

INTRO

CMEMS centralizes the development of all services to access the products/datasets hosted by them in its NRT (nrt.cmems-du.eu) and REP (my.cmems-du.eu) FTP portals: Model Forecasting Centers, Satellite and In Situ products. Most of these services are oriented for gridded-like datasets and therefore, the products integrating discrete observations are neglected. This is the case of the products delivery by the in Situ Thematic Assembly Center (focused on on-site sensor measurements in the ocean) for which services (Subsetter, GetDirectFile, Opendap) are either disabled or partially enabled (WMS => only for the last 30 days of data). In case of the In Situ products the FTP access is the one-and-only service that guarantee the 100% access to a given product. On Table 1 and Table 2 gridded and not gridded in situ products are addressed highlighting in yellow the available and not limited services, in orange the available but limited services, and in red the not available services*.

*For checking in detail a given service just click on the product link and then, the tab `services`.

Table 1. In Situ Gridded Products services

INSITU GRIDDED PRODUCTS (2)	
NRT	
MULTIPARAMETER	DEDICATED
-	INSITU_GLO_TS_OA_NRT_OBSERVATIONS_013_002_A
REP	
MULTIPARAMETER	DEDICATED
-	INSITU_GLO_TS_OA_REP_OBSERVATIONS_013_002_B
SERVICES	
SERVICE	COMMENTS
CSW	All products/datasets
FTP	All products/datasets
WMS	All products/datasets
SUBSETTER	All products/datasets
SOS	NA
Opendap	NA
Get Direct File	NA

Table 2. In Situ Not-Gridded Products services

INSITU NOT GRIDDED PRODUCTS (14)	
NRT (9)	
MULTI-PARAMETER	DEDICATED
INSITU_GLO_NRT_OBSERVATIONS_013_030 , INSITU_ARC_NRT_OBSERVATIONS_013_03 , INSITU_BAL_NRT_OBSERVATIONS_013_032 , INSITU_IBI_NRT_OBSERVATIONS_013_033 , INSITU_BS_NRT_OBSERVATIONS_013_034 , INSITU_MED_NRT_OBSERVATIONS_013_035 , INSITU_NWS_NRT_OBSERVATIONS_013_036	INSITU_GLO_CARBON_NRT_OBSERVATIONS_013_049 , INSITU_GLO_UV_NRT_OBSERVATIONS_013_048 ,
REP (5)	
MULTI-PARAMETER	DEDICATED (5)
-	INSITU_GLO_UV_L2_REP_OBSERVATIONS_013_044 , INSITU_GLO_WAVE_REP_OBSERVATIONS_013_045 , INSITU_GLO_BGC_REP_OBSERVATIONS_013_046 , INSITU_GLO_CARBON_REP_OBSERVATIONS_013_050 , INSITU_GLO_TS_REP_OBSERVATIONS_013_001_b
SERVICES STATUS	
SERVICE	COMMENTS
CSW	All products/datasets
FTP	All products/datasets
WMS	Only for multiparameter products/datasets and only for latest collection.
SOS	Only for multiparameter products/datasets and only latest collection. .It seems not working.
SUBSETTER	NA
Opendap	NA
Get Direct File	NA

Due to this in the last years there has been an effort to build an API on top of the CMEMS FTP to facilitate data discovery, for at least, the In Situ multi-parameter NRT products/datasets (see table 2) by pivoting on its index files (index_*.txt). These indexes are just comma-separated txt files describing the content of the available netCDF collections¹ (latest, monthly and history): one line per file exposing some metadata to enable quick subsetting and download. For instance: index files for the bal_multiparameter_nrt dataset: check [here](#) (local copy -no login required) or [here](#) (official ones - logging required).

¹ latest, monthly and history collections are collections of netCDF files containing the data reported by the IN Situ network of platforms in the last 30 days, 5 years and since ever as daily, monthly and history files respectively.

DASHBOARD

The In Situ TAC dashboard relies on the above API for fetching the necessary data to render on map. The only extra service it uses is EMODNET widget services for enabling visualization of the last 60 days of data reported by a given source. CMEMS In Situ TAC is one of the main insitu data providers for EMODnet and can benefit from the services these have developed already on top of the data they are hosting. Full list of the services provided by EMODnet (included the widget service used by the dashboard) can be found at the end of this site: <https://www.emodnet.eu/physics>.

It is to be bear in mind that the Widget services have its limitation as it is mounted on top of a local copy of files hosted by EMODnet and directly on the ones available on CMEMS FTP portal (the nrt.cmems-du.eu in particular). This means that there might be inconsistencies between the two data repositories (namely: range of parameters, range of platforms types, data flagging etc) after the regular updates performed on the CMEMS repository. These inconsistencies nevertheless will be more or less significant depending on how up-to date is the local copy hosted by EMODnet.

API

In Situ TAC API is built on top of a set of json files (one per endpoint) produced by processing each multiparameter nrt index file available and, in rare occasions² (when indexes are not enough), netCDF files. It relies on a set of python scripts for doing the processing work and on a node json-server for exposing the resulting jsons as queryable endpoints. See overall **architecture diagram on Figure 1**.

This API is still on development, that is why is not publicly advertised (layout is subject to change based on frontend needs). Response layouts are also very Adhoc and is not following any standard (i.e see coordinates where we could easily return a geojson feature instead).

Meaning of the codes used in the endpoints can be found in the Product User Manual of the multiparameter nrt products ([here](#)) or, in case of the parameter codes, in the official in situ parameter list ([here](#)). The only one exception is the hardcoded status: "RD": Active (Recent Data), "DD": Active (No Recent Data), "Probably Inactive", "PR": "Probably Retired".

² For extracting information about depths and also HF radar related info.

- **Main endpoints**

- sources

- **Description:** list of INSTAC network data sources; each data source represent some platform with some equipment (ctd, termosalinograph, bottels...) reporting parameters like a certain feature type (time series, profiles, grid....). Updates hourly.

- **Layout example:**

- http://instac.socib.es/dashboard-ws/sources/?dataset=glo_multiparameter_nrt&archives_like=latest&id=IR_TS_MO_62092

- entries

- **Description:** list of INSTAC files per data source. Updates hourly.

- **Layout example:**

- http://instac.socib.es/dashboard-ws/entries/?dataset=glo_multiparameter_nrt&id=IR_TS_MO_62092

- **Other endpoints**

- providers

- **Description:** List of In Situ TAC known providers. Updates monthly.

- **Layout example:**

- http://instac.socib.es/dashboard-ws/providers/?dataset=glo_multiparameter_nrt&edmo=3410

- metrics

- **Description:** Minimum metrics for In Situ TAC datasets. Updates monthly.

- **Layout example:**

- http://instac.socib.es/dashboard-ws/metrics/?dataset=glo_multiparameter_nrt

- more

- **Description:** list of data sources with some extra info retrieved and computed from its netCDF files (and not from index files). Right now it only covers HF radar data sources (stats, coverage and antennas location).

- **Layout example:**

- https://instac.socib.es/more/?dataset=glo_multiparameter_nrt&id=GL_TV_HF_HFR-COSYNA-Total

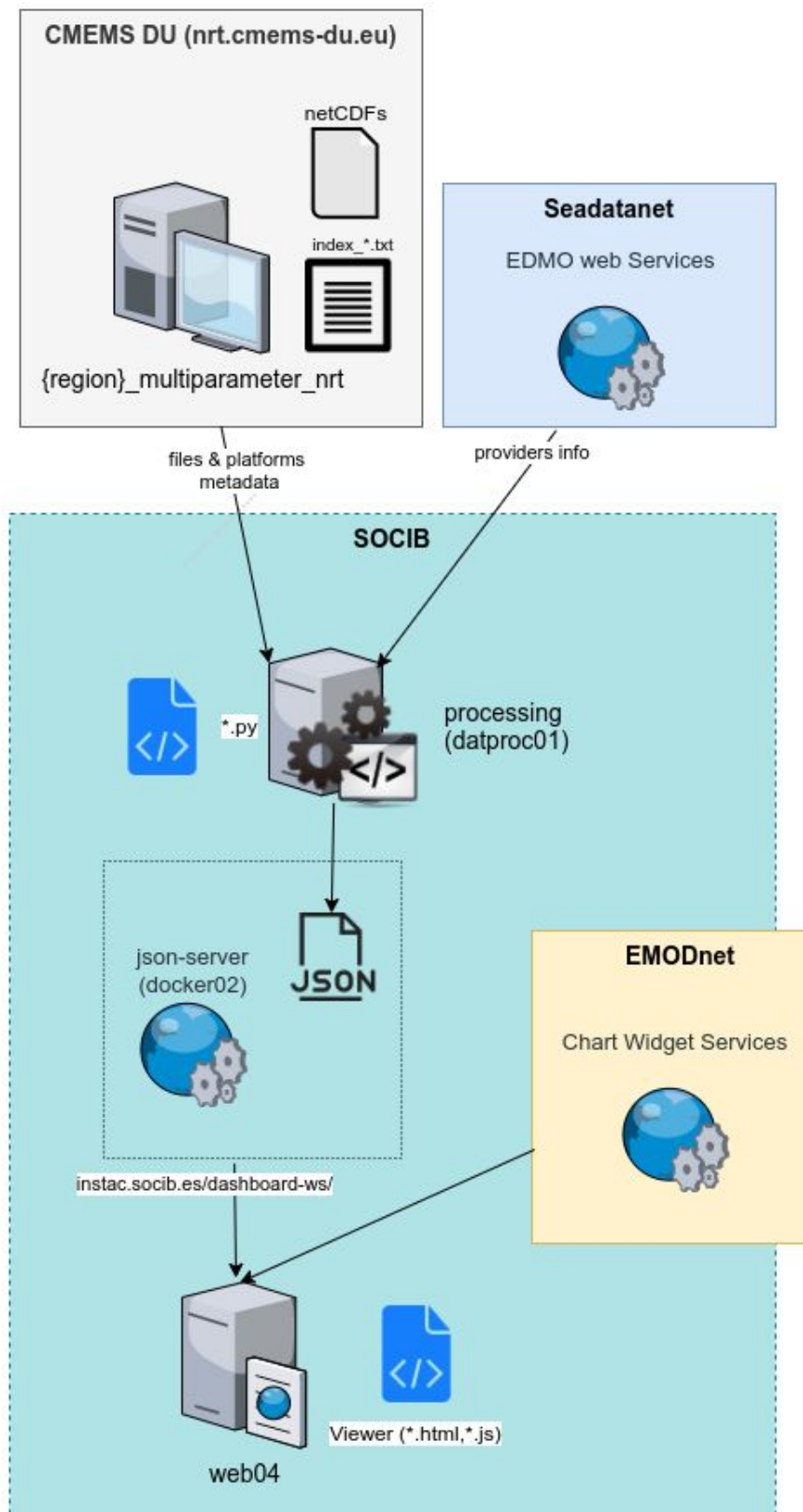


Figure 1. In Situ TAC API architecture and viewer