



ESPAS: Near Earth Space Data Infrastructure for e-Science

Homogenized access to ESPAS main data repositories

Ioanna Tsagouri

National Observatory of Athens

18th November 2014, ESPAS Splinter Meeting, ESWW11



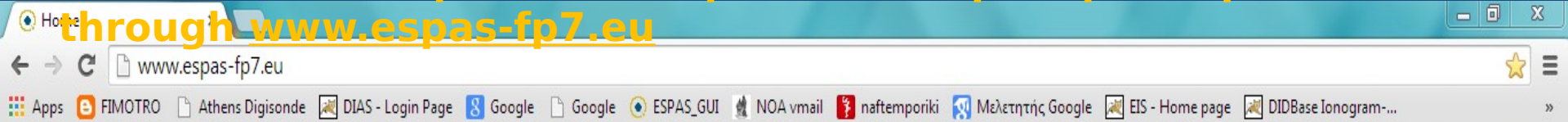
ESPAS: Near Earth Space Data Infrastructure for e-Science

Homogenized access to the main ESPAS data repositories: The fundamental use case of ESPAS system refined in accordance to the users' requirements (ESPAS D2.2)

Data product search. The END_USER queries the ESPAS system for near-earth space data products using any combination of the following search fields: domain name, organisation, observatory, characteristics, instruments, temporal and spatial constraints. The END_USER views the metadata information and downloads the resulting data products. A zip utility facilitates the download of multiple files.

Characteristics search. The END_USER queries the ESPAS system for near-earth space characteristics data using any combination of the following search fields: organisation, observatory, characteristics, instruments, temporal and spatial constraints, observed vs generated data. The END_USER can view the results, download them in common formats or plot them (where applicable). A zip utility facilitates the download of multiple results files.

Access to ESPAS portal at <https://www.espas-fp7.eu/portal/> or through www.espas-fp7.eu



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search...

ESPAS Platform

Click [here](#) to access ESPAS platform.

ESPAS Roadmap

- 1 November 2011: Start of the EU project
- 10-11 November 2011: Kick off meeting, INGV, Rome
- October 2012: First Release - First High Profile Annual Meeting and CDAW
- October 2013: Second Release - Second High Profile Annual Meeting and CDAW
- October 2014: Third Release
- February 2015: Final Release of the ESPAS Platform

Welcome to the EU FP7 ESPAS Project



ESPAS aims at building the e-Infrastructure necessary to support the access to observations, the modeling and prediction of the near-Earth space environment extending from the Earth's atmosphere up to the outer radiation belts. ESPAS interface will provide access to more than 40 data repositories containing heterogeneous data from ground and space, in situ and remote sensed, developed for the needs of different users. To achieve this main goal, the following detailed objectives are addressed:

- The infrastructure must integrate heterogeneous data from multiple providers. To do so, it must establish policies on identification, access, availability, quality, sharing and re-use of the data (or metadata) of the participating content providers.
- The infrastructure must enable data access across multiple data sources, each one focused on a specific research topic. Since the search results are related to datasets and their descriptions (metadata), it is essential that they are delivered in a scientist-friendly manner. To facilitate the search, a number of workflows (data flows) will be employed within the core ESPAS system.

Latest News

ESPAS CDAW during ESWW11

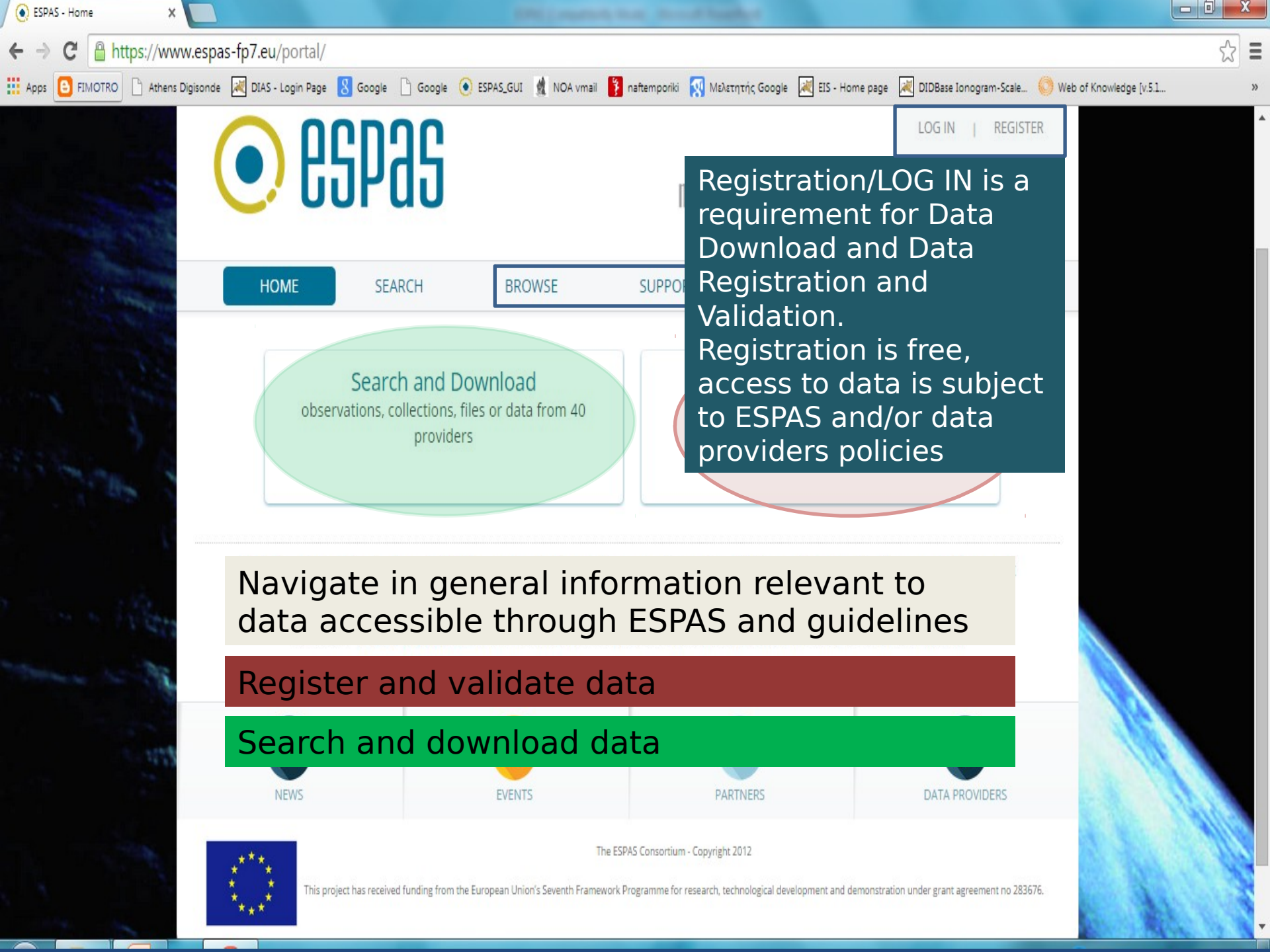
02 Oct 2014 14:02

SPLINTER - THE ESPAS E-INFRASTRUCTURE: COORDINATED DATA ANALYSIS WORKSHOP **11th European Space Weather Week, Liege (Belgium)**

Tuesday 18th, 17:30 - 19:00
The splinter session aims at exploring ESPAS capabilities based on the implementation of specific science cases which require identification of events, analysis of multi-instrument and multi-point data, model-observation comparison, st [...]

EISCAT_3D User Meeting in Uppsala, Sweden

21 May 2014 06:26



LOG IN | REGISTER

HOME SEARCH **BROWSE** SUPPORT

Search and Download
observations, collections, files or data from 40
providers

Registration/LOG IN is a requirement for Data Download and Data Registration and Validation. Registration is free, access to data is subject to ESPAS and/or data providers policies

Navigate in general information relevant to data accessible through ESPAS and guidelines

Register and validate data

Search and download data

NEWS EVENTS PARTNERS DATA PROVIDERS



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Progressive Search - Filter your search with different options as you go along (real-time)



Time Period



Assets



Observed Properties

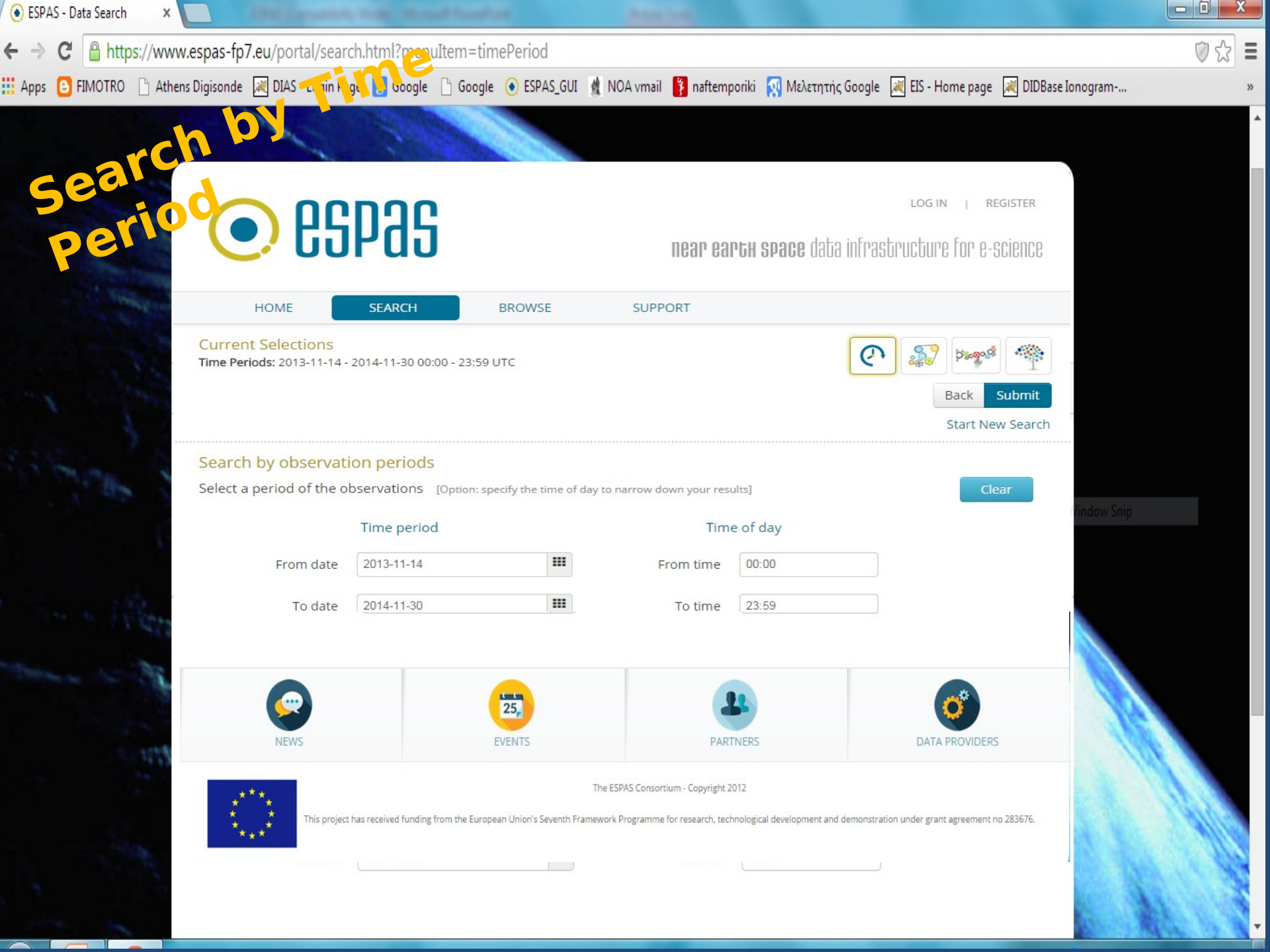


Observation Collections

Search queries are build on dynamic workflows. The user is able to:

- start a data search query by any of these criteria
- complete the query through any combination of these criteria (1 up to 4 criteria in each data request), while each filters the previous one helping the user to conclude on the desirable set of data.





Search by Time Period



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Current Selections

Time Periods: 2013-11-14 - 2014-11-30 00:00 - 23:59 UTC



Back Submit

Start New Search

Search by observation periods

Select a period of the observations [Option: specify the time of day to narrow down your results]

Clear

Time period

From date 2013-11-14

To date 2014-11-30

Time of day

From time 00:00

To time 23:59



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Search by Assets Instruments

Current Selections
none



Back Submit

Start New Search

Search by assets

Select Assets on the right [Filter with available options on the left]

Clear

Filter by

- Asset Type
- Platform
- Project

Assets

Start typing to select options...

Select All Deselect All

- Instruments
 - Andøya Magnetometer
 - Athens Digisonde
 - Bergen Magnetometer
 - Bjørnøya Geomagnetic Observatory Magnetometer
 - Dombås Geomagnetic Observatory Magnetometer
 - Dønna Magnetometer
 - DTU Space fluxgate magnetometer
 - EISCAT Kiruna Receiver
 - EISCAT Sodankylä Receiver
 - EISCAT Svalbard Radar
 - EISCAT Tromsø UHF Radar
 - EISCAT Tromsø VHF Radar
 - GNSS Receiver
 - Hopen Magnetometer
 - IAP on board DEMETER
 - ISIS 1 Topside Sounder



Search by Assets: Models



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HOME SEARCH BROWSE SUPPORT

Current Selections none



Back Submit

Start New Search

Search by assets

Select Assets on the right [Filter with available options on the left]

Clear

Filter by

- Asset Type
- Platform
- Project

Assets

Start typing to select options...

Select All Deselect All

- WHISPER Instrument Onboard Cluster3
- WHISPER Instrument Onboard Cluster4
- Models
 - ARTIST
 - CCIR F peak model
 - DIAS Ne3D
 - GUIDAP
 - Interpre
 - ionobrowse
 - IRI (International Reference Ionosphere)
 - Lockwood Formula
 - SIRM
 - SIRMUP
 - SuperDARN Map potential model
 - TaD (Topside Sounders Model assisted by Digisonde)
 - TEC Map Processor
 - URSI F peak model





Search by Property Observed

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Current Selections
none



Back Submit

Start New Search

Search by observed properties

Select Observed Properties on the right [Filter with available options on the left]

Clear

Filter by

- Measurand
- Phenomenon
- Qualifier

Observed Properties

Start typing to select options...

Select All Deselect All

- Electron Density (Ne)
 - Total Electron Content (I)
- Magnetic Field (B)
 - Magnetic Field NED Eastward Component (Y)
 - Magnetic Field NED Northward Component (X)
 - Magnetic Field Vertical Component (Z)
- Minimum frequency of Reflections from Plasma Layer (fmin)
 - Minimum frequency of ionospheric reflections in E region (fminE)
 - Minimum frequency of ionospheric reflections in Es layer (fminEs)
 - Minimum frequency of ionospheric reflections in F region (fminF)
- Auroral (particle) E-layer Critical Frequency (foEa)
- Chapman-approximation scale height of F2 layer (qc)
- Density Profile Shape B1 (B1)
- Density Profile Shape D1 (D1)
- Density Profile Thickness B0 (B0)
- E-layer Critical Frequency (foE)
- E layer peak height (zmv)



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Search by Observation Collections



HOME SEARCH BROWSE

Current Selections
none

Search by observation collections

Select Observation Collections on the right [Filter with...]

Filter by

Region of Space

Start typing to select options...

Select All Deselect All

- Earth's Magnetosphere
- F-Region Bottomside of Ionosphere
- Ionosphere
- Thermosphere

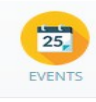
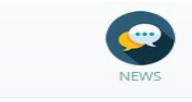
Dimensionality

Observation Collection

Start typing to select options...

Select All Deselect All

- Andenes Magnetometer Data
- Athens Digisonde SAO files (autoscaled)
- Bergen Magnetometer Data
- Bjørnøya Magnetometer Data
- DEMETER IAP - Characteristics of Low Energy Ions in Burst Mode (DMT_
- DEMETER IAP - Characteristics of Low Energy Ions in Survey Mode (DMT
- DEMETER ISL - Langmuir Probe Results (Plasma Parameters) in Burst M
- DEMETER ISL - Langmuir Probe Results (Plasma Parameters) in Survey I
- DIAS Bottomside Electron Density Nowcasting Maps
- DIAS daily f-plots of fmin,foF2 from Athens Digisonde
- DIAS daily f-plots of M(3000)F2 from Athens Digisonde
- DIAS Ionograms from Athens Digisonde
- DIAS Nowcasting Maps of MUF - transmission point: Athens (Greece)
- DIAS SIRMUP nowcasting maps of foF2
- DIAS SIRMUP nowcasting maps of M(3000)F2
- DIAS Topside Electron Density Nowcasting Maps
- Dombås Magnetometer Data
- Dønna Magnetometer Data
- EISCAT ISR standard parameters
- Hopen Magnetometer Data
- IRI foF2 grids - CCIR F peak model
- IRI foF2 grids - URSI F peak model
- ISIS 1 Electron Density Profiles
- ISIS 2 Electron Density Profiles
- Jäckvik Magnetometer Data
- Jan Mayen Magnetometer Data
- Karmøy Magnetometer Data
- Leknes Magnetometer Data
- Longyearbyen Magnetometer Data
- METOP-02 MEPED energetic particle data
- NOAA-06 MEPED energetic particle data
- NOAA-07 MEPED energetic particle data
- NOAA-17 MEPED energetic particle data
- NOAA-18 MEPED energetic particle data
- NOAA-19 MEPED energetic particle data
- Nordkapp Magnetometer Data
- Ny-Ålesund Magnetometer Data
- Solund Magnetometer Data
- Sørøya Magnetometer Data
- SuperDARN Map potential collection
- Tromsø Magnetometer Data
- UCL FPis Wind and Intensity Files
- Validated Values of the Ionospheric Characteristics Recorded at Rome f
- WHISPER1 Electron Density
- WHISPER2 Electron Density
- WHISPER3 Electron Density
- WHISPER4 Electron Density





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Example 1: Data product search

Study of the near-Earth space response to storm event occurred between 21 – 23 January 2005

Suggested route:

Time period Observed property Assets Observation Collections Submit



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Current Selections
Time Periods: 2005-01-21 - 2005-01-23 00:00 - 23:59 UTC



Back Submit

Start New Search

Search by observation periods

Select a period of the observations [Option: specify the time of day to narrow down your results]

Clear

Time period		Time of day	
From date	<input type="text" value="2005-01-21"/>	From time	<input type="text" value="00:00"/>
To date	<input type="text" value="2005-01-23"/>	To time	<input type="text" value="23:59"/>

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Current Selections

Time Periods: 2005-01-21 - 2005-01-23 00:00 - 23:59 UTC

Observed Properties: Magnetic Field, Magnetic Field NED Eastward Component, ...



Back Submit

Start New Search

Search by observed properties

Select Observed Properties on the right [Filter with available options on the left]

Clear

Filter by

- Measurand
- Phenomenon
- Qualifier

Observed Properties

Start typing to select options...

Select All

Deselect All

- F1-layer Critical Frequency (foF1)
- F2-layer Critical Frequency (foF2)
- Ion Composition (I/I)
- Ion Density (Ni)
- Ion Drift Velocity (Vi)
- Ion-neutral collision frequency (Vin)
- Ion Temperature (Ti)
- Minimum frequency of Reflections from Plasma Layer (fmin)
- Minimum Virtual Height of E layer (h'E)
- Minimum Virtual Height of Es layer (h'Es)
- Minimum Virtual Height of F layer (h'F)
- Neutral Horizontal Wind Velocity (Vn-horiz)
- Optical Photon Flux (qp)
- Proton Flux (F)
- Standard MUF at 3000 km (MUF(3000)F2)
- Te/Ti temperature ratio (Te/Ti)
- Top Frequency of Reflections from Plasma Layer (ft)



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Current Selections

Time Periods: 2005-01-21 - 2005-01-23 00:00 - 23:59 UTC
Observed Properties: Magnetic Field, Magnetic Field NED Eastward Component, ...
Assets: DTU Space fluxgate magnetometer, EISCAT Kiruna Receiver, ...



Back Submit

Start New Search

Search by assets

Select Assets on the right [Filter with available options on the left]

Clear

Filter by

Asset Type

Start typing to select options...

Select All Deselect All

- Instrument types
 - Energetic Particle Detector
 - Incoherent Scatter Radar
 - Ionosonde
 - Langmuir Probe
 - Magnetometer
 - Resonance Relaxation Sounder
 - Retarding Potential Analyser

Platform

Project

Assets

Start typing to select options...

Select All Deselect All

- IAP ON BOARD DEMETER
- ISL (Langmuir probe) on board DEMETER
- Karmøy Magnetometer
- Leknes Magnetometer
- Longyearbyen Magnetometer
- MEPED energetic particle instrument onboard NOAA-15
- MEPED energetic particle instrument onboard NOAA-16
- MEPED energetic particle instrument onboard NOAA-17
- Ny-Ålesund Magnetometer
- Sodankylä Ionosonde (SO166)
- Solund Magnetometer
- Sørøya Magnetometer
- Tromsø Geomagnetic Observatory Magnetometer
- WHISPER Instrument Onboard Cluster1
- WHISPER Instrument Onboard Cluster2
- WHISPER Instrument Onboard Cluster3
- WHISPER Instrument Onboard Cluster4

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Current Selections

Time Periods: 2005-01-21 - 2005-01-23 00:00 - 23:59 UTC
Observed Properties: Magnetic Field, Magnetic Field NED Eastward Component, ...
Assets: DTU Space fluxgate magnetometer, EISCAT Kiruna Receiver, ...
Observation Collections: DEMETER IAP - Characteristics of Low Energy Ions in Burst Mode (DMT_N1_1139), DEMETER IAP - Characteristics of Low Energy Ions in Survey Mode (DMT_N1_1140), ...



Back Submit

Start New Search

Search by observation collections

Select Observation Collections on the right [Filter with available options on the left]

Clear

Filter by

Region of Space

Start typing to select options...

Select All Deselect All

- Earth's Magnetosphere
- Ionosphere

Dimensionality

Observation Collection

Start typing to select options...

Select All Deselect All

- DEMETER IAP - Characteristics of Low Energy Ions in Burst Mode (DMT_N1_1139)
- DEMETER IAP - Characteristics of Low Energy Ions in Survey Mode (DMT_N1_1140)
- EISCAT ISR standard parameters
- NOAA-15 MEPED energetic particle data
- NOAA-16 MEPED energetic particle data
- NOAA-17 MEPED energetic particle data
- Tromsø Magnetometer Data
- WHISPER1 Electron Density
- WHISPER2 Electron Density





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Current Selections

Time Periods: 2005-01-21 - 2005-01-23 00:00 - 23:59 UTC
Observed Properties: Magnetic Field, Magnetic Field NED Eastward Component, ...
Assets: DTU Space fluxgate magnetometer, EISCAT Kiruna Receiver, ...
Observation Collections: DEMETER IAP - Characteristics of Low Energy Ions in Burst Mode (DMT_N1_1139), DEMETER IAP - Characteristics of Low Energy Ions in Survey Mode (DMT_N1_1140), ...



Back Submit

Start New Search

Results

Select Download dataset files or data values (observed properties) and go to My Account to monitor their progress

Observation attributes

- Project: Cluster
- Dimensionality Timeline: 1D Time Series

Refine by

Region of Space

Platform

Observation Collection

Observation Year

Dimensionality Instance

Instrument

Number of Observations : 193

Download

Dataset files

Data values

Observation Collections

- DEMETER IAP - Characteristics of Low Energy Ions (DMT_N1_1139)
- DEMETER IAP - Characteristics of Low Energy Ions in Survey Mode (DMT_N1_1140)
- NOAA-15 MEPED energetic particle data
- NOAA-16 MEPED energetic particle data
- NOAA-17 MEPED energetic particle data
- Tromsø Magnetometer Data
- WHISPER1 Electron Density
- WHISPER2 Electron Density



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Dataset Files Download

You can give a name to your download request. If you leave it empty the default name will be the date of the request.

Request name

Licences

I agree to all the Licences

I agree to the EISCAT Rules of the Road licence

Download

HOME

Current Selections

Time Periods: 2005-01-21 - 20
Observed Properties: Magn
Observation Collections: EISC

Results

Select Download dataset fil

Observation attribu

- Project: EISCAT Incoher
- Region of Space: Ionosp
- Platform: EISCAT Site Tr
- Observation Collection: EISCAT ionospheric
- parameters
- Observation Year: 2005
- Model: GUIDAP
- Instrument: EISCAT Tromsø VHF Radar

Refine by

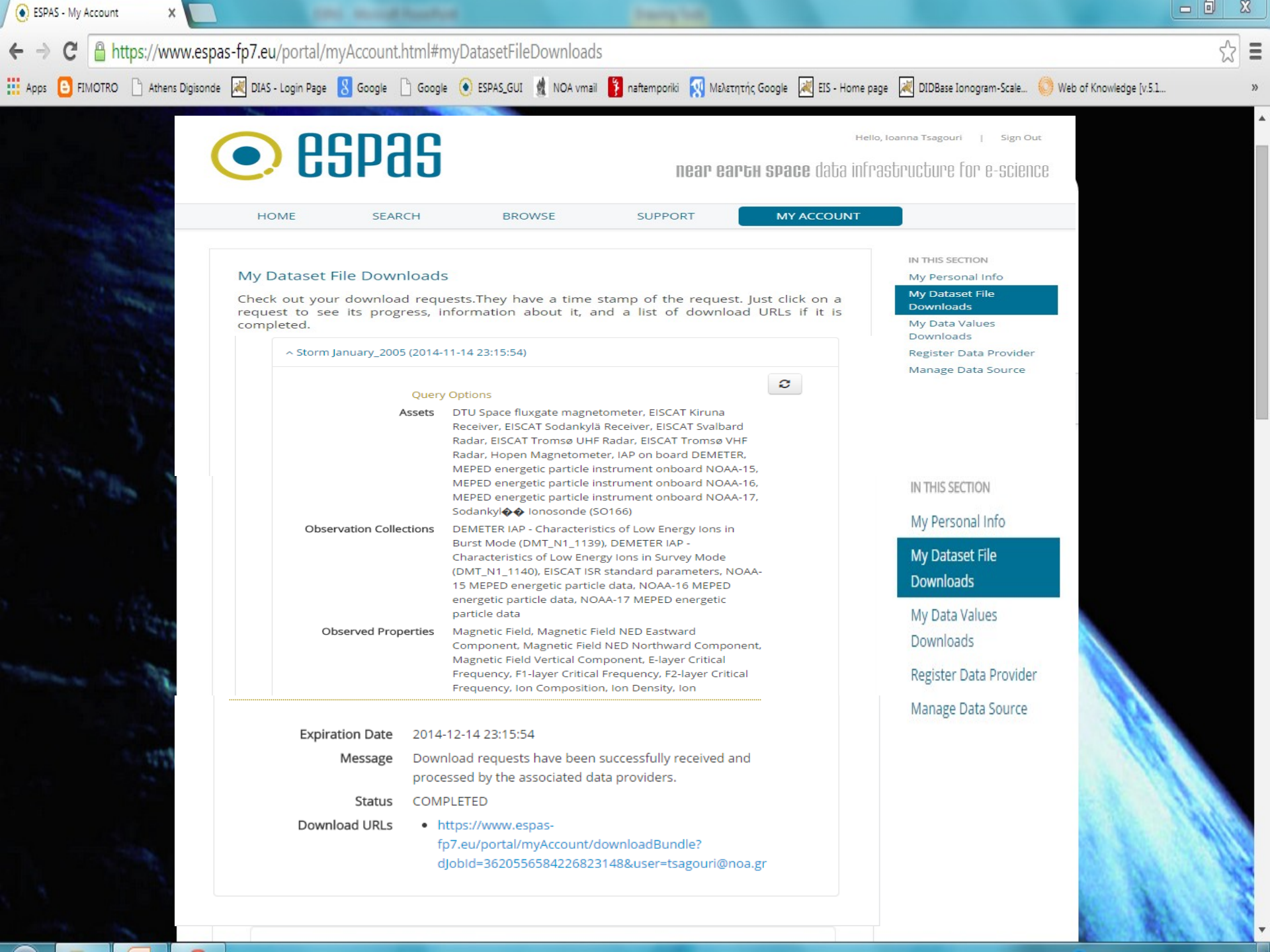
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Back Submit

Start New Search

Download



My Dataset File Downloads

Check out your download requests. They have a time stamp of the request. Just click on a request to see its progress, information about it, and a list of download URLs if it is completed.

^ Storm January_2005 (2014-11-14 23:15:54)

Query Options



Assets DTU Space fluxgate magnetometer, EISCAT Kiruna Receiver, EISCAT Sodankylä Receiver, EISCAT Svalbard Radar, EISCAT Tromsø UHF Radar, EISCAT Tromsø VHF Radar, Hopen Magnetometer, IAP on board DEMETER, MEPED energetic particle instrument onboard NOAA-15, MEPED energetic particle instrument onboard NOAA-16, MEPED energetic particle instrument onboard NOAA-17, Sodankylä Ionosonde (SO166)

Observation Collections DEMETER IAP - Characteristics of Low Energy Ions in Burst Mode (DMT_N1_1139), DEMETER IAP - Characteristics of Low Energy Ions in Survey Mode (DMT_N1_1140), EISCAT ISR standard parameters, NOAA-15 MEPED energetic particle data, NOAA-16 MEPED energetic particle data, NOAA-17 MEPED energetic particle data

Observed Properties Magnetic Field, Magnetic Field NED Eastward Component, Magnetic Field NED Northward Component, Magnetic Field Vertical Component, E-layer Critical Frequency, F1-layer Critical Frequency, F2-layer Critical Frequency, Ion Composition, Ion Density, Ion

Expiration Date 2014-12-14 23:15:54
Message Download requests have been successfully received and processed by the associated data providers.
Status COMPLETED
Download URLs

- <https://www.espas-fp7.eu/portal/myAccount/downloadBundle?djobId=3620556584226823148&user=tsagouri@noa.gr>

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- My Dataset File Downloads**
- My Data Values Downloads
- Register Data Provider
- Manage Data Source

IN THIS SECTION

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- My Dataset File Downloads**
- My Data Values Downloads
- Register Data Provider
- Manage Data Source

Save As

Local Disk (C:) > Storm January 2005

Organize New folder

Name	Date modified	Type
DownloadRequest3620556584226823148	14/11/2014 11:27 μμ	File folder
DownloadRequest3620556584226823148	14/11/2014 11:27 μμ	Compressed (zipp...

File name: DownloadRequest3620556584226823148

Save as type: Compressed (zipped) Folder

Save Cancel

Computer > Local Disk (C:) > Storm January 2005 > DownloadRequest3620556584226823148

File Edit View Tools Help
Organize Open Print New folder

Name	Date modified	Type	Size
eiscat	14/11/2014 11:27 μμ	File folder	
noa	14/11/2014 11:27 μμ	File folder	
DownloadRequestReport27693200266609...	14/11/2014 11:27 μμ	Text Document	40 KB

DownloadRequestReport276932002666093634 - WordPad

Download request with id:3620556584226823148 has status :COMPLETED.
Report on download request is:
Download requests have been successfully received and processed by the associated data providers.

Processing of requests assigned to provider : EISCAT has COMPLETED.
List of COMPLETED requests is as follows:
Request for :exp_20050121094325_eis_NCAR_2005-01-21_arcd_vhf_bin with description :null
Request for :NCAR_2005-01-21_arcd_vhf.bin.hdf5 with description :null

Processing of requests assigned to provider : National Observatory of Athens has COMPLETED.
List of COMPLETED requests is as follows:
Request for :DEMETER-IAP-Burst with description :DEMETER IAP - Characteristics of Low Energy Ions
Request for :DEMETER-IAP-Survey with description :IAP - Characteristics of Low Energy Ions in Sur
Request for :DEMETER-IAP-Survey with description :IAP - Characteristics of Low Energy Ions in Sur
Request for :DEMETER-IAP-Survey with description :IAP - Characteristics of Low Energy Ions in Sur
Request for :DEMETER-IAP-Burst with description :DEMETER IAP - Characteristics of Low Energy Ions
Request for :DEMETER-IAP-Burst with description :DEMETER IAP - Characteristics of Low Energy Ions

CAP 100%



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Example 2: Characteristics search

Study of the ionospheric variation (critical frequencies) in June 2006 in European middle latitudes

Suggested route:

Time period Observed property Assets Observation Collections Submit



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Current Selections

Time Periods: 2006-06-01 - 2006-06-30 00:00 - 23:59 UTC



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[Submit](#)

Search by observation periods

Select a period of the observations [Option: specify the time of day to narrow down your results]

[Clear](#)

Time period

From date

To date

Time of day

From time

To time



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Current Selections

Time Periods: 2006-06-01 - 2006-06-30 00:00 - 23:59 UTC
Observed Properties: E-layer Critical Frequency, F1-layer Critical Frequency, ...



[Back](#) [Submit](#)

[Start New Search](#)

Search by observed properties

Select Observed Properties on the right [Filter with available options on the left]

[Clear](#)

Filter by

-
-
-

Observed Properties

Start typing to select options...

- Minimum frequency of ionospheric reflections in F region (fminF)
- Auroral (particle) E-layer Critical Frequency (foEa)
- Chapman-approximation scale height of F2 layer (qc)
- Density Profile Shape B1 (B1)
- Density Profile Shape D1 (D1)
- Density Profile Thickness B0 (B0)
- E-layer Critical Frequency (foE)
- E-layer peak height (zmpE)
- Electron Flux (Fe)
- Electron Temperature (Te)
- Es-layer Blanketing Frequency (fbEs)
- Es-layer Critical Frequency (foEs)
- Es-layer Type (Type-Es)
- F1-layer Critical Frequency (foF1)
- F1-layer peak height (zmpF1)
- F2-layer Critical Frequency (foF2)
- F2 layer half-density height (zhalfNm)





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Current Selections

Time Periods: 2006-06-01 - 2006-06-30 00:00 - 23:59 UTC
Observed Properties: E-layer Critical Frequency, F1-layer Critical Frequency, ...
Assets: Athens Digisonde



Back Submit

Start New Search

Search by assets

Select Assets on the right [Filter with available options on the left]

Clear

Filter by

- Asset Type
- Platform
- Project

Assets

Start typing to select options...

Select All Deselect All

- Instruments
 - Athens Digisonde
 - Sodankylä Ionosonde (SO166)
- Models
 - ARTIST
 - ionobrowse
 - SIRM
 - SIRMUP

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Current Selections

Time Periods: 2006-06-01 - 2006-06-30 00:00 - 23:59 UTC

Observed Properties: E-layer Critical Frequency, F1-layer Critical Frequency, ...

Assets: Athens Digisonde

Observation Collections: Athens Digisonde SAO files (autoscaled)



Back Submit

Start New Search

Search by observation collections

Select Observation Collections on the right [Filter with available options on the left]

Clear

Filter by

Region of Space

Start typing to select options...

Select All

Deselect All

Ionosphere

Dimensionality

Observation Collection

Start typing to select options...

Select All

Deselect All

- Athens Digisonde SAO files (autoscaled)
- DIAS daily f-plots of fmin,foF2 from Athens Digisonde
- DIAS Ionograms from Athens Digisonde



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near earth space data infrastructure for e-science

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Current Selections

Time Periods: 2006-06-01 - 2006-06-30 00:00 - 23:59 UTC
Observed Properties: E-layer Critical Frequency, F1-layer Critical Frequency, ...
Assets: Athens Digisonde
Observation Collections: Athens Digisonde SAO files (autoscaled)



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Select Download dataset files or data values (observed properties) and go to My Account to monitor their progress

Observation attributes

- Project: European Digital Upper Atmosphere Server
- Region of Space: Ionosphere
- Platform: National Observatory of Athens
- Observation Year: 2006
- Model: ARTIST
- Instrument: Athens Digisonde

Number of Observations : 2

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- ▾ Athens Digisonde SAO files (autoscaled)
- ▾ DIAS Ionograms from Athens Digisonde

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- ▾ Dimensionality Instance

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▾ DIAS IONOGRAMS FROM ATHENS DIGISONDE



Data Values Download

Select which observed properties to download

- Title
- E-layer Critical Frequency
- F1-layer Critical Frequency
- F2-layer Critical Frequency

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Request name

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Current Selections
Time Periods: 2006-06-01 - 2006-06-01
Observed Properties: E-layer Critical Frequency
Assets: Athens Digisonde
Observation Collections: Athens Digisonde

Results

Select Download dataset file

Observation attributes

- Project: European Digital Atmosphere Server
- Region of Space: Ionosphere
- Platform: National Observatory of Athens
- Observation Year: 2006
- Model: ARTIST
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^ Critical Frequencies_June 2006 (2014-11-14 17:20:11)

Query Options

Assets	Athens Digisonde
Observation Collections	Athens Digisonde SAO files (autoscaled)
Observed Properties	E-layer Critical Frequency, F1-layer Critical Frequency, F2-layer Critical Frequency
Time Periods	2006-06-01 - 2006-07-02 00:00 - 23:59 UTC

Expiration Date	2014-12-14 17:20:11
Message	Processing of sos request has completed
Status	COMPLETED

- Get Data as
- Get Plot Data as

- IN THIS SECTION
- My Personal Info
 - My Dataset File Downloads
 - My Data Values Downloads
 - Register Data Provider
 - Manage Data Source



NEWS



EVENTS



PARTNERS

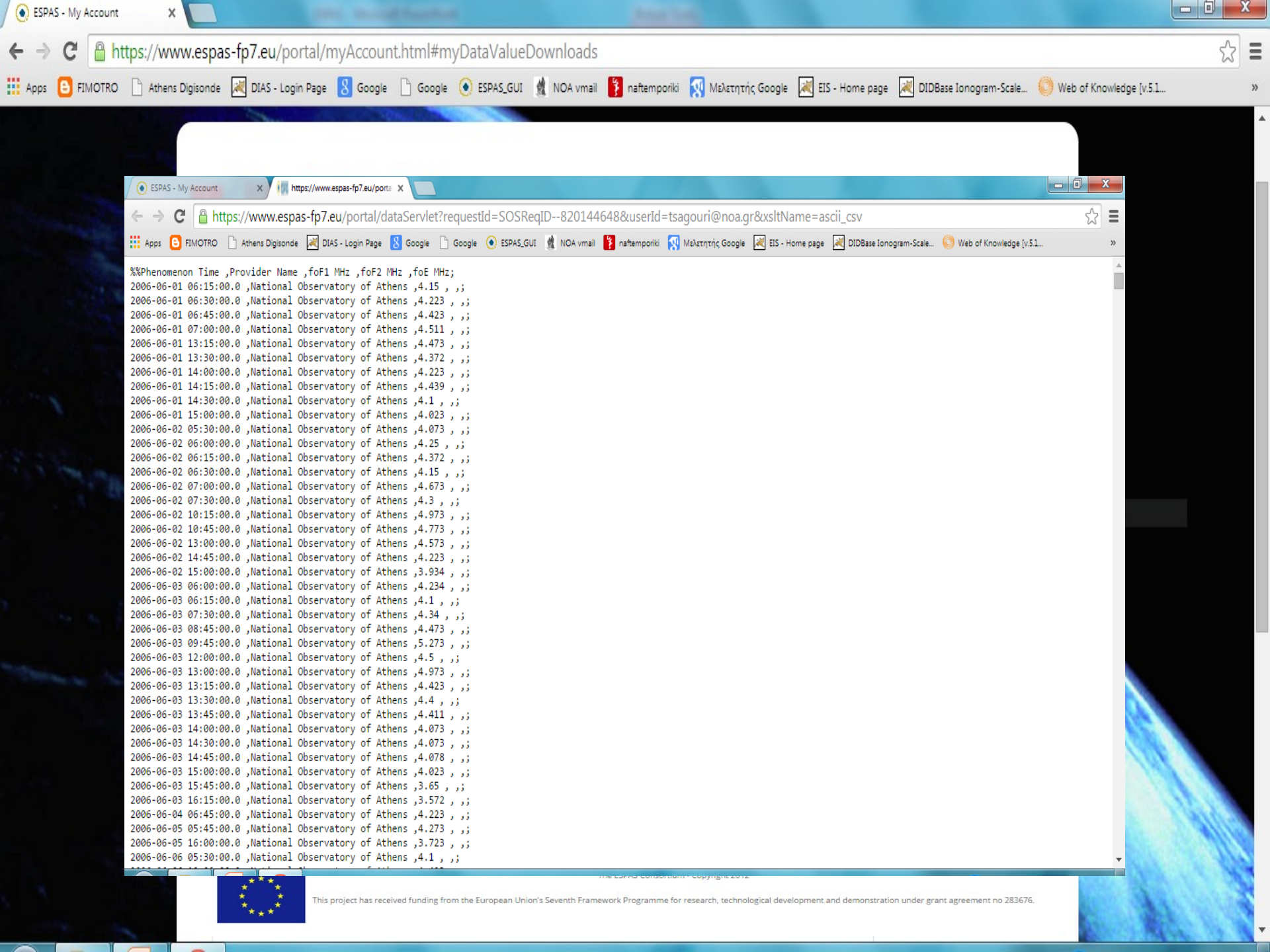


DATA PROVIDERS



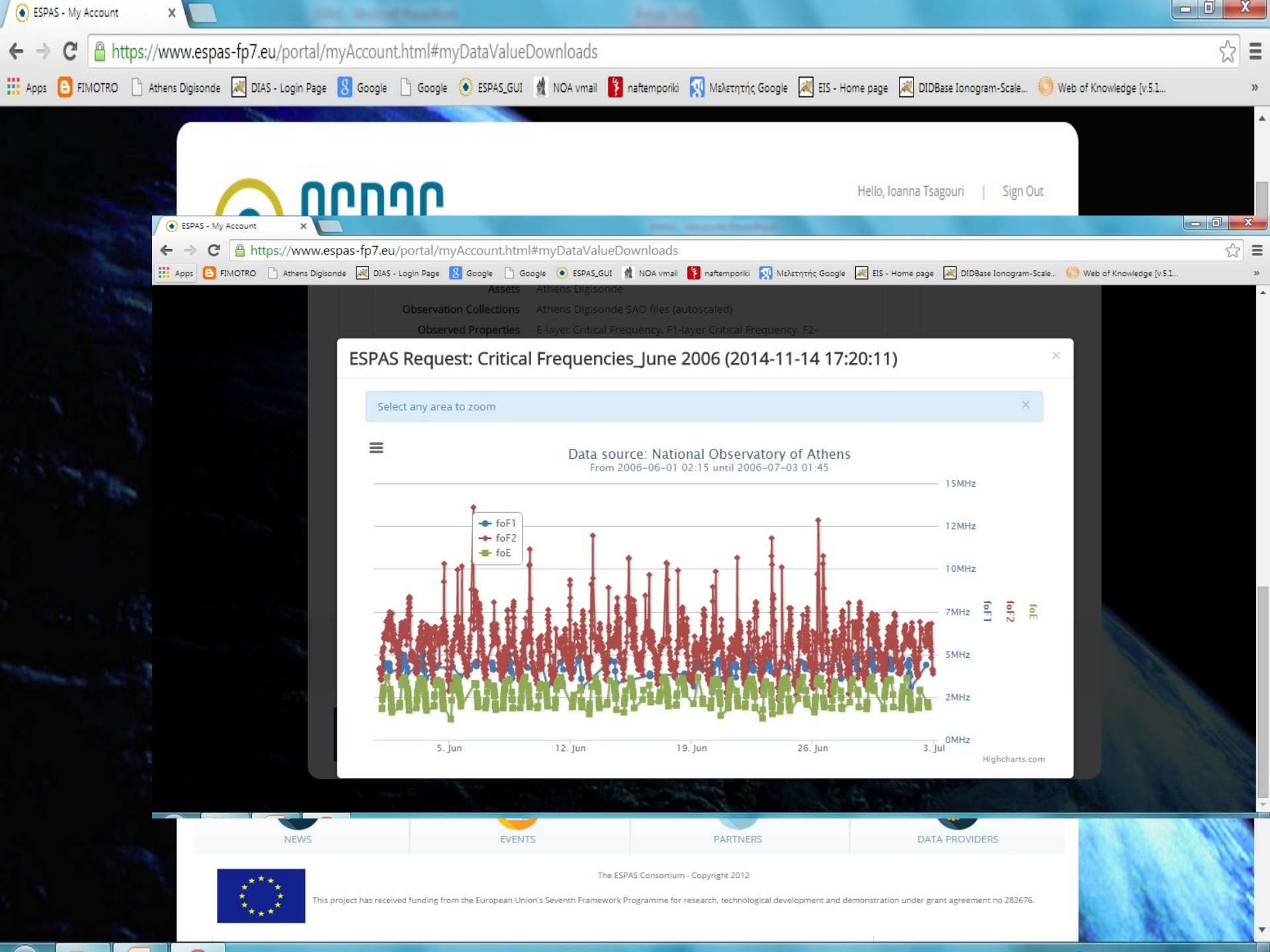
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```
%%Phenomenon Time ,Provider Name ,foF1 MHz ,foF2 MHz ,foE MHz;
2006-06-01 06:15:00.0 ,National Observatory of Athens ,4.15 , ;
2006-06-01 06:30:00.0 ,National Observatory of Athens ,4.223 , ;
2006-06-01 06:45:00.0 ,National Observatory of Athens ,4.423 , ;
2006-06-01 07:00:00.0 ,National Observatory of Athens ,4.511 , ;
2006-06-01 13:15:00.0 ,National Observatory of Athens ,4.473 , ;
2006-06-01 13:30:00.0 ,National Observatory of Athens ,4.372 , ;
2006-06-01 14:00:00.0 ,National Observatory of Athens ,4.223 , ;
2006-06-01 14:15:00.0 ,National Observatory of Athens ,4.439 , ;
2006-06-01 14:30:00.0 ,National Observatory of Athens ,4.1 , ;
2006-06-01 15:00:00.0 ,National Observatory of Athens ,4.023 , ;
2006-06-02 05:30:00.0 ,National Observatory of Athens ,4.073 , ;
2006-06-02 06:00:00.0 ,National Observatory of Athens ,4.25 , ;
2006-06-02 06:15:00.0 ,National Observatory of Athens ,4.372 , ;
2006-06-02 06:30:00.0 ,National Observatory of Athens ,4.15 , ;
2006-06-02 07:00:00.0 ,National Observatory of Athens ,4.673 , ;
2006-06-02 07:30:00.0 ,National Observatory of Athens ,4.3 , ;
2006-06-02 10:15:00.0 ,National Observatory of Athens ,4.973 , ;
2006-06-02 10:45:00.0 ,National Observatory of Athens ,4.773 , ;
2006-06-02 13:00:00.0 ,National Observatory of Athens ,4.573 , ;
2006-06-02 14:45:00.0 ,National Observatory of Athens ,4.223 , ;
2006-06-02 15:00:00.0 ,National Observatory of Athens ,3.934 , ;
2006-06-03 06:00:00.0 ,National Observatory of Athens ,4.234 , ;
2006-06-03 06:15:00.0 ,National Observatory of Athens ,4.1 , ;
2006-06-03 07:30:00.0 ,National Observatory of Athens ,4.34 , ;
2006-06-03 08:45:00.0 ,National Observatory of Athens ,4.473 , ;
2006-06-03 09:45:00.0 ,National Observatory of Athens ,5.273 , ;
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2006-06-03 13:00:00.0 ,National Observatory of Athens ,4.973 , ;
2006-06-03 13:15:00.0 ,National Observatory of Athens ,4.423 , ;
2006-06-03 13:30:00.0 ,National Observatory of Athens ,4.4 , ;
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2006-06-03 14:00:00.0 ,National Observatory of Athens ,4.073 , ;
2006-06-03 14:30:00.0 ,National Observatory of Athens ,4.073 , ;
2006-06-03 14:45:00.0 ,National Observatory of Athens ,4.078 , ;
2006-06-03 15:00:00.0 ,National Observatory of Athens ,4.023 , ;
2006-06-03 15:45:00.0 ,National Observatory of Athens ,3.65 , ;
2006-06-03 16:15:00.0 ,National Observatory of Athens ,3.572 , ;
2006-06-04 06:45:00.0 ,National Observatory of Athens ,4.223 , ;
2006-06-05 05:45:00.0 ,National Observatory of Athens ,4.273 , ;
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2006-06-06 05:30:00.0 ,National Observatory of Athens ,4.1 , ;
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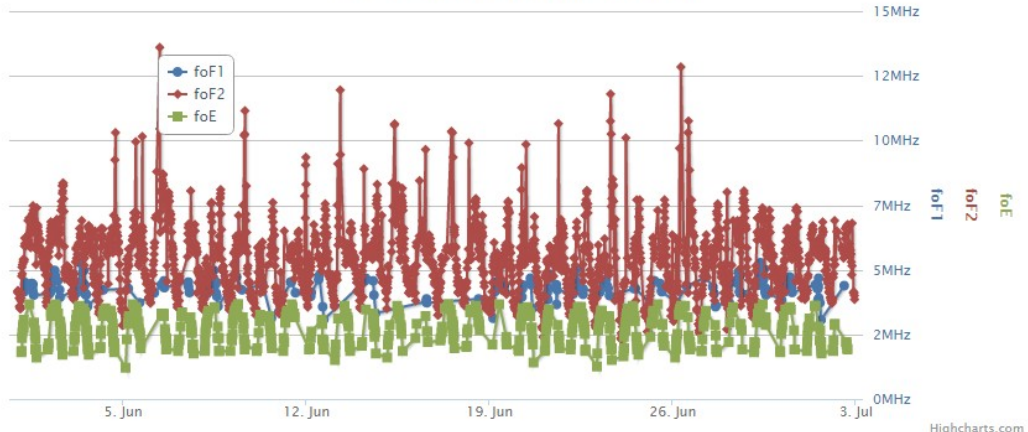


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ESPAS Request: Critical Frequencies_June 2006 (2014-11-14 17:20:11)

Select any area to zoom

Data source: National Observatory of Athens
From 2006-06-01 02:15 until 2006-07-03 01:45



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