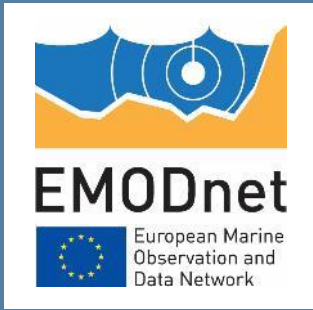




# EMODNet Chemistry 5 Training 2024

## 30-31 January 2024 – Trieste, Italy



# NEMO, OCTOPUS and MIKADO

## Importance of using the SeaDataNet tools



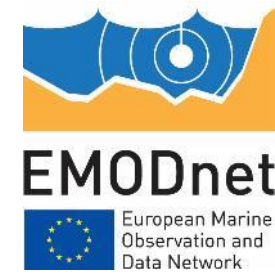
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[steven.piel@ifremer.fr](mailto:steven.piel@ifremer.fr)

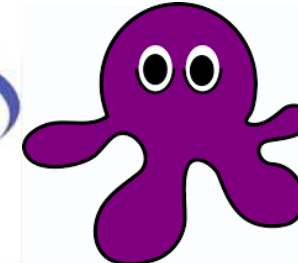


# Presentation overview

- Reminder of the tool roles
- SeaDataNet processing flow (data and metadata)
- Good reasons to use the tools
- Errors that could be avoided using the tools
- Homogenisation work before using the tools
  - Attention to be paid when using the tools
  - Additional very useful metadata that should be added
- Why using Octopus is important?
- Hands-on session with Nemo, Octopus and Mikado



**NEMO**



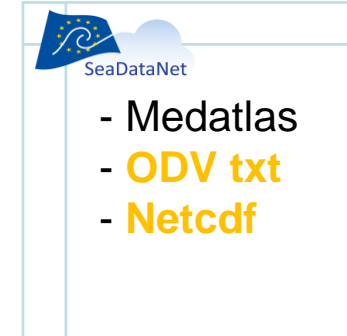
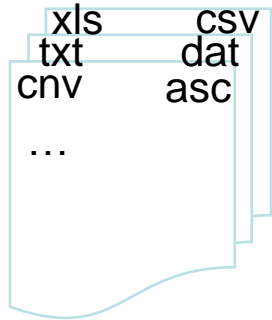
**OCTOPUS**



**MIKADO**

# What are the tools for?

**NEMO**, the reformatting software, for creation of data files at the **European standards**



## Thematic :

- Physico-chemical
- Biology
- Microlitter
- Flow cytometry

## File type:

- Vertical profiles
- Time series
- Trajectory

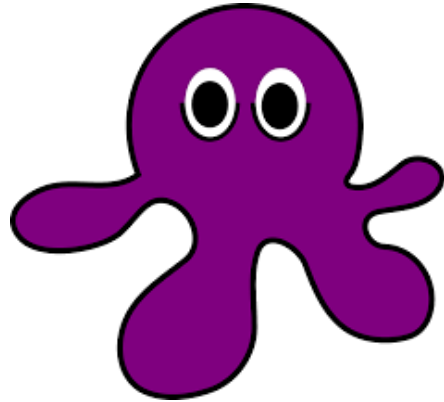
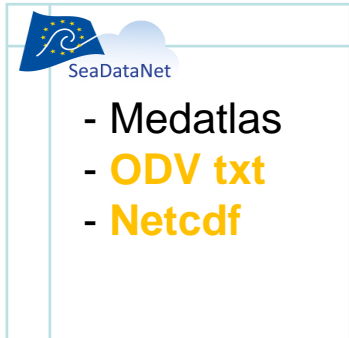
## 3 requirements as input:

- ASCII files only
- Data measurements in columns
- Files homogeneity: Information must be located at the same position and in the same format in the files

# What are the tools for?

**OCTOPUS**, for the checks of SeaDataNet file formats, and the conversion from one SeaDataNet format to another one.

OCTOPUS also allows multi-station files to be split into multiple formats (generation of 1 file per station)



## OCTOPUS possible conversions

output→ input ↓	MedSDN	ODV	ODV variants	netCDF - CFPoint
Med non SDN	✓	✓	✗	✓
Med SDN	✓	✓	✗	✓
ODV SDN	✗	✓	✗	✓
ODV variants	✗	✗	✓	✗
netCDF-CFPoint	✗	✓	✗	✓
MGDv81	✗	✓	✗	✗
MGDv98	✗	✓	✗	✗

# What are the tools for?

**MIKADO**, for the generation of the metadata for SeaDataNet catalogues



CSR  
EDMED  
EDMERP  
EDIOS  
CDI

Cruise Summary Report  
Environmental Data  
Research Project  
Ocean Observing Systems  
Common Data Index

# What are the tools for?

## Link between NEMO and MIKADO

NEMO creating a CDI\_SUMMARY file while converting

→ this file can be used by MIKADO to create the CDI metadata files with all the **minimum mandatory information**



NEMO


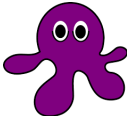

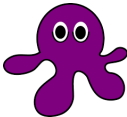



MIKADO

# SeaDataNet data processing flow



## Different cases

Data	Metadata	Modus (Replication Manager flow)	Useful SeaDataNet Software		
			NEMO	OCTOPUS	MIKADO
Files	Files	Modus 1 (mono-station) Modus 3 (multi-stations)			
Files	Database				
Database	Database	Modus 2 (database only)			

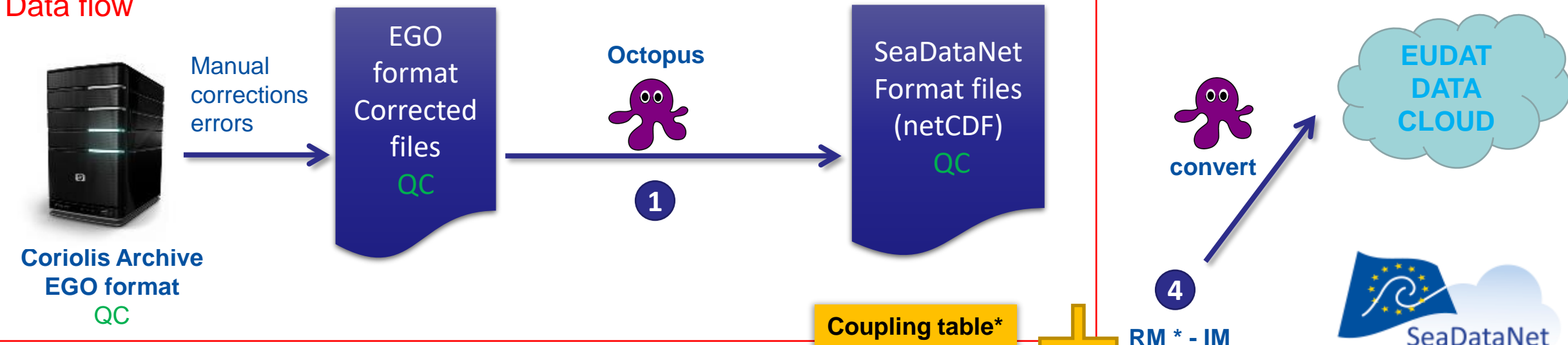


# Glider's data (netCDF)

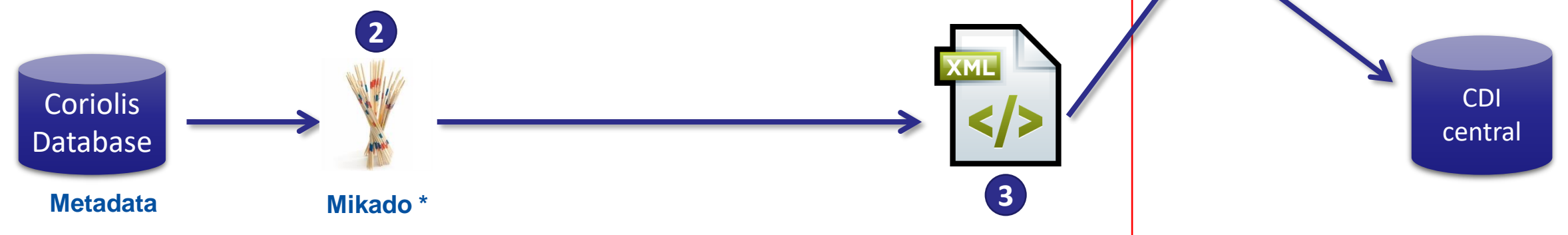


## Modus 1 for mono-station data file (3-4 times per year)

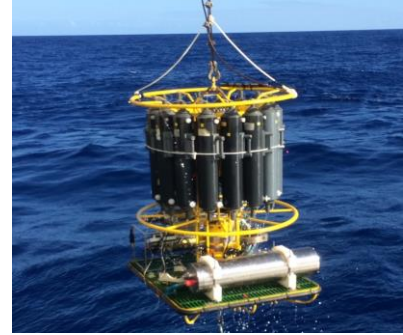
### Data flow



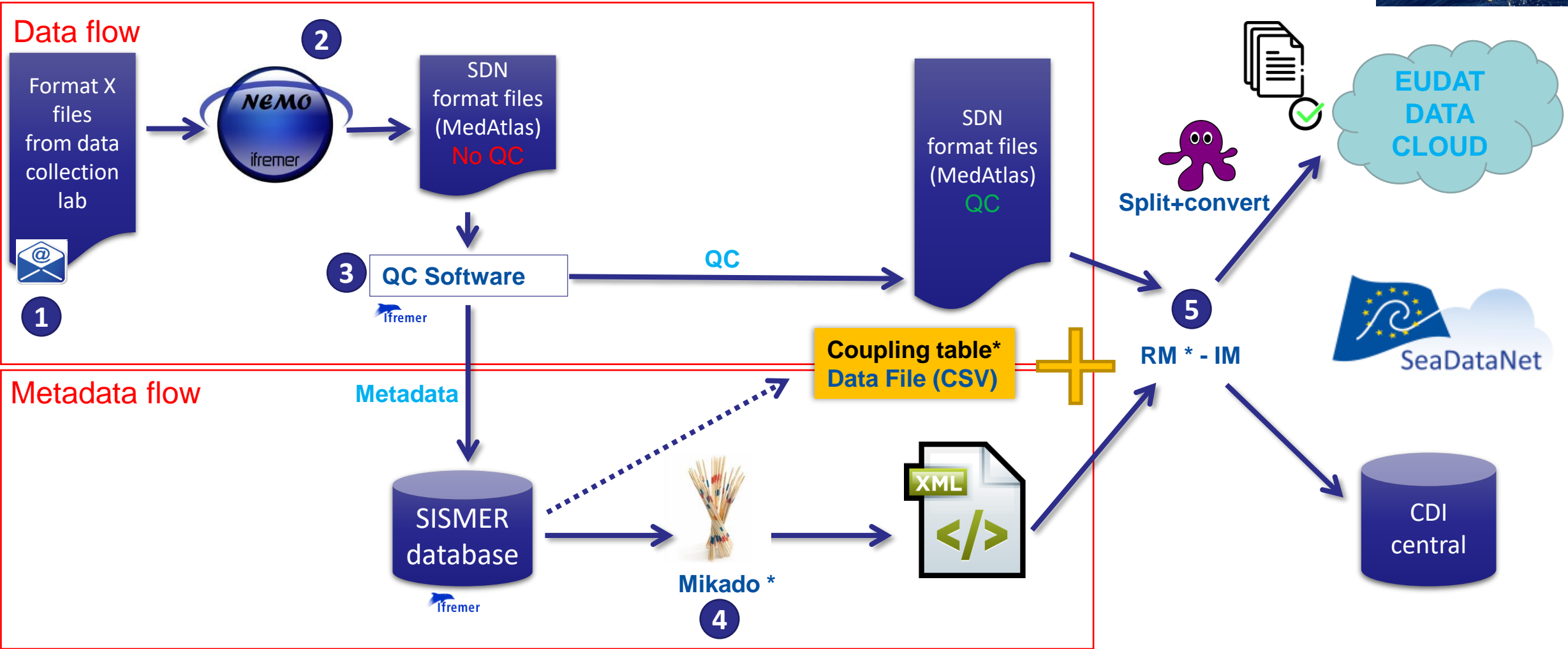
### Metadata flow



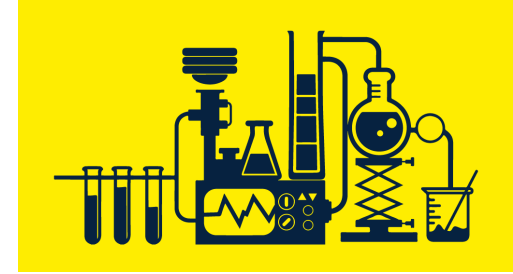
# Physics/Chemistry data (CTD, bottles) from French Research Vessels



## Modus 3 for multi-stations data file (3-4 times per year)



# Data from monitoring networks



## Modus 2 for database data (frequency according European projects)

### Data and metadata



1

Quantitative and Qualitative data on marine and coastal waters (portal / database)

QC

2

Mikado\*



Metadata



1) **Coupling table\***  
**SQL Query**  
+  
2) **Mapping file** to describe columns with standards  
(formatting data)

Data File

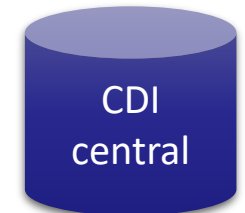
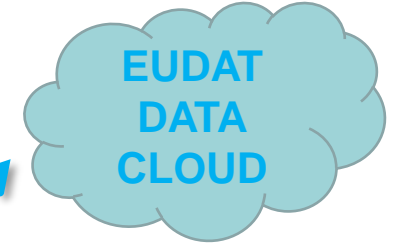


3

RM\* - IM



convert



# Why using the tools? 4 good reasons

- 1) They guarantee that the formats of the data and metadata files are **SeaDataNet compliant** and will not be rejected by the Replication Manager and/or Ocean Data View
- 2) They follow the **last specifications** of the metadata and data formats
- 3) They are **freely available** from SeaDataNet website and well documented with FAQ, user manuals  
<https://www.seadatanet.org/Software/NEMO>  
<https://www.seadatanet.org/Software/OCTOPUS>  
<https://www.seadatanet.org/Software/MIKADO>
- 4) They have **responsive helpdesks**  
[sdn-userdesk@seadatanet.org](mailto:sdn-userdesk@seadatanet.org)  
<https://www.emodnet-chemistry.eu/help/>

# Example of frequent errors that cannot happen using the tools

- Incoherencies between missing value and corresponding QC flag  
Like in ODV, flag 9 and values like 9999, -99999, 0 ....
- Wrong values for bottom depth when bottom depth is unknown  
like 9, or -999 ....
- Wrong reference parameters  
Like Depth instead of Time for timeseries
- Missing mandatory columns  
Very useful particularly for the ODV variant formats

# Nevertheless the tools cannot do everything...



- Make sure that the metadata and the data are coherent

**Mapping** between P02 (metadata) and P01 (data)

If all flags for one parameter are set to 9 (missing value) in a data file then the corresponding P02 must not appear in the metadata file

**L22 instruments** of the metadata files  
(var49 of MIKADO) = L22 instruments described in the data files

**Water depth** of the metadata files (var35 of MIKADO)  
= **Bottom depth** indicated in the data files

- The **EMDO-CODE** in the data file is the one of the **CDI-PARTNER (metadata)**  
= var01 of automatic MIKADO  
= the organisation connected to SDN infrastructure and distributing the data.  
Originator and custodian EDMO-CODEs are in the metadata not in the data files
- The **reference parameter for a vertical profile can be DEPTH or PRES**  
DEPTH can be ADEPZZ01 for the water column and COREDIST for the sediment

# You have to provide as much information as possible

- Important for the **regional leaders** and the **general users**
- Important for **data discovery**
- Important for **links between catalogues** (CSR, EDMED, EDMERP...)
- Important for **interoperability** with other initiatives (COPERNICUS – CMEMS), EEA...

The image displays two screenshots from the CRUISE SUMMARY REPORT INVENTORY (CSR) interface. The left screenshot shows a search for 'OVIDE 2018' with a red circle around the 'eCDI' button. Below the search results, a 'GENERAL INFORMATION' section is visible, including DOI, Platform/Ship (Thalassa), Cruise begin/end dates, and Port of Departure/Return (Brest, France). A map shows the cruise track in the North Atlantic Ocean. A data plot shows depth vs. water body dissolved oxygen concentration. A table lists 'ODV dataset' entries with columns for 'ODV dataset name' and 'ODV dataset description'. The right screenshot shows a 'DETAILS' view for the 'OVIDE 2018 - Thalassa(SHT)' dataset, with a red box around the 'Cruise Summary Report (CSR)' entry. The details include 'WHAT?' (Data set name, Discipline, Parameter groups, Discovery parameter, GEMET-INSPIRE themes, Abstract, Related EDMED dataset, Data format, Data set creation date), 'WHERE?' (Map), and 'HOW?' (Instrument/gear category, Device type, Platform type, Cruise name, Alternative cruise name, Cruise Summary Report (CSR), Alternative station name, Station start date).

**CSR**

PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN & MARINE DATA MANAGEMENT

SeaDataNet

CRUISE SUMMARY REPORT INVENTORY (CSR)

Search: OVIDE 2018 CSR REF-NO : 20185720 Download XML eCDI ADD TO BASKET EXPORT

**GENERAL INFORMATION**

DOI: <https://doi.org/10.17600/18000510> Platform/Ship: Thalassa

Cruise begin: 11.06.2018 Cruise end: 15.07.2018

Port of Departure: Brest, France Port of Return: Brest, France

**ODV dataset**

**DETAILS**

**WHAT?**

Data set name: 2018\_18000510.ctd(00002)

Discipline: Chemical oceanography, Physical oceanography, Administration and dimensions

Parameter groups: Dissolved gases, Water column temperature and salinity, Administration and dimensions

Discovery parameter: Vertical spatial coordinates, Dissolved oxygen parameters in the water column, Salinity of the water column, Temperature of the water column

GEMET-INSPIRE themes: Oceanographic geographical features

Abstract: Donnees CTD OVIDE 2018 106

Related EDMED dataset: FRENCH CTD DATA - VERTICAL PROFILES

Data format: Ocean Data View ASCII Input Version 0.4, MEDATLAS ASCII Version 2.0, Climate and Forecast Point Data NetCDF Version 1.0

Data set creation date: 20220913

**WHERE?**

Map: [Map showing cruise track]

**HOW?**

Instrument/gear category: CTD, water temperature sensor, salinity sensor

Device type: Sea-Bird SBE 911 plus CTD

Platform type: research vessel

Cruise name: OVIDE 2018

Alternative cruise name: 18000510

Cruise Summary Report (CSR): OVIDE 2018 - Thalassa(SHT)

Alternative station name: 2

Station start date: 20180616

**CDI**

# Information useful to keep in the metadata

The Cruise (**CSR**) during which the data was collected & **platform** codes

in CDI with MIKADO

in data files with **<snd\_references>** to make links with other catalogues (**CSR**, **C17**,...)

The **instruments** used for the measurement (**L05** and **L22**)

in CDI with MIKADO

in data files with **sdn\_mapping** lines (**L22**)

The related **project** : MSFD (**EDMERP** code 12294) or code with “research” or “monitoring” keywords

in CDI with MIKADO

in data files with **<snd\_references>** in comments field

The **QA/QC procedures** used in collecting data :

*in CDI with MIKADO*

ex: DOI for the QC questionnaire on contaminants



data ODV.txt and metadata CDI.xml files have the **same information**

CDI - <https://cdi.seadatanet.org/report/3442136/>

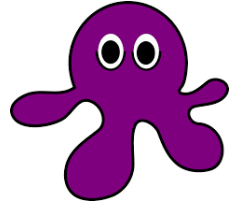
HOW?	
Instrument/gear category	CTD water temperature sensor salinity sensor
Device type	Sea-Bird SBE 911plus CTD
Platform type	research vessel
Cruise name	OVIDE 2018
Alternative cruise name	18000510
Cruise start date	20180611
Cruise Summary Report (CSR)	<a href="#">OVIDE 2018 - Thalassa35HT</a>
Station name	FBS20180510000002
Alternative station name	2
Station start date	20180616

WHO?	
Data originator	Laboratory for Ocean Physics and Satellite remote
Data custodian	Ifremer, Scientific Information Systems for the sea
Project name	Go-Ship - Global Ocean Ship-based Hydrographic Investigations Program LEFE (research project) OVIDE (research project) NAOS - NAOS Project (research project)

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
	Manual of Quality Control Procedures for Validation of Oceanographic Data, IOC Manuals and guides No. 26	1993-01-01	See the referenced specification



# Why using Octopus is important?



**OCTOPUS** checks the formats and gives warning and/or Errors

The **Replication Manager** uses OCTOPUS libraries

- To check the format
- To convert the data files to the other possible formats

Using OCTOPUS make you **save time**:

in case of errors you can directly **correct the files before sending** them to the Replication Manager



# NEMO

## SeaDataNet reformatting tool to standards



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# General description

To convert input file(s), the NEMO user has to proceed with **5 steps** :

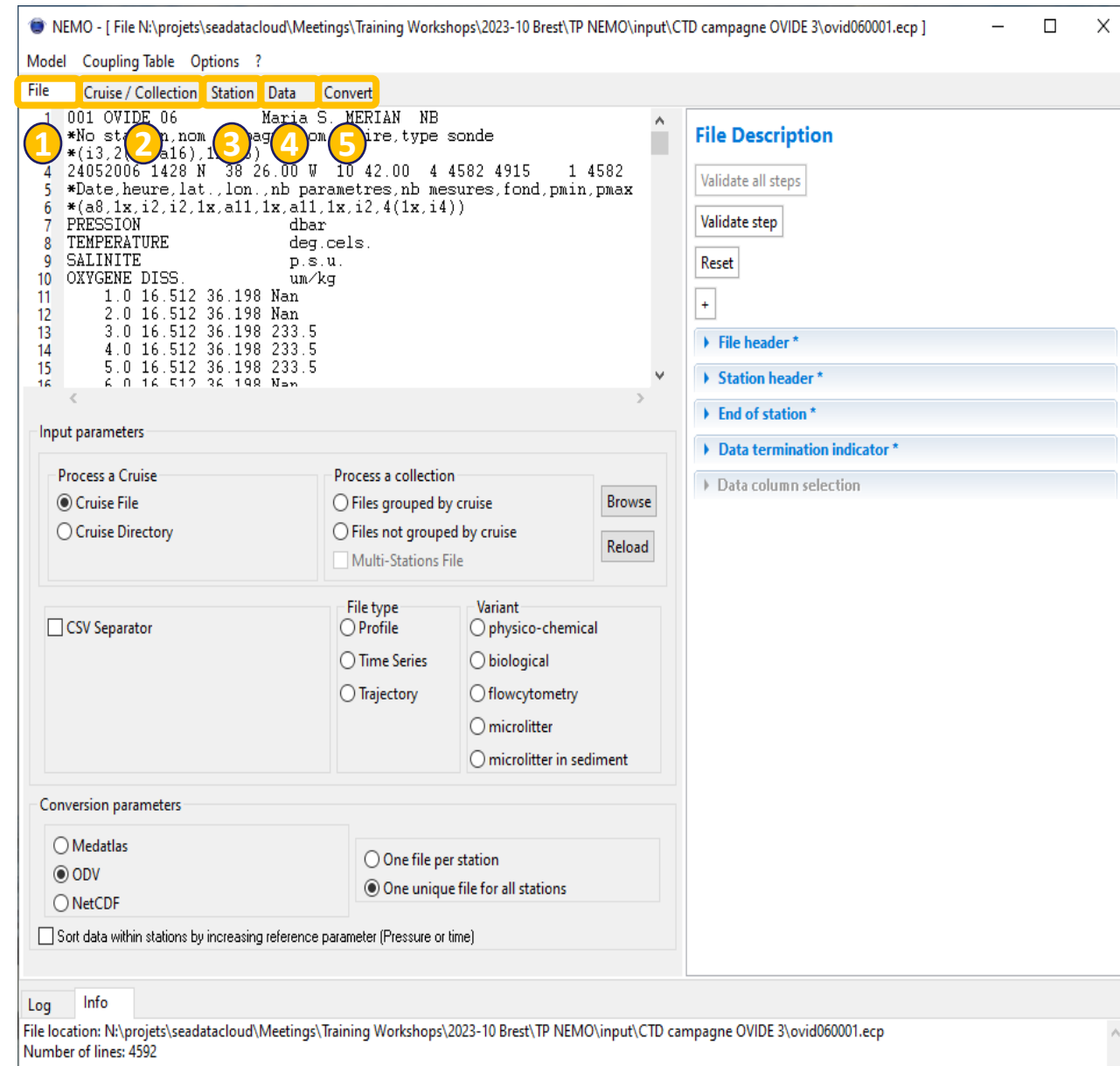
1- **File** tab : describe the type of file and the type of measurement

2- **Cruise** tab : describe the cruise or the data collection

3- **Station** tab : describe the station information

4- **Data** tab : describe the measured parameters

5- **Convert** tab : convert the input file(s)



The screenshot shows the NEMO software interface with the 'Convert' tab selected. The interface is divided into several sections:

- File Description:** A text area containing file metadata and parameters, with five yellow circles highlighting specific lines: 1 (file name), 2 (station name), 3 (date), 4 (coordinates), and 5 (parameters). The text includes: "001 OVIDE 06 Maria S. MERTIAN NB", "\*No station name", "(i3,2,a16,i3)", "24052006 1428 N 38 26.00 W 10 42.00 4 4582 4915 1 4582", "\*Date, heure, lat., lon., nb parametres, nb mesures, fond, pmin, pmax", "(a8, 1x, i2, i2, 1x, a11, 1x, a11, 1x, i2, 4(1x, i4))", "PRESSION dbar", "TEMPERATURE deg. cels.", "SALINITE p. s. u.", "OXYGENE DISS. um/kg", and a table of data points.
- Input parameters:** A section with two columns of radio buttons. The left column has "Process a Cruise" with "Cruise File" selected and "Cruise Directory" unselected. The right column has "Process a collection" with "Files grouped by cruise" selected, "Files not grouped by cruise" unselected, and "Multi-Stations File" unselected. There are "Browse" and "Reload" buttons. Below this are "File type" (Profile, Time Series, Trajectory) and "Variant" (physico-chemical, biological, flowcytometry, microlitter, microlitter in sediment) options.
- Conversion parameters:** A section with radio buttons for "Medatlas", "ODV" (selected), and "NetCDF". There are also options for "One file per station" and "One unique file for all stations" (selected). A checkbox for "Sort data within stations by increasing reference parameter (Pressure or time)" is unselected.
- File Description sidebar:** A sidebar on the right with buttons for "Validate all steps", "Validate step", and "Reset". It also has expandable sections for "File header\*", "Station header\*", "End of station\*", "Data termination indicator\*", and "Data column selection".
- Log/Info:** A bottom status bar showing "File location: N:\projets\seadatacloud\Meetings\Training Workshops\2023-10 Brest\TP NEMO\input\CTD campagne OVIDE 3\ovid060001.ecp" and "Number of lines: 4592".

# General changes

- Menu **Right-click** search function removed
  - Replaced by a Search window for fields with a list of values
- Use of **mouse wheel** no longer results in changing values in already entered fields (like in Station tab for example)
- **Display of line numbers** in input file preview (except data tab if CSV file)
- **Help** tab at the bottom of the main screen removed
  - Replaced by access to the user manual in the '?'

# Changes on File tab (1)

NEMO - [ File C:\Test logiciels\NEMO\Recette\NEMO1.7.5\RC16 FAE35877 - Data Auto\52238.csv ]=====[ Model bio: Model Coupling Table Options ?

[File] [Cruise / Collection] [Station] [Data] Convert

```
1 STATION;CAST;Date;Time;LATITUDE;LONGITUDE;NISKIN;CTD_PRES;PRES_QF;CTD_TEMP;
2 ;;;;;;;;;;DBAR;;ITS-90;;PSS-78;;KG/M3;;UMOL/KG;;MG/M3;;UMOL/KG;;UMOL/L;;UMOL/L
3 P09;;;;;;;;;PRES;;TEMP;;PSAL;;;DOX2;;FLU2;;DOX2;;SLCW;;PHOS;;NTRI;;NTRA;;CHC
4 P01;;;;;;;;;PRESPR01;PRES_QF;TEMPPR01;TEMP_QF;PSALPR01;SAL_QF;;DENS_QF;DOXMZZ
5 LIGURIAN;1;12/05/2015;20:10:00;43.5586;7.4631;1;1741.524;1;13.177;1;38.486;
6 LIGURIAN;1;12/05/2015;20:10:00;43.5586;7.4631;2;1481.362;1;13.154;1;38.488;
7 LIGURIAN;1;12/05/2015;20:10:00;43.5586;7.4631;3;1000.614;1;13.283;1;38.535;
8 LIGURIAN;1;12/05/2015;20:10:00;43.5586;7.4631;4;700.763;1;13.479;1;38.592;1
9 LIGURIAN;1;12/05/2015;20:10:00;43.5586;7.4631;5;500.686;1;13.742;1;38.653;1
10 LIGURIAN;1;12/05/2015;20:10:00;43.5586;7.4631;6;295.058;1;13.709;1;38.566;1
11 LIGURIAN;1;12/05/2015;20:10:00;43.5586;7.4631;7;199.359;1;13.651;1;38.409;1
12 LIGURIAN;1;12/05/2015;20:10:00;43.5586;7.4631;8;97.789;1;14.063;1;38.169;1;
13 LIGURIAN;1;12/05/2015;20:10:00;43.5586;7.4631;9;49.891;1;14.21;1;37.937;1;2
14 LIGURIAN;1;12/05/2015;20:10:00;43.5586;7.4631;10;19.904;1;15.348;1;37.907;1
15 LIGURIAN;1;12/05/2015;20:10:00;43.5586;7.4631;11;4.951;1;18.575;1;37.512;1;
```

Input parameters

Process a Cruise  
 Cruise File  
 Cruise Directory

Process a collection  
 Files grouped by cruise  
 Files not grouped by cruise  
 Multi-Stations File

File type  
 Profile  
 Time Series  
 Trajectory

Variant  
 physico-chemical  
 biological  
 flowcytometry  
 microlitter  
 microlitter in sediment

Conversion parameters  
 Medatlas  
 ODV  
 NetCDF

Sort data within stations by increasing reference parameter (Pressure or time)

- Reload button added:
  - Allows to reload the file after modifications without changing the template and without resetting all

# Changes on File tab (2)

- Changes in Data column selection for CSV files
  - Ability to enter multiple rows

NEMO - [ File C:\Test logiciels\NEMO\Recette\NEMO1.7.5\RC16 FAE35877 - Data Auto\S2238.csv ] ===== [ Model bioargomed\_2015\_P01etP09\_Med.xml ]

Model Coupling Table Options ?

[File] [Cruise / Collection] [Station] [Data] Convert

1 STATION CAST Date Time LATITUDE LONGITUDE NISKIN CTD PRES PRES OF CTD TEMP TEMP OF CTD PSAL SAL  
2 DBAR ITS-90 PSS-78 KG-M3 MG-M3 UMOL/KG UMOL/L UMOL/L UMOL/L MG/M3 MG/M3  
3 P09 PRES TEMP PSAL FLU2 DOX2 SLCW PHOS NTRI NTRA CHC3 CHCZ non mesure PERP  
4 P01 PRESPR01 PRES OF TEMPR01 TEMP OF PSALPR01 SAL OF DENS OF CPHLPH01 FCHL OF DOXMZZXX C

5 LIGURIAN;1:12/05/2015:20:10:00:43.5586;7.4631;1:1741.524;1:13.177;1:38.486;1:29.114;1:0.005;1:15  
6 LIGURIAN;1:12/05/2015:20:10:00:43.5586;7.4631;2:1481.362;1:13.154;1:38.488;1:29.112;1:0.021;1:15  
7 LIGURIAN;1:12/05/2015:20:10:00:43.5586;7.4631;3:1000.614;1:13.283;1:38.535;1:29.107;1:0.038;1:16  
8 LIGURIAN;1:12/05/2015:20:10:00:43.5586;7.4631;4:700.763;1:13.479;1:38.592;1:29.111;0.019;1:175;7  
9 LIGURIAN;1:12/05/2015:20:10:00:43.5586;7.4631;5:500.686;1:13.742;1:38.653;1:29.085;1:0.042;1:171  
10 LIGURIAN;1:12/05/2015:20:10:00:43.5586;7.4631;6:295.058;1:13.709;1:38.566;1:29.018;1:0.062;1:182  
11 LIGURIAN;1:12/05/2015:20:10:00:43.5586;7.4631;7:199.359;1:13.651;1:38.409;1:28.906;1:0.074;1:202  
12 LIGURIAN;1:12/05/2015:20:10:00:43.5586;7.4631;8:97.789;1:14.063;1:38.169;1:28.628;1:0.225;1:229  
13 LIGURIAN;1:12/05/2015:20:10:00:43.5586;7.4631;9:49.891;1:14.21;1:37.937;1:28.415;1:0.747;1.241;1  
14 LIGURIAN;1:12/05/2015:20:10:00:43.5586;7.4631;10:19.904;1:15.348;1:37.907;1:28.137;1:0.204;1.250  
15 LIGURIAN;1:12/05/2015:20:10:00:43.5586;7.4631;11:4.951;1:18.575;1:37.512;1:27.052;1:0.196;1:238  
16 NORTH IONIAN;2:16/05/2015:03:41:00:38.1739;18.5019;1:501.406;1:14.263;1:38.873;1:29.143;1:0.005  
17 NORTH IONIAN;2:16/05/2015:03:41:00:38.1739;18.5019;2:350.123;1:14.554;1:38.907;1:29.111;0.022;1  
18 NORTH IONIAN;2:16/05/2015:03:41:00:38.1739;18.5019;3:250.701;1:14.956;1:38.958;1:29.046;1:0.002  
19 NORTH IONIAN;2:16/05/2015:03:41:00:38.1739;18.5019;4:201.822;1:15.033;1:38.916;1:28.995;1;-0.001

Input parameters

Process a Cruise  
 Cruise File  
 Cruise Directory

Process a collection  
 Files grouped by cruise  
 Files not grouped by cruise  
 Multi-Stations File

File type  
 CSV Separator  
 Tabulation  
 Semicolon  
 Comma  
 Space  
 Other :

Conversion parameters  
 Medatlas  
 ODV  
 NetCDF  
 Sort data within stations by increasing reference p

File Description

Validate all steps  
Validate step  
Reset  
+

File header \*  
Station header \*  
End of station \*  
Data termination indicator \*

Data column selection  
Check if you want to display data in a table. Set the line number where the data column headers must be read.  
 Use a table to display data  
 The column titles are in the input file (select the line(s) then click on 'Set')  
3-4  
Set

GOAL  
See more info in the data tab, in the column headings

# Changes on File tab (3)

- Changes in Data column selection for CSV files
  - *allows for example to display the units if available in the input file*

NEMO - [ File C:\Test logiciels\NEMO\Recette\NEMO1.7.5\RC16 FAE35877 - Data Auto\52238.csv ]=====[ Model bioargomed\_2015\_P09.xml ]

Model Coupling Table Options ?

[File] [Cruise / Collection] [Station] [Data] Convert

CTD_PRES   DBAR   PRES   PRESPR01	PRES_QF   ?   ?   PRES_QF	CTD_TEMP   ITS-90   TEMP   TEMPPR01	TEMP_QF   ?   ?   TEMP_QF	CTD_PSal   PSS-78   PSAL   PSALPR01	SAL_QF   ?   ?   SAL_QF	CTD_DENS   KG/M:
1741.524	1	13.177	1	38.486	1	29.114
1481.362	1	13.154	1	38.488	1	29.112
1000.614	1	13.283	1	38.535	1	29.107
700.763	1	13.479	1	38.592	1	29.1
500.686	1	13.742	1	38.653	1	29.085
295.058	1	13.709	1	38.566	1	29.018
199.359	1	13.651	1	38.409	1	28.906
97.789	1	14.063	1	38.169	1	28.628
49.891	1	14.21	1	37.937	1	28.415
19.904	1	15.348	1	37.907	1	28.137
4.951	1	18.575	1	37.512	1	27.052
501.406	1	14.263	1	38.873	1	29.143
350.123	1	14.554	1	38.907	1	29.1
250.701	1	14.956	1	38.958	1	29.046
201.822	1	15.033	1	38.916	1	28.995
102.896	1	15.438	1	38.924	1	28.904
81.703	1	15.515	1	38.904	1	28.871

# Changes on File tab (4)

- New field in **Data column selection** for CSV files
  - Allows you to describe a row containing the parameter codes P01 or P09:

The screenshot shows the NEMO software interface with the File tab selected. The main window displays a list of data columns with their corresponding units. Below this, there are two sections for selecting parameter codes:

- P09 parameter codes:** A checkbox is checked, and a text box contains the number '3'. A 'Set' button is visible below the text box.
- P01 parameter codes:** A checkbox is checked, and a text box contains the number '4'. A 'Set' button is visible below the text box.

At the bottom of the interface, there are sections for 'Input parameters' (Process a Cruise) and 'Conversion parameters' (CSV Separator, File type, Variant, and Sort data within stations).

**GOAL**  
Automate the creation of parameter lines in the data tab



# Changes on Cruise tab (1)

- Changes in Data source
  - Use of EDMERP codes of projects instead of free text label, several projects possible, loaded by XML initialisation or manual input - Possibility to add or remove projects

**Data Source**  
Describe the origins of the Cruise's data

Country  
35 - France

Laboratory  
Laboratory for Ocean Physics and Satellite remote (LOPS)

Chief scientist  
LHERMINIER Pascale

EDMERP codes

CODE	LABEL
12297	Optimizing and Enhancing the Integrated Atlantic Ocean Observing Sy
11760	Global Ocean Ship-based Hydrographic Investigations Program
11824	LEFE

## GOAL

Increase data  
FAIRness by adding  
metadata

# Changes on Cruise tab (2)

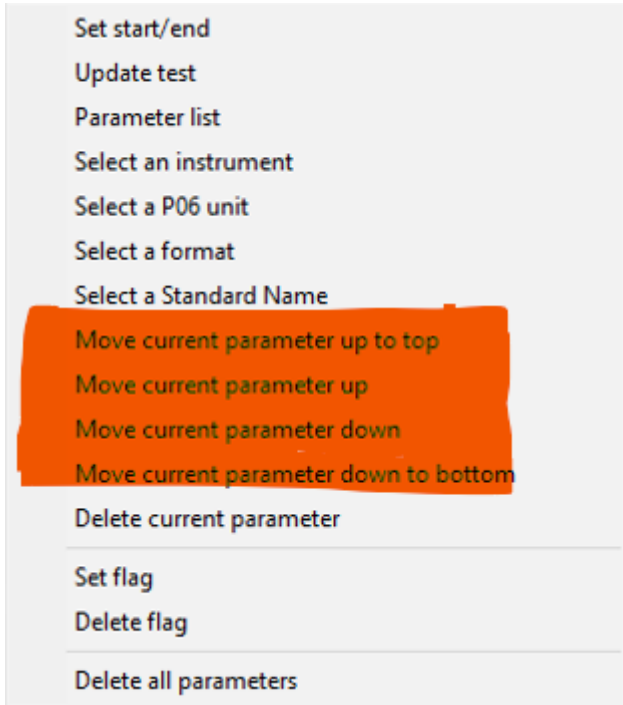
- Added as sdn\_references in the output file:
  - `<sdn_reference xlink:href="https://edmerp.seadatanet.org/report/12297" xlink:role="isObservedBy" xlink:type="SDN:L23::EDMERP"/>`
  - `<sdn_reference xlink:href="https://edmerp.seadatanet.org/report/11760" xlink:role="isObservedBy" xlink:type="SDN:L23::EDMERP"/>`
- In the MedAtlas format, list of project codes (4 maximum, even if more in the cruise)

```
*FI35201805100 OVIDE 2018                               35HT Thalassa
11/06/2018-15/07/2018 North Atlantic Ocean
35 Laboratory for Ocean Physics and Satellite remote (LOPS)
LHERMINIER Pascale                                     Project=12297;11760;11824;12222
Regional Archiving= FI                                 Availability=L
Data Type=D71 n=30   QC=N
Data Type=H09 n=2220 QC=N
Data Type=H10 n=104  QC=N
Data Type=H21 n=2220 QC=N
Data Type=H22 n=2215 QC=N
Data Type=H24 n=2215 QC=N
```

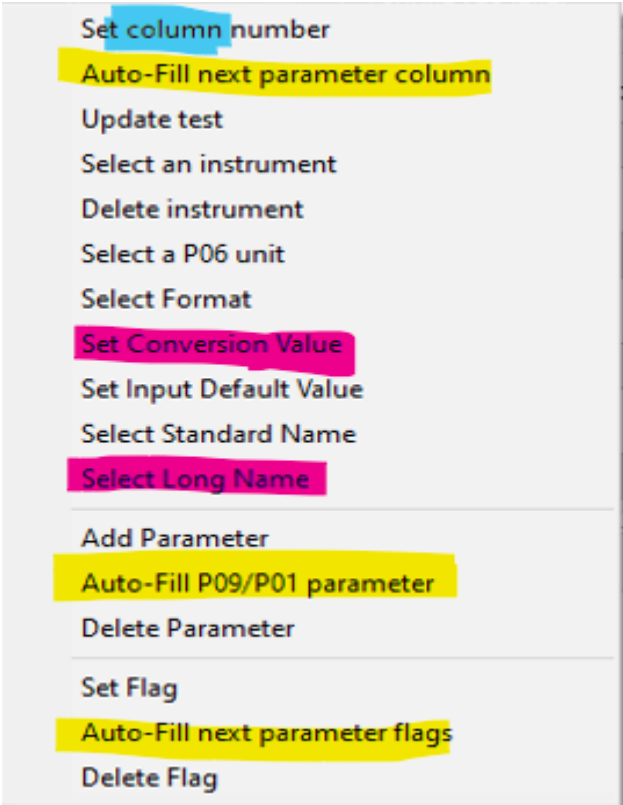
# Changes in the data table menu

GOAL  
Ease user life

- New drag&drop function
- New Autofill functions
- New for multiple lines selections
- Set column number (CSV separator) or set start/end (without separator)



Replaced by



# Automatic fill in of the parameter table (1)

- Only possible for:
  - CSV files containing P09 or P01 parameter codes
  - If the line containing these codes has been filled in the File tab

➔ New "Auto-fill" menu is available in the data tab Menu

CODE	STANDARD NA...	LONG NAME	UNIT	CONVERSI...	TEST

Update test

Add Parameter

Auto-Fill P09/P01 parameter

# Automatic fill in of the parameter table (2)

- Right click → table of parameters is filled
- Need to check or add the formats and add if necessary the default values, the flags in input and the instruments used

[File]	[Cruise / Collection]	[Station]	Data	Convert								
	?   ?	PRES   PRESPR01	?   PRES_QF	TEMP   TEMPPR01	?   TEMP_QF	PSAL   PSALPR01	?   SAL_QF					
	1	1741.524	1	13.177	1	38.486	1					
	2	1481.362	1	13.154	1	38.488	1					
	3	1000.614	1	13.283	1	38.535	1					
	4	700.763	1	13.479	1	38.592	1					
	5	500.686	1	13.742	1	38.653	1					
	6	295.058	1	13.709	1	38.566	1					
	7	199.359	1	13.651	1	38.409	1					
	8	97.789	1	14.063	1	38.169	1					
	9	49.891	1	14.21	1	37.937	1					
	10	19.904	1	15.348	1	37.907	1					
	11	4.951	1	18.575	1	37.512	1					

T..	CODE	LABEL	UNIT	CONVER...	TEST	COLUMN	FORMAT	INPU...	TEST ...	TEST ...	COLUMN FLAG	INST...
<input type="checkbox"/>	PRESPR01 - Pr...	Pressure	Decibars	x*1		8	%6.1f					
<input type="checkbox"/>	TEMPPR01 - T...	Temperature	Degrees Cels...	x*1		10	%6.3f					
<input type="checkbox"/>	PSALPR01 - Pr...		Dimensionless	x*1		12	%6.3f					
<input type="checkbox"/>	CPHLM01 - ...		Milligrams p...	x*1		16	%8.4f					
<input type="checkbox"/>	DOXMZZXX - ...		Micromoles ...	x*1		18	%7.3f					
<input type="checkbox"/>	MDMAP012 - ...		Micromoles ...	x*1		20	%5.1f					
<input type="checkbox"/>	PHOSZZXX - ...	Phosphate	Micromoles ...	x*1		22	%6.3f					
<input type="checkbox"/>	NTRIZZXX - C...	Nitrite	Micromoles ...	x*1		24	%6.3f					
<input type="checkbox"/>	NTRAZZXX - C...	Nitrate	Micromoles ...	x*1		26	%6.3f					
<input type="checkbox"/>	CHLC03PX - C...		Milligrams p...	x*1		28	%6.3f					
<input type="checkbox"/>	CHLC12PX - C...		Milligrams p...	x*1		30	%6.3f					
<input type="checkbox"/>	PERDXXXX - C...		Milligrams p...	x*1		34	%6.3f					
<input type="checkbox"/>	PBAXXP1 - C...		Milligrams p...	x*1		36	%6.4f					
<input type="checkbox"/>	BUTAXXX - C...		Milligrams p...	x*1		38	%6.3f					

# Auto-fill next parameter/flag positions (1)

Possible only for:

- CSV files
- If the list of parameters entered in the data table is in the same order as in the data file
- When the position of the 1st parameter has already been entered

# Auto-fill next parameter positions (2)

DEPH	QC DEPH	PHOS	QC PHOS	NTRA	QC NTRA	NTRI	QC NTRI	SLCA
50.22842437	1	1.940000057	1	9.199999809	1	0.509999999	1	10.949999981
30.51284566	1	1.099999905	1	11.14999961	1	0.75	1	14.88000011
35.72762308	1	0.939999998	1	16.18000031	1	1.360000014	1	9.970000167
30.4652134	1	1.419999957	1	11.07999991	1	1.350000014	1	14.35000038
35.50028544	1	1.870000005	1	7.309999943	1	1.039999961	1	16.5
29.20029348	1	1.5	1	8.340000153	1	0.980000019	1	18.94000053
32.96240385	1	0.610000014	1	6.539999961	1	0.490000001	1	4.130000019
31.35534483	1	0.370000005	1	6.530000011	1	0.519999981	1	3.809999943
35.21355769	1	1.400000095	1	11.64000034	1	0.689999998	1	3.930000067
29.77583333	1	1.049999951	1	8.719999541	1	0.560000001	1	3.990000001
21.50399194	1	0.379999995	1	9	1	0.610000005	1	3.700000048

1. Measured parameters one column out of 2

2. Parameters in the same order in the file and in the table of measurements

3. 1<sup>st</sup> parameter position already set

CODE	UNIT	CONVER...	TEST	COLUMN	FORMAT	INPU...	OUTPUT DEF. ...	TEST ...	TEST ...	COLUMN FLAG	INST...
DEPH - DEPTH...	meter	x*1	50,2	8	%6.1f		-999.9				
PHOS - PHOS...	millimole/m3	x*1		0	%6.3f		99.999				
NTRA - NITRA...	millimole/m3	x*1		0	%6.3f		99.999				
NTRI - NITRITE...	millimole/m3	x*1		0	%6.3f		99.999				
SLCA - SILICA...	millimole/m3	x*1		0	%7.3f		999.999				
CPHL - CHLO...	milligram/m3	x*1		0	%5.2f		99.99				
TPHP - TOTAL ...	milligram/m3	x*1		0	%6.3f		99.999				
AMON - AM...	millimole/m3	x*1		0	%6.2f		999.99				
TSMP - TOTAL ...	gram/m3	x*1		0	%7.3f		999.999				
OSMP - ORGA...	gram/m3	x*1		0	%6.3f		99.999				
ISMP - INORG...	gram/m3	x*1		0	%6.3f		99.999				

CODE	UNIT	CONVER...	TEST	COLUMN	FORMAT	INPU...	OUTPUT DEF. ...
DEPH - DEPTH...	meter	x*1	50,2	8	%6.1f		-999.9
PHOS - PHOS...	millimole/m3	x*1		10	%6.3f		99.999
NTRA - NITRA...	millimole/m3	x*1		12	%6.3f		99.999
NTRI - NITRITE...	millimole/m3	x*1		14	%6.3f		99.999
SLCA - SILICA...	millimole/m3	x*1		16	%7.3f		999.999
CPHL - CHLO...	milligram/m3	x*1		18	%5.2f		99.99
TPHP - TOTAL ...	milligram/m3	x*1		20	%6.3f		99.999
AMON - AM...	millimole/m3	x*1		22	%6.2f		999.99
TSMP - TOTAL ...	gram/m3	x*1		24	%7.3f		999.999
OSMP - ORGA...	gram/m3	x*1		26	%6.3f		99.999
ISMP - INORG...	gram/m3	x*1		28	%6.3f		99.999

Set column number

**Auto-Fill next parameter column**

Update test

Auto-Fill next parameter co... X

Incremental Value : 2

OK Cancel

# Auto-fill next parameter flags positions (2)

1. QC flags one column out of 2
2. Same order of pthe paramters
3. Position of the 1st flag already set

DEPH	QC DEPH	PHOS	QC PHOS	NTRA	QC NTRA	NTRI	QC NTRI	SI
50.22842437	1	1.940000057	1	9.199999809	1	0.509999999	1	10
30.51284566	1	1.099999905	1	11.14999961	1	0.75	1	14
35.72762308	1	0.939999998	1	16.18000031	1	1.360000014	1	9.
30.4652134	1	1.419999957	1	11.07999991	1	1.350000014	1	14
35.50028544	1	1.870000005	1	7.309999943	1	1.039999961	1	16
29.20029348	1	1.5	1	8.340000153	1	0.980000019	1	18
32.96240385	1	0.610000014	1	6.539999961	1	0.490000001	1	4.
31.35534483	1	0.370000005	1	6.53000011	1	0.519999981	1	3.
35.21355769	1	1.400000095	1	11.64000034	1	0.689999998	1	3.
29.77583333	1	1.049999951	1	8.719999541				
21.50399194	1	0.379999995	1	9				

CODE	UNIT	CONVER...	TEST	COLUMN	FORMAT	INPU...	OUTPUT DEF. ...	TEST ...	TEST ...	COLUMN FLAG
DEPH - DEPTH...	meter	x*1	50,2	8	%6.1f		-999.9			9
PHOS - PHOS...	millimole/m3	x*1		0	%6.3f		99.999			11
NTRA - NITRA...	millimole/m3	x*1		0	%6.3f		99.999			13
NTRI - NITRITE...	millimole/m3	x*1		0	%6.3f		99.999			15
SLCA - SILICA...	millimole/m3	x*1		0	%7.3f		999.999			17
CPHL - CHLO...	milligram/m3	x*1		0	%5.2f		99.99			19
TPHP - TOTAL ...	milligram/m3	x*1		0	%6.3f		99.999			21
AMON - AM...	millimole/m3	x*1		0	%6.2f		999.99			23
TSMP - TOTAL ...	gram/m3	x*1		0	%7.3f		999.999			25
OSMP - ORGA...	gram/m3	x*1		0	%6.3f		99.999			27
ISMP - INORG...	gram/m3	x*1		0	%6.3f		99.999			29

Set Flag
Auto-Fill next parameter flags
Delete Flag

Auto-Fill next parameter fla... X
Incremental Value: 2
OK Cancel



# Set the input default value

For one or more parameters depending on the number of lines selected

CODE	UNIT	CONVER...	TEST	COLUMN	FORMAT	INPU...	OUTPUT DEF. ...	TEST ...	TEST ...	COLUMN FLAG	INSTRUMENT
DEPH - DEPTH...	meter	x*1	50,2	8	%6.1f		-999.9			9	
PHOS - PHOS...	millimole/m3	x*1		0	%6.3f		99.999			11	Niskin bottle
NTRA - NITRA...	millimole/m3	x*1		0	%6.3f		99.999			13	Niskin bottle
NTRI - NITRITE...	millimole/m3	x*1		0	%6.3f		99.999			15	Niskin bottle
SLCA - SILICA...	millimole/m3	x*1		0	%7.3f		999.999			17	Niskin bottle
CPHL - CHLO...	milligram/m3	x*1		0	%5.2f		99.99			19	Niskin bottle
TPHP - TOTAL ...	milligram/m3	x*1		0	%6.3f		99.999			21	Niskin bottle
AMON - AM...	millimole/m3	x*1		0	%6.2f		999.99			23	Niskin bottle
TSMP - TOTAL ...	gram/m3	x*1		0	%7.3f		999.999			25	Niskin bottle
OSMP - ORGA...	gram/m3	x*1		0	%6.3f		99.999			27	
ISMP - INORG...	gram/m3	x*1		0	%6.3f		99.999			29	

CODE	UNIT	CONVER...	TEST	COLUMN	FORMAT	INPU...	OUTPUT DEF. ...	TEST ...	TEST ...	COLUMN FLAG	INSTRUMENT
DEPH - DEPTH...	meter	x*1	50,2	8	%6.1f		-999.9			9	
PHOS - PHOS...	millimole/m3	x*1		0	%6.3f	NaN	99.999			11	Niskin bottle
NTRA - NITRA...	millimole/m3	x*1		0	%6.3f	NaN	99.999			13	Niskin bottle
NTRI - NITRITE...	millimole/m3	x*1		0	%6.3f	NaN	99.999			15	Niskin bottle
SLCA - SILICA...	millimole/m3	x*1		0	%7.3f	NaN	999.999			17	Niskin bottle
CPHL - CHLO...	milligram/m3	x*1		0	%5.2f	NaN	99.99			19	Niskin bottle
TPHP - TOTAL ...	milligram/m3	x*1		0	%6.3f	NaN	99.999			21	Niskin bottle
AMON - AM...	millimole/m3	x*1		0	%6.2f	NaN	999.99			23	Niskin bottle
TSMP - TOTAL ...	gram/m3	x*1		0	%7.3f	NaN	999.999			25	Niskin bottle
OSMP - ORGA...	gram/m3	x*1		0	%6.3f	NaN	99.999			27	
ISMP - INORG...	gram/m3	x*1		0	%6.3f	NaN	99.999			29	

- Set column number
- Update test
- Select an instrument
- Delete instrument
- Select Format
- Set Conversion Value
- Set Input Default Value**
- Set Output Default Value
- Add Parameter
- Delete Parameter
- Set Flag
- Auto-Fill next parameter flags
- Delete Flag

# New fields in the CDI Summary

- Used by MIKADO to generate CDI metadata
- Additional information  
L05 (L22-L05 mapping) and L22 instrument codes, EDMERP codes, Cruise alternative name and CSR id, Cruise start date, Sampling rate and unit, Bounding box for trajectories, Station start and end date, Min and max measurement depth, Bottom depth
- Generation of a file allowing to draw the trajectory route in MIKADO  
➔ MIKADO upgrading done to take into account this new file

## GOAL

Increase data  
FAIRness by adding  
metadata

# New batch builder tool (1)

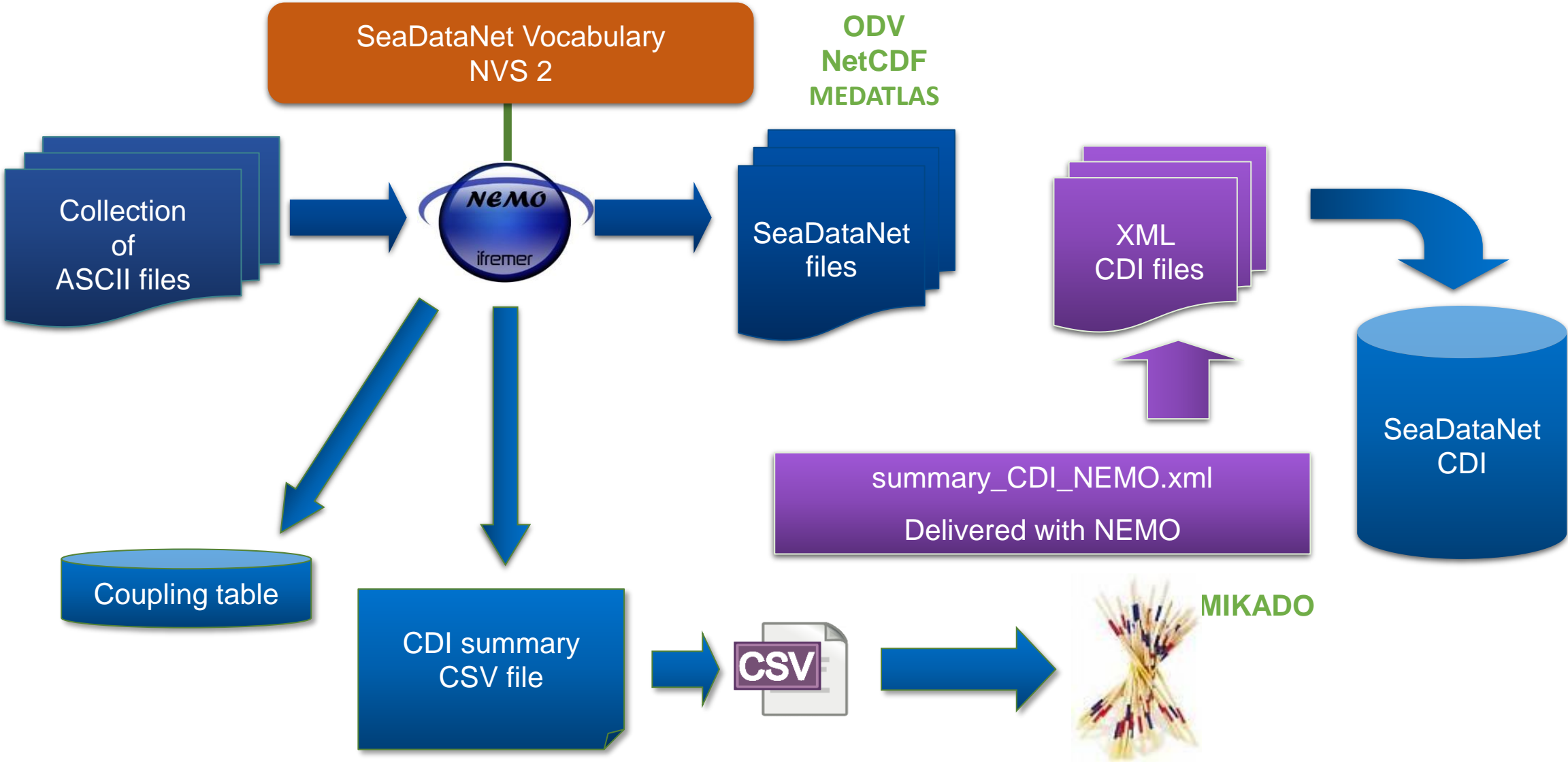
To help the user in writing batch procedures for NEMO, especially for a set of files using the same template but for different cruises/datasets

GOAL

Ease user life

- Makes it easier to create a batch with arguments that vary from one file to another
- Arguments are listed in a CSV file: one line per file

# Interaction with MIKADO



# Software user support

NEMO home page

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

Installation files: Windows 32/64 bit, Linux 32/64 bit

<https://www.seadatanet.org/Software/NEMO/Download-NEMO-2.0.1>

User manual

[https://www.seadatanet.org/content/download/7899/file/sdn\\_Nemo\\_UserManual.pdf](https://www.seadatanet.org/content/download/7899/file/sdn_Nemo_UserManual.pdf)

Helpdesk

[sdn-userdesk@seadatanet.org](mailto:sdn-userdesk@seadatanet.org)

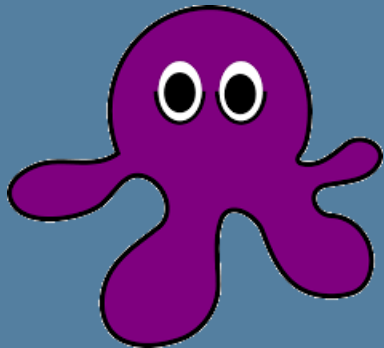
FAQ

<https://www.seadatanet.org/Software/NEMO/FAQ>





# OCTOPUS SeaDataNet format conversion tool

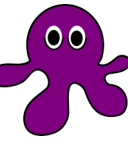


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[steven.piel@ifremer.fr](mailto:steven.piel@ifremer.fr)



# General description

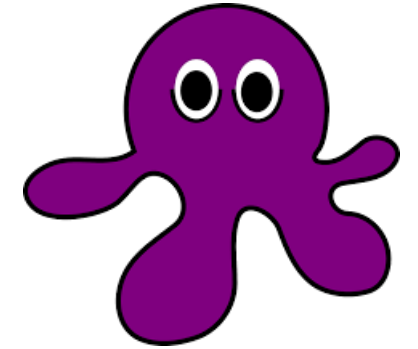


Main functions of Octopus:

- 1- Select **Input file or directory**
- 2 - **Check** of the input SDN formats
- 3 - **Split** Multistation file into Monostation files
- 4 – **Export/Convert** in one of SDN formats
- 5 – Log window

A screenshot of the Octopus application window. The interface is white with a purple header bar containing 'file', 'edit', and 'help' menus. The main area contains several input fields and buttons. A yellow box labeled '1' highlights the 'input file / directory' text box, which contains the path 'N:\projets\EMODNET5bis\_chemistry\meeting\2024-01\_Training\_Trieste\HandsOnSession\Soluti'. A yellow box labeled '2' highlights the 'check input format' button. A yellow box labeled '3' highlights the 'Split to mono station files' radio buttons, with 'no' selected. A yellow box labeled '4' highlights the 'export to' section, which includes 'medatlas', 'odv', and 'cfpoint' buttons. A yellow box labeled '5' highlights the log window at the bottom, which displays system messages such as 'Starting Octopus application', 'preferences file found', 'LANGUAGE: en\_GB', and 'Detected input format: ODV'. The log window has a scroll bar and buttons for 'remove selected', 'clear', 'scroll to end', and a 'log level' dropdown set to 'INFO'.

# Software user support



NEMO home page

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

Installation files: Windows 64 bit, Linux + Standalone version (Java 1.8 included)

<https://www.seadatanet.org/Software/OCTOPUS/Download-Octopus-1.9.0>

User manual

[https://www.seadatanet.org/content/download/698/file/SDN\\_OCTOPUS\\_UserManual.pdf](https://www.seadatanet.org/content/download/698/file/SDN_OCTOPUS_UserManual.pdf)

Helpdesk

[sdn-userdesk@seadatanet.org](mailto:sdn-userdesk@seadatanet.org)

FAQ

<https://www.seadatanet.org/Software/OCTOPUS/FAQ>





# MIKADO

## Generation of ISO-19115/19139 SeaDataNet metadata files



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[steven.piel@ifremer.fr](mailto:steven.piel@ifremer.fr)

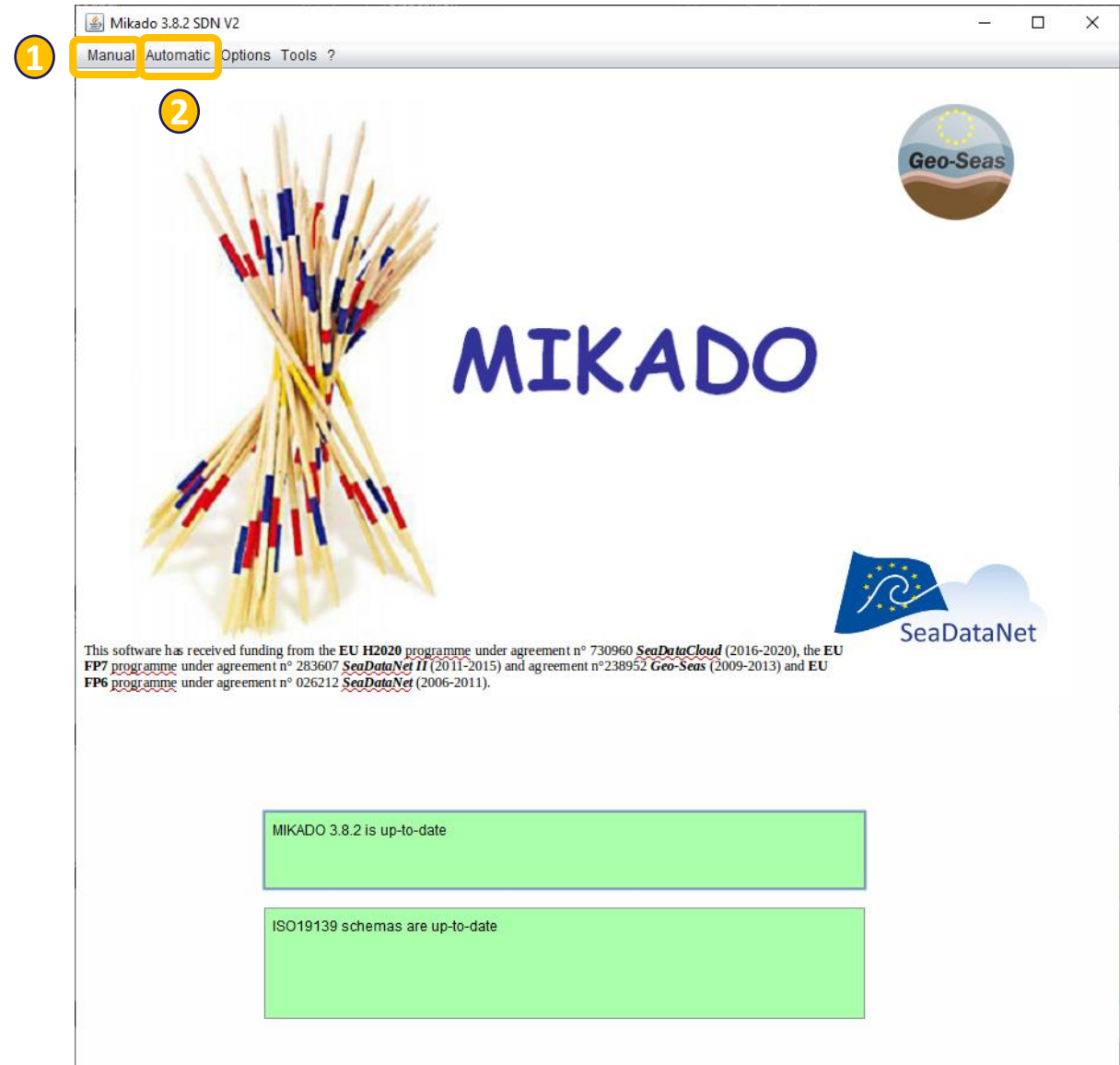
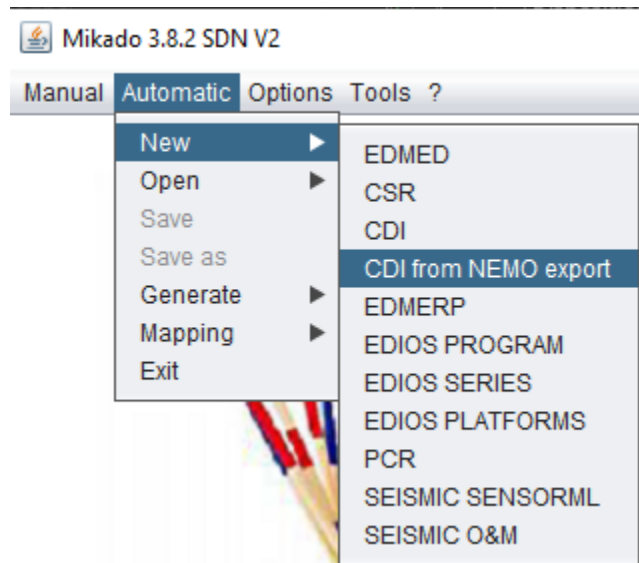


# General description

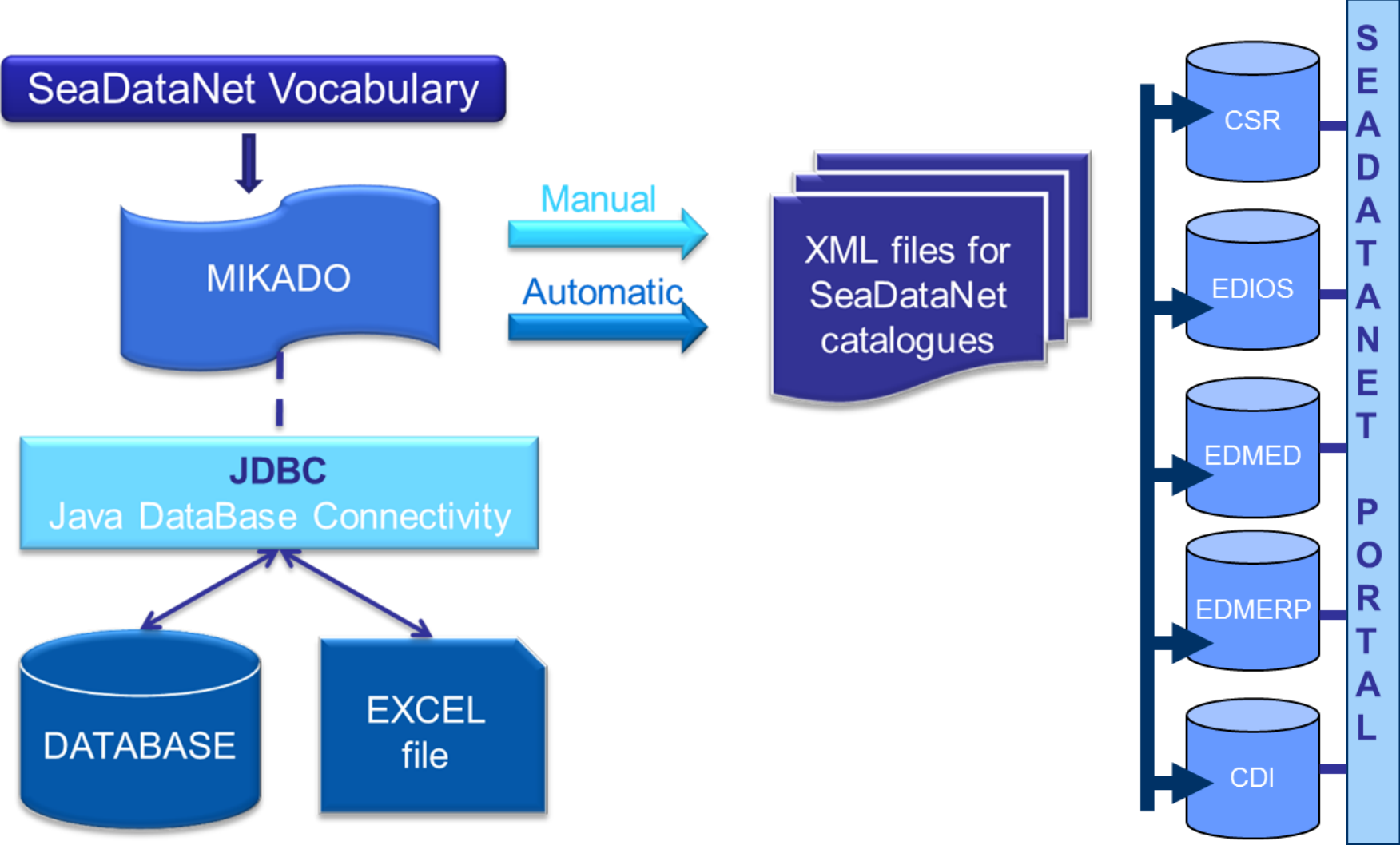
Generate XML metadata catalogue descriptions using **SDN common vocabularies** (EDMERP, CSR, CDI...)

1 – **Manual** mode

2 – **Automatic** mode



# MIKADO main features



# MIKADO – Automatic XML generation



4 steps:

- **Connect** to a database or a csv file and test the connection
- Write the **queries** to retrieve information in the database or in CSV, test the queries
- Save the queries in a “Configuration file”
- Generate the XML files using the “Configuration file”

# Software user support



MIKADO home page

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

Installation files: Windows/Linux (version 3.8.2 and 3.5.3)

<https://www.seadatanet.org/Software/MIKADO/Download-MIKADO>

User manual

[https://www.seadatanet.org/content/download/651/file/sdn\\_Mikado\\_UserManual\\_V3.8.2.pdf](https://www.seadatanet.org/content/download/651/file/sdn_Mikado_UserManual_V3.8.2.pdf)

Helpdesk

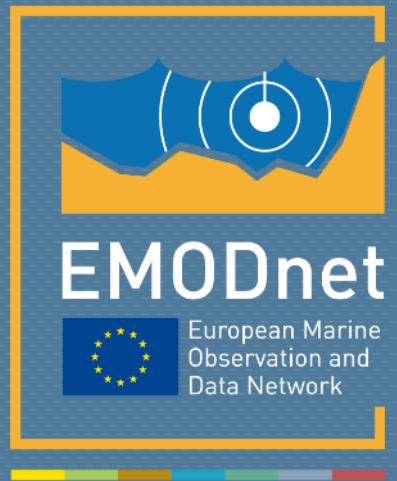
[sdn-userdesk@seadatanet.org](mailto:sdn-userdesk@seadatanet.org)

FAQ

<https://www.seadatanet.org/Software/MIKADO/FAQ>

Thank you for your attention!  
Any questions?





[emodnet.ec.europa.eu](http://emodnet.ec.europa.eu)

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