

Syntool webservices

availability.service.php

This webservice accepts both GET and POST HTTP requests. It queries the Syntool MySQL database to retrieve the time coverage of the registered granules that match a set of constraints. It is used by the Syntool portal web application to show users the years, months and days where data is available for display.

Input parameters

Parameter	Required	Format	Example
callback	No	string	processAvailability
year	No	integer [1970, now]	2015
month	No	integer [1, 12]	4
day	No	integer [1, 31]	14
products	No	string,string,...	3857_GlobCurrent_L4_geostrophic_streamline, 900913_ARGOprofilers,3857_SMOS_L3_LOCEAN_SSS_raster
extent	No	float,float,float,float	18706892.551797,-21231148.973535,18706892.551797,21231148.973535
patterns	No	string,string,...	,6901687_43,
clientAvailability	No	[int,int,...];[int,int,...];...	[13276,1,13278,1,15597,1,16536,1];[16549,1]

callback

Callback will be used as a wrapper for the result. For example if callback = "myCallback", the webservice will return "myCallback("+str(result)+")"

year

Ignore granules whose time coverage does not intersect the supplied year.

month

Ignore granules whose time coverage does not intersect the supplied month. Requires year.

day

Ignore granules whose time coverage does not intersect the supplied day. Requires both year and month.

products

Only consider granules from the listed products. The supplied parameter is a comma-separated list of product identifiers.

extent

Limit availability computation to granules that intersect the supplied area. The supplied parameter is a comma-separated list of four float values. These values are the coordinates of the area bounding box expressed in the same projection as the Syntool portal (EPSG:3857 for the PiMEP portal). The order of the coordinates is West, South, East, North.

patterns

Ignore granules whose identifier does not match the supplied pattern. The supplied parameter is a comma-separated list of patterns. There must be as many patterns as there are identifiers in the products parameter, listed in the same order. For example with an "A,B,C,D" products value, if only C and D must be filtered using patterns, then the patterns parameter must be ".,patternC,patternD".

clientAvailability

Provide additional data coverage for granules which are not listed in the database. This is the case for granules that only exist on the client side (permanent or user-drawn shapes). The supplied parameter is a semicolon-separated list of arrays. There must be a many arrays as there are identifiers in the products parameter, listed in the same order. Each array contains (day number, granules count) couples of values, where day number is the number of days since 1970-01-01 and granules count is the number of granules available for the product at this date. For example with an "A,B,C,D" products value, if C has one client-side granule for 2017-11-28 and 2017-11-29, then the clientAvailability parameter must be ";;[17498,1,17499,1];".

Output

The webservice returns a serialized dictionary (wrapped in a callback if provided) which contains three mandatory keys: years, months and days, and an additional error key in case an error occurred.

For each year, data availability is described using a dictionary which contains three keys: coloc, datasets and products. If a year contains at least one day where all requested products have granules that match the search criteria, then coloc will contain the same list of product identifiers as products. Otherwise coloc is an empty list. The number of granules that match the search criteria is stored in the datasets field. The products field contains the list of products that have at least one granule matching the search criteria. The list contains the position (0-indexed) of the product's identifier in the products parameter passed as input.

If the year parameter has been defined, then the months field of the result will contain the same structure (coloc/datasets/products) for each month of the provided year.

If both the year and month parameters have been defined, then the days field of the result will contain the same structure (coloc/datasets/products) for each day of the provided month.

Example

```

{
  "years": {
    2015: {"coloc": [], "datasets": 510, "products": [0,2]}
    , 2016: {"coloc": ["PRODUCT_A", "PRODUCT_B", "PRODUCT_C"], "datasets": 73, "pr
  },
  "months": {
    1: {"coloc": [], "datasets": 12, "products": [1]}
    , 2: {"coloc": [], "datasets": 58, "products": [0,2]}
    , ...
    , 12: {"coloc": ["PRODUCT_A", "PRODUCT_B", "PRODUCT_C"], "datasets": 15, "pr
  },
  "days": {
    1: {"datasets": 3, "products": [1,2]}
    , ...
    , 31: {"datasets": 5, "products": [0,1,2]}
  }
}

```

data-noRegion.service.php

This webservice accepts GET HTTP requests. It queries the Syntool MySQL database to retrieve information about granules that match a set of constraints. It is used by the Syntool portal web application to fill the detailed timeline and draw data boundaries on the map.

Input parameters

Parameter	Required	Format	Example
callback	No	string	processGranules
minDate	Yes	timestamp	1512141988
maxDate	Yes	timestamp	1512141990
products	No	string,string,...	3857_GlobCurrent_L4_geostrophic_streamline, 900913_A RGO_profilers,3857_SMOS_L3_LOCEAN_SSS_raster
extent	No	float,float,float,float	18706892.551797,-21231148.973535,18706892.551797,21 231148.973535
patterns	No	string,string,...	,6901687_43,

callback

Callback will be used as a wrapper for the result. For example if callback = "myCallback", the webservice will return "myCallback("+str(result)+")"

minDate

Unix timestamp for the start of the time frame constraint.

maxDate

Unix timestamp for the end of the time frame constraint.

products

Only consider granules from the listed products. The supplied parameter is a comma-separated list of product identifiers.

extent

Limit availability computation to granules that intersect the supplied area. The supplied parameter is a comma-separated list of four float values. These values are the coordinates of the area bounding box expressed in the same projection as the Syntool portal (EPSG:3857 for the PiMEP portal). The order of the coordinates is West, South, East, North.

patterns

Ignore granules whose identifier does not match the supplied pattern. The supplied parameter is a comma-separated list of patterns. There must be as many patterns as there are identifiers in the products parameter, listed in the same order. For example with an "A,B,C,D" products value, if only C and D must be filtered using patterns, then the patterns parameter must be ".,,patternC,patternD".

Output

The webservice returns a serialized dictionary (wrapped in a callback if provided) which contains a single entry named events. This entry contains a list of dictionaries describing the granules that match the search criteria.

The dictionaries describing granules contain a set of entries:

- **polygon: shape of the granule as WKT polygon. Coordinates must be expressed**
in the same projection as the Syntool portal (EPSG:3857 for PiMEP). For granules with global coverage, POINT(0 0) is used instead.
- **mapMaxZoom: zoom level above which the data representation is not available**
anymore.
- **uri: path of the data representation files (root of the tiles pyramid,**
geojson file or full resolution image) relative to the URI of the data server.
- **productId: identifier of the product the granule belongs to (should be one**
of the identifiers passed in the products input parameter).
- **datasetId: identifier of the granule.**
- **title: label describing the granule.**
- **mapBounds: dictionary describing the bounding box of the granule, with**
coordinates expressed in the same projection as the Syntool portal (EPSG:3857 for PiMEP) using the following format: {"west": WEST, "east": EAST, "north": NORTH, "south": SOUTH}.
- **resolutions: when applicable, array of the resolutions for which there is a**
data representation. May also contain some additional information for specific data representations (mask for tiled rasterized altimeter data, not included in PiMEP).
- **start: start of the time coverage of the granule, expressed as a string with**
the "YYYY-MM-DDThh:mm:ss" format.

- "end": end of the time coverage of the granule, expressed as a string with the "YYYY-MM-DDThh:mm:ss" format.
- type: deprecated
- mapMinZoom: deprecated
- point: deprecated

ARGO profiler granule example

```
{ "point": {
  "lat": 4298259.52221,
  "lon": 1925938.13915
},
"mapMinZoom": "0",
"resolutions": [],
"datasetId": "900913_ARGO_profilers-6901846_80",
"end": "2015-05-15T00:03:40",
"title": "6901846_80",
"mapMaxZoom": "0",
"uri": "data/ingested/900913_ARGO_profilers/6901846_80/",
"start": "2015-05-15T00:03:40",
"type": "TRAJECTORY",
"productId": "900913_ARGO_profilers",
"polygon": "POLYGON((1925938.13915 4298259.52221,1925938.13915 4298259.52221,1925938.13915 4298259.52221,1925938.13915 4298259.52221))",
"mapBounds": {
  "west": "1925938.13915",
  "east": "1925938.13915",
  "north": "4298259.52221",
  "south": "4298259.52221"
}
}
```

Aquarius L3 SSS granule example

```
{
  "point": {"lat":0,"lon":0},
  "mapMinZoom": "0",
  "resolutions": "",
  "datasetId": "3857_AQUARIUS_L3_SSS_raster-sss20150512.v4.0cap",
  "end": "2015-05-16T00:00:00",
  "polygon": "POINT(0 0)",
  "title": "sss20150512.v4.0cap",
  "mapMaxZoom": "0",
  "uri": "data/ingested/3857_AQUARIUS_L3_SSS_raster/sss20150512.v4.0cap/imageLayer.png",
  "start": "2015-05-15T00:00:00",
  "type": "IMAGE",
  "productId": "3857_AQUARIUS_L3_SSS_raster",
  "mapBounds": {
    "west": "-20037508.34",
    "east": "20037508.34",
    "north": "20037508.34",
    "south": "-20037508.34"
  }
}
```

findnearestdata.service.php

This webservice accepts GET HTTP requests. It queries the Syntool MySQL database to find the datetime of a granule matching a set of constraints while staying as close as possible to a reference time. It is used by the Syntool portal web application to automatically center the timeline on a datetime where data is available .

Input parameters

Parameter	Required	Format	Example
callback	No	string	processNearest
date	Yes	timestamp	1512141988
products	No	string,string,...	3857_GlobCurrent_L4_geostrophic_streamline, 900913_ARGO_profilers,3857_SMOS_L3_LOCEAN_SSS_raster
extent	No	float,float,float,float	18706892.551797,-21231148.973535,18706892.551797,21231148.973535
patterns	No	string,string,...	,6901687_43,
direction	No	string	nearest
time_step	No	integer	150

callback

Callback will be used as a wrapper for the result. For example if `callback = "myCallback"`, the webservice will return `"myCallback("+str(result)+")"`

date

Unix timestamp of the reference datetime.

products

Only consider granules from the listed products. The supplied parameter is a comma-separated list of product identifiers.

extent

Limit availability computation to granules that intersect the supplied area. The supplied parameter is a comma-separated list of four float values. These values are the coordinates of the area bounding box expressed in the same projection as the Syntool portal (EPSG:3857 for the PiMEP portal). The order of the coordinates is West,South,East,North.

patterns

Ignore granules whose identifier does not match the supplied pattern. The supplied parameter is a comma-separated list of patterns. There must be as many patterns as there are identifiers in the products parameter, listed in the same order. For example with an "A,B,C,D" products value, if only C and D must be filtered using patterns, then the patterns parameter must be `“,patternC,patternD”`.

direction

Tell the webservice if it must look for the nearest granule in the past (`direction=before`), in the future (`direction=after`) or in both direction (`direction=nearest`, default behavior).

time_step

Granules whose central datetime is too close to the reference datetime will be ignored. The minimal temporal distance for granules to be included in the results is defined (in seconds) using the `time_step` parameter.

In other words, granules will only be included in the results if:

```
| reference_datetime - 0.5 * (granule_start + granule_stop) | > time_step
```

Output

The webservice returns a serialized dictionary (wrapped in a callback if provided) which contains three entries: `before_delta`, `after_delta` and `nearestDataDate`. `nearestDataDate` is the timestamp of the granule matching the constraints which is the closest to the reference time. `before_delta` is the absolute value of the difference between the reference time and the closest datetime in the past. `after_delta` is the absolute value of the difference between the reference time and the closest datetime in the future.

getGranuleInfo/

This webservice accepts GET HTTP requests. It searches for additional information for a specific granule. It is used by the Syntool portal web application to customize the content of the contextual menu displayed when the user selects on granule on the map or in the timeline.

Input parameters

Parameter	Required	Format	Example
product_id	Yes	string	3857_MEOP
dataset_name	Yes	string	48390_20150514_200

product_id

Identifier of the product which contains the granule of interest.

dataset_name

Identifier of the granule.

Output

The webservice returns a list of features/extra information attached to the granule serialized in JSON format. These features are described using dictionaries with a mandatory “global” key. The “global” value is specific to Syntool and provides information about how the feature must be displayed (but remains empty for Pi-MEP data). Extra keys may be added to provide more details about the granule or the feature (see example below).

The “images” key can be used to define a dictionary of pictures associated with the granule. Syntool will display these pictures directly in the application, in a dialog box. The syntax for the “images” dictionary entries is:

```
"Label": Description$URL$Auto_display"
```

where:

- Label is the text displayed in the contextual menu
- Description is the tooltip shown when the user leaves the mouse cursor over the label for a few seconds
- URL is the URL of the image
- Auto_display is either 1 or 0. A 1 value tells Syntool to display the image immediately when the granule is selected, otherwise the user has to click on the link in the contextual menu. Only one image can be defined with Auto_display = 1.

The “links” key can be used to define a dictionary of remote resources associated with the granule. Syntool will display links to these resources in the contextual menu. The syntax for the “links” dictionary entries is:

```
"Label": Description$URL"
```

where:

- Label is the text displayed in the contextual menu
- Description is the tooltip shown when the user leaves the mouse cursor over the label for a few seconds
- URL is the URL of the remote resource

MEOP profiler example

```
[{ "global": {},
  "metadata": { "cycle number": "200",
                "wmo id": "48390",
                "data mode": "Delayed mode",
                "data type": "Argo profile",
                "data centre": "Ifremer, France",
                "project": "MEOP",
                "p. investigator": "IMOS",
                "position system": "LS",
                "instrument type": "Instrument attached to marine mammals",
                "direction": "Ascending profile"
              }
},
{ "global": {},
  "images": { "profile": "Profile$https://pimep.ifremer.fr/diffusion/syntool/mammals/20"
}
}]
```