

Download Guide Environmental Data to Sea Urchin
Suplementary analysis to Stock Assessment Sea Urchin 2024

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Contents

CONTEXT	2
SETUP	3
REFERENCES	5

CONTEXT

Copernicus Marine data are available to download through server access services, all with the possibility of being integrated into scripts.

One of the most used endpoint is the MOTU API, by integrating the Python motuclient command line in a complete and operative script, regardless of the code language.

Indeed, motuclient is a cross-platform package that enables to download data by running a Python script. It can be integrated as a simple command line of your system from the language of your choice.

Another method is to use the **CopernicusMarine** package developed to facilitate the retrieval of data from the Copernicus Marine catalog.

Let's see in this article an example of script to run a download process and how to use the **CopernicusMarine** package in R ([Good et al., 2020](#)).

SETUP

Set libraries and Install first MOTU client

```
system("pip install motuclient==1.8.4")
install.packages("CopernicusMarine")
```

```
library(CopernicusMarine)
library(here)
```

here() starts at /Users/mauriciomardones/IFOP/Erizo_SA/Var_Env_SeaUrchin_2024

Set credentials in Copernicus Data.

Set dir data sink

```
dir1 <- here("Data")
```

Define geo-frame to get data

We set limit from X y Y region in Southern Chile

```
zona <- c(-75,-72,-46,-41)
```

Data available in the main repo from [Copernicus](#)

The OSTIA ([Good et al., 2020](#)) global sea surface temperature reprocessed product provides daily gap-free maps of foundation sea surface temperature and ice concentration (referred to as an L4 product) at 0.05deg.x 0.05deg. horizontal grid resolution, using in-situ and satellite data. This product provides the foundation Sea Surface Temperature, which is the temperature free of diurnal variability.

Then, select source data to analysis and put that name in the next line;

```
list1<-copernicus_products_list(freeText = "SST_GLO_SST_L4_REP_OBSERVATIONS_010_011")
detail1<-copernicus_product_details("SST_GLO_SST_L4_REP_OBSERVATIONS_010_011")
```

Details for selecting subvariables

```
list1$mainVariables
```

```
## [[1]]
## [1] "Sea ice"      "Temperature"
```

```
list1$numLayers
```

```
## [1] 4
```

```
detail1$layers$`METOFFICE-GLO-SST-L4-REP-OBS-SST/analysed_sst`$variableId
```

```
## [1] "analysed_sst"
```

```
copernicus_download_motu(
  username = CopernicusMarine_uid,
  password = CopernicusMarine_pwd,
  destination = dir1,
  product = "SST_GLO_SST_L4_REP_OBSERVATIONS_010_011" ,
  layer = "METOFFICE-GLO-SST-L4-REP-OBS-SST",
  variable = "Sea ice",
  output = "netcdf",
  region = c(-85, -75, -30, -55), # (xmin,ymin,xmax,ymax)
  timerange = c("2005-01-01 12:00:00","2020-12-31 12:00:00"),
  sub_variables = c("analysed_sst"),
```

```

    verticalrange = c(0, 50)
)

## Logging in onto MOTU server...

## Preparing download...

## 010-7 : The result file size, 4922.0Mb, is too big and shall be less than 2048.0Mb. Please narrow your
copernicus_download_motu(
  username = CopernicusMarine_uid,
  password = CopernicusMarine_pwd,
  destination = "~/IFOP/Erizo_SA/Var_Env_SeaUrchin_2024/Data/FILENAME.nc",
  product = "IBI_ANALYSISFORECAST_PHY_005_001",
  layer = "cmems_mod_ibi_phy_anfc_0.027deg-3D_P1D-m",
  variable = "thetao",
  output = "netcdf",
  region = c(-15.26, 35.57, 5.04, 51.03),
  timerange = c("2022-08-01 12:00:00", "2022-08-01 12:00:00"),
  sub_variables = c("uo", "vo"),
  verticalrange = c(0.49, 11.4)
)

```

REFERENCES

Good, S. ;., Fiedler, E. ;., Mao, C. ;., Martin, M. J. ;., Maycock, A. ;., Reid, R. ;., Roberts-Jones, J. ;., Searle, T. ;., Waters, J. ;., While, J. ;., & Worsfold, M. (2020). *Global Ocean OSTIA Sea Surface Temperature and Sea Ice Reprocessed*. <https://doi.org/https://doi.org/10.48670/moi-00168>