



# Access to OE DataCollections

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# What was written in the proposal?

- ***Bottomside Thickness***

Models for the thickness and shape of the bottom-side of the F2 layer, B0 and B1 respectively, for quiet conditions. The models have been validated and they are used by the IRI model as the recommended option. (Altadill et al. 2009; Bilitza et al. 2014).

**B0B1\_qModel** ([https://esc.pithia.eu/data-collections/DataCollection\\_OE\\_B0B1\\_qModel/](https://esc.pithia.eu/data-collections/DataCollection_OE_B0B1_qModel/))

- ***F-peak height***

Model for the density peak height, hmF2, for quiet conditions. The model has been validated and used by the IRI as the recommended option. (Altadill et al. 2013; Bilitza et al. 2017).

**hmF2\_qModel** ([https://esc.pithia.eu/data-collections/DataCollection\\_hmF2\\_qModel/](https://esc.pithia.eu/data-collections/DataCollection_hmF2_qModel/))

- ***Equatorial Plasma Detection***

Equatorial Plasma Detection method (Blanch et al., 2018) is able to identify the occurrence of Equatorial Plasma Bubbles (EPBs) with data gathered from receivers of Global Navigation Satellite System (GNSS).

**EPB\_detectionTool** ([https://esc.pithia.eu/data-collections/DataCollection\\_OE\\_EPB\\_detectionTool/](https://esc.pithia.eu/data-collections/DataCollection_OE_EPB_detectionTool/))



# Bottomside Thickness (B0B1\_qModel )



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## B0B1\_qModel

The B0B1 Model calculates the thickness B0 (km) and shape B1 (dimensionless) parameters of the F layer under quiet conditions on the basis of climatological models. By using the predicted smoothed sunspot number and the newest IGRF coefficients at any location distributed along the used range of latitudes (70N–70S). Model parameters can be computed either to reproduce already observed values or to perform predictions until December 2029.

### Interact

| Interaction Method             | Description  | Data Format  | Link  |
|--------------------------------|--|--|---|
| Direct Link to Data Collection | The B0B1 Model calculates the thickness B0 (km) and shape B1 (dimensionless) parameters of the F layer under quiet conditions on the basis of climatological models. | <a href="#">application/json</a><br>(click the link to show information on this ontology term) | <a href="#">Open B0B1_qModel API in new tab</a> ↗ |
| API                            | The B0B1 Model calculates the thickness B0 (km) and shape B1 (dimensionless) parameters of the F layer under quiet conditions on the basis of climatological models. | N/A  | <a href="#">Open API Interface in new tab</a>     |

### Identifier Properties

|                      |                                    |
|----------------------|------------------------------------|
| <b>Local ID</b>      | DataCollection_OE_B0B1_qModel      |
| <b>Namespace</b>     | oe                                 |
| <b>Version</b>       | 1                                  |
| <b>Created</b>       | Thursday 20th April 2023, 12:00:00 |
| <b>Last Modified</b> | Thursday 20th April 2023, 12:00:00 |

Two access methods:

- external API
- integrated API



# Bottomside Thickness (B0B1\_qModel )

## External API

### B0B1qModel API 0.1.0 OAuth3

[thickness\\_API/openapi.json](#)

B0B1 qModel API [↗](#)

#### Endpoints

You will be able to run the [B0B1 quiet Model \(B0B1qModel\)](#) to obtain B0 and B1 coefficients.

- **Generate csv files**
  - Time series file for a given year: month, hour, latitude, longitude, B0 (km), B1 (dimensionless)
  - Heatmap snapshot file for a given year, month an hour at a specified spatial window: month, hour, latitude, longitude, B0 (km), B1 (dimensionless)
- **Generate plots of B0 (km)**
  - Time series plot for a given year
  - Heatmap snapshot
  - Heatmap daily animation

#### Notes:

- Values of B1 are provided in data files but they are not shown in the plots.
- **Model validity:** The model is able to perform predictions until 2030 (not included).
- The International Geomagnetic Reference Field (IGRF) used in this model is valid until 2025 (included). Note that those predictions for years between 2026 and 2029 (both included) can be computed but IGRF values may be of reduced accuracy.

#### Servers

**Time series file B0B1qModel** Returns a csv file for the monthly averages of the thickness model coefficients (B0,B1) at different hours [↕](#)

**GET** /B0B1qModel1\_time\_series\_file/ B0B1qModel Time Series File Response [↕](#)

**Time series plot B0B1qModel** Returns a plot for the monthly averages of the thickness model coefficient B0 (km)s at different hours [↕](#)

**GET** /B0B1qModel1\_time\_series\_plot/ B0B1qModel Time Series Plot [↕](#)

**Heatmap snapshot file B0B1qModel** Returns a csv file for different latitudes and longitudes of the monthly averaged Thickness model coefficients (B0,B1) at an hour for a certain spatial time window [↕](#)

**GET** /B0B1qModel1\_map\_file/ B0B1qModel Map File [↕](#)

**Heatmap snapshot B0B1qModel** Returns a heatmap of the monthly averaged Thickness model B0 coefficient (km) at an hour for a certain spatial time window [↕](#)

**GET** /B0B1qModel1\_map/ B0B1qModel Map File [↕](#)

**Heatmap daily animation B0B1qModel** Returns an hourly animation of the monthly averaged monthly averaged Thickness model B0 coefficient (km) for a certain spatial time window. The execution may take a while ☹️. You can go for a coffee if you want ☺️. [↕](#)

**GET** /B0B1qModel1\_map\_gif/ B0B1qModel Map Gif [↕](#)

## Integrated API



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[Home](#) / [Present](#)

### Interact with Data Collection via API

B0B1\_qModel

#### B0B1qModel API

B0B1 qModel API [↗](#)

#### Endpoints

You will be able to run the [B0B1 quiet Model \(B0B1qModel\)](#) to obtain B0 and B1 coefficients.

- **Generate csv files**
  - Time series file for a given year: month, hour, latitude, longitude, B0 (km), B1 (dimensionless)
  - Heatmap snapshot file for a given year, month an hour at a specified spatial window: month, hour, latitude, longitude, B0 (km), B1 (dimensionless)
- **Generate plots of B0 (km)**
  - Time series plot for a given year
  - Heatmap snapshot
  - Heatmap daily animation

#### Notes:

- Values of B1 are provided in data files but they are not shown in the plots.
- **Model validity:** The model is able to perform predictions until 2030 (not included).
- The International Geomagnetic Reference Field (IGRF) used in this model is valid until 2025 (included). Note that those predictions for years between 2026 and 2029 (both included) can be computed but IGRF values may be of reduced accuracy.

#### [/Time series file B0B1qModel](#)

Returns a csv file for the monthly averages of the thickness model coefficients (B0,B1) at different hours

[Show/hide details](#)

#### [/Time series plot B0B1qModel](#)

Returns a plot for the monthly averages of the thickness model coefficient B0 (km)s at different hours

[Show/hide details](#)

#### [/Heatmap snapshot file B0B1qModel](#)

Returns a csv file for different latitudes and longitudes of the monthly averaged Thickness model coefficients (B0,B1) at an hour for a certain spatial time window

[Show/hide details](#)

#### [/Heatmap snapshot B0B1qModel](#)

Returns a heatmap of the monthly averaged Thickness model B0 coefficient (km) at an hour for a certain spatial time window

[Show/hide details](#)

#### [/Heatmap daily animation B0B1qModel](#)

Returns an hourly animation of the monthly averaged monthly averaged Thickness model B0 coefficient (km) for a certain spatial time window. The execution may take a while ☹️. You can go for a coffee if you want ☺️.

[Show/hide details](#)



# Bottomside Thickness (B0B1\_qModel )

## [/Time series plot B0B1qModel](#)

Returns a plot for the monthly averages of the thickness model coefficient B0 (km) at different hours

Show/hide details

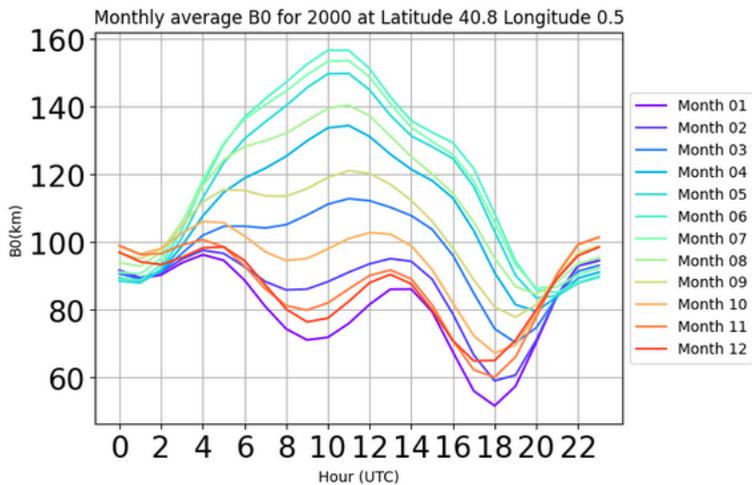
### Inputs

Cancel

| Name            | Description                             |
|-----------------|---|
| year            | Insert a year in range [1900,2030]      |
| integer (query) | <input type="text" value="2000"/>       |
| latitude        | Insert a latitude in range [-70,+70]    |
| number (query)  | <input type="text" value="40.8"/>       |
| longitude       | Insert a longitude in range [-180,+180] |
| number (query)  | <input type="text" value="0.5"/>        |

Run /B0B1QMODEL\_TIME\_SERIES\_PLOT/ Clear Outputs

### Outputs



Model for the thickness (B0) and shape (B1) of the bottom-side of the F2 layer for **quiet conditions**.

**Input:** date, latitude and longitude

**Output:**

- Time series
  - csv file
  - Timeseries plot

## [/Time series file B0B1qModel](#)

Returns a csv file for the monthly averages of the thickness model coefficients (B0,B1) at different hours

Show/hide details

### Inputs

Cancel

| Name            | Description                             |
|-----------------|---|
| year            | Insert a year in range [1900,2030]      |
| integer (query) | <input type="text" value="2000"/>       |
| latitude        | Insert a latitude in range [-70,+70]    |
| number (query)  | <input type="text" value="40.8"/>       |
| longitude       | Insert a longitude in range [-180,+180] |
| number (query)  | <input type="text" value="0.5"/>        |

Run /B0B1QMODEL\_TIME\_SERIES\_FILE/ Clear Outputs

### Outputs

Download

| month | hour (UTC) | lat (deg) | lon (deg) | b0 (km) | b1 (dimensionless) |
|-------|------------|-----------|-----------|---------|--------------------|
| 1     | 0          | 40.8      | 0.5       | 91.63   | 2.67               |
| 1     | 1          | 40.8      | 0.5       | 89.25   | 2.58               |
| 1     | 2          | 40.8      | 0.5       | 90.36   | 2.61               |
| 1     | 3          | 40.8      | 0.5       | 93.91   | 2.73               |
| 1     | 4          | 40.8      | 0.5       | 96.31   | 2.91               |
| 1     | 5          | 40.8      | 0.5       | 94.66   | 3.09               |
| 1     | 6          | 40.8      | 0.5       | 88.80   | 3.21               |
| 1     | 7          | 40.8      | 0.5       | 81.02   | 3.20               |
| 1     | 8          | 40.8      | 0.5       | 74.39   | 3.07               |
| 1     | 9          | 40.8      | 0.5       | 71.13   | 2.82               |
| 1     | 10         | 40.8      | 0.5       | 71.91   | 2.51               |
| 1     | 11         | 40.8      | 0.5       | 75.99   | 2.21               |
| 1     | 12         | 40.8      | 0.5       | 81.63   | 1.98               |
| 1     | 13         | 40.8      | 0.5       | 86.12   | 1.89               |
| 1     | 14         | 40.8      | 0.5       | 86.15   | 1.95               |
| 1     | 15         | 40.8      | 0.5       | 79.49   | 2.16               |
| 1     | 16         | 40.8      | 0.5       | 67.54   | 2.47               |
| 1     | 17         | 40.8      | 0.5       | 56.04   | 2.81               |
| 1     | 18         | 40.8      | 0.5       | 51.69   | 3.10               |



# Bottomside Thickness (B0B1\_qModel )

## [/Heatmap snapshot B0B1qModel](#)

Returns a heatmap of the monthly averaged Thickness model B0 coefficient (km) at an t

Show/hide details

### Inputs

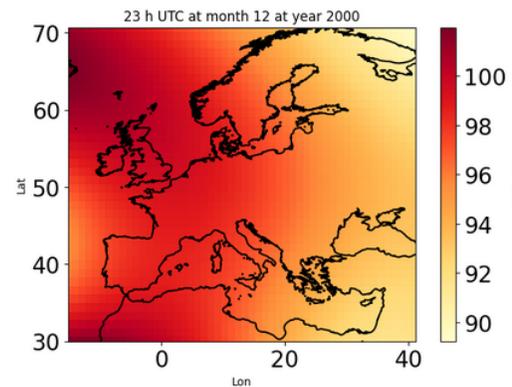
Cancel

#### Name Description

year Insert a year in range [1900,2030]  
integer (query) 2000  
month Insert a month in range [1,12]  
integer (query) 12  
hour Insert an hour in range [0,23]  
integer (query) 23  
lat\_min Insert a latitude in range [-70,+70]  
number (query) 30  
lat\_max Insert a latitude in range [-70,+70]  
number (query) 70  
lon\_min Insert a longitude in range [-180,+180]  
number (query) -15  
lon\_max Insert a longitude in range [-180,+180]  
number (query) 40

Run /B0B1QMODEL\_MAP/ Clear Outputs

### Outputs



**Input:** date, latitude and longitude

**Output:**

- Maps
  - csv file
  - Heatmap snapshot

**Input:** date, latitude and longitude

**Output:**

- Heatmap daily animation (NOT SHOWN)

## [/Heatmap snapshot file B0B1qModel](#)

Returns a csv file for different latitudes and longitudes of the monthly averaged

Show/hide details

### Inputs

Cancel

#### Name Description

year Insert a year in range [1900,2030]  
integer (query) 2000  
month Insert a month in range [1,12]  
integer (query) 12  
hour Insert an hour in range [0,23]  
integer (query) 23  
lat\_min Insert a latitude in range [-70,+70]  
number (query) 30  
lat\_max Insert a latitude in range [-70,+70]  
number (query) 70  
lon\_min Insert a longitude in range [-180,+180]  
number (query) -15  
lon\_max Insert a longitude in range [-180,+180]  
number (query) 40

Run /B0B1QMODEL\_MAP\_FILE/ Clear Outputs

### Outputs

Download

| month | hour (UTC) | lat (deg) | lon (deg) | b0 (km) | b1 (dimensionless) |
|-------|------------|-----------|-----------|---------|--------------------|
| 12    | 23         | 30.0      | -15.0     | 101.72  | 3.58               |
| 12    | 23         | 30.0      | -13.9     | 101.77  | 3.58               |
| 12    | 23         | 30.0      | -12.8     | 101.79  | 3.57               |
| 12    | 23         | 30.0      | -11.7     | 101.79  | 3.57               |
| 12    | 23         | 30.0      | -10.6     | 101.75  | 3.56               |
| 12    | 23         | 30.0      | -9.5      | 101.70  | 3.56               |
| 12    | 23         | 30.0      | -8.4      | 101.61  | 3.55               |
| 12    | 23         | 30.0      | -7.3      | 101.51  | 3.55               |
| 12    | 23         | 30.0      | -6.2      | 101.38  | 3.54               |
| 12    | 23         | 30.0      | -5.1      | 101.22  | 3.53               |
| 12    | 23         | 30.0      | -4.0      | 101.05  | 3.53               |
| 12    | 23         | 30.0      | -2.9      | 100.85  | 3.52               |
| 12    | 23         | 30.0      | -1.8      | 100.63  | 3.51               |
| 12    | 23         | 30.0      | -0.7      | 100.40  | 3.50               |
| 12    | 23         | 30.0      | 0.4       | 100.15  | 3.50               |
| 12    | 23         | 30.0      | 1.5       | 99.88   | 3.49               |
| 12    | 23         | 30.0      | 2.6       | 99.60   | 3.48               |
| 12    | 23         | 30.0      | 3.7       | 99.31   | 3.47               |



# F-peak height (hmF2\_qModel )

- ❖ Model for the density peak height, hmF2, for **quiet conditions**.
- ❖ Also, two access methods, external and integrated API
- ❖ Outputs of the model
  - Timeseries
    - csv file
    - Timeseries plot
  - Heatmap snapshots
    - csv file
    - Plot maps
  - Daily heatmap animation

The screenshot shows the PITHIA-NRF e-Science Centre website. The header includes the logo, the text 'PITHIA-NRF e-Science Centre', and navigation links for 'HOME' and 'SEARCH & BROWSE'. A 'Login' button is in the top right. Below the header is a breadcrumb 'Home / Present'. The main content area is titled 'Interact with Data Collection via API' with a sub-header 'hmF2\_qModel'. The page title is 'hmF2 qModel API' with a link icon. Under 'Endpoints', it states: 'You will be able to run the [hmF2 qModel](#) to obtain the height (in km) where the electron density peak is located in the F2 layer.' A bulleted list of endpoints includes: 'Generate csv files' (Time series file: month, hour, peak height; Heatmap snapshot file) and 'Generate plots' (Time series plot: month, hour, peak height, latitude, longitude; Heatmap snapshot; Heatmap daily animation). A 'Notes' section contains: 'Model validity: The model is able to perform predictions until 2030 (not included). The International Geomagnetic Reference Field (IGRF) used in this model is valid until 2025 (included). Note that those predictions for years between 2026 and 2029 (both included) can be computed but IGRF values may be of reduced accuracy.' A search box 'Search endpoint by name' is present. Below are four endpoint sections, each with a 'Show/hide details' button: 1. '/Time series file' (Returns a csv file for the monthly averages of the Fpeak model at different hours). 2. '/Time series plot' (Returns a plot for the monthly averages of the Fpeak model at different hours). 3. '/Heatmap snapshot file' (Returns a csv file for different latitudes and longitudes of the monthly averaged Fpeak model at an hour for a certain spatial time window). 4. '/Heatmap snapshot' (Returns a heatmap of the monthly averaged Fpeak model at an hour for a certain spatial time window). The final endpoint is '/Heatmap daily animation' (Returns an hourly animation of the monthly averaged Fpeak model for a certain spatial time window. The execution may take a while ☹️. You can go for a coffee if you want ☺️).



# F-peak height (hmF2\_qModel )

## [/Time series plot](#)

Returns a plot for the monthly averages of the Fpeak model at different hours

Show/hide details

### Inputs

Cancel

#### Name Description

year Insert a year in range [1900,2030]

integer (query)

latitude Insert a latitude in range [-70,+70]

number (query)

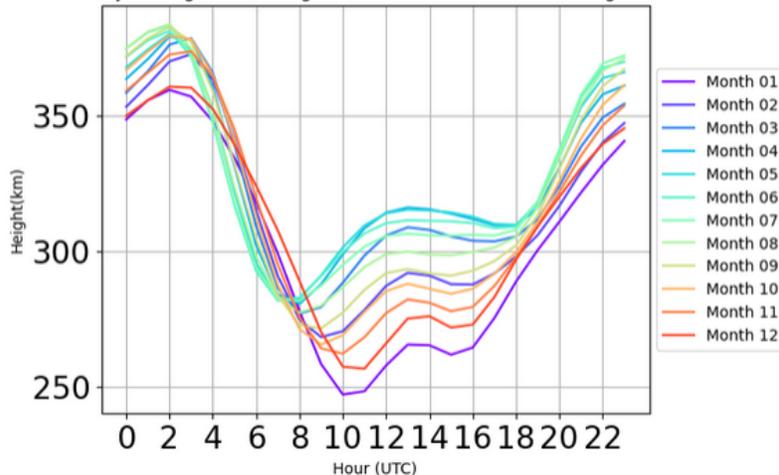
longitude Insert a longitude in range [-180,+180]

number (query)

Run /HMF2\_TIME\_SERIES\_PLOT/ Clear Outputs

### Outputs

Monthly average FPeak height for 2000 at Latitude 40.8 Longitude 0.5



**Input:** date, latitude and longitude

**Output:**

- Time series
  - csv file
  - Timeseries plot

## [/Time series file](#)

Returns a csv file for the monthly averages of the Fpeak model at different hours

Show/hide details

### Inputs

Cancel

#### Name Description

year Insert a year in range [1900,2030]

integer (query)

latitude Insert a latitude in range [-70,+70]

number (query)

longitude Insert a longitude in range [-180,+180]

number (query)

Run /HMF2\_TIME\_SERIES\_FILE/ Clear Outputs

### Outputs

Download

| month | hour (UTC) | lat (deg) | lon (deg) | fpeak (km) |
|-------|------------|-----------|-----------|------------|
| 1     | 0          | 40.8      | 0.5       | 348.68     |
| 1     | 1          | 40.8      | 0.5       | 355.79     |
| 1     | 2          | 40.8      | 0.5       | 359.57     |
| 1     | 3          | 40.8      | 0.5       | 357.09     |
| 1     | 4          | 40.8      | 0.5       | 348.01     |
| 1     | 5          | 40.8      | 0.5       | 334.44     |
| 1     | 6          | 40.8      | 0.5       | 318.13     |
| 1     | 7          | 40.8      | 0.5       | 299.12     |
| 1     | 8          | 40.8      | 0.5       | 277.90     |
| 1     | 9          | 40.8      | 0.5       | 258.34     |
| 1     | 10         | 40.8      | 0.5       | 247.14     |



# F-peak height (hmF2\_qModel )

## /Heatmap snapshot

Returns a heatmap of the monthly averaged Fpeak model at an hour for a certain spatial time window

Show/hide details

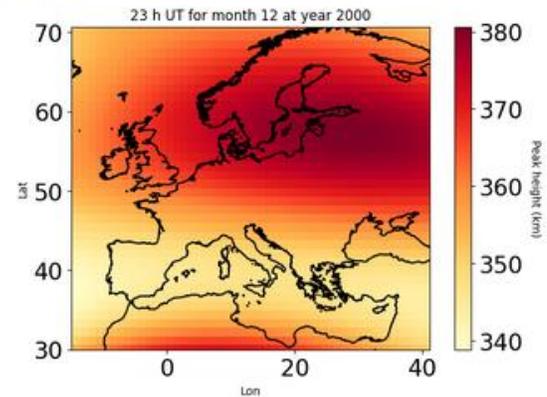
### Inputs

Cancel

| Name            | Description                             |
|-----------------|---|
| year            | Insert a year in range [1900,2030]      |
| integer (query) | 2000                                    |
| month           | Insert a month in range [1,12]          |
| integer (query) | 12                                      |
| hour            | Insert an hour in range [0,23]          |
| integer (query) | 23                                      |
| lat_min         | Insert a latitude in range [-70,+70]    |
| number (query)  | 30                                      |
| lat_max         | Insert a latitude in range [-70,+70]    |
| number (query)  | 70                                      |
| lon_min         | Insert a longitude in range [-180,+180] |
| number (query)  | -15                                     |
| lon_max         | Insert a longitude in range [-180,+180] |
| number (query)  | 40                                      |

Run /HMF2\_MAP/ Clear Outputs

### Outputs



**Input:** date, latitude and longitude

**Output:**

- Maps
  - csv file
  - Heatmap snapshot

**Input:** date, latitude and longitude

**Output:**

- Heatmap daily animation (NOT SHOWN)

## /Heatmap snapshot file

Returns a csv file for different latitudes and longitudes of the

Show/hide details

### Inputs

Cancel

#### Name Description

|                 |   |
|-----------------|---|
| year            | Insert a year in range [1900,2030]      |
| integer (query) | 2000                                    |
| month           | Insert a month in range [1,12]          |
| integer (query) | 12                                      |
| hour            | Insert an hour in range [0,23]          |
| integer (query) | 23                                      |
| lat_min         | Insert a latitude in range [-70,+70]    |
| number (query)  | 30                                      |
| lat_max         | Insert a latitude in range [-70,+70]    |
| number (query)  | 70                                      |
| lon_min         | Insert a longitude in range [-180,+180] |
| number (query)  | -15                                     |
| lon_max         | Insert a longitude in range [-180,+180] |
| number (query)  | 40                                      |

Run /HMF2\_MAP\_FILE/ Clear Outputs

### Outputs

Download

| month | hour (UTC) | lat (deg) | lon (deg) | fpeak (km) |
|-------|------------|-----------|-----------|------------|
| 12    | 23         | 30.0      | -15.0     | 353.53     |
| 12    | 23         | 30.0      | -13.9     | 355.14     |
| 12    | 23         | 30.0      | -12.8     | 356.70     |
| 12    | 23         | 30.0      | -11.7     | 358.21     |
| 12    | 23         | 30.0      | -10.6     | 359.65     |
| 12    | 23         | 30.0      | -9.5      | 361.03     |
| 12    | 23         | 30.0      | -8.4      | 362.34     |



# Equatorial Plasma Detection (EPB\_detectionTool)

- Equatorial Plasma Detection method is able to identify the occurrence of Equatorial Plasma Bubbles (EPBs) with data gathered from receivers of Global Navigation Satellite System (GNSS).
- Also, two access methods, external and integrated API

The screenshot shows the website for the EPB\_detectionTool. At the top, there is a navigation bar with the PITHIA-NRF e-Science Centre logo, a search bar, and a login button. The main heading is "Interact with Data Collection via API" with the sub-heading "EPB\_detectionTool". Below this, there is a section for "Bubbles API" which includes a brief description of the tool's purpose and a list of instructions for use. The instructions are: 1. Available stations: Shows a world map with available stations. 2. Run the detection tool: Returns a file with detected bubbles. 3. Bubbles folder: Returns a folder with plots, logs, and the output file. 4. Potential bubble plot: Generates a plot for potential bubbles. A "Tool Availability" section states that the tool is available for 50 IGS stations from 2009 to the day before yesterday. A "Notes" section provides details on data sources (RINEX and ORBIT files) and solution types (Final and Rapid). At the bottom, there is a table of available stations with columns for Type, Accuracy/Latency, Update, and Sample Interval. A search bar is provided to find stations by name. Below the table, there are four sections: "/Available stations", "/Run detection tool", "/Bubbles folder", and "/Potential bubble plot", each with a "Show/Hide details" button.

| Type  | Accuracy/Latency | Update                        | Sample Interval |
|-------|------------------|-------------------------------|-----------------|
| Rapid | -2.5 m           | 17 - 41 hours at 17 UTC daily | 5 min           |
| Final | -2.5 m           | 12 - 19 days every Friday     | 15 min          |



# Equatorial Plasma Detection (EPB\_detectionTool )

- First endpoint stations
  - Returns a map of stations from day before yesterday
- Issue with the map in the interface

[/Available stations](#)  
Shows the world map with the different available stations.

Show/hide details

Inputs

Cancel

No input required to run this API

Run /STATIONS Clear Outputs

Outputs





# Equatorial Plasma Detection (EPB\_detectionTool )

- Second endpoint: detection tool
  - Collects satellite data for a single station
  - Returns the significant bubbles for each satellite
  - Could take some time

## [/Run detection tool](#)

Collects satellite data and runs the detection tool. It returns the significant bubbles for each satellite. The execution may take a while ☹️. You can go for a coffee if you want ☺️.

[Show/hide details](#)

### Inputs

[Cancel](#)

#### Name Description

year Insert a year in range [2009,2023]

integer  
(query)

day Insert a day of the year in range [1,366]

integer  
(query)

station Insert a station in the list

string  
(query)

[Run /BUBBLES\\_RUN\\_DETECTION\\_TOOL/](#) [Clear Outputs](#)

### Outputs

[Download](#)

```
*** 7 BUBBLES DETECTED at STATION glps LAT -0.738 LON -90.304***

***** Significant BUBBLE 1 *****

PRN = 12
t0 (s) = 9450 s
tf (s) = 16050 s
duration = 110.0 min
depth_MAX = -51.067300514800486 TECU

Time (s) Depth (TECU) Lat Lon
9450 0.024805 0.0043 -91.7742
9480 0.013462 -0.0100 -91.7722
9510 -0.026229 -0.0242 -91.7703
9540 -0.078368 -0.0304 -91.7683
9570 -0.127454 -0.0526 -91.7664
9600 -0.157189 -0.0667 -91.7645
9630 -0.189172 -0.0808 -91.7626
9660 -0.235203 -0.0949 -91.7607
9690 -0.270481 -0.1090 -91.7589
9720 -0.330508 -0.1230 -91.7570
9750 -0.394683 -0.1370 -91.7552
```



# Equatorial Plasma Detection

(EFD) [/Bubbles folder](#)

It returns the plots for all the significant bubbles, output file and logs in a compressed folder.

Show/hide details

- Third endpoint: bubbles folder

| Name                  | Modified        | Type       |
|-----------------------|-----------------|------------|
| 2023050glpspotenti... | 23/08/2023 7:24 | Archivo PN |
| 2023050glpspotenti... | 23/08/2023 7:24 | Archivo PN |
| 2023050glpspotenti... | 23/08/2023 7:24 | Archivo PN |
| 2023050glpspotenti... | 23/08/2023 7:25 | Archivo PN |
| 2023050glpspotenti... | 23/08/2023 7:25 | Archivo PN |
| 2023050glpspotenti... | 23/08/2023 7:25 | Archivo PN |
| 2023050glpspotenti... | 23/08/2023 7:25 | Archivo PN |
| bubbles_glps_20230... | 23/08/2023 7:25 | Archivo de |
| bubbles_glps_20230... | 23/08/2023 7:25 | Archivo TX |

ZIP FILE

API:

- Unrecognized zip file

## Inputs

Cancel

### Name Description

year Insert a year in range [2000,2023]

integer

(query) 2023

doy Insert a day of the year in range [1,366]

integer

(query) 50

station Insert a station in the list

string

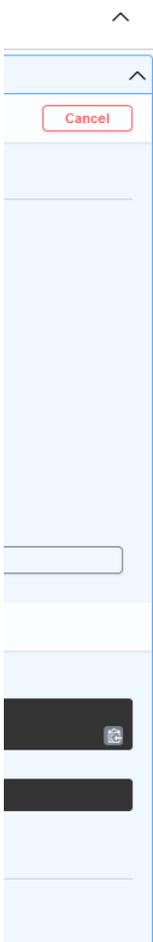
(query) glps

Run /BUBBLES\_FOLDER/

Clear Outputs

## Outputs

Unrecognized response type; unable to display.





# Equatorial Plasma Detection (EPB\_detectionTool)



[/Potential bubble plot](#)

Creates a plot for all the bubbles that have been previously identified with the run detection tool.

[Show/hide details](#)

- Fourth endpoint

- Input: satellite from the selected station
- Returns plot of STEC, the peak and the trajectory

Inputs

**Name Description**

year Insert a year in range [2000,2023]

integer (query)

doy Insert a day of the year in range [1,366]

integer (query)

station Insert a station in the list

string (query)

sat Insert a Satellite number in range [1,32]

integer (query)

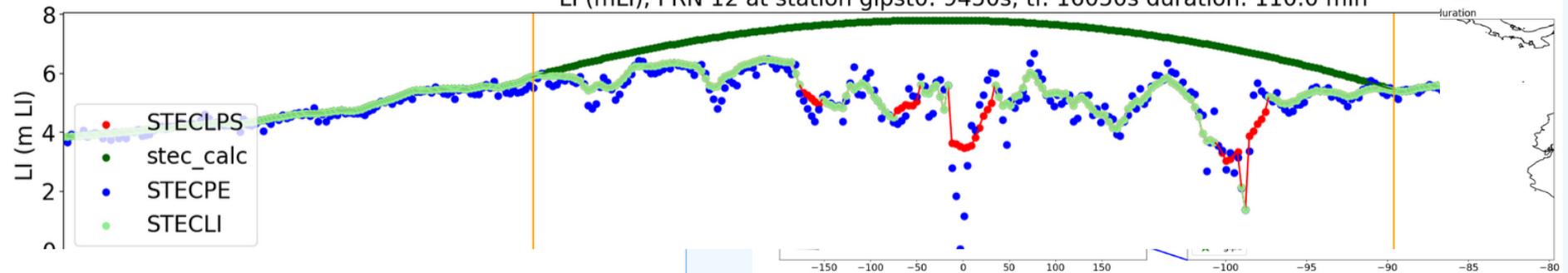
to Insert the time in seconds when the bubble started [0,86400]

integer (query)

Outputs

SIGNIFICANT BUBBLE detected at PRN 12 at station glps

LI (mLI), PRN 12 at station glpst0: 9450s, tf: 16050s duration: 110.0 min





# Conclusions

- B0B1\_qModel and hmF2\_qModel ready to keep only the integrated API
- EPB\_detectionTool integrated API needs to be improved:
  - Figure size
  - Zip format
- How to deal with a large number of demands in the API?



# Thank you for your attention!

**WEB:** <https://www.pithia-nrf.eu>



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