FRM4SOC-2 Hands—on workshop

Work package 2: Ocean colour database OCDB

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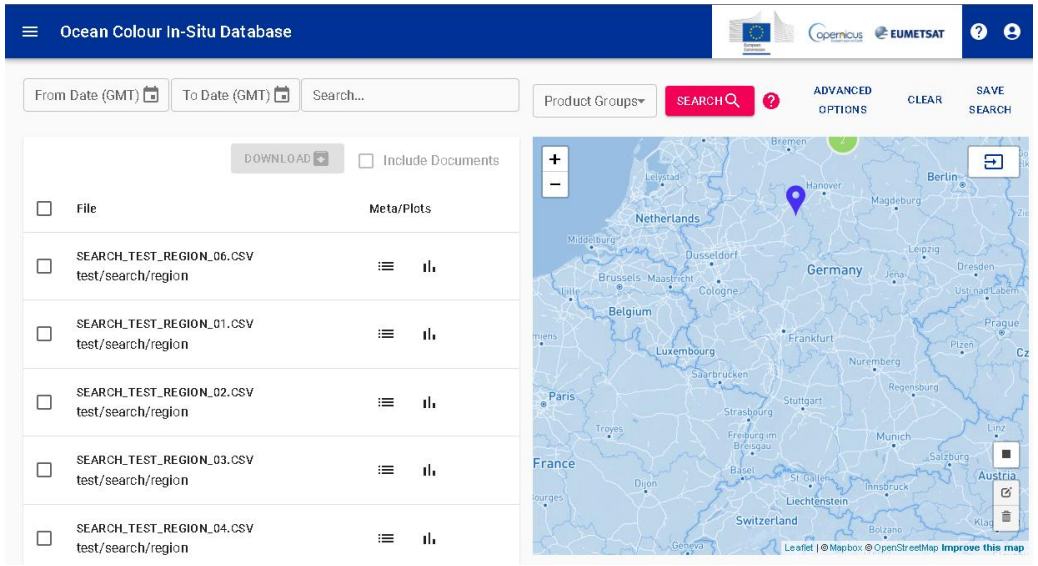
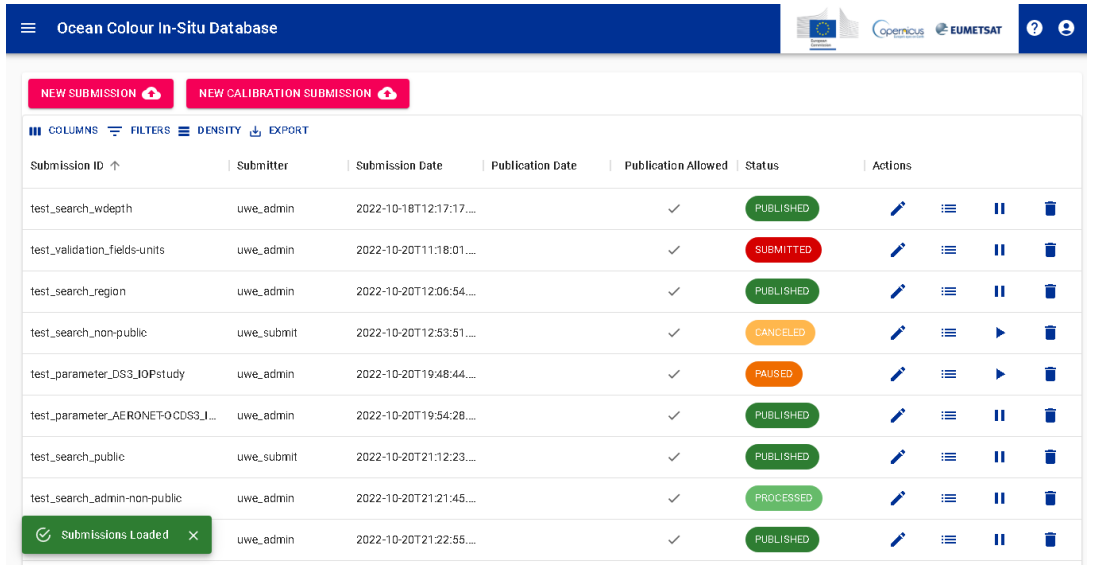
Funded by the European Union

Ocean colour in situ measurement database (OCDB) - Practical demonstrations

OCDB, besides FidRadDB and CP, is the third component of FRMOCnet.

It stores in situ measurement data, which are directly or indirectly related to ocean colour. The OCDB web application (ocdb.eumetsat.int) provides a user interface to download the data (left) as well as a user interface to submit (upload) in situ data (right):





FRMOCnet: **Fid**ucial **rad**iometer **d**ata**b**ase, **C**ommunity **P**rocessor and **Oc**ean Colour **d**ata**b**ase

Radiometer cal/char files

Demo 1
H. Lavigne
(Dialog only!)

OCDB

FidRadDB
Radiometer calibration and characterisation files

Not implemented yet:
Access to calibration files

CP
- ❑ Process radiance measurements
- ❑ Characterise and mark radiance values as (non-)fiducial measurements

Radiance measurements

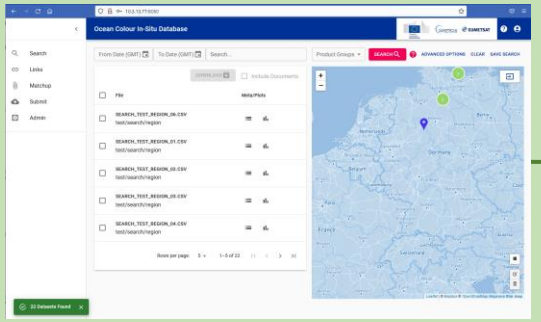
Demo 2 (Alexis Deru)

SEABASS file

- ❑ Radiance measurements (FRM and non-FRM) and
- ❑ other OC related insitu data

Demo 3

SEABASS file
(FRM flag to be implemented)



Demo 4

Search and download the submitted SEABASS files

Main search criteria for Demo 4:
- ❑ Spatial extent
- ❑ Temporal extent
- ❑ Parameter

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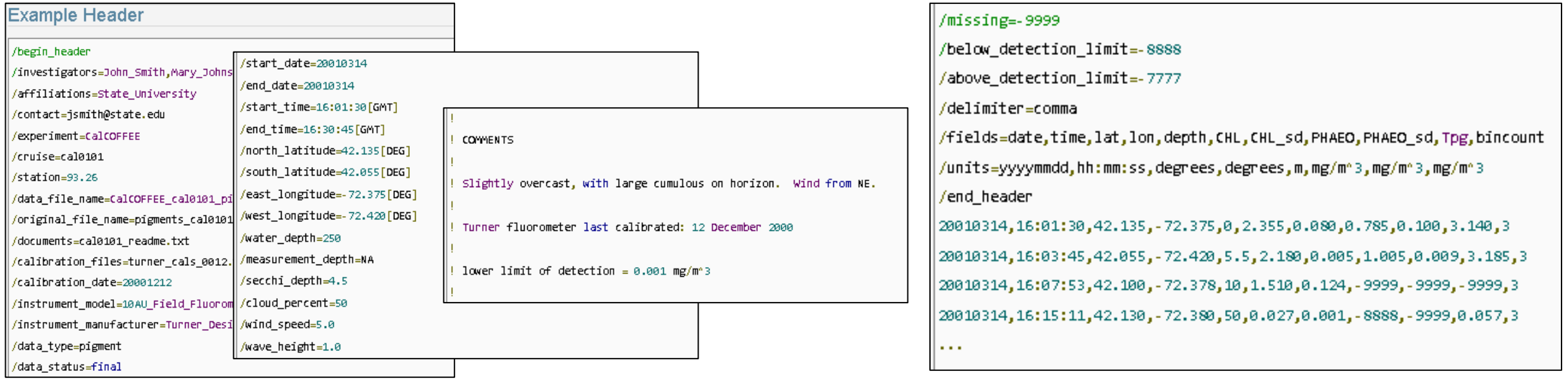
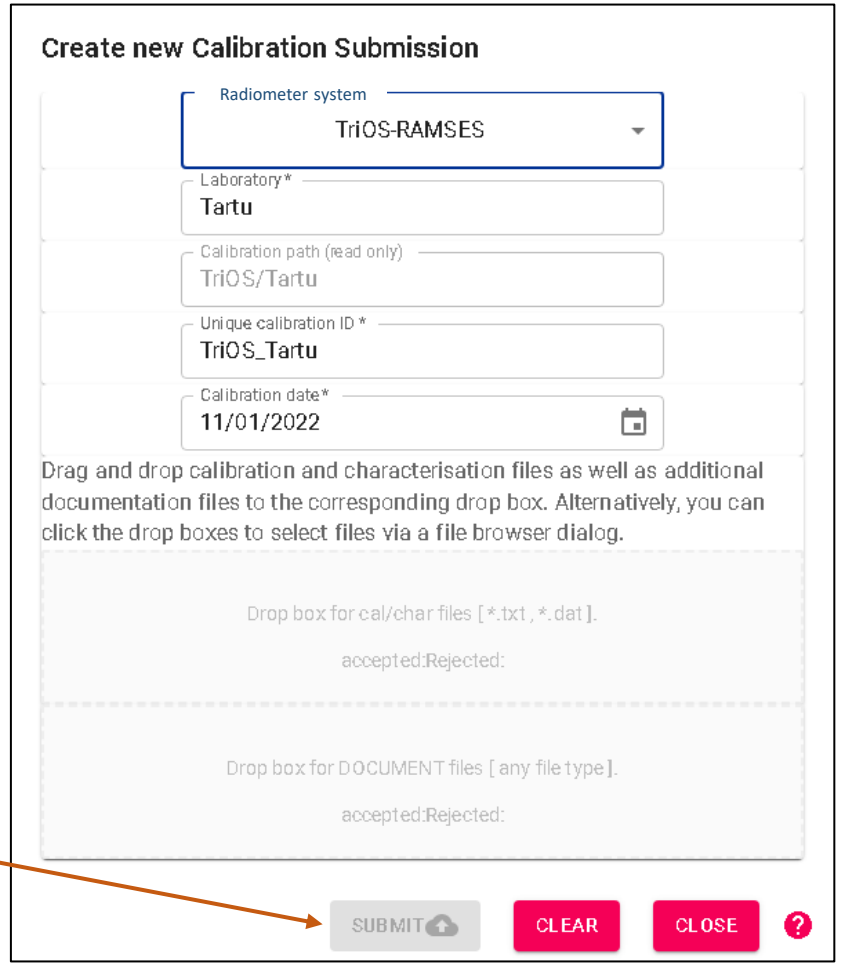
SEABASS file format (https://seabass.gsfc.nasa.gov/)

Description of the SEABASS file format:

- ❑ Metadata header elements: https://seabass.gsfc.nasa.gov/wiki/metadataheaders
- ❑ Standard fields and units: https://seabass.gsfc.nasa.gov/wiki/stdfields
- ❑ Example file: https://seabass.gsfc.nasa.gov/wiki/metadataheaders#Example%20Header



Demo 1: Upload calibration file to OCDB => See presentation by Héloïse Lavigne



Upload and validation is not implemented yet!

A strict syntax will be used for calibration file names:

- ❑ Radiometer,
- ❑ serial number,
- ❑ laboratory,
- ❑ calibration date and
- ❑ file type

Resulting in a file pattern such as:

Cal_[file type] _[Radiometer]_[SN]_[Lab]_[cal. Date]

Example:

Cal_RADCAL_SAM_81_CA_TartuObs_20220627

Demo 2: Create SEABASS files using Community processor

- ❑ See presentation given by Alexis Deru

SEABASS file created by Community Processor

```
/begin_header
!
! - - -
```

SEABASS file created by Community Processor (See demo in presentation by Alexis Deru)

```
! - - - - - - - - - - - - - - - - - - - -
! Conditional SEABASS metadata headers
! - - - - - - - - - - - - - - - - - - - -
!
! This header is obsolete and will raise a warning, which can be neglected!
/measurement_depth=0
!
! - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
! Optional but recommended SEABASS metadata headers
! - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
!
/calibration_date=NA
/cloud_percent=NA
/instrument_manufacturer=Satlantic
/instrument_model=HyperSAS
/secchi_depth=NA
/wave_height=NA
/wind_speed=2.9
!
! - - - - - - - - - - - - - - - - - -
! Optional SEABASS metadata headers
! - - - - - - - - - - - - - - - - - -
!
! This header is obsolete and will raise a warning, which can be neglected!
/original_file_name=Data/FICE2/NASA/L0/FRM4SOC2_FICE22_NASA_20220719_100000.raw
/data_status=NA
```

```
! - - - - - - - - -
! Comments from CP
! - - - - - - - - -
!
! platform=AAOT
! HyperInSPACE vers = 1.1.1
! HyperInSPACE Config = FICE2_NASA.cfg
! SZA Filter = Off
! SZA Max = 70.0
! Rotator Home Angle = 0.0
! Rotator Delay = 1.0
! Pitch/Roll Filter = On
! Max Pitch/Roll = 5.0
! Rotator Min/Max Filter = On
! Rotator Min = -126.0
! Rotator Max = 52.0
! Rel Azimuth Filter = On
! Rel Azimuth Min = 89.0
! Rel Azimuth Max = 136.0
```

:

```
! Remove Negatives = On
! DateTime Processed = Fri Nov 25 10:18:03 2022
! Example of HyperSAS with pySAS robot.
! Quality definitions for all columns  named *_quality:
0=non-FR measurement, 1=FR measurement
```

SEABASS file created by Community Processor (See demo in presentation by Alexis Deru)

Sample file data block:

Metadata

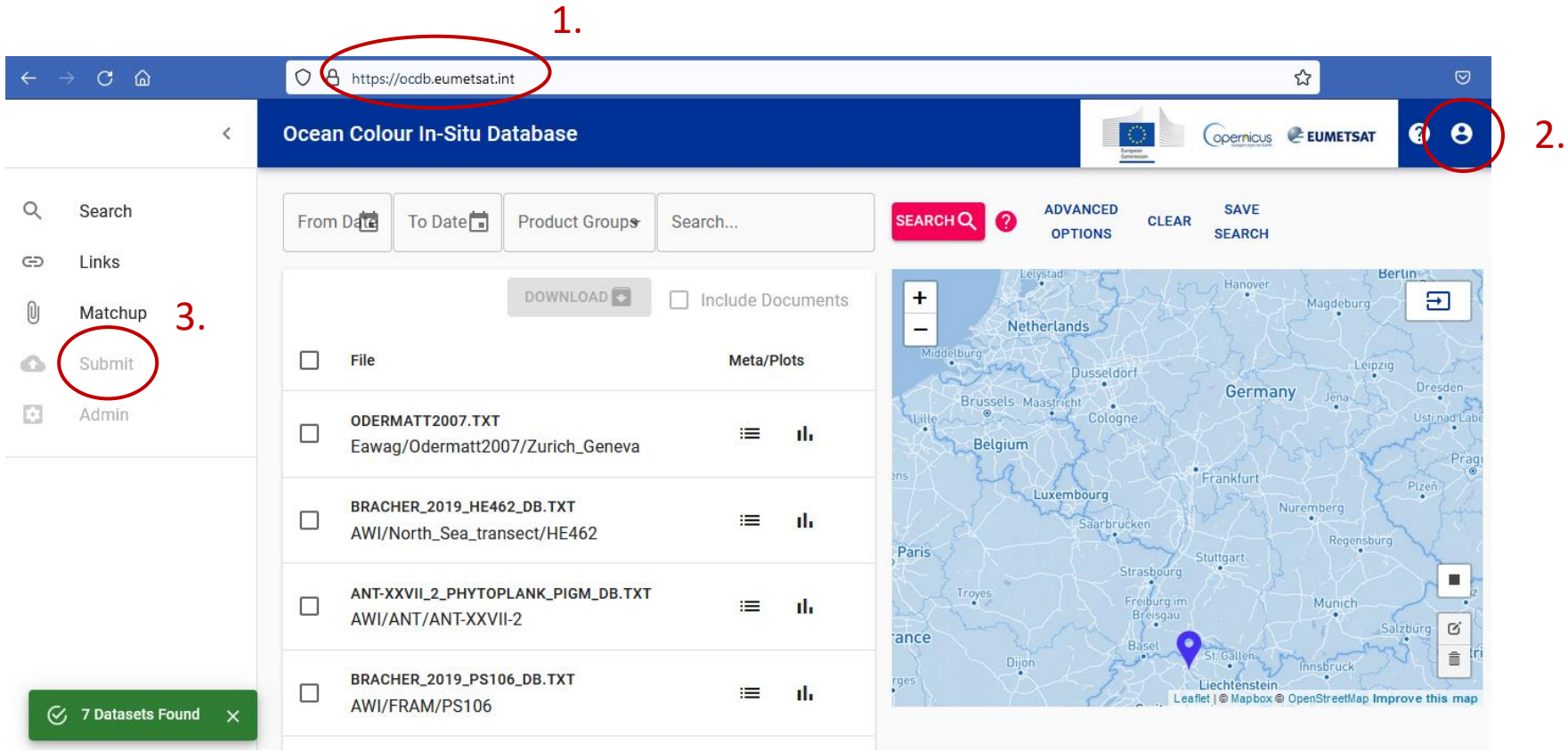
Data

```
! Quality definitions for all columns  named *_quality: 0=non-FR measurement, 1=FR measurement
/fields=date,time,lat,lon,RelAz,SZA,AOT,cloud,wind,Rrs353.2,Rrs356.5,Rrs359.8,
Rrs353.2_unc,Rrs356.5_unc,Rrs359.8_unc,Rrs353.2_quality,Rrs356.5_quality,Rrs359.8_quality
/units=yyyymmdd,hh:mm:ss,degrees,degrees,degrees,degrees,unitless,%,m/s,1/sr,1/sr,1/sr,unitless
,unitless,unitless,unitless,unitless,unitless
/end_header
20220719,10:31:27,45.3142,12.5083,89.1,26.2,0.1129,0,2.9,0.004811,0.004965,0.004929,0.303953,0.
300520,0.297044,0,-999,1
```

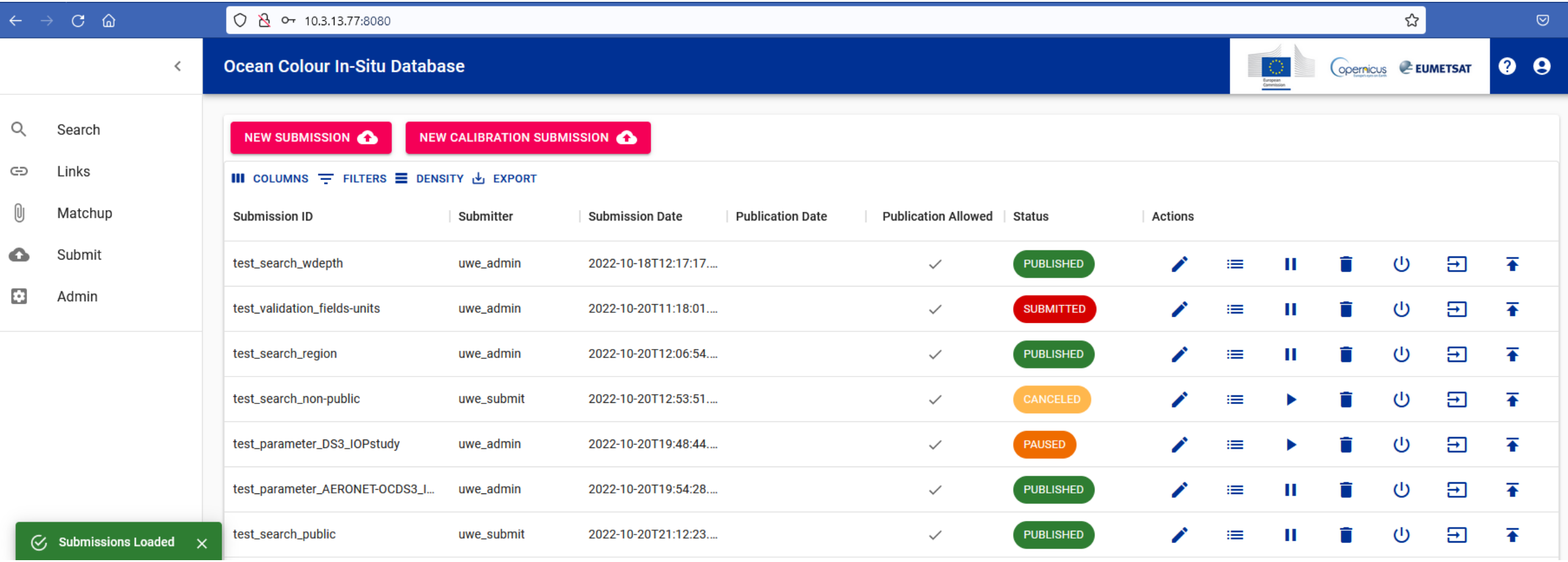
For validation purpose: Is -999 (Missing data) a reasonable value for quality columns?

Demo 3: Upload Community Processor output file to OCDB

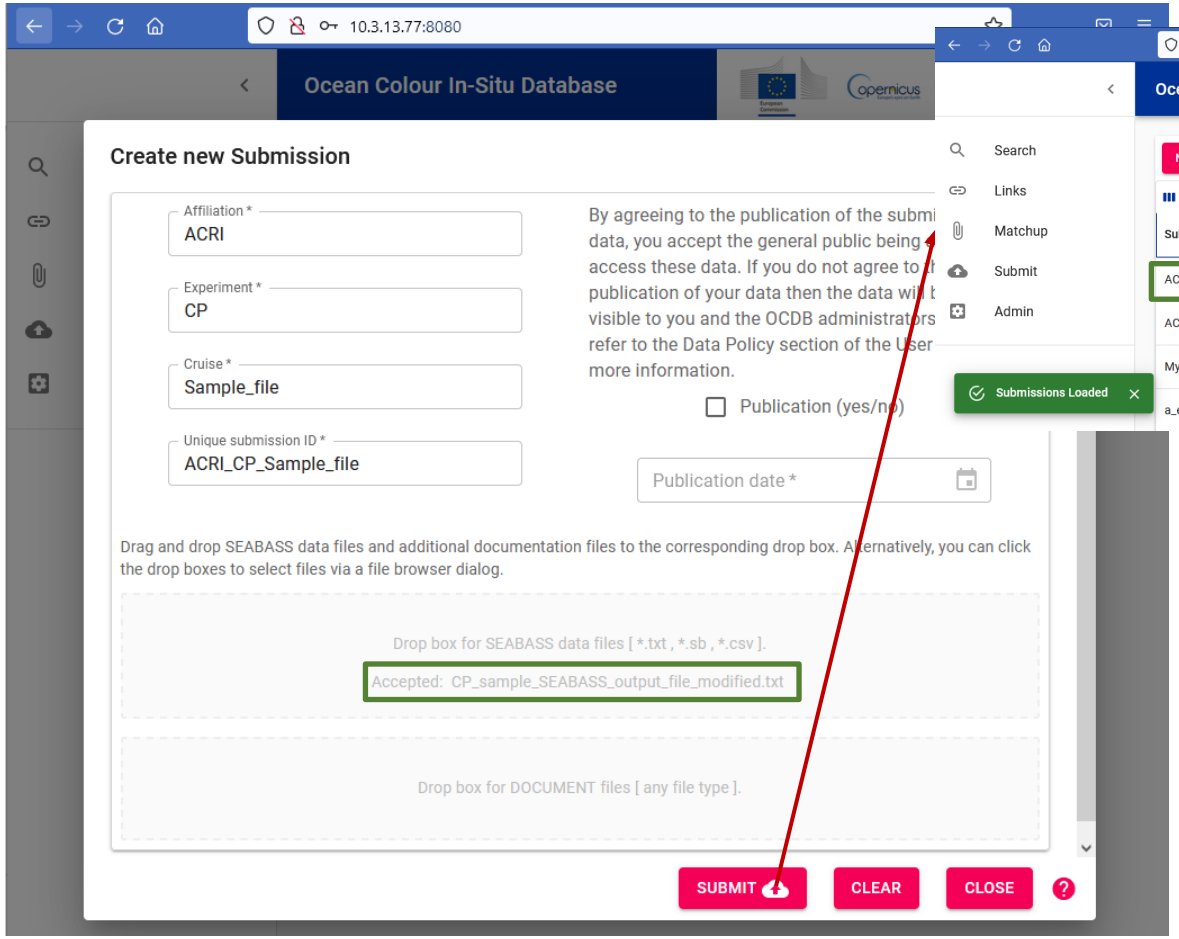
1. Open OCDB web application: ocdb.eumetsat.int
2. Login
3. Choose Submit

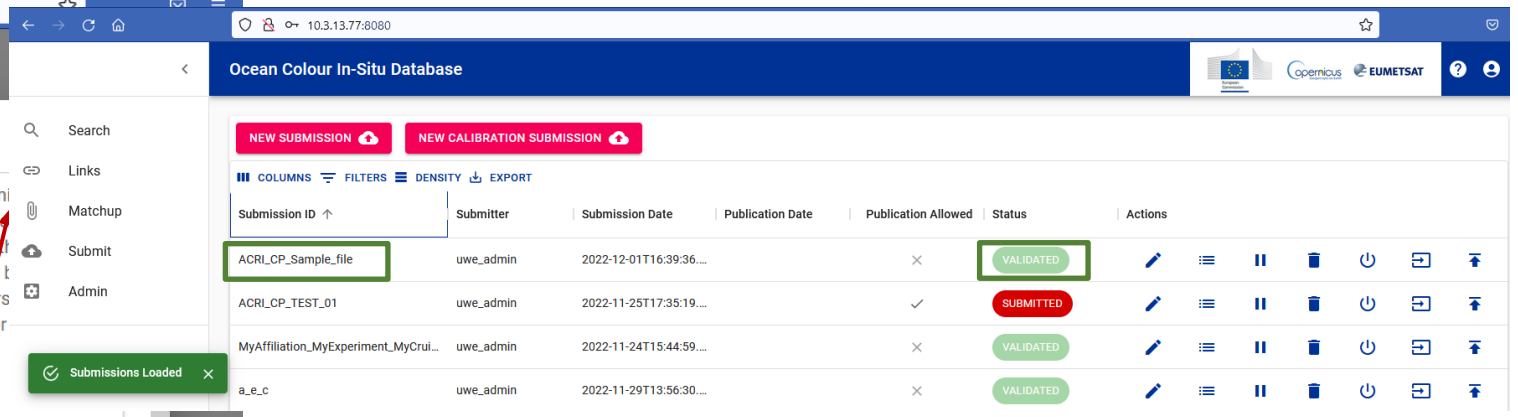


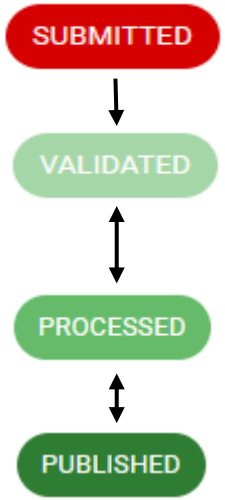
Demo 3: Upload Community Processor output file to OCDB



Demo 3: Upload Community Processor output file to OCDB







: **Not valid** due to crucial errors, e. g. Number of fields, units and data per row are not equal.

: Either **valid** with warnings (unknown field) or without warnings. **Not yet imported to database!**

: Admin - Data will be imported to **OCDB** database. **Not yet publicly available.**

: Admin - Data will be made publicly available.

Demo 3: Upload Community Processor output file to OCDB

1. Submit a valid SEABASS file

   => Status

2. Submit invalid SEABASS files

   => Status

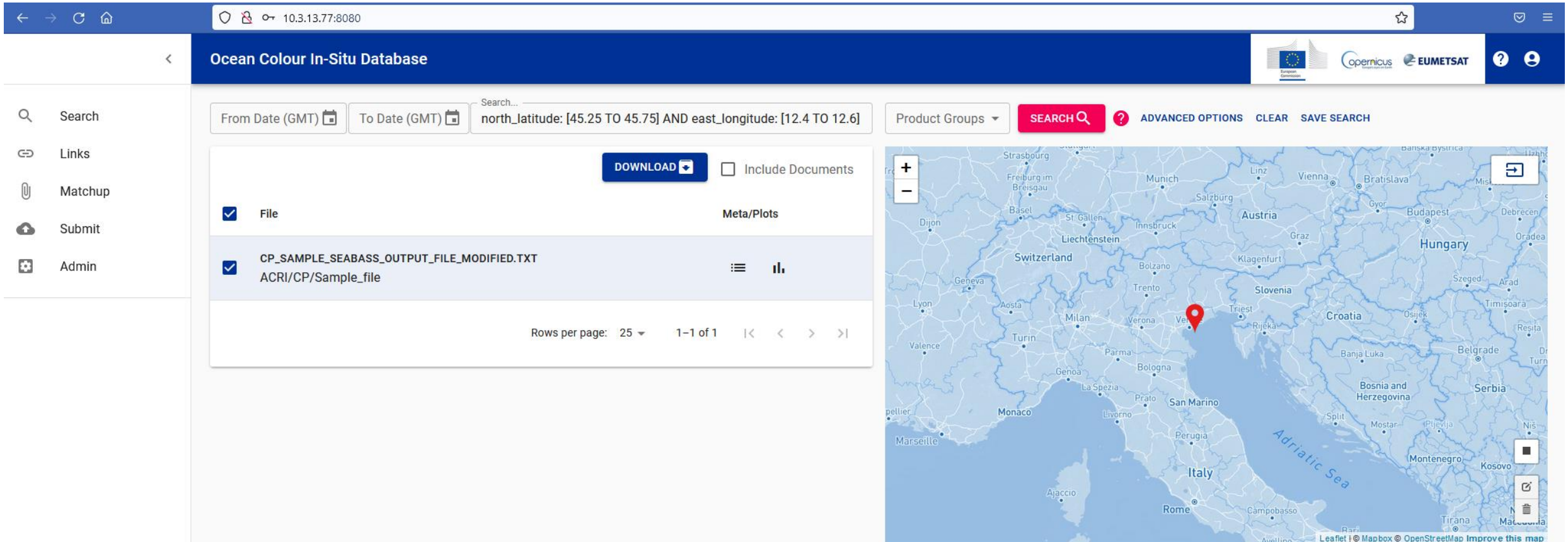
Demo 4: Download previously uploaded files - Search criteria spatial extent

1. Spatial extent:

Searching by spatial extent, please drag a rectangle (relation overlap) on the map or, e. g. when searching for fixed stations, specify a range for any longitude (W/E) and/or any latitude (N/S), e. g. search all totally contained datasets by:

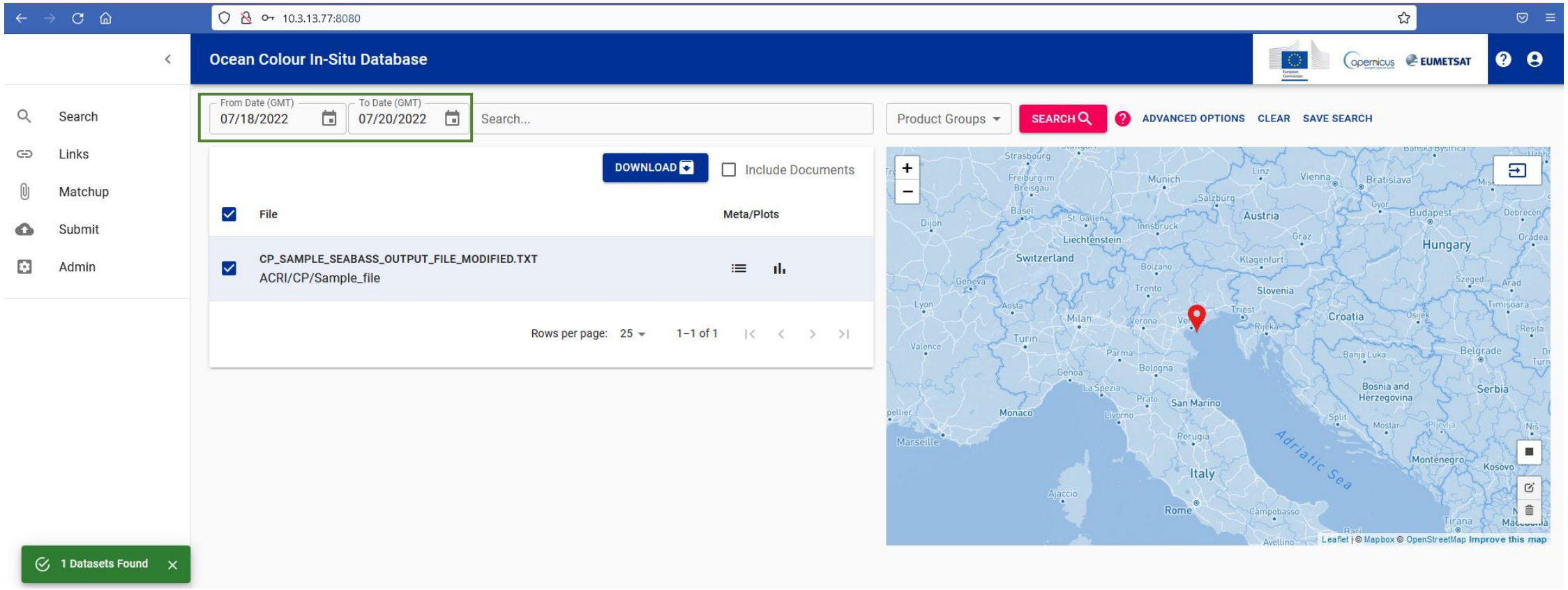
north_latitude: [45.25 TO 45.75] AND east_longitude: [12.4 TO 12.6]

Search by rectangle will result in a larger result list!



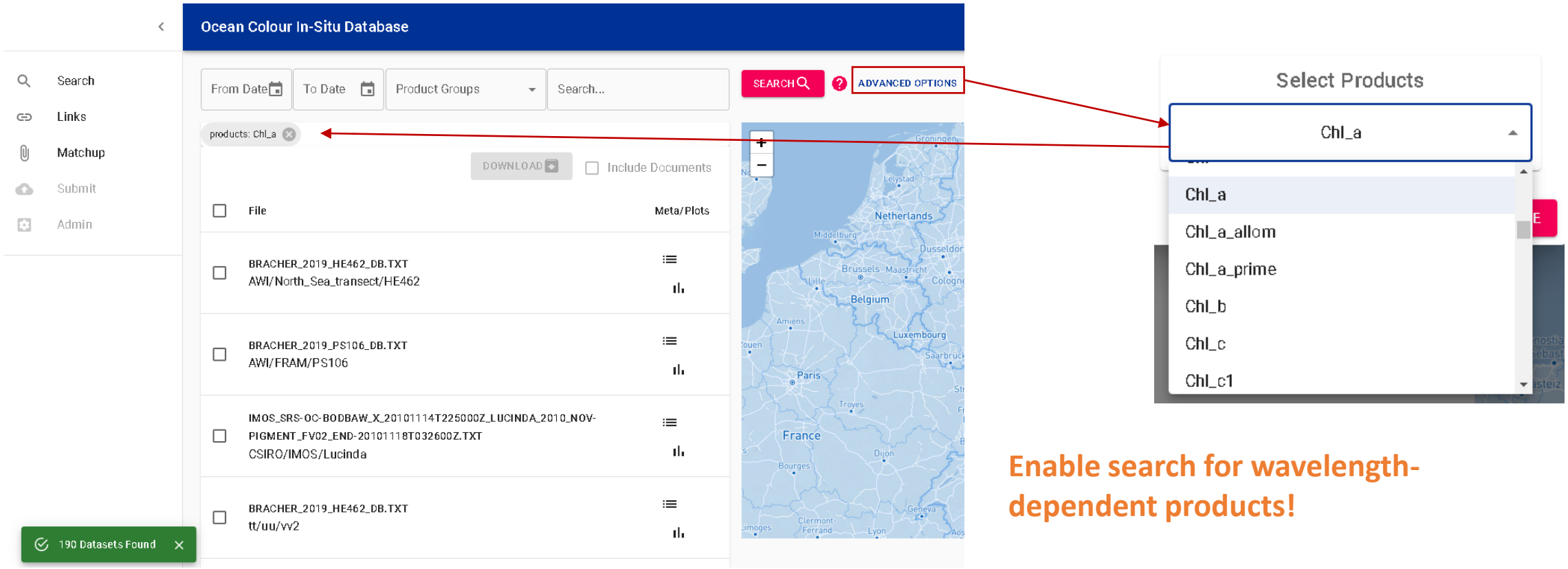
Demo 4: Search criteria temporal extent and parameter

2. Search by temporal extent (18. Jul. 2022 to 20. Jul. 2022):



Demo 4: Search by parameter using advanced search

For parameters not depending on wavelength, users can search by product (parameter) using the advanced search:



Enable search for wavelength-dependent products!

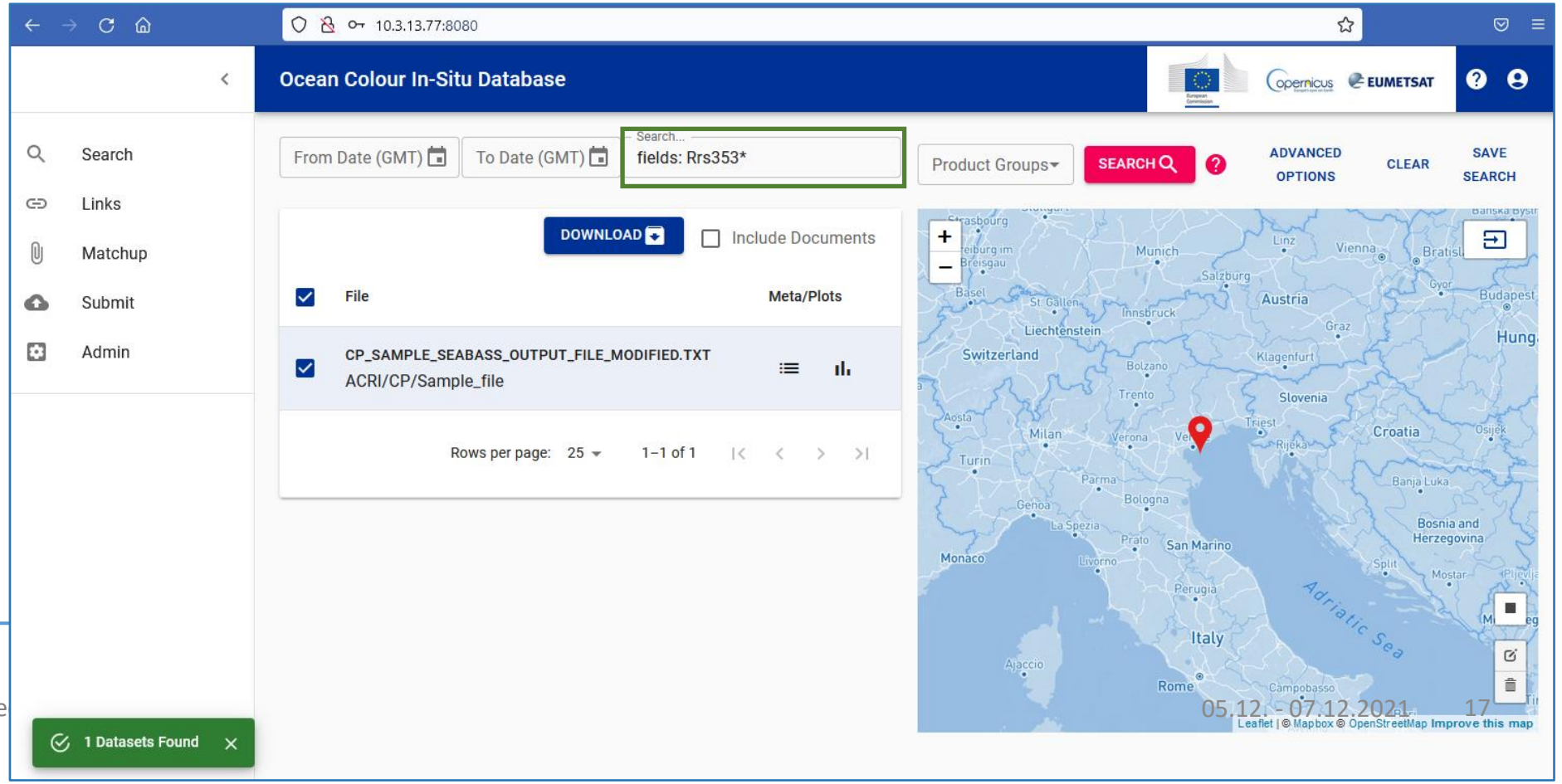
Demo 4: Search by parameter

3. Parameter:

To search for data files containing the Parameter Rrs, the search has to cover all field names containing Rrs independent of the wavelengths, e. g. Rrs353.2,Rrs356.5,Rrs359.8, ... Therefore, the wild card * is requiredi .e.:

*fields: Rrs**

Currently, this search is case sensitive! This will be changed in version 2.4 (due Jan. 2023).



Next steps:

The following issues should be considered as having a high priority to be implemented next:

Calibration files

1. Implement validation and upload of calibration files into Fiducial radiometer database.
2. Add converter to convert TRIOS radcal file format to TO radcal file format.
3. Provide access to calibration files for FRM-certifying person or entity and the Community processor.

Seamless data download

❑ Enable download of seamless data rather than data files.

How shall cal/char files be selectable or provided for users?

- **Define distinct selection criteria and a web user interface?**
- **Define a distinct directory and file name structure?**

Web user interface for data search and download

1. Add a filter for FRM flagged data
2. Enable advanced search for wavelength-specific products/parameter.
3. Avoid case-sensitivity when searching for fields.
4. General enhancement of user interface for data search with emphasis to the result list and map.

Thank you

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