XML SeaDataNet Common Data Index (CDI)
5. Tecnologia per vocabolari controllati da SeaDataNet



The Ocean Data Standards and Best Practices Project (ODSBP)

The objective of the Project is to achieve broad agreement and commitment to adopt a number of standards and best practices related to ocean data management and exchange. The project is a continuation of the Ocean Data Standards Pilot Project (ODS), established and implemented jointly between JCOMM and IODE. The ODSBP project was established by IODE-XXII (2013) through Recommendation IODE-XXII.6.

Formati dei dati

Formato dei dati	Tipo di dato
SeaDataNet ODV4 ASCII	profili, serie temporali e traiettorie
SeaDataNet NetCDF (binario) conforme a CF-1.6	profili, serie temporali e traiettorie, basato sulla versione 1.6 della convenzione CF (Climate Forecast del Dicembre 2011)
SeaDataNet MedAtlas	Formato opzionale per compatibilità con vecchi dati

- File di testo CSV - foglio di calcolo
- Codifica dei caratteri : ASCII Latin 1
(http://en.wikipedia.org/wiki/ISO/IEC_8859-1)
- Separatore di colonna: Tab
- Commenti: identificati da // ad inizio riga
- Estensione dei file: .txt

```
//<sdn_reference xlink:href="https://cdi.seadatanet.org/report/edmo/681/RNODC_Bottle_11185_145"
xlink:role="isDescribedBy" xlink:type="SDN:L23::CDI" sdn:scope="681:RNODC_Bottle_11185_145"/>
```

```
//SDN_parameter_
mapping
```

```
//<subject>SDN:LOCAL:Depth</subject><object>SDN:P01::ADEPZZ
01</object><units>SDN:P06::ULAA</units>
```

```
//<subject>SDN:LOCAL:Temperature</subject><object>SDN:P01::T
EMPPR01</object><units>SDN:P06::UPAA</units>
```

```
//<subject>SDN:LOCAL:Salinity</subject><object>SDN:P01::PSALZZ
XX</object><units>SDN:P06::UUUU</units>
```

```
//<subject>SDN:LOCAL:Oxygen</subject><object>SDN:P01::DOXYC
Z01</object><units>SDN:P06::UMLL</units>
```

```
//
```

Cruise	Station	Type	YYYY-MM-DDThh:mm:ss.sss	Longitude [degree_s_east]	Latitude [degrees_north]	LOCAL_CDI_ID	EDMO_code	Bot. Depth [m]	Depth [m]	QV:SEA DAT ANE T	Temperature [Celsius degree]	QV:SEAD ATANET	Salinity [Dmnless]	QV:SEAD ATANET	Oxygen [ml/l]	QV:SEADAT ANET
11185	145	B	08T20:00:00.000	14.550	42.583	RNODC_Bottl	681	110.0	0.0	1	14.040	1	38.211	1	5.86	1
									10.0	1	13.970	1	38.242	1	6.01	1
									20.0	1	13.820	1	38.277	1	6.01	1
									29.0	1	13.800	1	38.289	1	5.94	1
									49.0	1	13.340	1	38.352	1	5.85	1
									74.0	1	13.320	1	38.440	1	5.66	1
									108.0	1	12.510	1	38.323	1	5.42	1

Struttura del formato SeaDataNet ODV 4

1. Commenti degli utenti
2. Riferimenti esterni (DOI, CDI, CSR, etc)
3. SeaDataNet intestazione semantica
4. Riga di intestazione delle colonne
5. Data rows

Contenuto

1. Opzionale
2. Opzionale
3. L'intestazione semantica è obbligatoria e serve per mappare le etichette utilizzate per i metadati e le colonne di dati nei vocabolari standardizzati di SeaDataNet

Riga di intestazione delle colonne

Metadati obbligatori

- Cruise
- Station
- Type
- YYYY-MM-DDThh:mm:ss.sss
- Longitude [degrees_east]
- Latitude [degrees_north]
- LOCAL_CDI_ID
- EDMO_code
- Bot. Depth [m]
- Coppie di colonne (Etichetta del parametro misurato e qualità del dato)

<http://vocab.nerc.ac.uk/collection/L20/current/>

- netcdf netCDF_vertical_profiles_xbt_with_fall_rate_and_instruments {
- **dimensions:**
- INSTANCE = UNLIMITED ; // (21 currently)
- MAXZ = 1502 ;
- REFMAX = 3 ;
- STRING23 = 23 ;
- STRING177 = 177 ;
- **variables:**
- int SDN_EDMO_CODE(INSTANCE) ;
- SDN_EDMO_CODE:long_name = "European Directory of Marine Organisations code for the CDI partner" ;
- char SDN_CRUISE(INSTANCE, STRING23) ;
- SDN_CRUISE:long_name = "TEST XBT" ;
- SDN_CRUISE:shipcode = "35A3" ;
- SDN_CRUISE:shipname = "L'Atalante" ;
- SDN_CRUISE:start_date = "2015-01-01" ;
- SDN_CRUISE:end_date = "2015-01-20" ;
- SDN_CRUISE:region = "Southwest Pacific Ocean (140W)" ;
- SDN_CRUISE:country = "35" ;
- SDN_CRUISE:laboratories = "IFREMER / GENAVIR BREST - IFREMER / GENAVIR BREST" ;
- SDN_CRUISE:chiefscientist = "VIOLETTE Pascal" ;

CDI (Common Data Index)

NEW SEARCH REFINER SEARCH RESULTS SUMMARY TIMESERIES

Filter search

EXPORT RESULT SAVE QUERY

INPUT FIELDS

Free search

Date search

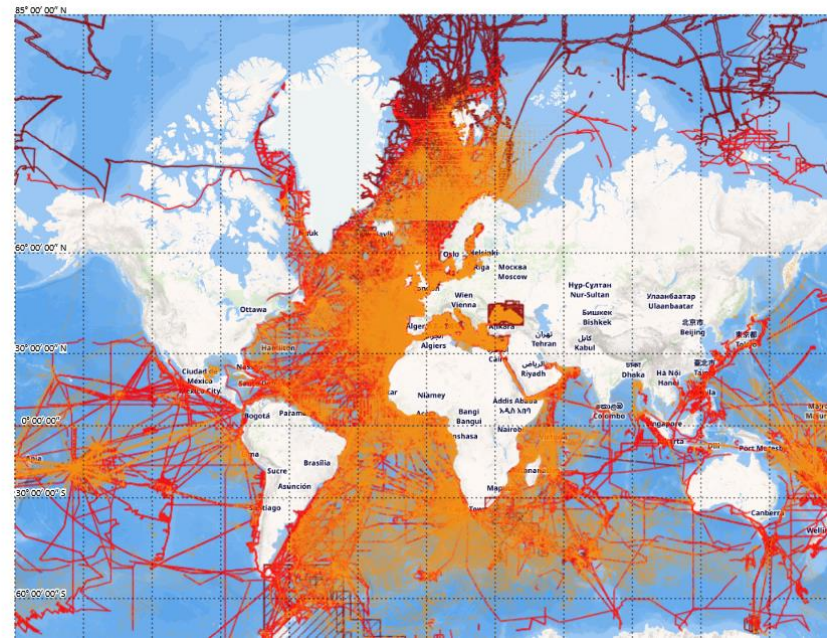
Geographic search

SEARCH RESET

SEA REGIONS

DISCIPLINE (P08)

Dataset name	Country originator	Start date	Instrument / gear type
☐ RNODC_Bottle_10855	Russian Federation	19780926	discrete water samplers
☐ RNODC_Bottle_10855	Russian Federation	19781008	discrete water samplers
☐ A011185h.baz	Russian Federation	19770407	discrete water samplers
☐ RNODC_Bottle_8310	Ukraine	19710804	discrete water samplers
☐ Halichoerus grypus_2002	Sweden	20020521	observers
☐ Halichoerus grypus_2002	Sweden	20020522	observers
☐ Halichoerus grypus_2002	Sweden	20020805	observers
☐ Halichoerus grypus_2002	Sweden	20020806	observers
☐ Halichoerus grypus_2002	Sweden	20020807	observers
☐ Halichoerus grypus_2002	Sweden	20020521	observers
☐ Halichoerus grypus_2002	Sweden	20020526	observers
☐ Halichoerus grypus_2002	Sweden	20020531	observers
☐ Halichoerus grypus_2002	Sweden	20020807	observers
☐ Halichoerus grypus_2002	Sweden	20020811	observers
☐ Halichoerus grypus_2002	Sweden	20020816	observers
☐ Halichoerus grypus_2002	Sweden	20020811	observers



Dati disponibili 2.625.496

CDI (Common Data Index)

```
<?xml-model
href="https://schemas.seadatanet.org/Standards-Software/Metadata-
formats/SDN_CDI_ISO19139_12.2.0.sch" type="application/xml"
schematypens="http://purl.oclc.org/dsdl/schematron"
?>
<gmd:MD_Metadata xsi:schemaLocation="http://www.seadatanet.org
https://schemas.seadatanet.org/Standards-Software/Metadata-
formats/SDN_CDI_ISO19139_12.2.0.xsd http://www.isotc211.org/2005/gmd
http://schemas.opengis.net/iso/19139/20060504/gmd/gmd.xsd">
<gmd:fileIdentifier>
<gco:CharacterString>urn:SDN:CDI:LOCAL:MARIS-TEST</gco:CharacterString>
</gmd:fileIdentifier>
<gmd:language>
<gmd:LanguageCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#LanguageCode"
codeListValue="eng" codeSpace="ISOTC211/19115">English</gmd:LanguageCode>
</gmd:language>
<gmd:characterSet>
```

Software

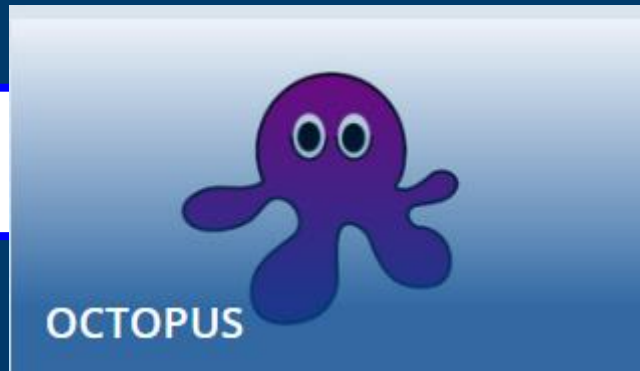
Crea metadati
CDI, CSR, EDMO,
EDIOS, EDMERP



Converte nei
formati interni



Converte file di
dati



Visualizza ed
analizza dati



leda.pecci@enea.it



1101 0110 1100
0101 0010 1101
0001 0110 1110
1101 0010 1101
1111 1010 0000

