EMODnet Thematic Lot n°1 - Bathymetry

EASME/EMFF/2019/1.3.1.9/Lot1/SI2.836043

Start date of the project: 20/12/2020 - (24 months)

Centralisation Phase

D2.1: Upgraded guidelines for data pre-processing and population of metadata

Technical report

Date: 12/4/2021

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1. Flowchart of overall EMODnet Bathymetry approach

The first phase of the project is dedicated to gathering new bathymetric data sets such as survey data sets, composite DTMs, and Satellite Derived Bathymetry (also considered as composite DTMs) by all data providers. The data providers should populate all new data sets in the Catalogue services, namely survey data sets in the SeaDataNet based CDI Data Discovery & Access service and the composite DTMs in the Sextant CPRD Catalogue service. Once populated in these Catalogues, the data providers are requested to pre-process and grid the new data sets using the GLOBE software and following the EMODnet standards. These data sets, at least at a resolution of 1/32 arc minute grid, should be transferred by data providers to Regional Coordinators.

The generation of Regional DTMs is divided over regional sea basin subgroups, each with a Regional Coordinator and a number of contributing data providers. Each Regional Coordinator will be responsible for a quality assessment and selection of the data contributions and the compilation of the Regional DTM using the GLOBE software. This process will start end February 2022 when all data providers have finalized their data gathering and population activities for the CDI and CPRD catalogues and will have undertaken pre-processing and gridding of their data sets for delivery as DTMs to the regional coordinators. In a later stage, the data providers also have to gather HR-DTMs which they have to enter in the Sextant HR-DTM Catalogue service.

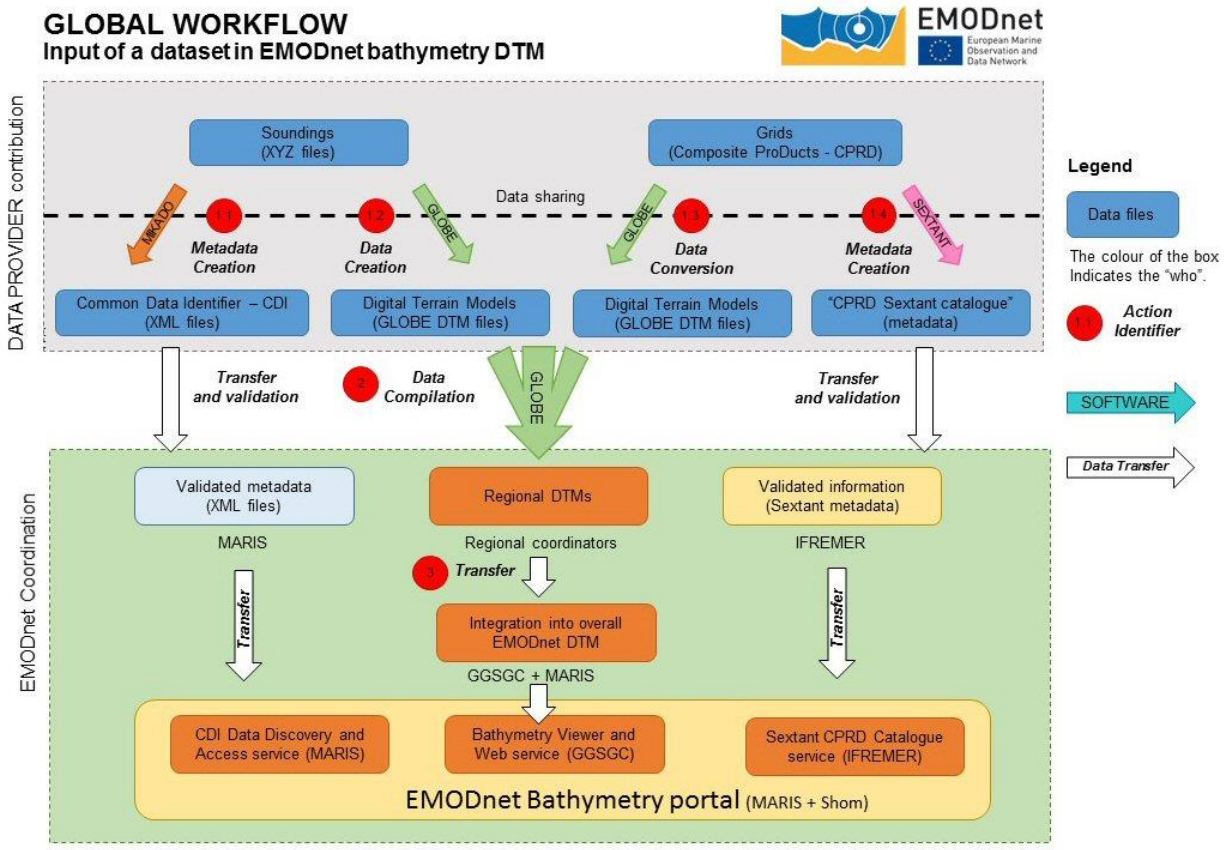


Image: Flow chart of EMODnet Bathymetry approach

2. MIKADO software for population of SeaDataNet directories

MIKADO is used to generate XML descriptions for a number of the SeaDataNet directories. This is done using SDN common vocabularies for metadata exchange of:

- CSR - Cruise Summary Reports
- EDMED - Marine Environmental Data sets
- CDI - Common Data Index
- EDMERP - Marine Environmental Research Projects
- EDIOS – Permanent Ocean-observing System

MIKADO is written in Java Language (Version >= 1.8) and is available under multiple environments: Windows, Unix – Solaris, Linux. Users can use either interactive or batch modes. The SeaDataNet common vocabularies web services are used to update lists of values but Mikado works offline once the lists are up-to-date. MIKADO can be downloaded from the SeaDataNet portal.
EMODnet Bathymetry populates new bathymetric survey data sets as CDI entries. Thereby, data providers are asked to provide additional background when available. This might be done by including references to CSR, EDMERP, and EDMED, which then possibly also have to be populated, if not yet available in the pull-downlists of MIKADO.

2.1 Recent MIKADO developments

Many developments in MIKADO have been undertaken since the last Training Workshop in Brest – France as part of the previous EMODnet HRSM 2 project at the kick-off meeting in 2019.

Version 3.6.1 (May 2020)

- Updates
  - CDI ISO 19139 schema/schematron updated to v12.2.0
  - CSR ISO 19139 schema/schematron updated to v5.2.0
  - New URL for EDMO-EDMERP codelists in CDI and CSR XML files: https://edmo.seadatanet.org/isocodelists/edmo-edmerp-codelists.xml
  - New URL for EDMO SOAP webservice: https://edmo.seadatanet.org/ws/ws_edmo.asmx
  - New URL for EDMERP SOAP webservice: https://edmerp.seadatanet.org/ws_edmerp/edmerp.asmx
  - Protocol change from http to https for BSH webservices
- Bug fixed
  - With protocol changes from http to https for BODC webservices, SeaDataNet schemas, URN resolver in version 3.6 EDMED/EDMERP/EDIOS fails for creation in Mikado.

Version 3.6.2(May 2020)

- Bug fixed
  - Mikado automatic : var03 Horizontal datum - default value fixed to 'UNKCRS' for new CDI from NEMO export

Version 3.6.3 (October 2020)

- Bug fixed
  - Mikado CSR download working again with new BSH web service
  - Mikado automatic continue-when-error=true : WARNING message added in log for validation errors by xsd
  - Some unexpected P06 vocabularies references removed from xml (only L26 used now)
- Updates
  - Coupling table for Download Manager menu renamed to Coupling table for Replication Manager
- Add-ons
  - INFO or WARNING messages added in log for Mikado and xsd versions
- Bug to be fixed in V3.6.4 (April 2021)
  - Download EDMED XML entry (manual mode) due to migration to HTTPS of the URL of EDMED WSDL webservice

Version 3.6.4 (June 2021)

- Updates
  - Manual/Download/EDMED from BODC is now in https
  - for CDI : L08 Access Restrictions are reduced to shorter list
    - CB Creative Commons Attribution 4.0 International
    - RS by negotiation
    - Mikado performs conversion in manual mode when you just open the file and save it again
    - Mikado performs conversion in automatic mode with old configurations for compatibility

    - The CSR reference list is completed with https://csr.seadatanet.org/isoCodelists/csrCodeList.xml for cruises not found in https://seadata.bsh.de/isoCodelists/sdnCodelists/csrCodeList.xml
- Add-ons
  - Automatic/New/CDI from NEMO export : a Relocate Nemo Export button added in Connection tab to change Nemo Export location in automatic configuration file (to use if you moved the Nemo Export)

  - Automatic/CDI/batch mode : nemo-export= added as an alternative to conf-file= to directly generate CDI from Nemo export

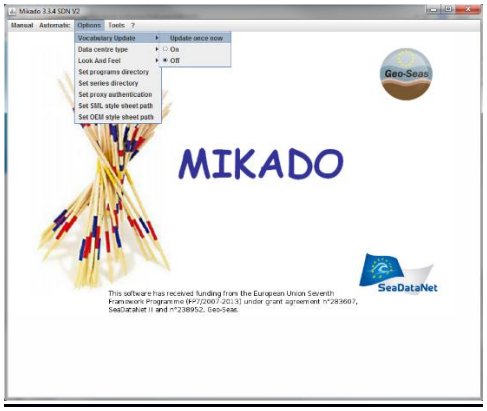
Version 3.7(January 2022)

- Add-ons
  - CDI ISO 19139 format updated to v13.0.0 for ENVRI-FAIR :
    - Addition of L22 sensor model (var49) – optional
    - Mapping L22/L05 when only L22 information is provided
- Updates
  - Coupling table for Replication Manager: selection in L24 vocabulary list for modus 1 and 3

2.2 Recommendations

A few recommendations can be made to partners to optimize the use of MIKADO:

Recommendation 1: Vocabularies updates

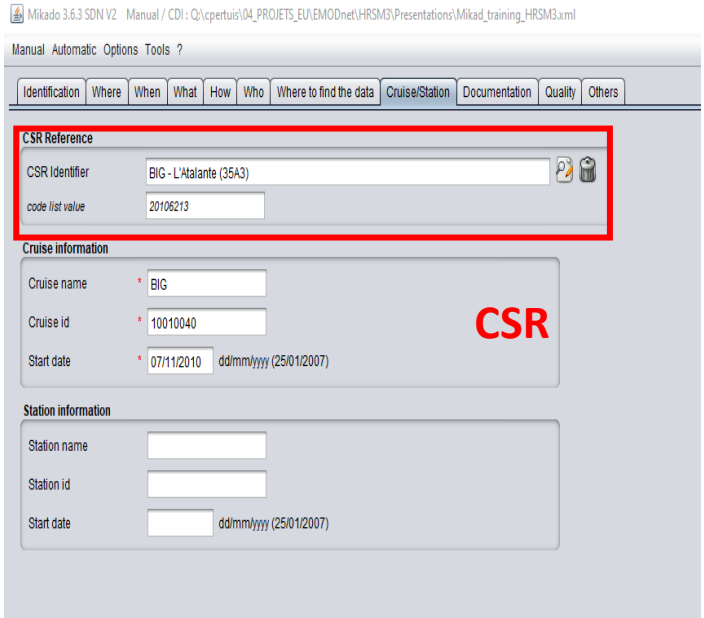


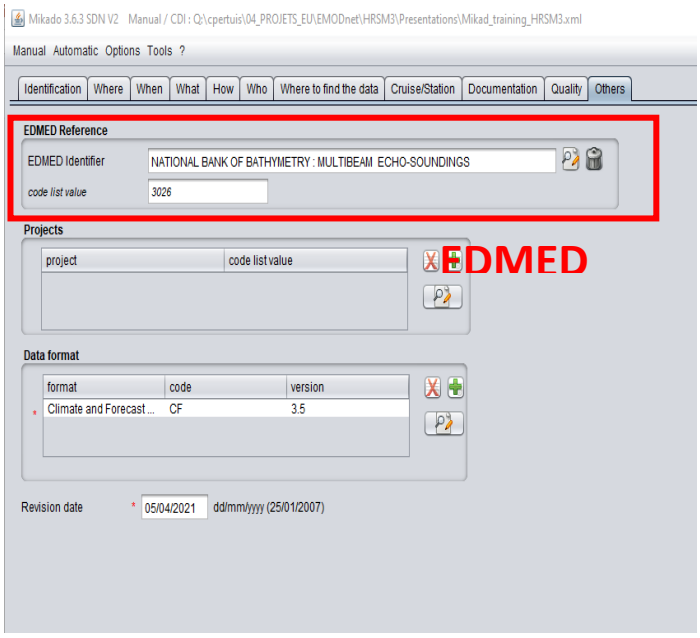
Automatic check of the version of the vocabulary lists is possible when MIKADO starts:
If “On” is clicked in the Vocabulary Update Menu, then MIKADO downloads locally the latest version of each list
It is possible to enable-disable the automatic check if “Off” is clicked
Manual check is also possible using the button “Update once now”

Recommendation 2: include CSR and EDMED links in the CDIs

Including references to CSR, EDMED, and EDMERP can be useful for enriching the CDI metadata, which makes the metadata more FAIR for users.

Each CDI can refer to a CSR Ref + EDMED Ref:





In a comparable way, also EDMERP references can be added to CDI.
- Mikado manual: dropdown lists via webservices
- Mikado automatic: var80 (EDMED), var81 (CSR), var13 (EDMERP)

Recommendation 3: Include EMODNet Bathymetry Quality Indicators in the CDIs

Quality Indicators have been implemented in the CDI format in 2017 and are used to qualify each source datasets used in the final DTM. These values are later used to generate the overall Quality Index for each new EMODnet DTM release. Therefore, it is mandatory that each CDI and CPRD entry contains these Bathymetry Quality Indicators.

Quality indicators are not part of any SDN lists and have to be written between quote marks, using either manual or automatic modes.

The quality indicators have been described in the document '**Completing metadata elements for the generation of the Quality Index for the EMODnet DTM.pdf'** which can be found at the EMODnet Bathymetry portal as technical documentation:

https://www.emodnet-bathymetry.eu › approach › technical-documentation

4 QIs have been defined to assess the quality of the datasets:

- QI_Horizontal: related to the positioning system
- QI_Vertical: related to the MBES instrument
- QI_purpose: related to the survey objective
- QI_Age: related to the survey dates

In Manual mode go in the Quality tab and add 4 entries :

- Name: QI_Horizontal (free text)
- Date: date of publication of the CDI
- Comment: write down the index of the corresponding QI (free text)

- Status: true

QI_Age: fill the start and end date in the When tab

In Automatic mode: from var95 to var98. QI_Age: Under the single subqueries folder, define your SQL queries under var28 and var29 to describe the start and end date of your dataset.

3. Sextant for CDTM population

The resulting EMODnet DTM is compiled from survey data sets as referenced in the CDI service, composite DTMs as referenced in the Sextant CPRD Catalogue service, and GEBCO Digital Bathymetry to fill gaps.

The CDI and CPRD catalogues are based upon SeaDataNet standards, using where possible SeaDataNet controlled vocabularies and SeaDataNet Directories for completing the metadata and for giving many details about the data sets, such as their acquisition details, access restrictions, originators and distributors and other.

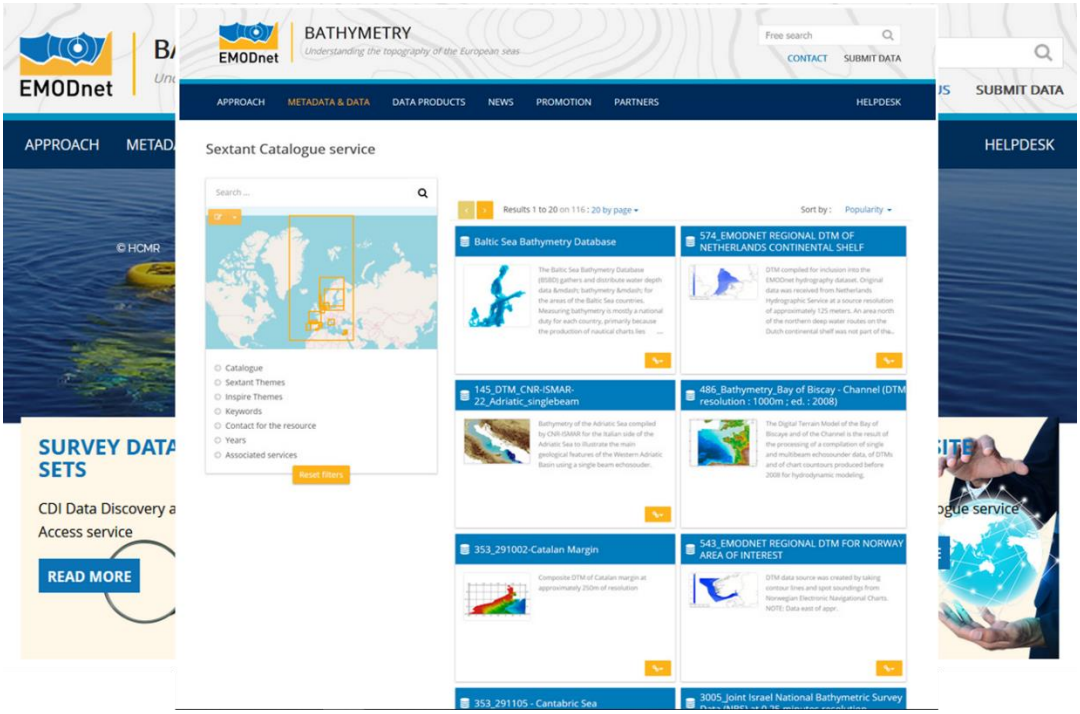
The Sextant Catalogue, portal, and data infrastructure have been developed by Ifremer for the management and the distribution of spatial data, and have been adopted for EMODnet Bathymetry for describing composite DTMs and HR-DTMs from the EMODnet Bathymetry datas providers. Moreover, the resulting EMODnet DTM products are included in Sextant together with DOIs.

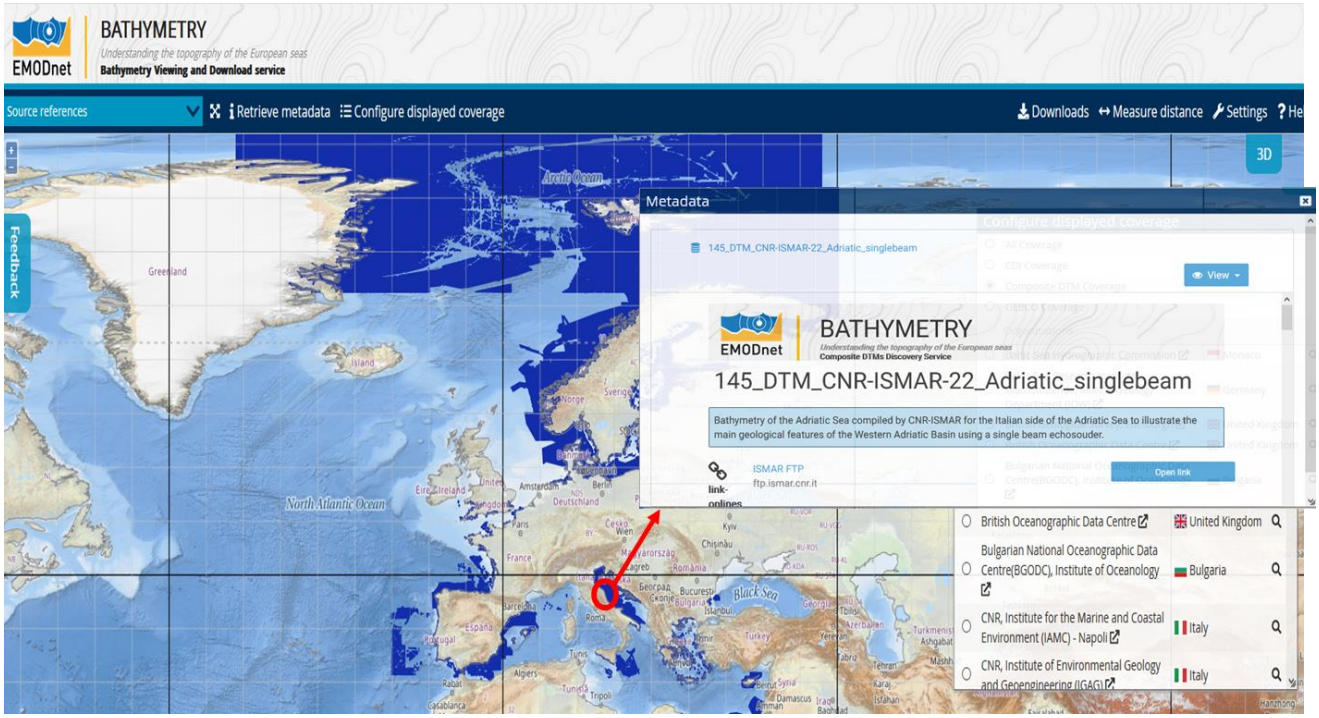
Sextant is implemented using Geonetwork to set-up the Catalogue Service for the Web and the Open Geospatial Consortium (OGC) and ISO TC211 standards.

This way, Sextant provides an index and descriptions of the **composite products (CPRD)** delivered by partners and associated providers of EMODnet Bathymetry who have opted to deliver bathymetric data as products of their own for the construction of the EMODnet DTM.

These products are in most of the cases DTMs constructed with a methodology different of the EMODnet methodology. They derive usually from multiple surveys but use occasionally other source of depth information such as isolines. They are not an observed data files, but a derived product. So they cannot be described in the SeaDataNet CDI catalogue.

The user interface of Sextant is now implemented in the EMODnet Bathymetry portal as an API (Application Programming Interface) that offers a better integration in the website. Log in function is available through Sextant API on EMODnet website:http://www.emodnet-bathymetry.eu/metadata-amp-data/composite-dtms-catalogue-service#/search?from=1&to=20





3.1 Detailed guidelines for Managing spatial data using Sextant

Data providers of composite DTMs are requested to enter the CPRD metadata entries online, using a Content Management System. Before creating new metadata, data providers are advised to read the EMODnet HRSM specifications documents which contain instructions for filling some of the metadata:"

- Methodology and guidelines for processing orginal input data into DTMs
- Completing metadata elements for the generation of the Quality Index for the EMODnet DTM

Both documents can be found at:

https://www.emodnet-bathymetry.eu › approach › technical-documentation

Registration

To register to the Sextant CMS, each partner needs an external account. If you don't have any, then contact the Sextant team: sextant@ifremer.fr.

Vocabulary

Common vocabulary lists and organization identification:

Lists implemented in the EMODnet template use the SeaDataNet Common Vocabularies as can be found at: https://vocab.seadatanet.org/search

Organizations are identified using the European Directory of Marine Organizations (EDMO) maintained by SeaDataNet. Organization name and identifier can be queried on the SDN portal at: https://www.seadatanet.org/Metadata/EDMO-Organisations

File dentifier

The file identifier at the top of the metadata information of the form is generated automatically using a combination of metadata edited by the partner. The syntax (derived from SeaDataNet practices) is:

SDN_CPRD_EDMO-Id_ short-name-of-dataset

Note that the short name of dataset is the product identifier at the holding data centre and must be unique. It is a component of the file identifier of the CPRD catalogue. The unicity of the entry is guaranteed by an automatic combination with the EDMO id of the data provider.

It is requested to rename the DTM file corresponding to your metadata entry as **EDMO-Id_ short-name-of-dataset.dtm as** this will greatly help Regional Coordinators.

The EDMO_Id of the holding data center and the short name of dataset of the product used as source data for the EMODnet DTM are also recorded in the "Identifier" layer of the EMODnet DTM (see EMODnet hydrography specifications). This allows viewing services of the EMODnet bathymetry portal and of the 3D viewer of the Ifremer Globe software to generate the URL to access the metadata set of the CPRD catalogue.

Data set name

This is the title of the data set that will appear in the catalog

Abstract

Partners are strongly encouraged to complete carefully the ABSTRACT / SHORT SUMMARY with a valuable description of the (composite) DTM what).

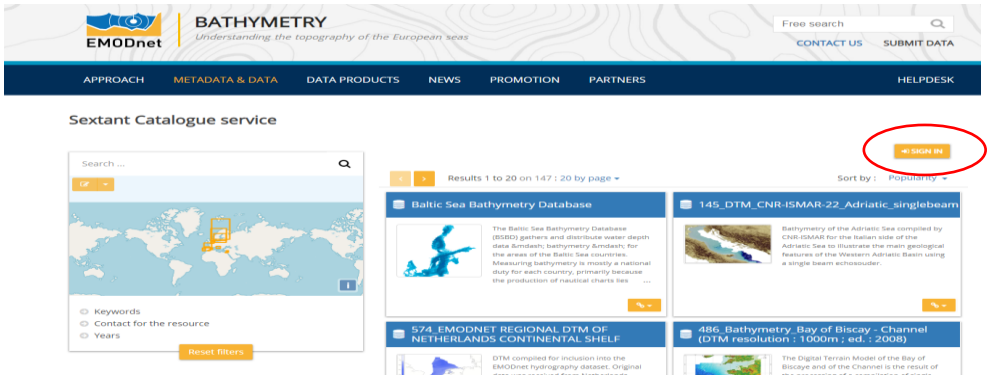
In case, the file is also associated to a CDI entry, please note it in the "description of processed data sources" field.

Other fields

Mandatory fields have been defined not only in function of the ISO and Inspire standards and Directive but also in function of the requirement of the projects. For example, someone may consider it useless to ask data providers to fill Min and Max depth field but it is a requirement to allow an automatic scaling of the colours when viewing the DTM. Other fields are not mandatory because it depends on the dataset but they are all strongly recommended to allow improved data processing by the end users.

3.1.1 Log in instructions

Log in function is available through Sextant API on EMODnet website:http://www.emodnet-bathymetry.eu/metadata-amp-data/composite-dtms-catalogue-service#/search?from=1&to=20
And sign in with your sextant credentials:



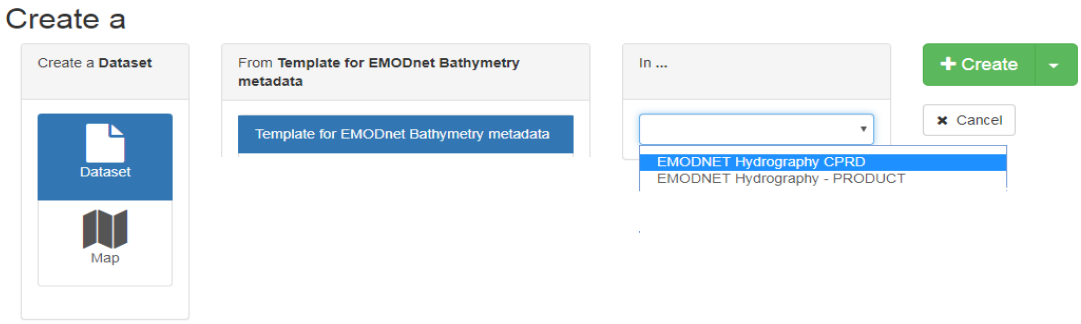
The “Administration” functionality appears.

3.1.2 Detailed instructions

To create a new metadata description, a dedicated metadata template has been designed for the purpose of EMODnet projects.

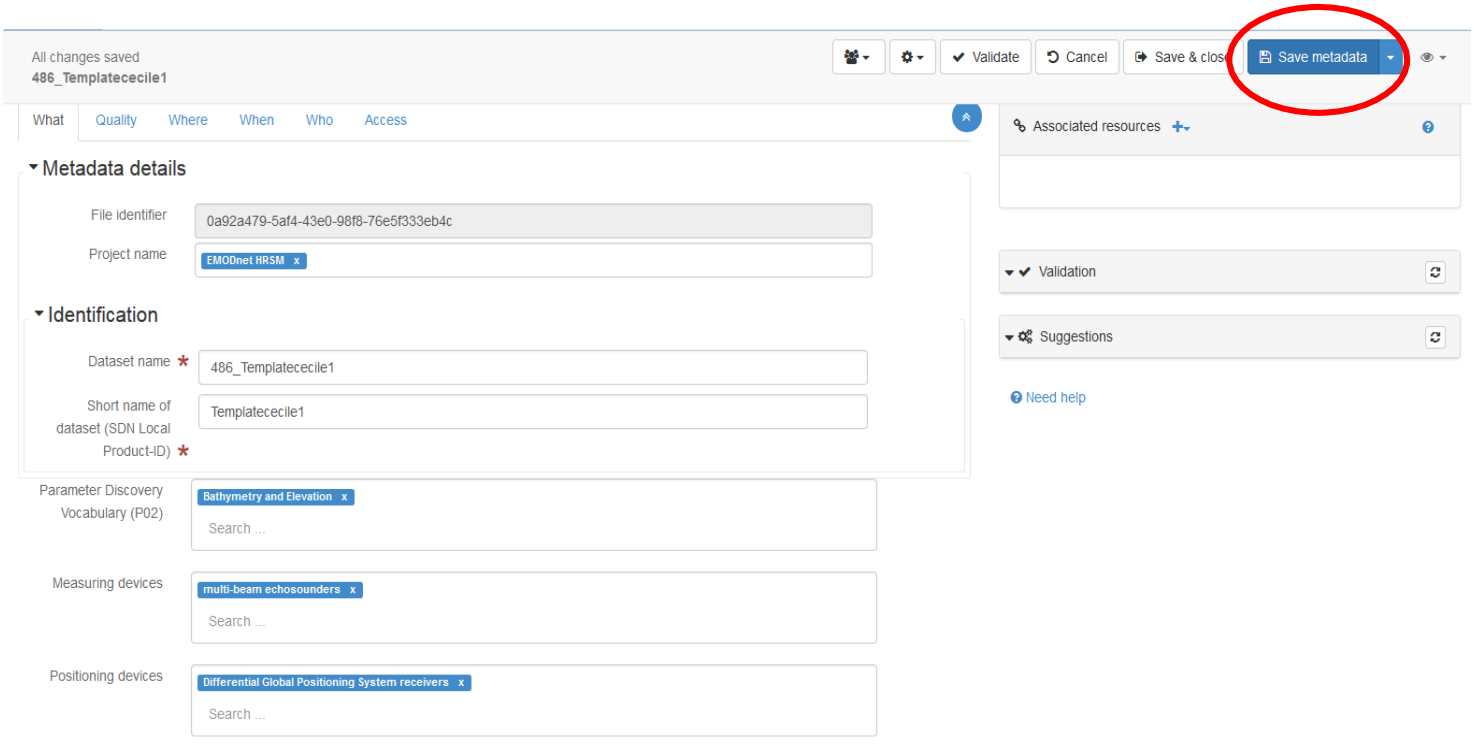
Select "New metadata" in the menu “Administration” (see 4.2.) A window appears:

- As Template, select "Template for EMODnet Bathymetry metadata"
- As "In", select the appropriate catalogue "EMODnet hydrography - **CPRD**" catalogue
- And then "Create".



SEXTANT disconnects you automatically if you are inactive. Save regularly what you have edited (every15 mns). Most of the fields are pre-filled or user friendly and don't need specific explanation. Attention will be paid to specific or text fields. Explanations are given by thematic tabs.

3.1.3 What



It is **strongly recommended** to start filling the "Dataset name" and "Short name of dataset" to avoid Sextant to save your entry under a default name. Use the "Save metadata" button and continue.

File identifier: is generated automatically using a combination of metadata edited by the partner. The syntax is: "SDN_CPRD_EDMO-Id_local-product-Id"

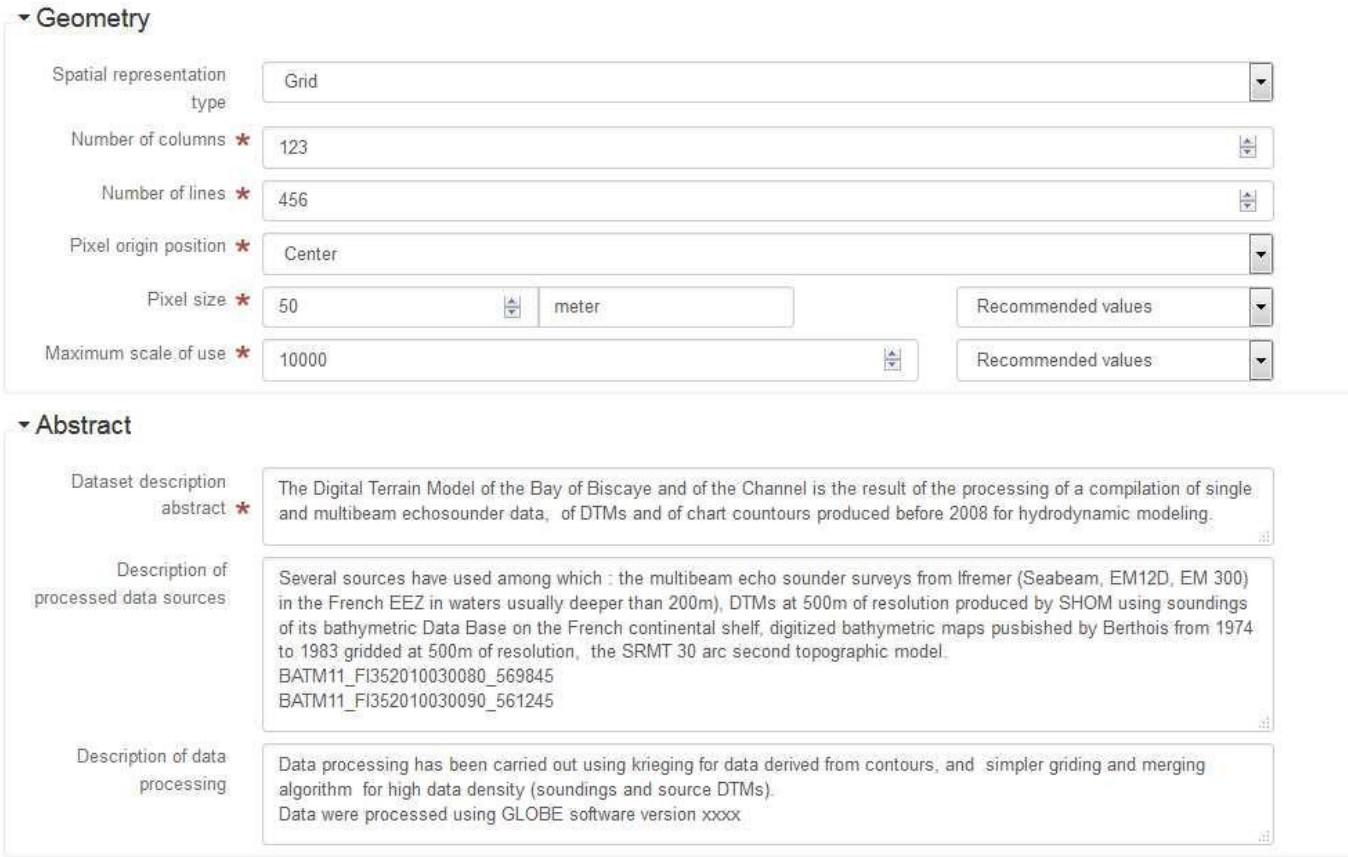
Project name: Choose EMODnet HRSM3. This field corresponds to the EDMERP SDN list.

Dataset name: title of the data set that will appear in the catalog.

Short name of dataset (SDN Local Product-ID): Local identifier of the bathymetric grid

(according to local rules of Data Center). **This is a component of the file identifier.** The local identifier must not be longer than 75 characters (this constraint comes from the length of the string used to keep track of the source of data in the DTM NetCDF format.

Parameter Discovery/Measure devices/Positioning devices: metadata are given by default but you can also delete them and/or add others by clicking on "Search" (auto completion search). Use of L05 and P02 lists.



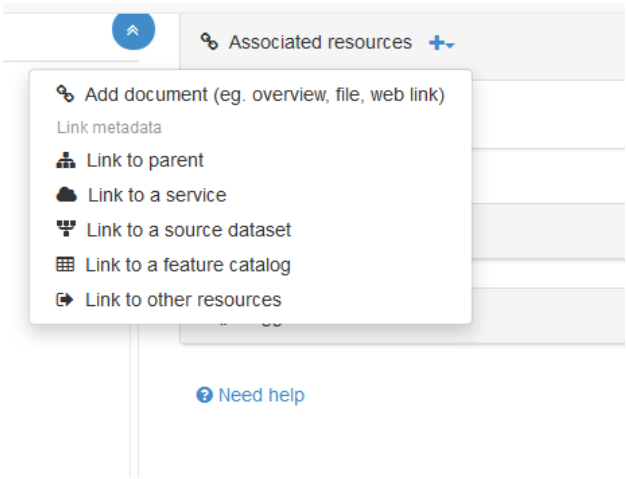
Geometry: fill in the information, and use lists or "Recommended" values when proposed.

Dataset description abstract: write down a summary about the dataset (cruise/purpose/context description, specific characteristics, valuable details…)

Description of processed data sources: indicate the data sources and write down the corresponding CDIs when they exist.

Description of data processing: any valuable detail about the processing software or processing methodology.

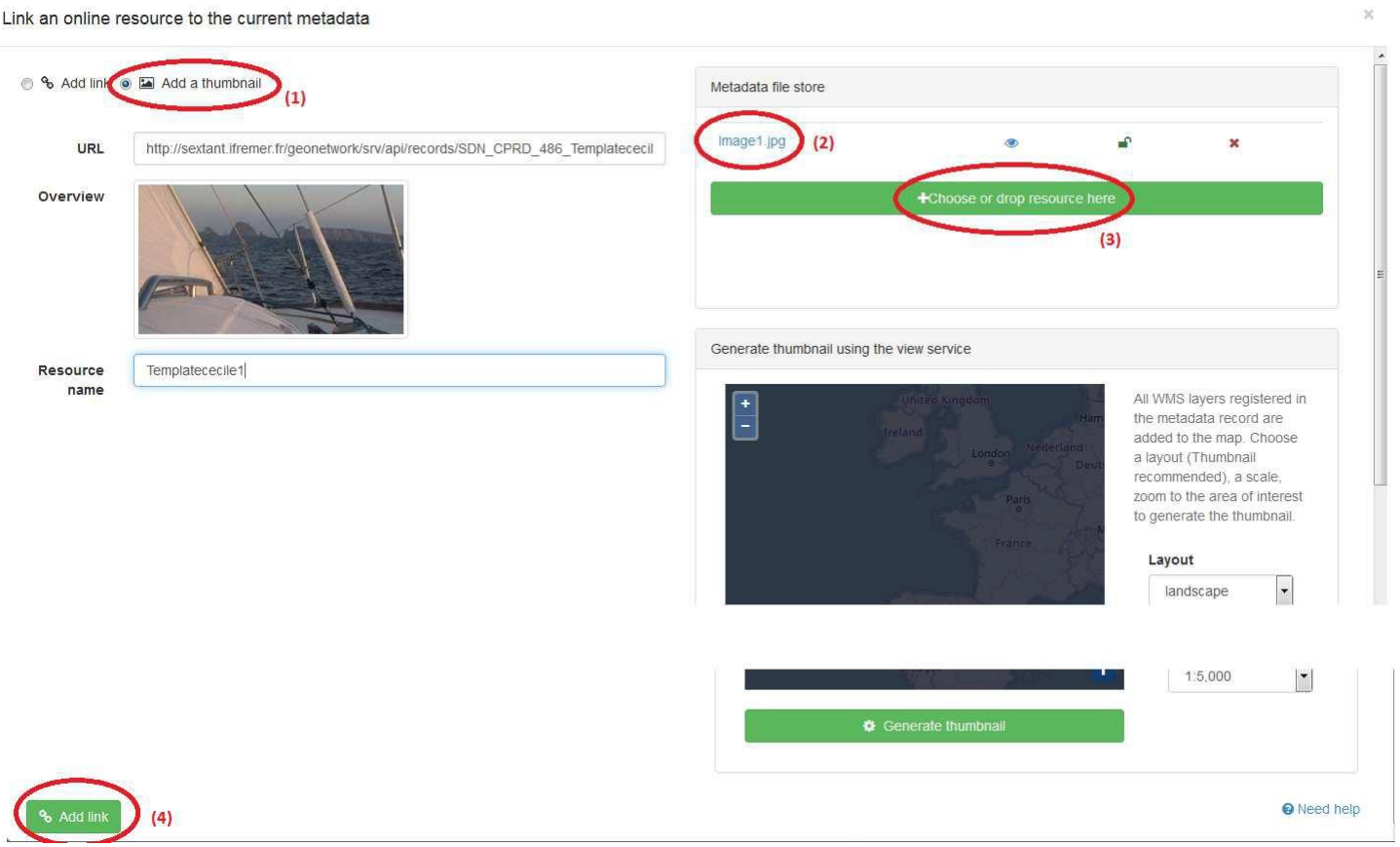
3.1.4 Associated resources (tab "What" upper right corner) – thumbnail and online resources



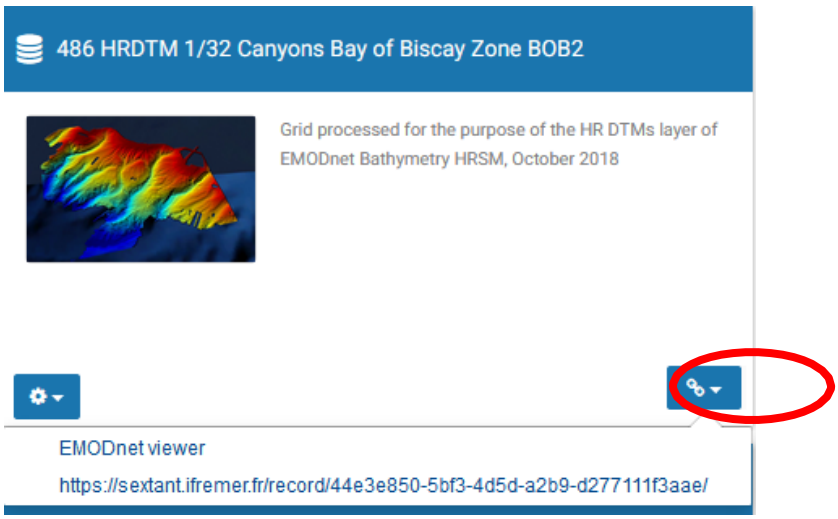
It is recommended to attach a thumbnail to illustrate your composite product in the catalogue. Click on the add button of the "**Associated resources**" field and seclect "**Add document**".

Click on "Add a thumbnail" (1), select the thumbnail with the "Choose or drop reource here" tool (2) and click on your thumbnail in the "metadata file store" to update the

URL. Click at the very bottom of the page to "add the link" (4).

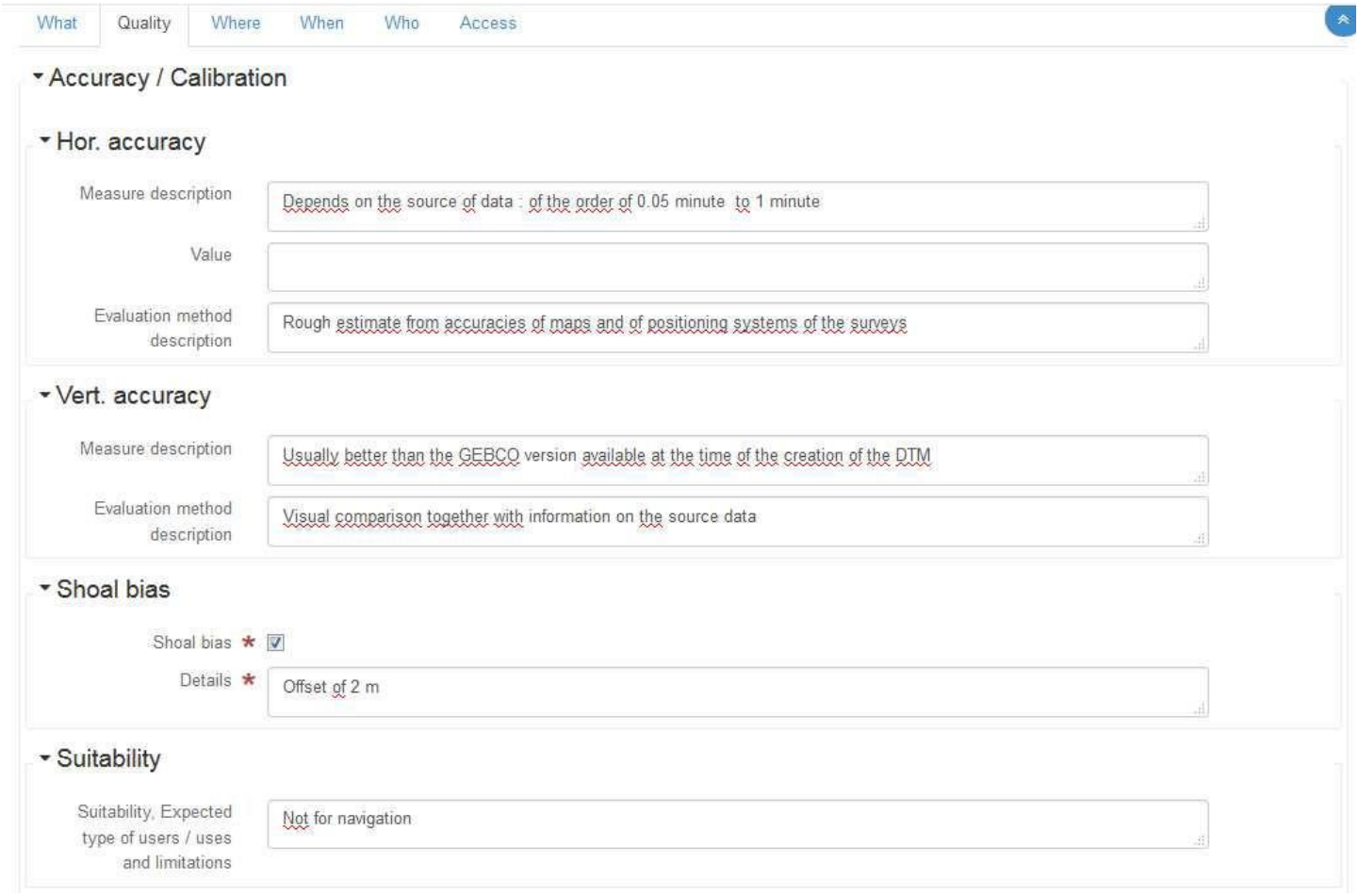


You can also add different kind of links, like a URL to a web site or to web services (WMS, WFS…). Click on the add button of the "**Associated resources**" field and select "**Add link**" and select the appropriate information in the Function and Protocol lists. Fill in others details and click on "Add link".



These links will be attached to your metadata description in the catalogue:

3.1.5 Quality



Horizontal accuracy:

Measure description: give any information about the horizontal accuracy of the acquisition system, the positioning system as well as the sounding method.
Value: In case you wish to give a digital estimator of the horizontal accuracy.

Evaluation method description: Reference to standard which have been used to qualify the horizontal accuracy (hydrographic standards, industrial specification…)

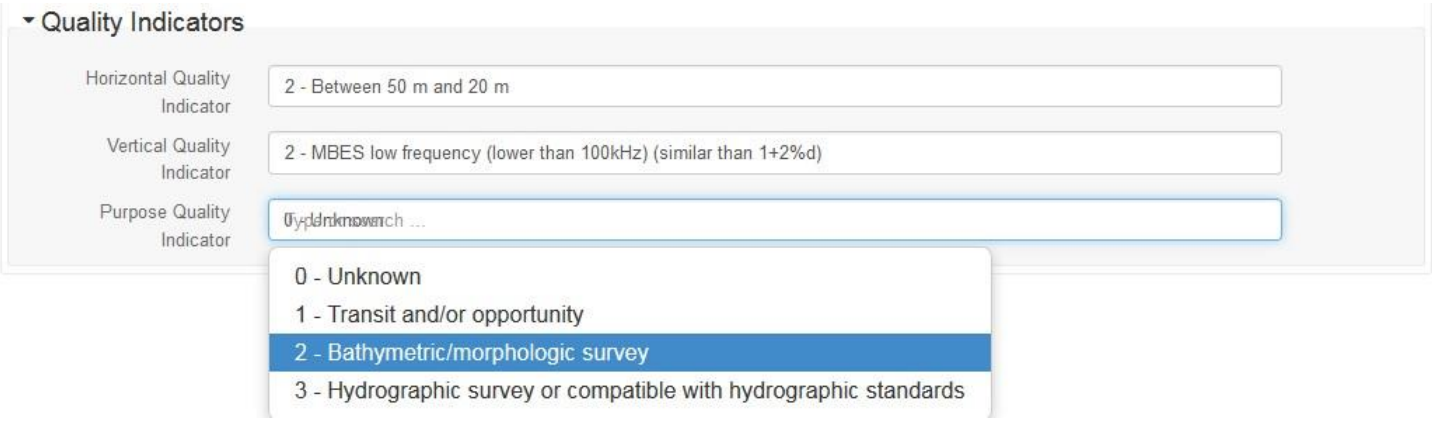
Vertical accuracy:

Meaure description: any information about the vertical accuracy of the depth in the file

Evaluation method description: Reference to standard which have been used to qualify the horizontal accuracy (hydrographic standards, industrial specification…)

Shoal bias: tick this field only in case of existing bias and precise details in text field below.

Suitability: precise the type of use that can be made of the datasets (example: not suitable for navigation)



Quality Indicators have been implemented in the EMODnet HRSM project to use further qualitative information (in CPRD and CDI) related to the data source such as type of sensor. For the CPRD case, the data producer has to consider giving each of the quality indicator based on the contribution with the lowest quality. Click on "search" to make appear the appropriate list.

The following document describes the Quality Index proposed in the framework of the HRSM project:

- Completing metadata elements for the generation of the Quality Index for the EMODnet DTM

Which you can find at:

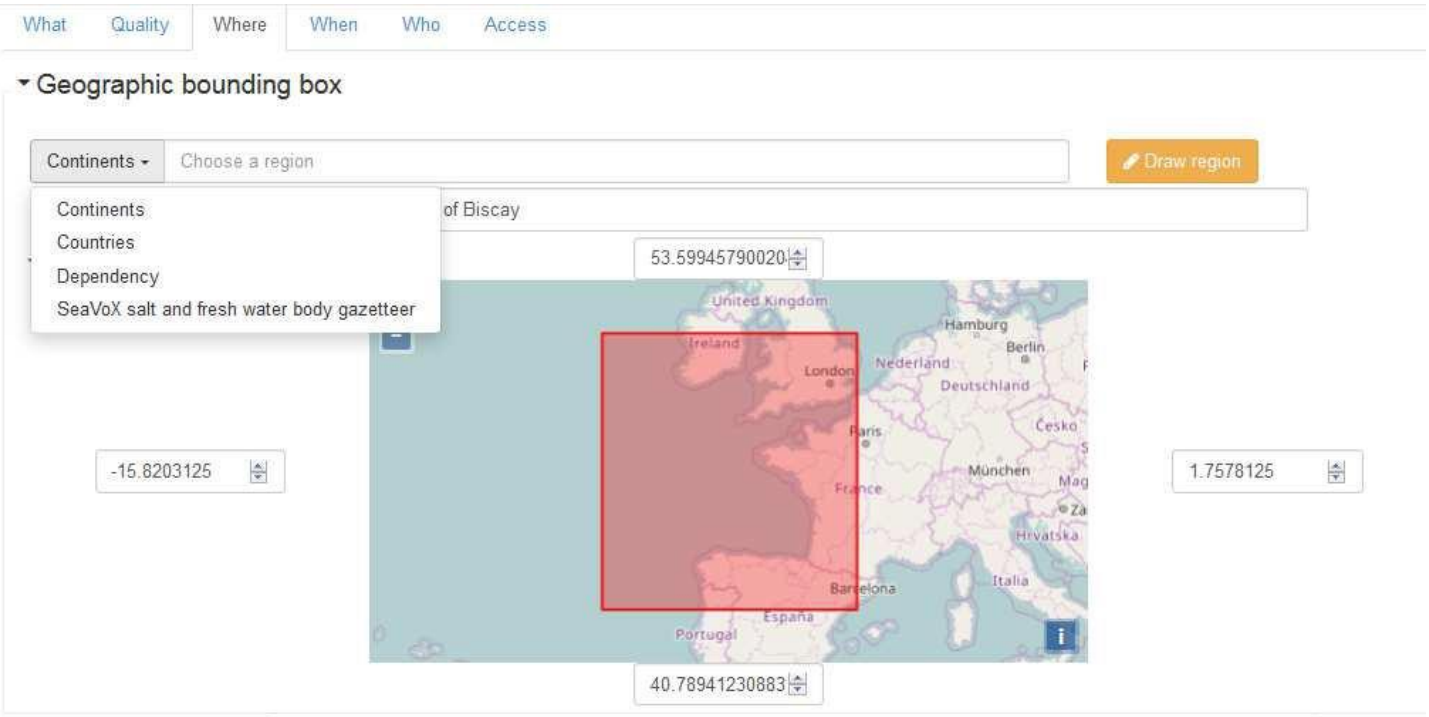
https://www.emodnet-bathymetry.eu › approach › technical-documentation

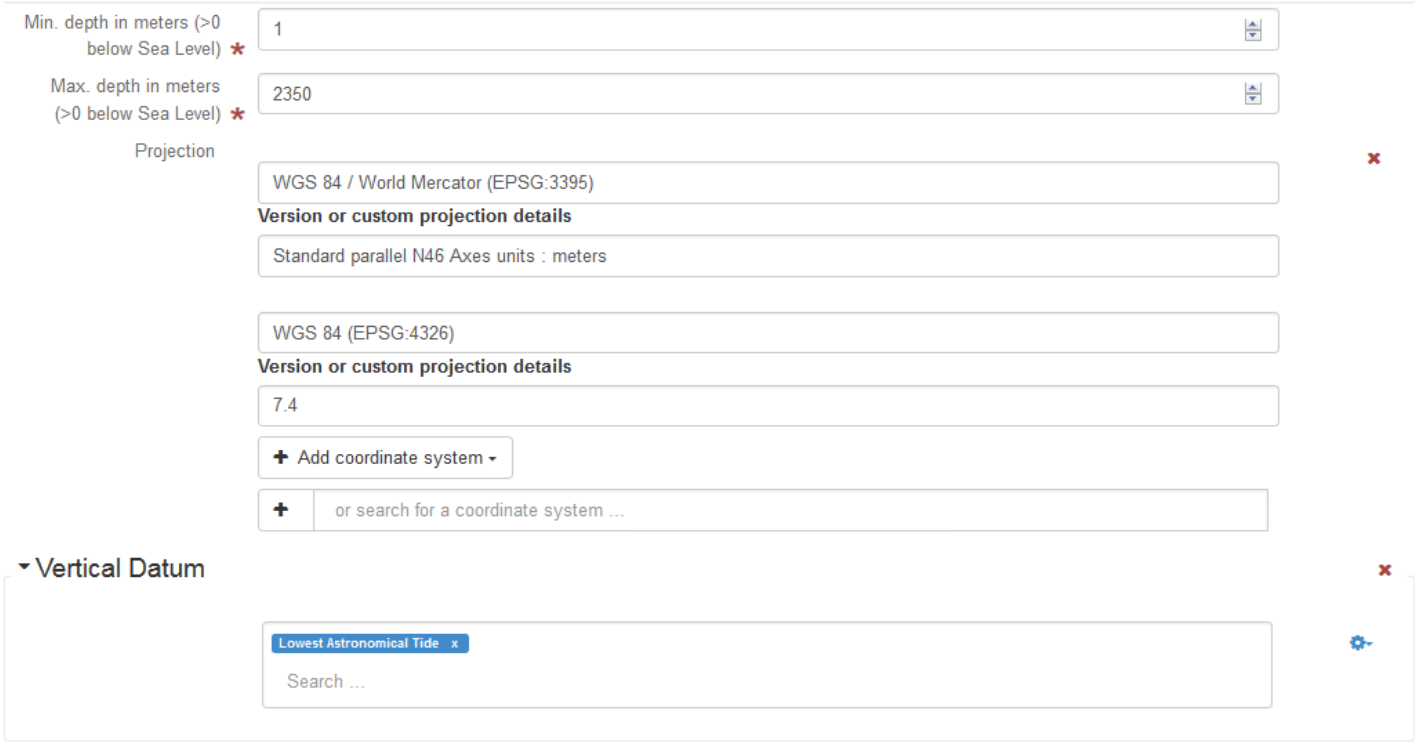
It will help you to verify your entries.

3.1.5 Where

The **Geographic Bounding Box** can be created in 3 different ways:

- By drawing your own area: click on "Draw region", select the area and the coordinates will automatically be updated
- By entering the coordinates (decimal degrees) manually in the appropriate fields
- By selecting an area in the international SeaVox list





Fill in the information, and use lists values when proposed.

Projection: fill in the geodetic system and the projection of the catalogued product. Some of them are listed in the "Add coordinate system" list.

You can input additional details in the "Version or custom projection details.

As example:

for a latitude/longitude file :

Write "WGS84" in the "Projection" field. for a UTM

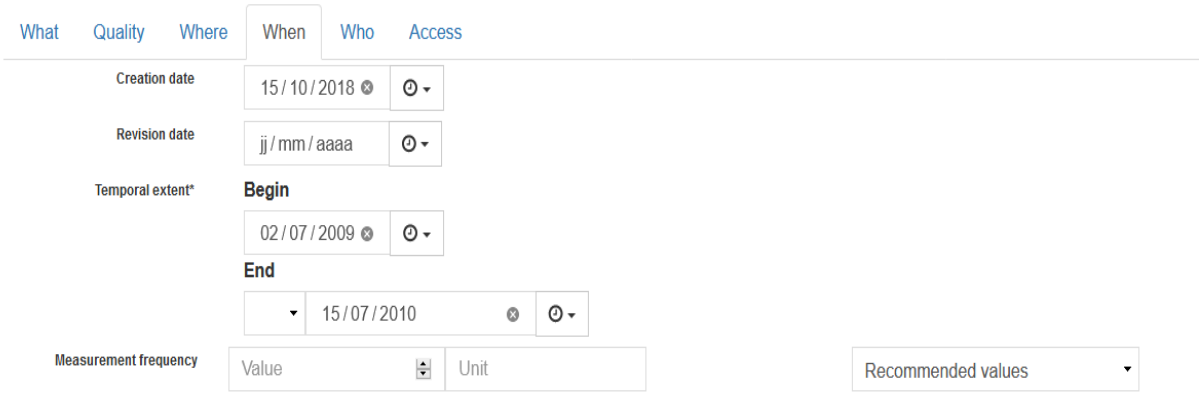
Zone 33 file

Write "WGS84 / UTM" in the "Projection" field

Then write "Zone 33" in the "Custom projection details.

Vertical Datum uses L11 SDN list.

3.1.6 When



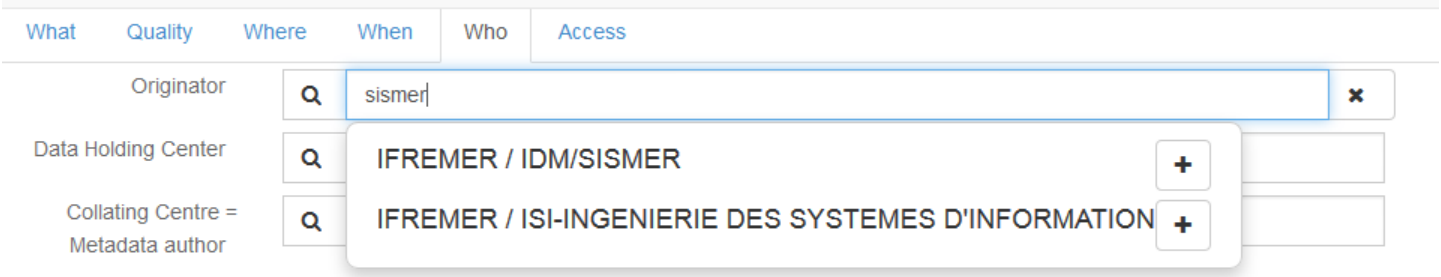
Fill in the date information using the calendar. To go throw years, click first once or twice on 2017.

Creation date is the date of production of the composite product.

Temporal extent covers the period of datasets used in the composite product

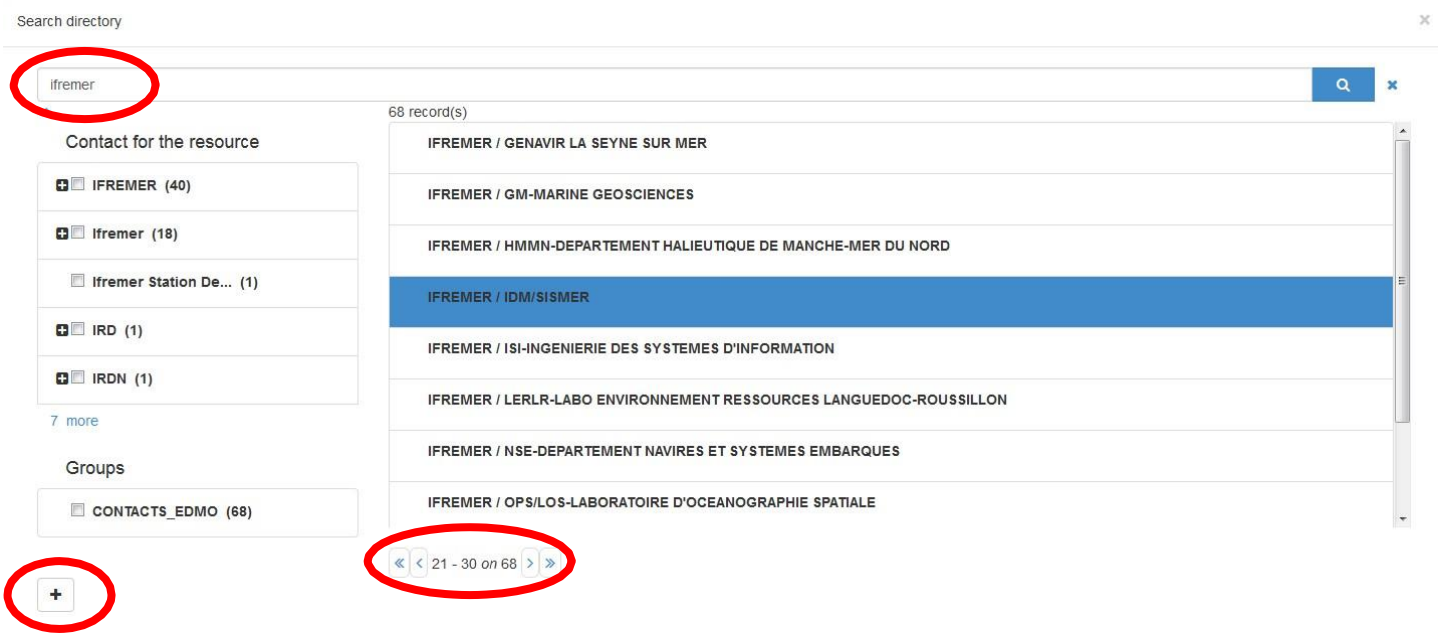
Measurement frequency can be used in case of periodic acquisition of datasets. Optional field.

3.1.7 Who



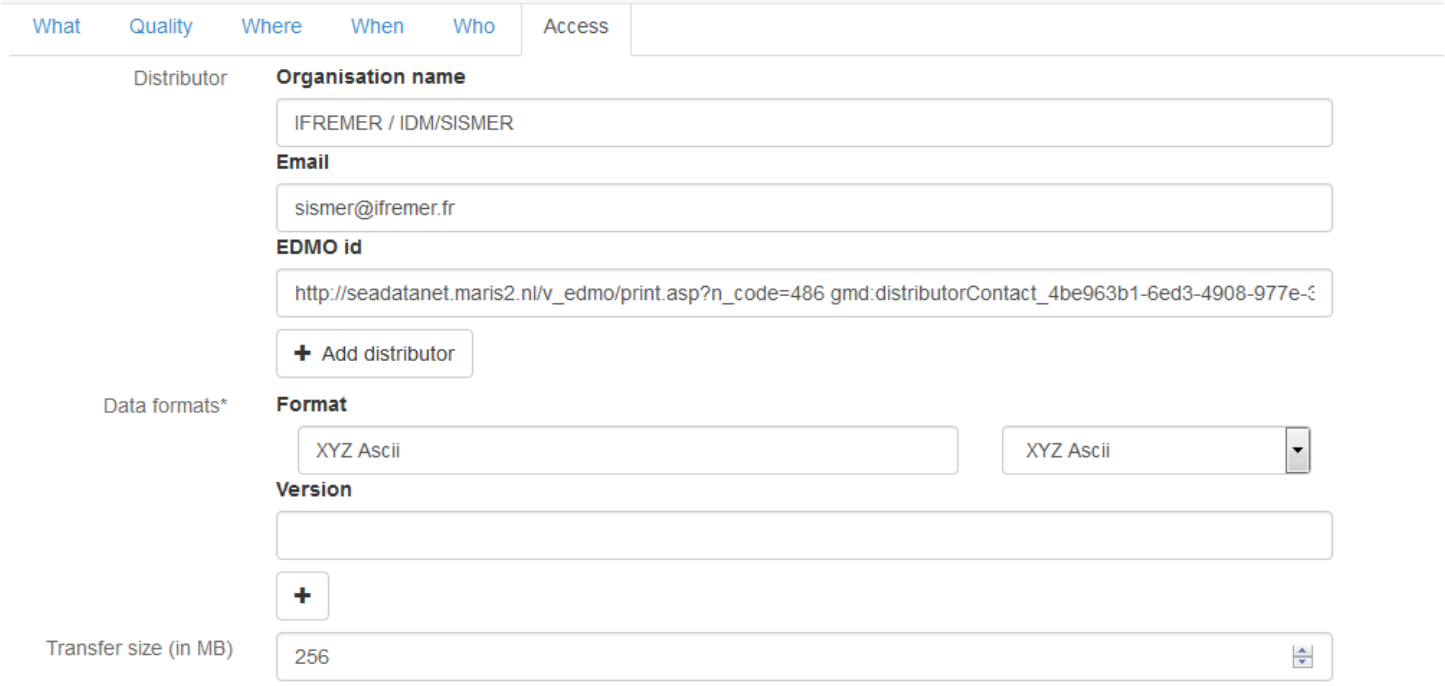
The **Originator**, **Data Holding Center** and **Collating Center** contacts are filtered on the EDMO_id list. **The data holding center contact is a component of the file identifier.**

Enter the name of your institute or department and corresponding entries will appear (then click on the corresponding “+” button). If not, click on the binocular, and write in “search for a contact” field or use the proposed filters on the left of the screen (check number of pages). Once you have found the correct entry, click on the “+” button at the bottom left corner.



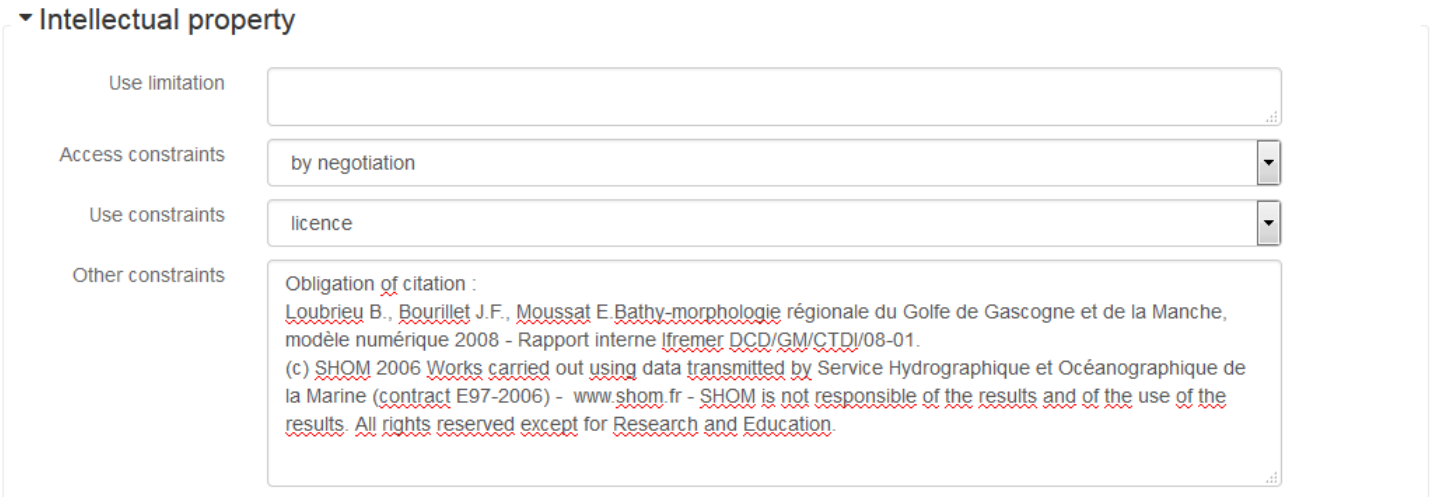
Once you selected the correct contact, Organisation name, Email and EDMO id are automatically filled in.

3.1.8 Access



Click on “Add distributor” to enter the **Distributor** contact details (also filtered on EDMO id). And fill in the other information using “Recommended values” when possible.

Version and **Transfer size** are optional.



Use limitation: free text field that can be used to detail intellectual property rights when no appropriate values are found in the **Use constraints** list – but is optional.

Access constraints: uses list SDN L08. Gives information about how to get access to the DTM.

Use constraints: gives information about the condition of use of the DTM.

Other constraints: complementary information about the use of the data. This is the appropriate field to enter the DOI of your dataset when existing or the obligation of citation

3.2 Save your metadata

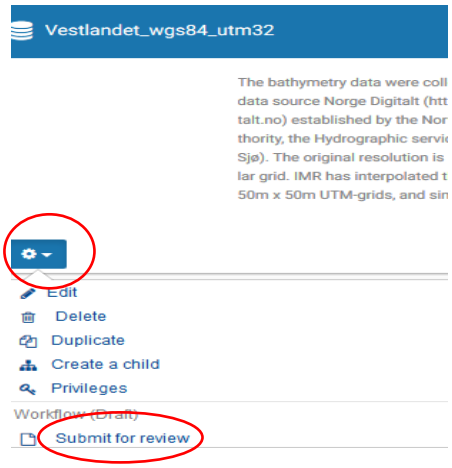
Your sextant template is now complete, you can "**save and close**" the template. You can check your new entry on the sextant API catalogue: http://www.emodnet-bathymetry.eu/metadata-amp-data/composite-dtms-catalogue-service?#/search?from=1&to=20

3.3 Submit your metadata for validation

A workflow status has been implemented to prevent any inconsistency with EMODnet rules when updating or creating a metadata. Each creation or update will has to be validated by a sextant administrator.

To submit your metadata:

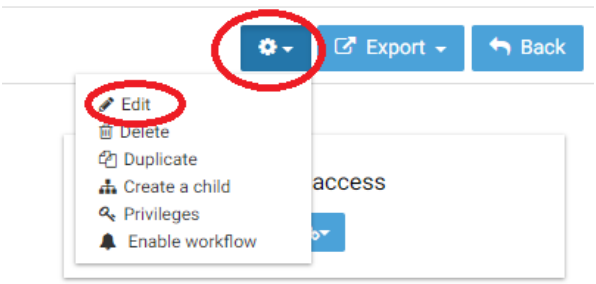
click on the Wheel tool>Submit for review



The sextant catalogue administrator will receive a notification by email and will validate and publish your sextant entry. **These short steps have to be done for each new entry and each updated entry.**

3.4 Guidelines for updating an existing CPRD entry

If you need to update any of your description, select your sextant entry on the sextant API catalogue: http://www.emodnet-bathymetry.eu/metadata-amp-data/composite-dtms-catalogue-service?#/search?from=1&to=20
and click on the wheel tool on the upper right hand corner and select edit.



Once updated, do not forget to submit again your entry through the sextant workflow.

3.5 Sextant helpdesk

If any problem when using Sextant, you can contact the Sextant team sextant@ifremer.fr .

Your question will be routed toward the appropriate person.

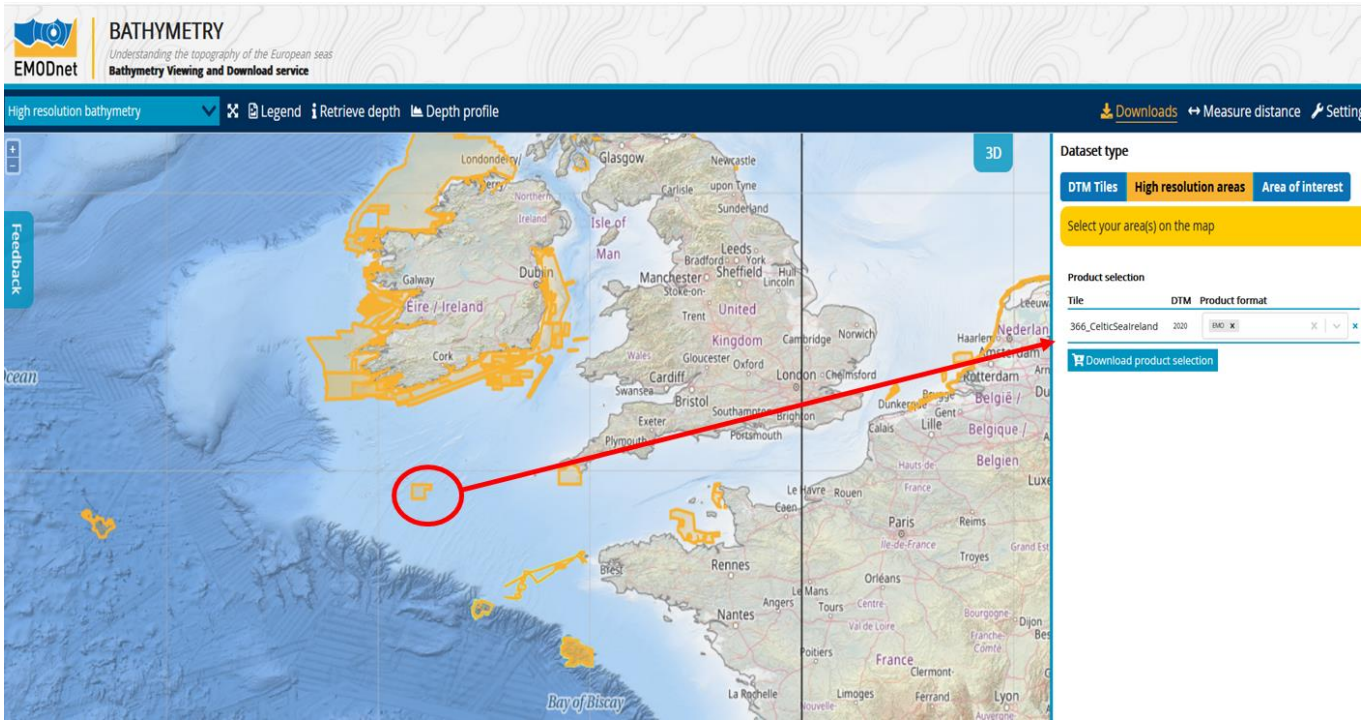
4. Sextant for HR-DTM population

Besides the composites DTMs, partners are asked to produce High Resolution DTMs freely accessible through the bathymetry viewer available on the EMDOnet Bathymetry website. These HR-DTMs are of higher resolution than the composite DTMs, and are produced following the EMODnet processing rules.

The HR-DTMs are described in a dedicated sextant catalogue to facilitate their identification.

	CPRD (Historical EMODnet catalogue)	**PRODUCT (HR-DTMs) created for HRSM project**
Content	- Historical Composite DTMs in your institutions - New composite DTMs at a resolution of 1/16 arc minute	- Higher Resolution DTMs (1/32, 1/64 …) - initially on smaller area or specific area of interest for showcases
Methodology	- Compilation using Globe software - EMODnet bathymetry methodology - Historical DTMs might differ	- Compilation using Globe software - EMODnet bathymetry methodology
Use	- Integration in the regional DTM - To be sent to your regional co-ordinator	- Will be integrated in the HR layer of the bathymetry viewer - To be sent to Benoit Loubrieu,Cecile Pertuisot (Ifremer), George Spoelstra (GGSGC)
Visibility	Connected to Sextant API => visible from EMODnet website	Only visible through Bathymetry Viewer / HR layer
Access	No direct access to the DTMs for the end users DTMs are stored at each partners	Public downloading through the EMODnet viewer DTMs stored on a centralised cloud

Downloading is made direclty from the bathymetry viewer:

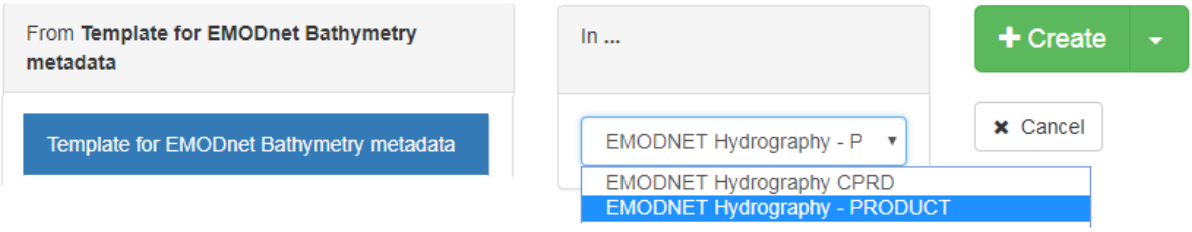


The guidelines to edit the HR-DTMs metadata description in Sextant are identical to the guidelines for the cDTMs metadata, the only difference stands in the selection of the dedicated catalogue when editing the EMODnet Bathymetry template:

To create a new metadata set, a dedicated metadata template has been designed for the purpose of EMODnet projects. To use it, follow the instructions below.

Select "New metadata" in the menu “Administration”. A window appears:

- As Template, select "Template for EMODnet Bathymetry metadata"
- As "In", select the appropriate catalogue "EMODnet hydrography - **PRODUCT**" catalogue



5. Globe for pre-processing and gridding of bathymetry data sets

For the project, Ifremer provides the Globe software for the production (1) of single DTMs by data providers and (2) of merged DTMs by regional coordinators.

During the first year of the project, DTMs processing is focused on the production of single DTMs, one per each dataset, by all data providers.
For supporting this action, a training workshop was given by Ifremer in September 2021: a first half day for a general presentation of the Globe software and the dedicated tools for HRSM project, and a second half day for an online training based on standard datasets and time of exchanges between data providers and Globe team

The training focused on the following main items :
- (1) reminding the methodology adopted by EMODnet Bathymetry for generating DTMs,
- (2) how to process sounding datasets described in the CDI infrastructure ? what are the appropriate Globe tools for that purpose ?
- (3) how to process composite DTMs described in the Sextant CPRD catalogue ? what are the appropriate Globe tools for that purpose ?
- (4) general presentation of helpful Globe tools for the project.

The slides below were the basis of the training workshop and provide to the data providers the guidelines for gridding of single bathymetry data sets.

EMODnet Bathymetry - HRSM, September 2021, Brest Globe training

HRSM, 2 types of data sources :

- **Flow 1 : Sounding data files** : CDI description + gridding in Globe
- **Flow 2 : CPRD files** : Sextant description + import and reproject in Globe

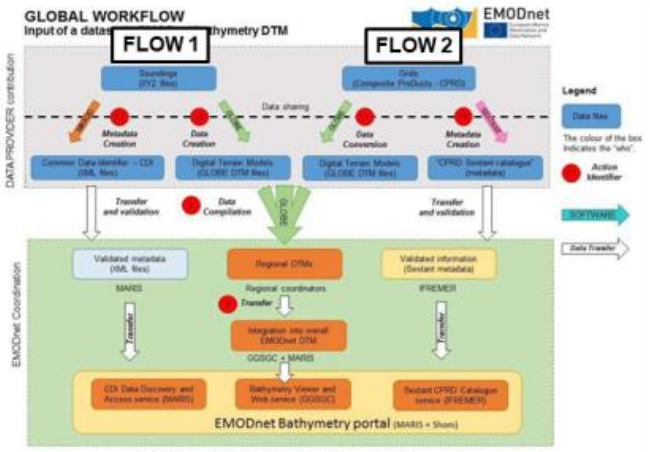


Image: DTM Workflow for EMODnet HRSM and new project

- **Flow 1 : Sounding files / Observed data**
  - Metadata are described in the CDI
  - A Multi layer grid is processed based on the sounding data
    - Latitude /Longitude coordinates, no projection
    - Grid spacing : 1/16, 1/32,… arc minute, according to the data resolution
    - For each pixel, layers :
      - Gridded bathymetry = mean depth of all soundings
      - Min and ax depths are recorderd
      - Satandard deviation
      - Number of soundings in the pixel
      - CDI Id, in order to link to the data sources metadata
    - Grids are reduced to 1/16 arc minute grid for integration on the regional DTMs

- **Flow 2 : Composite product CPRD / Pre-processed grid**
  - Metadata are described in the Sextant catalog « CPRD »
  - Original grids are converted into the EMODnet format :
    - Latitude /Longitude coordinates, no projection. (conversion required when the pre-processed grid is projected).
    - Grid spacing : 1/16, 1/32,… arc minute, according to the pre-processed grid resolution
    - For each pixel, only 2 layers :
      - Gridded bathymetry : interpolated from the original grid
      - CPRD Id, in order to link to the Sextant metadata

1 : Soundings files

file for training : CDI_extract_essnaut2009.csv

Flow 1 : Soundings files / Observed data

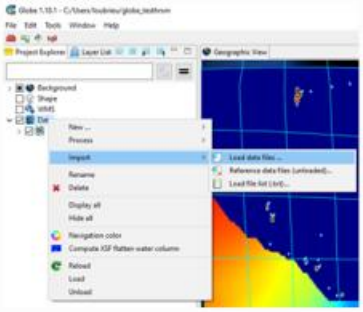
Input files = csv / ascii files of soundings

Latitude Longitude Depth

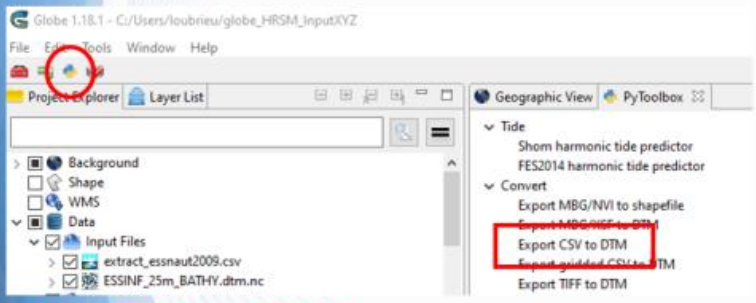
47.57773733706089,-7.569250567854567,-706.4299829006195
47.57764585113019,-7.569313096662855,-704.3799951076508
47.57759111946973,-7.569347055671392,-704.2000024318695

Loading in Globe :

right click Data/Import/load data files

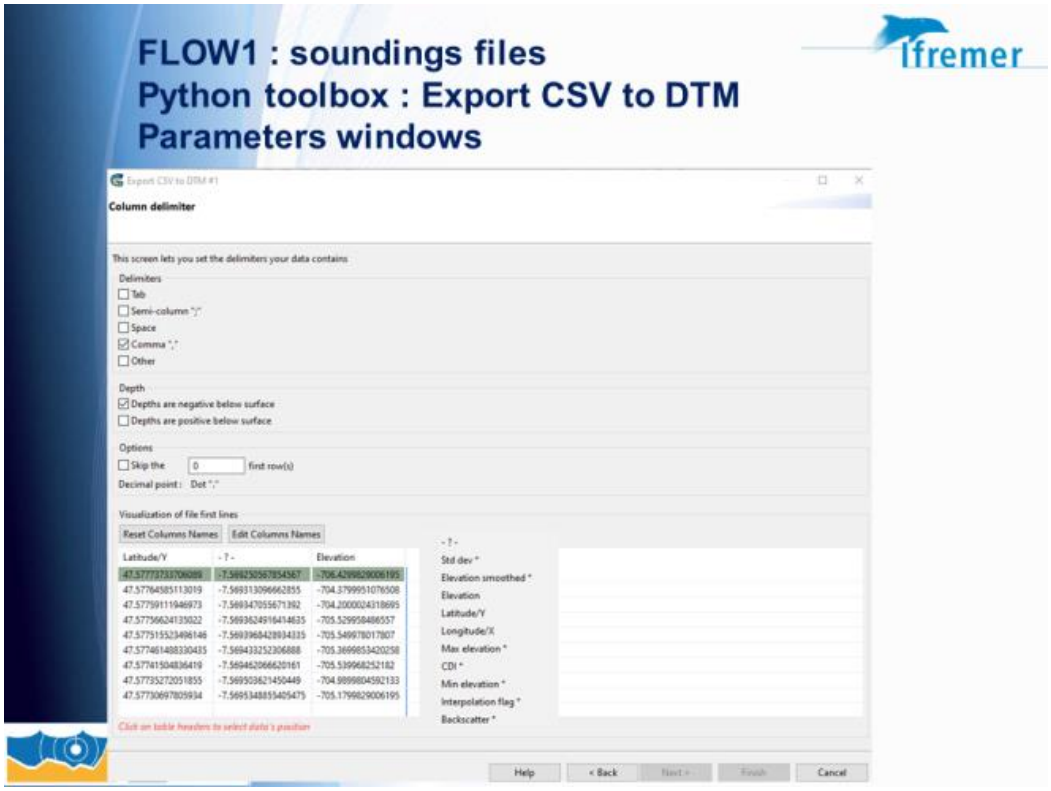


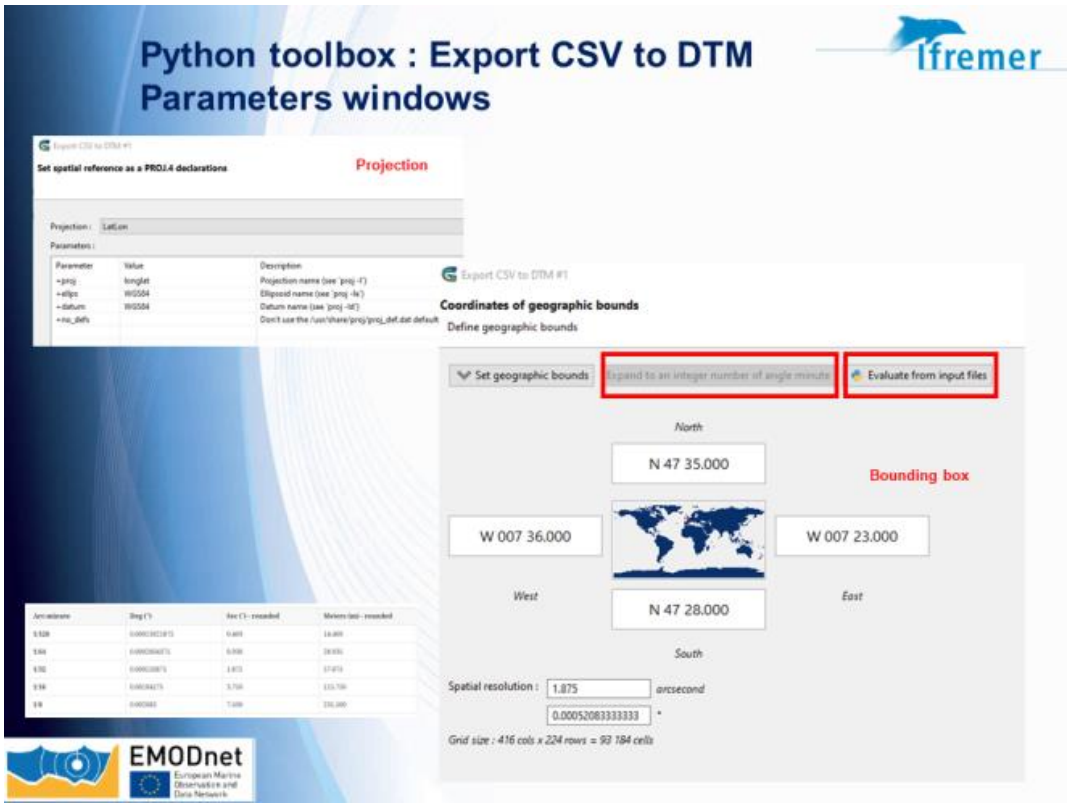
Flow 1 : Soundings files processed into a DTM :
Python toolbox : Export CSV to DTM

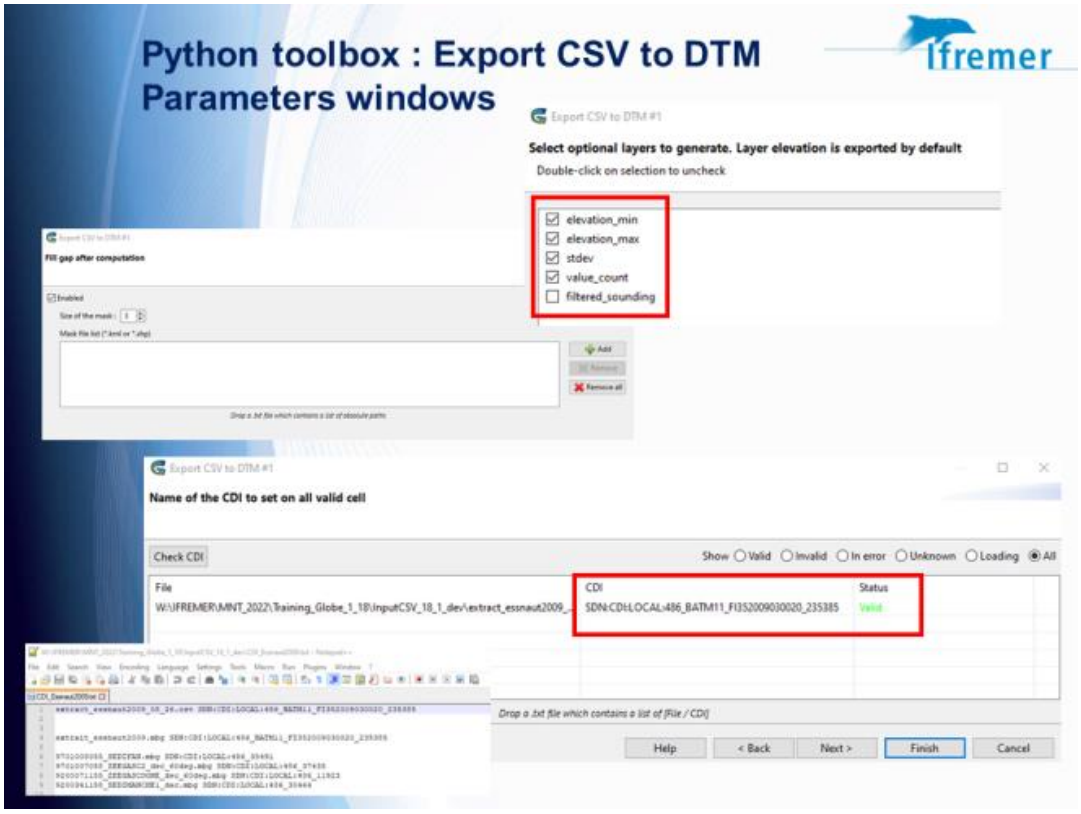


Required : CSV file, CDI Id

Flow 1 : Soundings files processed into a DTM :
Python toolbox : Export CSV to DTM


FLOW1 : soundings files
Python toolbox : Export CSV to DTM
Parameters windows
Ifremer
Column delimiter
This screen lets you set the delimiters your data contains
Delimiters
Tab
Semi-column ";"
Space
Comma ","
Other
Depth
Depths are negative below surface
Depths are positive below surface
Options
Skip the 0 first row(s)
Decimal point : Dot "."
Visualization of file first lines
Reset Columns Names
Edit Columns Names
Latitude/Y
- ? -
Elevation
Std dev *
Elevation smoothed *
Elevation
Latitude/Y
Longitude/X
Max elevation *
CDI *
Min elevation *
Interpolation flag *
Backscatter *
Help
< Back
Next >
Finish
Cancel


Python toolbox : Export CSV to DTM
Parameters windows
Ifremer
Set spatial reference as a PROJ.4 declarations
Projection
Projection :
Parameters :
Parameter
Value
Description
Export CSV to DTM #1
Coordinates of geographic bounds
Define geographic bounds
Set geographic bounds
Expand to an integer number of angle minute
Evaluate from input files
North
N 47 35.000
Bounding box
W 007 36.000
W 007 23.000
West
East
N 47 28.000
South
Spatial resolution : 1.875 arcsecond
0.00052083333333 °
Grid size : 416 cols x 224 rows = 93 184 cells
EMODnet
European Marine Observation and Data Network


Python toolbox : Export CSV to DTM
Parameters windows
Ifremer
Export CSV to DTM #1
Select optional layers to generate. Layer elevation is exported by default
Double-click on selection to uncheck
elevation_min
elevation_max
stdev
value_count
filtered_sounding
Fill gap after computation
Export CSV to DTM #1
Name of the CDI to set on all valid cell
Check CDI
Show Valid Invalid In error Unknown Loading All
File
CDI
Status
Drop a .txt file which contains a list of [file / CDI]
Help
< Back
Next >
Finish
Cancel


Ifremer
2 : Composite product CPRD
(pre-processed grid)
file for training : CPRD_ESSINF_inputgridXYZ.csv
EMODnet

- **Flow 2 : Composite product CPRD (pre-processed grid)**

Input files = gridded csv files

Regular coordinates : grid points are aligned

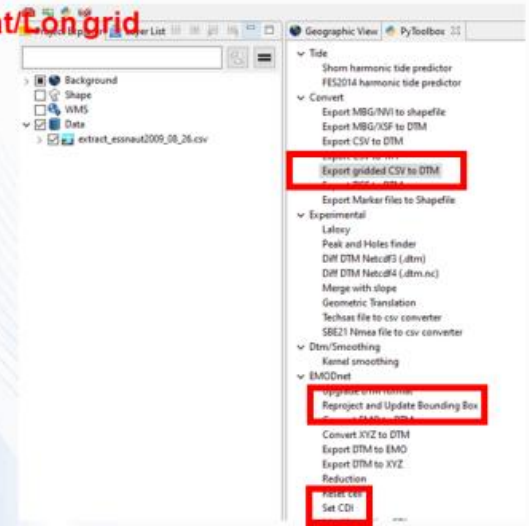
Projected XY coordinates + depth

-384511.98712828 4016812.11739030;-359.15
-384461.98712828 4016812.11739030;-350.55
-384436.98712828 4016812.11739030;-350.95

- **Flow 2 : Composite product CPRD (pre-processed grid)**

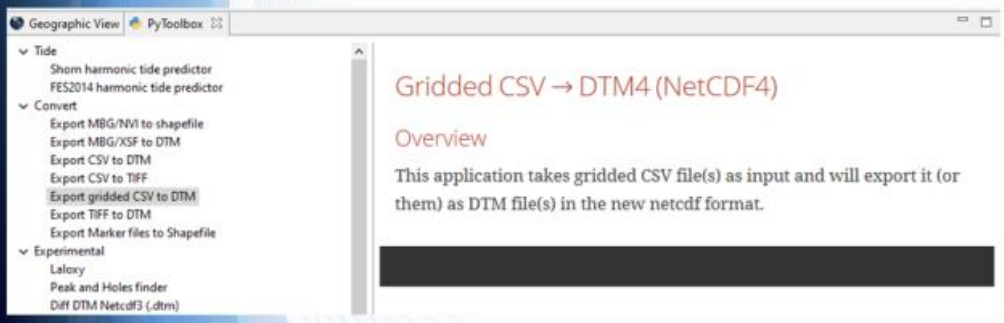
3 steps in the Python toolbox :

- **Export gridded CSV to DTM**
- **Set CDI**
- **Reproject into a Lat/Lon grid**



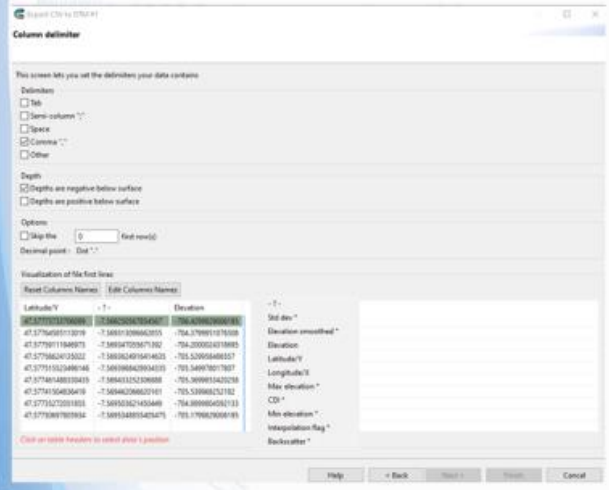
- Flow 2 : Composite product CPRD (pre-processed grid)

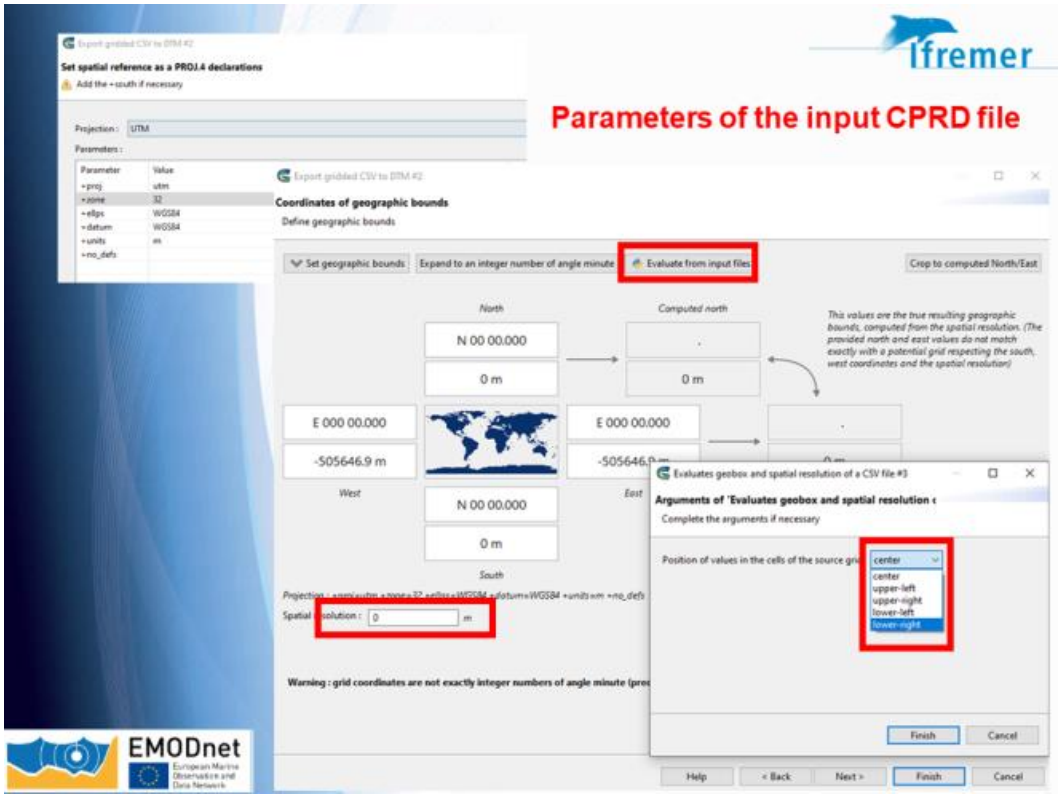
Step 1 : Export gridded CSV to DTM

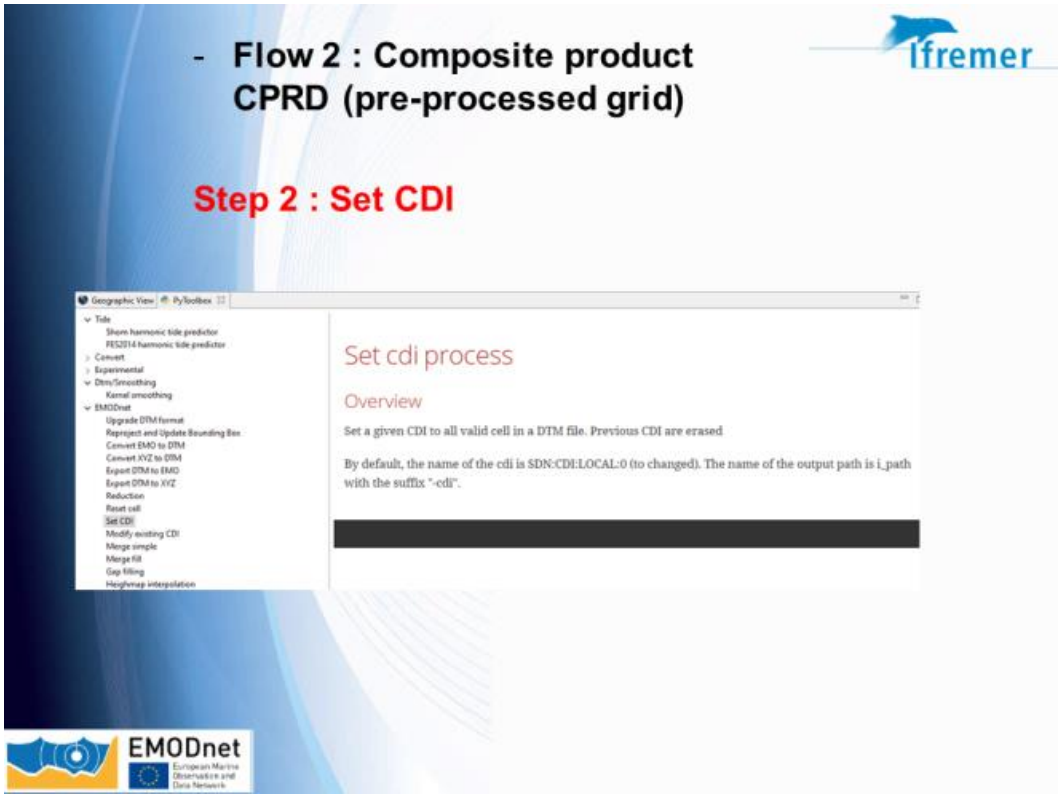


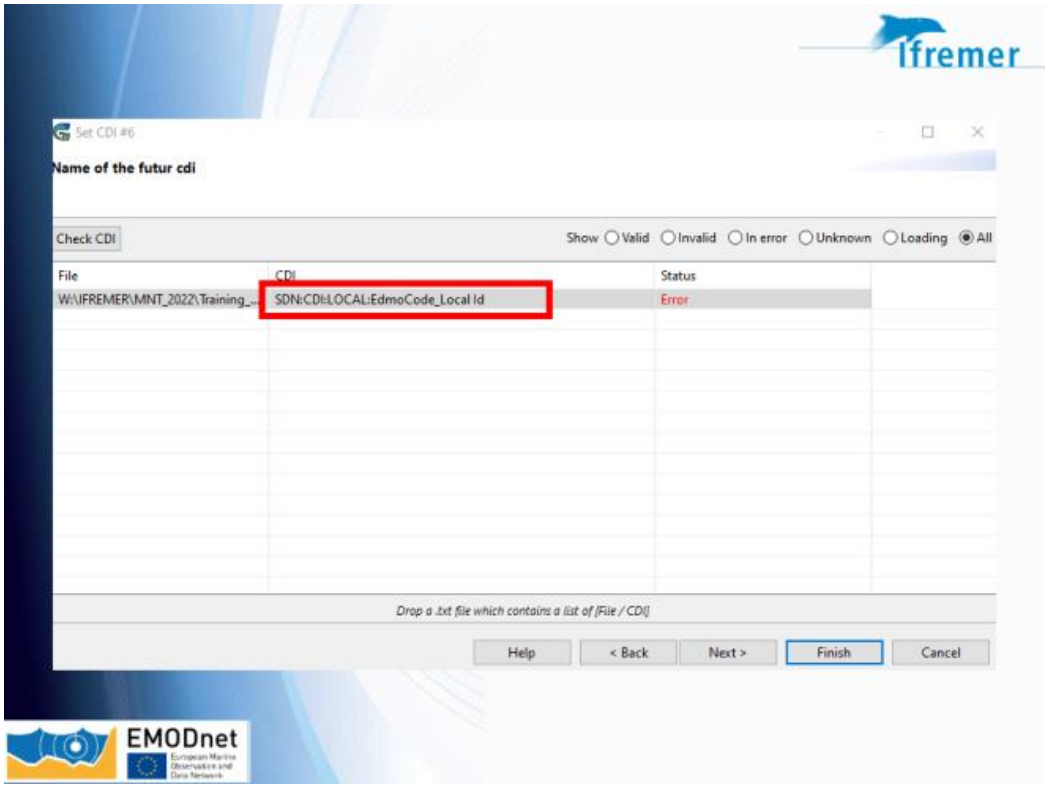
- Flow 2 : Composite product CPRD (pre-processed grid)

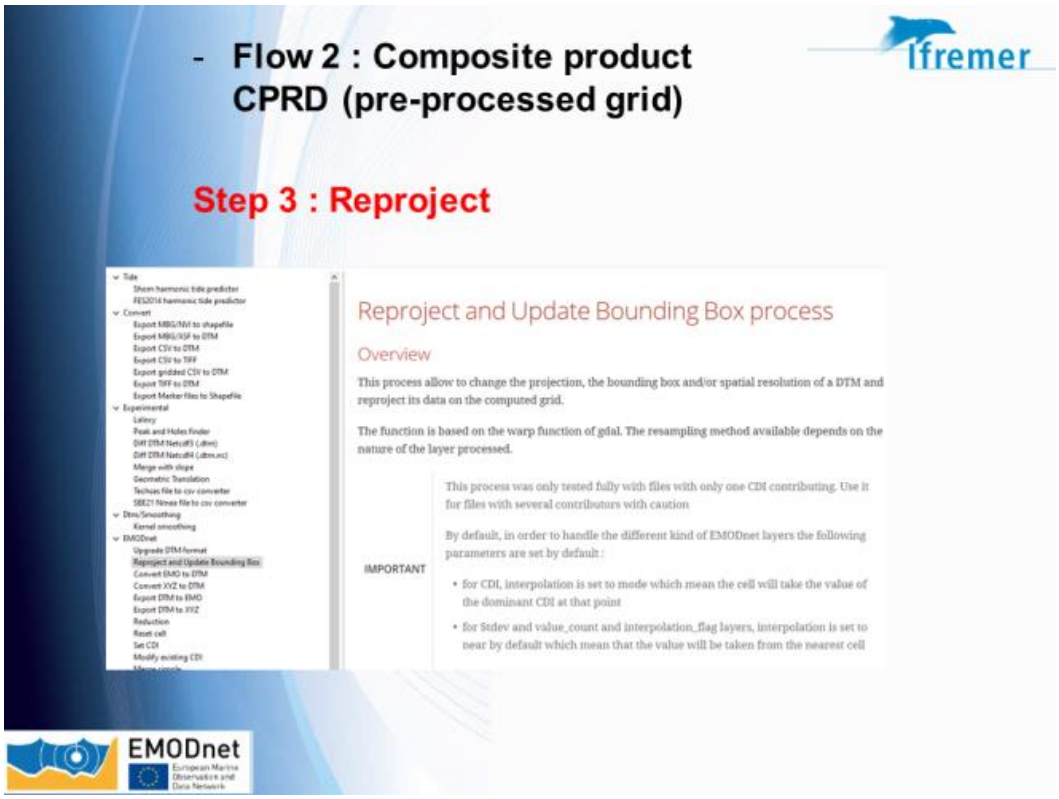
Step 1 : Export gridded CSV to DTM

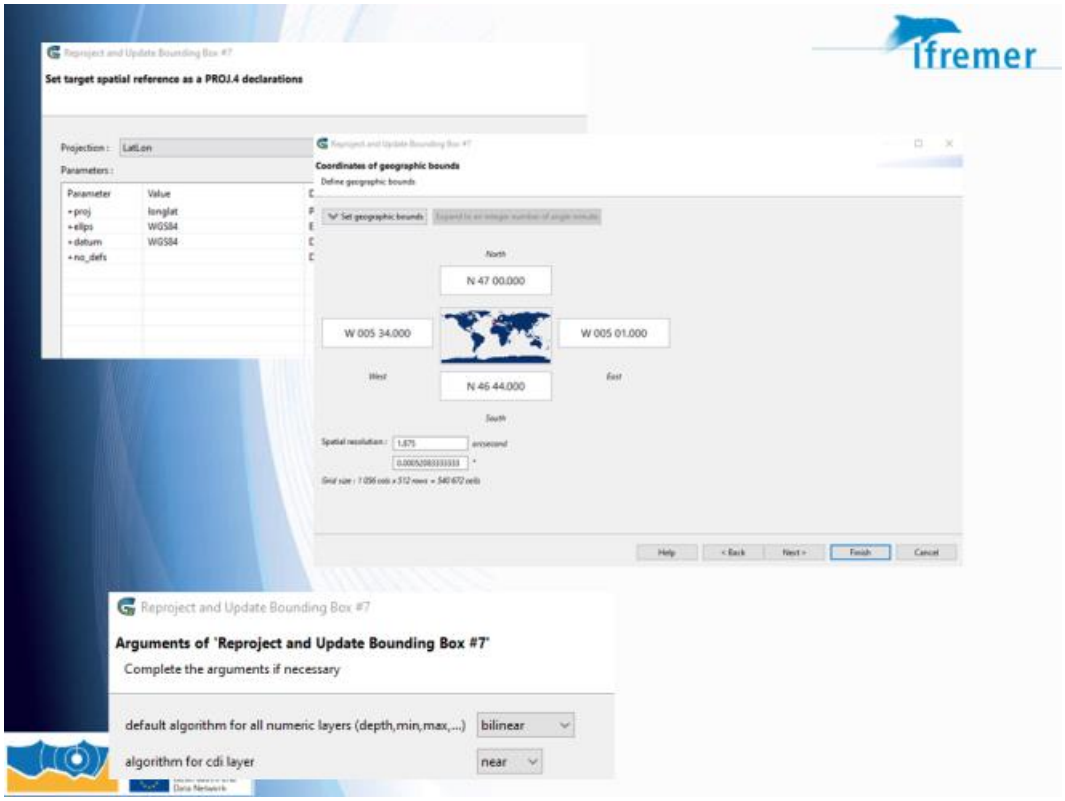


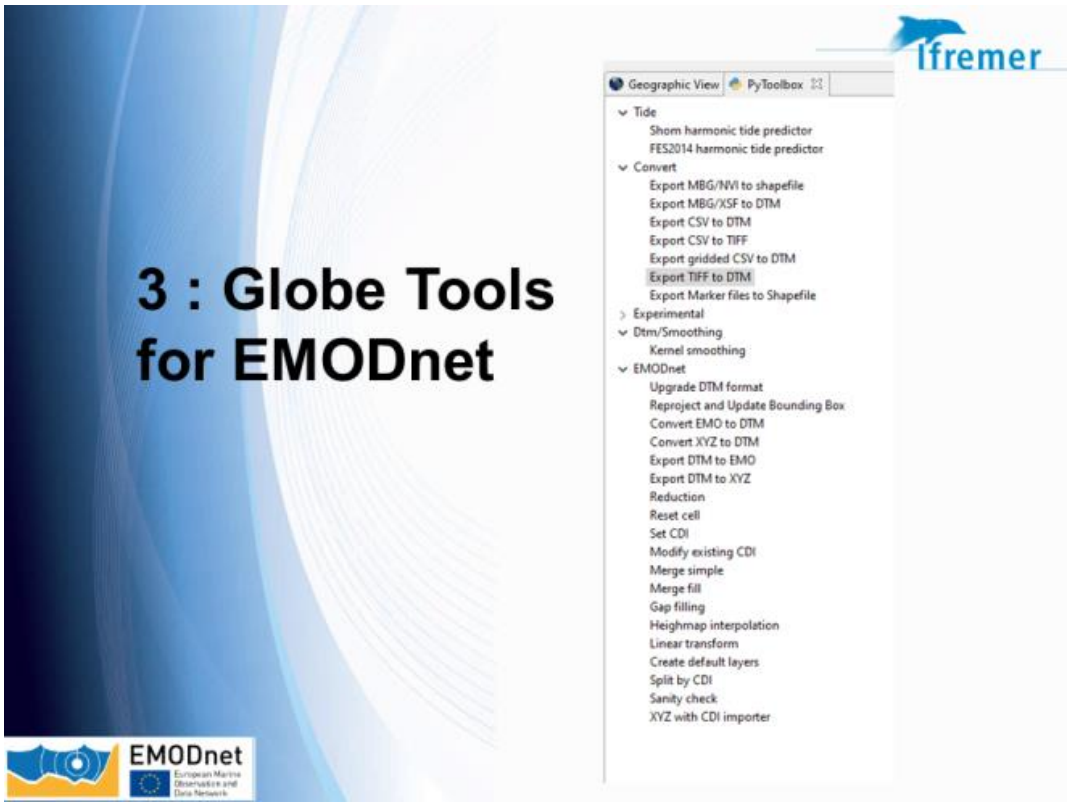

Parameters of the input CPRD file
Set spatial reference as a PROJ.4 declarations
Coordinates of geographic bounds
Define geographic bounds
Set geographic bounds
Expand to an integer number of angle minute
Evaluate from input files
Crop to computed North/East
North
Computed north
N 00 00.000
0 m
E 000 00.000
-505646.9 m
West
East
South
Spatial resolution :
Warning : grid coordinates are not exactly integer numbers of angle minute
Arguments of 'Evaluates geobox and spatial resolution
Complete the arguments if necessary
Position of values in the cells of the source
center
upper-left
upper-right
lower-left
lower-right
Finish
Cancel
Help
< Back
Next >
EMODnet


- Flow 2 : Composite product CPRD (pre-processed grid)
Step 2 : Set CDI
Set cdi process
Overview
Set a given CDI to all valid cell in a DTM file. Previous CDI are erased
By default, the name of the cdi is SDN:CDI:LOCAL:0 (to changed). The name of the output path is i_path with the suffix "-cdi".
EMODnet

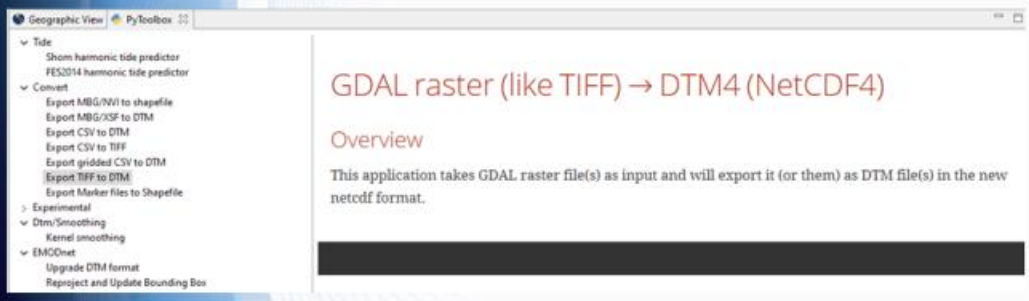

Set CDI #6
Name of the futur cdi
Check CDI
Show Valid Invalid In error Unknown Loading All
File
CDI
Status
W:\IFREMER\MNT_2022\Training_...
SDN:CDI:LOCAL:EdmoCode_Local Id
Error
Drop a .txt file which contains a list of [File / CDI]
Help
< Back
Next >
Finish
Cancel
EMODnet


- Flow 2 : Composite product CPRD (pre-processed grid)
Step 3 : Reproject
Reproject and Update Bounding Box process
Overview
This process allow to change the projection, the bounding box and/or spatial resolution of a DTM and reproject its data on the computed grid.
The function is based on the warp function of gdal. The resampling method available depends on the nature of the layer processed.
IMPORTANT
This process was only tested fully with files with only one CDI contributing. Use it for files with several contributors with caution
By default, in order to handle the different kind of EMODnet layers the following parameters are set by default :
• for CDI, interpolation is set to mode which mean the cell will take the value of the dominant CDI at that point
• for Stdev and value_count and interpolation_flag layers, interpolation is set to near by default which mean that the value will be taken from the nearest cell
EMODnet

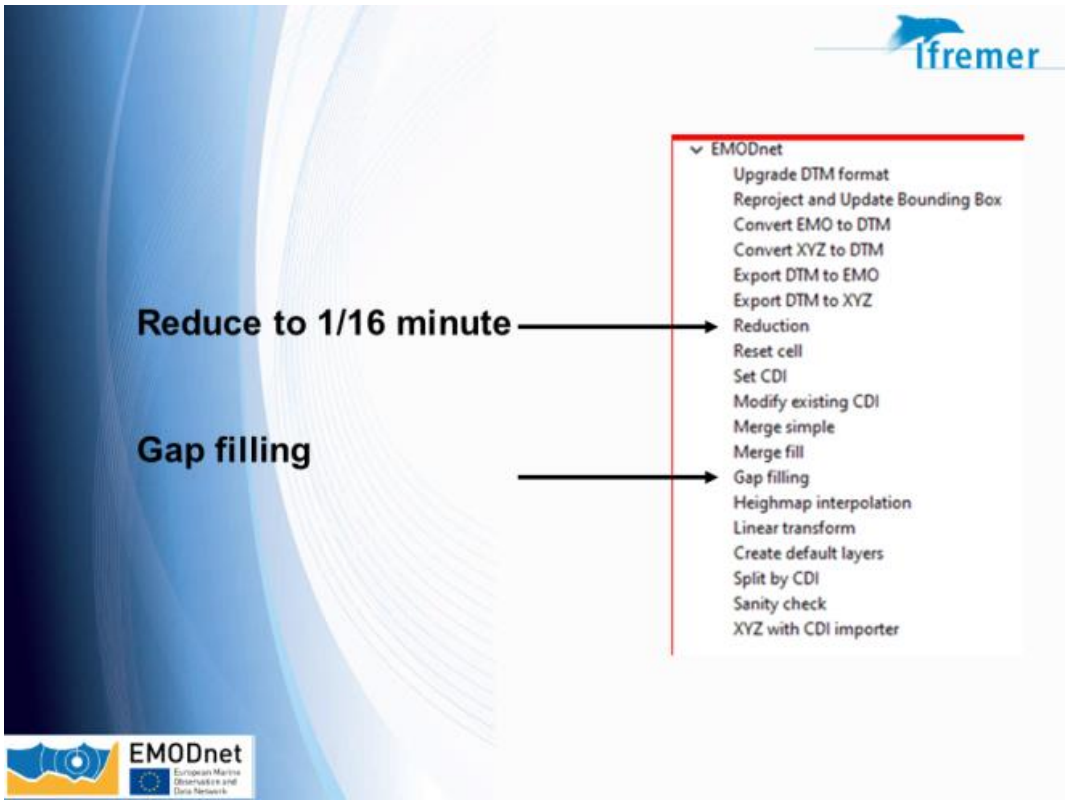

Ifremer
Set target spatial reference as a PROJ.4 declarations
Projection : LatLon
Parameters :
Parameter
Value
+proj
longlat
+ellps
WGS84
+datum
WGS84
+no_defs
Coordinates of geographic bounds
Define geographic bounds
Set geographic bounds
North
N 47 00.000
W 005 34.000
W 005 01.000
West
East
N 46 44.000
South
Spatial resolution :
1.875
arcsecond
Help
< Back
Next >
Finish
Cancel
Reproject and Update Bounding Box #7
Arguments of 'Reproject and Update Bounding Box #7'
Complete the arguments if necessary
default algorithm for all numeric layers (depth,min,max,...)
bilinear
algorithm for cdi layer
near

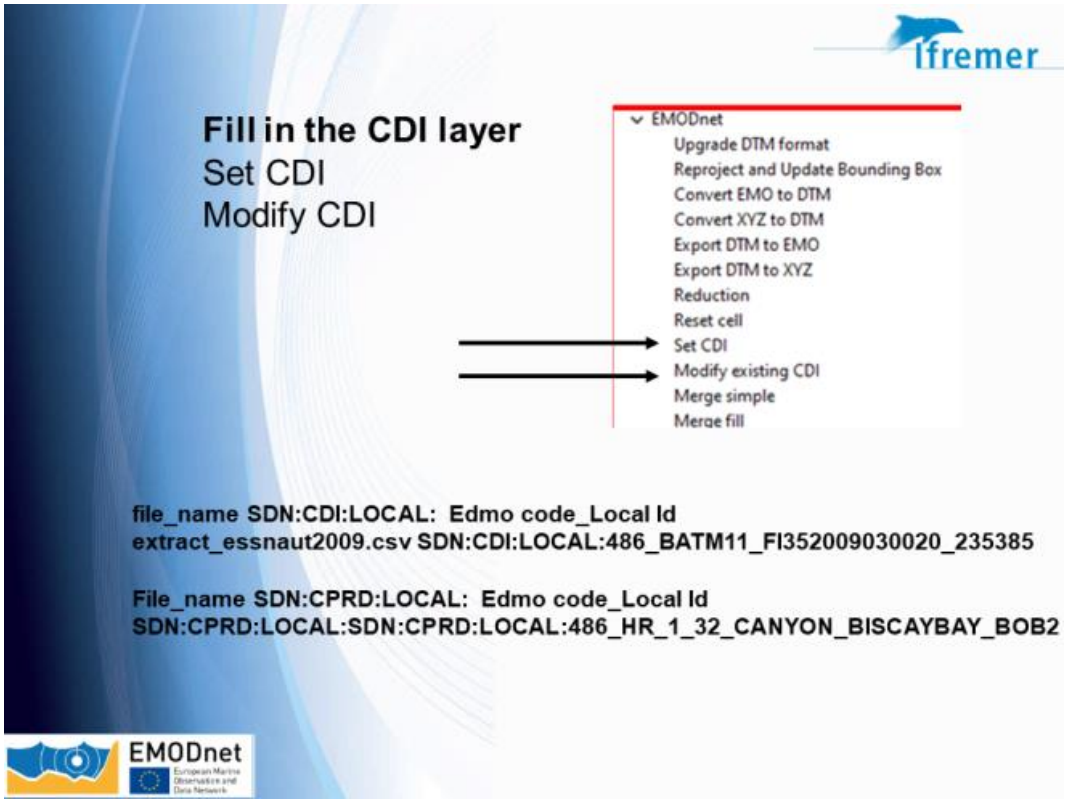

Ifremer
3 : Globe Tools for EMODnet
Geographic View
PyToolbox
Tide
Shom harmonic tide predictor
FES2014 harmonic tide predictor
Convert
Export MBG/NVI to shapefile
Export MBG/XSF to DTM
Export CSV to DTM
Export CSV to TIFF
Export gridded CSV to DTM
Export TIFF to DTM
Export Marker files to Shapefile
Experimental
Dtm/Smoothing
Kernel smoothing
EMODnet
Upgrade DTM format
Reproject and Update Bounding Box
Convert EMO to DTM
Convert XYZ to DTM
Export DTM to EMO
Export DTM to XYZ
Reduction
Reset cell
Set CDI
Modify existing CDI
Merge simple
Merge fill
Gap filling
Heighmap interpolation
Linear transform
Create default layers
Split by CDI
Sanity check
XYZ with CDI importer
EMODnet
European Marine Observation and Data Network

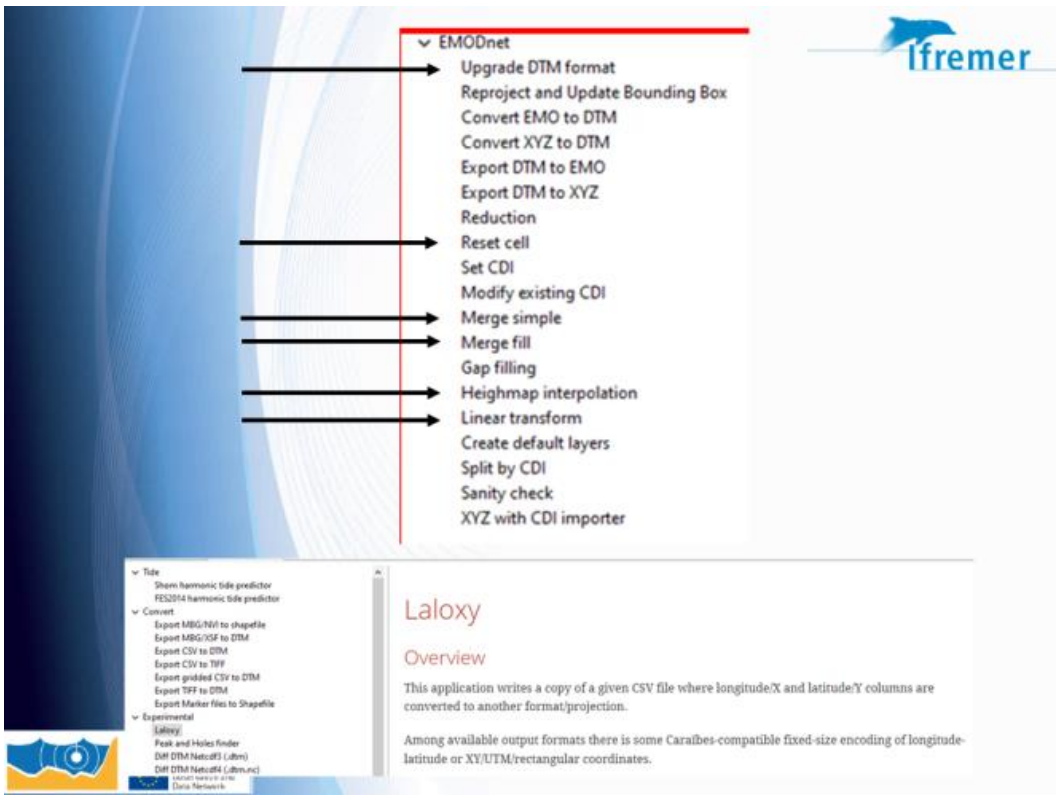
Geotiff to DTM

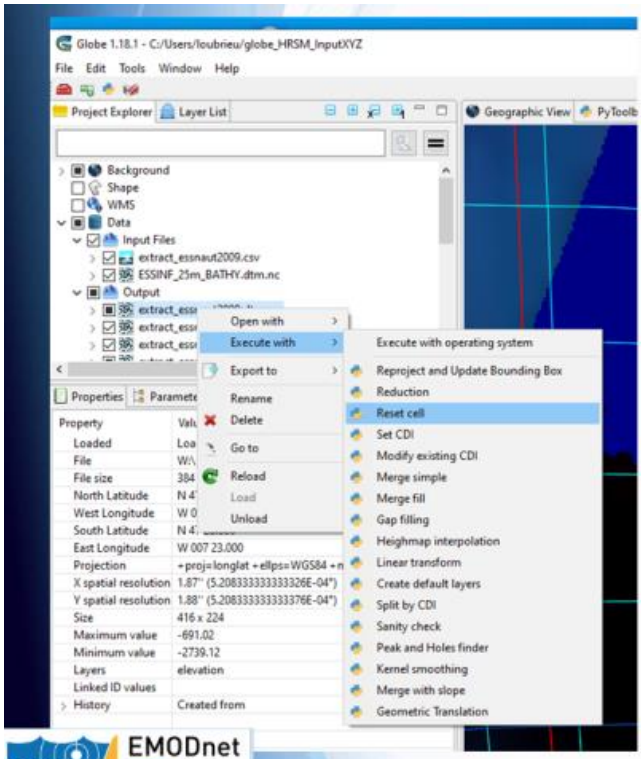


Set CDI is required after converting a GEOTIFF file into Globe DTM




Ifremer
Fill in the CDI layer
Set CDI
Modify CDI
EMODnet
Upgrade DTM format
Reproject and Update Bounding Box
Convert EMO to DTM
Convert XYZ to DTM
Export DTM to EMO
Export DTM to XYZ
Reduction
Reset cell
Set CDI
Modify existing CDI
Merge simple
Merge fill
file_name SDN:CDI:LOCAL: Edmo code_Local Id
extract_essnaut2009.csv SDN:CDI:LOCAL:486_BATM11_FI352009030020_235385
File_name SDN:CPRD:LOCAL: Edmo code_Local Id
SDN:CPRD:LOCAL:SDN:CPRD:LOCAL:486_HR_1_32_CANYON_BISCAYBAY_BOB2
EMODnet


Ifremer
EMODnet
Upgrade DTM format
Reproject and Update Bounding Box
Convert EMO to DTM
Convert XYZ to DTM
Export DTM to EMO
Export DTM to XYZ
Reduction
Reset cell
Set CDI
Modify existing CDI
Merge simple
Merge fill
Gap filling
Heighmap interpolation
Linear transform
Create default layers
Split by CDI
Sanity check
XYZ with CDI importer
Laloxy
Overview
This application writes a copy of a given CSV file where longitude/X and latitude/Y columns are converted to another format/projection.
Among available output formats there is some Caraïbes-compatible fixed-size encoding of longitude-latitude or XY/UTM/rectangular coordinates.



Access with right click