extract\_ocean\_data()

Extract gridded satellite data (via ERDDAP) for either i) an area via spatial extent (e.g. 72 to 74 longitude, -2 to 6 latitude) or ii) a list of sites with corresponding spatial coordinates (lon, lat).

Write output to file (filename.csv) and raster (filename.csv and filename\_raster.rds).

distill\_ocean\_data()

distil /dɪˈstɪl/

“*extract the essential meaning or most important aspects of*”

Take time series from extract\_ocean\_data and create summaries across time.

Uses the raster input from extract\_ocean\_data and terra::tapp() to average across time

summary = one of:

mean

mode

max

min

anomaly

timestep = one of:

year = summarise across years

month = summarise across months

yearmonth = summarise across months and years

week = weeks by ISO 8601 week number

For spatial extent write output to file (filename\_summary.csv) and raster (filename\_summary\_raster.rds)

For spatial points write output to file (filename\_summary.csv)

**Examples:**

extract\_ocean\_data(space= c(72.1, 74.2, -2.4, 6.4), filename=”spatialpoints”, format=”csv”)

extract\_ocean\_data(space= “coords.csv”, filename=”spatialpoints”, format=”csv”, save.raster=FALSE)

distill\_ocean\_data(filename=”spatialpoints”, summary=”max”, timestep=”yearmonth” format=”csv”) # calculates the maximum for each month in the data

distill\_ocean\_data(filename=”spatialpoints”, summary=”anomaly”, timestep=”year” format=”csv”)

**Caribbean Net Primary Productivity**

extract\_ocean\_data(space = c(-105, -50, 5, 35), time = c("2016-01-01", "2022-12-31"), filename = "caribbean\_npp", dataset = 43)

distill\_ocean\_data(filename = "caribbean\_npp", summary = "mean", timestep = "months")

map\_ocean\_data()

animate\_ocean\_data()

interactive\_ocean\_data()

export\_ocean\_data()

Datasets

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Dataset** | **Source** | **Parameter** | **Temporal resolution** | **Spatial resolution** | **Timespan** |
|  | Aquamodis | Chlorophyll a | daily | 5km |  |
|  | Aquamodis | Chlorophyll a | weekly (8-day) | 5km |  |
|  | Aquamodis | Chlorophyll a | monthly | 5km |  |
|  | Aquamodis | Sea Surface Temperature | daily | 5km |  |
|  | Aquamodis | Sea Surface Temperature | weekly (8-day) | 5km |  |
|  | Aquamodis | Sea Surface Temperature | monthly | 5km |  |
|  | Aquamodis | Particulate Inorganic Carbon | daily | 5km |  |
|  | Aquamodis | Particulate Inorganic Carbon | weekly (8-day) | 5km |  |
|  | Aquamodis | Particulate Inorganic Carbon | monthly | 5km |  |
|  | Aquamodis | Particulate Organic Carbon | daily | 5km |  |
|  | Aquamodis | Particulate Organic Carbon | weekly (8-day) | 5km |  |
|  | Aquamodis | Particulate Organic Carbon | monthly | 5km |  |
|  | CoastWatch | Sea Surface Salinity | 1-day | 0.25° | 2010-present |
|  | CoastWatch | Sea Surface Salinity | 3-day | 0.25° | 2010-present |
|  | HadISST | Sea Ice | monthly | 1° | 1870-present |
|  | HadISST | Sea Surface Temperature | monthly | 1° | 1870-present |
|  | MUR | Sea Surface Temperature | daily | 0.01° | 2003-present |
|  | MUR | Sea Surface Temperature anomaly | daily | 0.01° | 2003-present |
|  | MUR | Sea Surface Temperature | monthly | 0.01° | 2003-present |
|  | MUR | Sea Surface Temperature anomaly | monthly | 0.01° | 2003-present |
| erdPH53sstnmday[sea\_surface\_temperature] | Pathfinder |  |  |  |  |
| ncdcOisst21Agg\_LonPM180[sst] | NOAA OISST | Sea Surface Temperature | Daily | 0.25° | 1981-present |
| ncdcOisst21Agg\_LonPM180\*[anom] | NOAA OISST | Sea Surface Temperature estimated error | Daily | 0.25° | 1981-present |
| ncdcOisst21Agg\_LonPM180\*[err] | NOAA OISST | Sea Surface Temperature estimated error | Daily | 0.25° | 1981-present |
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<https://coastwatch.pfeg.noaa.gov/erddap/griddap/index.html?page=1&itemsPerPage=10000>