

RadioJOVE

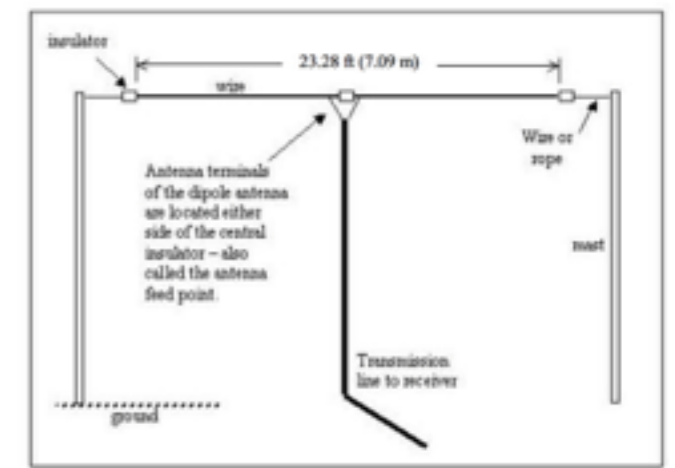
Citizen science in scientific research using the VO

B. Cecconi, R. Savalle, P. Le Sidaner
and the RadioJOVE + VESPA teams



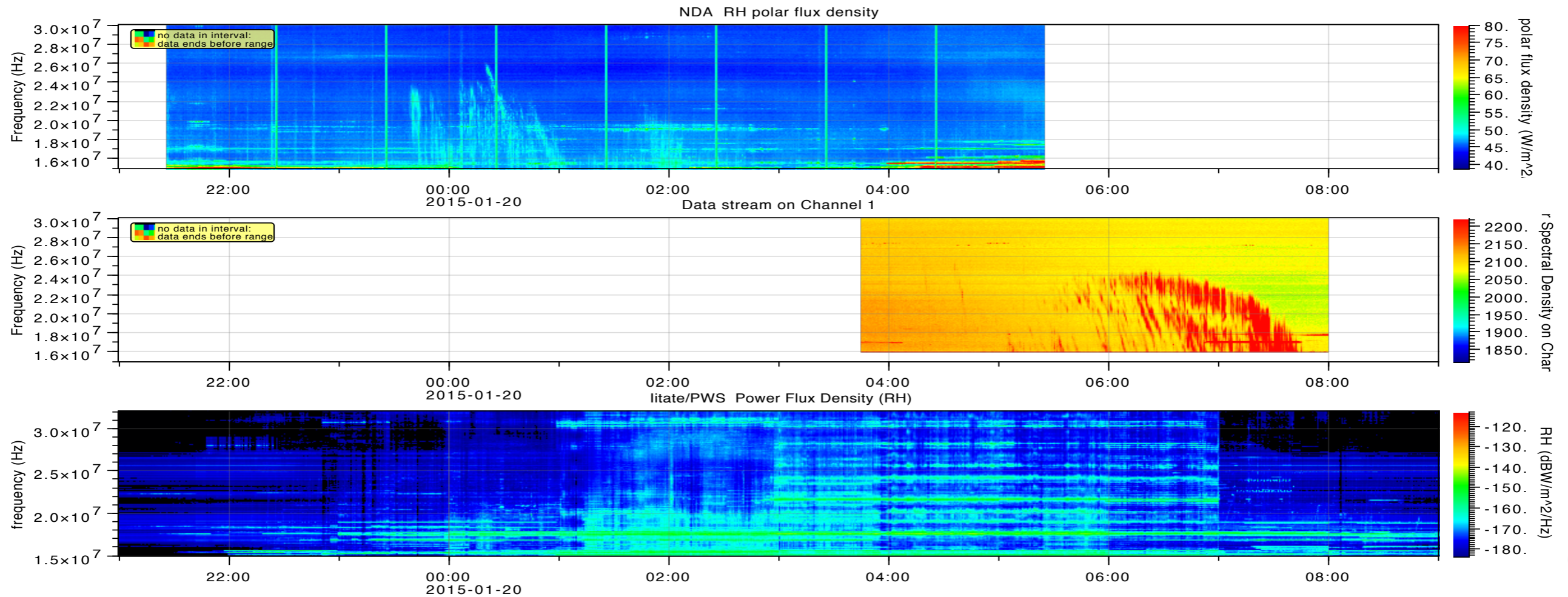


RadioJOVE



- **RadioJOVE** is an EPO project developed in the USA: <http://radiojove.org>
 - **Goal:** introducing low frequency radioastronomy concepts to students, teachers, amateur radio community and the general public.
 - **The participants are building their own radio telescope**, using a kit sold by the Radio JOVE team. This instrument can observe the sky at frequencies around **20 - 30 MHz**.
 - The users can share their observations on an archive web site, and on a mailing list.
 - About 2000 kits have been shipped to date, all over the world.
- Radio-JOVE web site: <http://radiojove.gsfc.nasa.gov>
- Radio-JOVE data Archive : <http://radiojove.org/cgi-bin/calendar/calendar.cgi>
- **RadioJOVE-VOParis project**
 - **Convert** RadioJOVE data (non-standard, or non VO) into CDF files, with VESPA and PDS compliant metadata.
 - Add a data **scientific validation** step.
 - **Distribute** RadioJOVE data to the scientific community using EPN-TAP through VESPA.
 - **Archive** data into NASA/PDS.

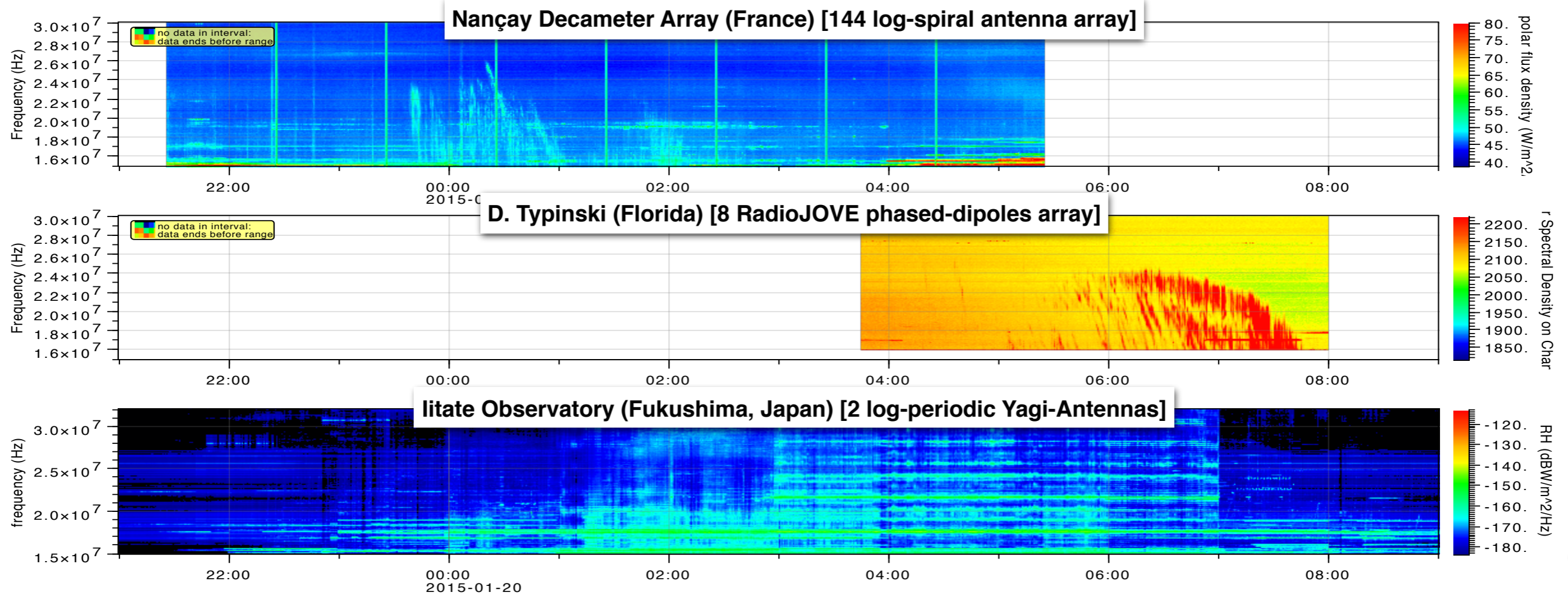
Low Frequency Radio Data



Stacked plot made with autoplot.org

Guess which is the RadioJOVE spectrogram ? ... :-)

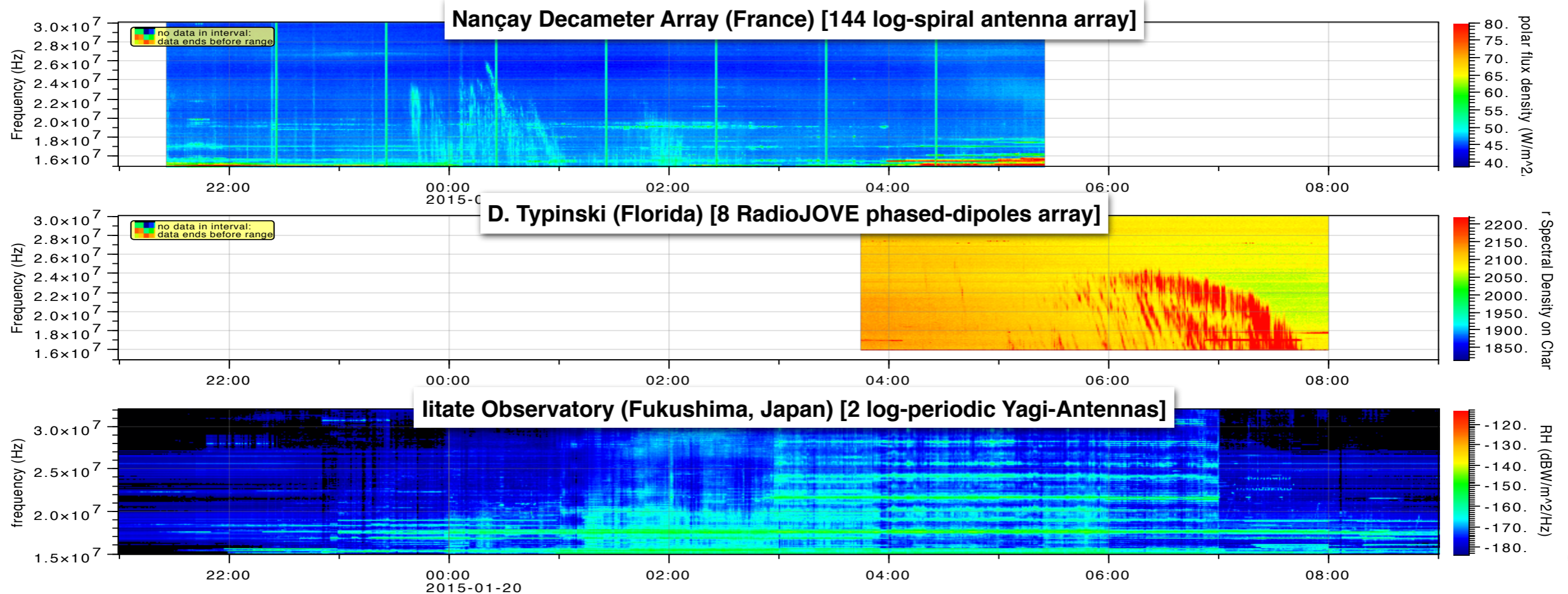
Low Frequency Radio Data



Stacked plot made with autoplots.org

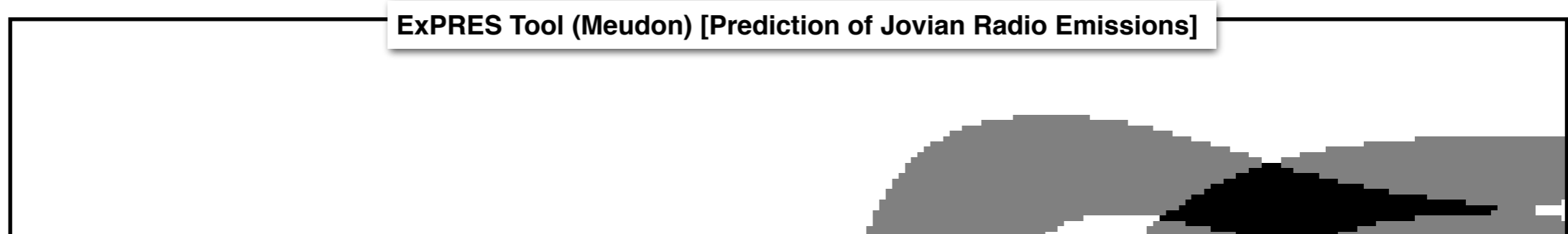
Guess which is the RadioJOVE spectrogram ? ... :-)

Low Frequency Radio Data



Stacked plot made with autoplot.org

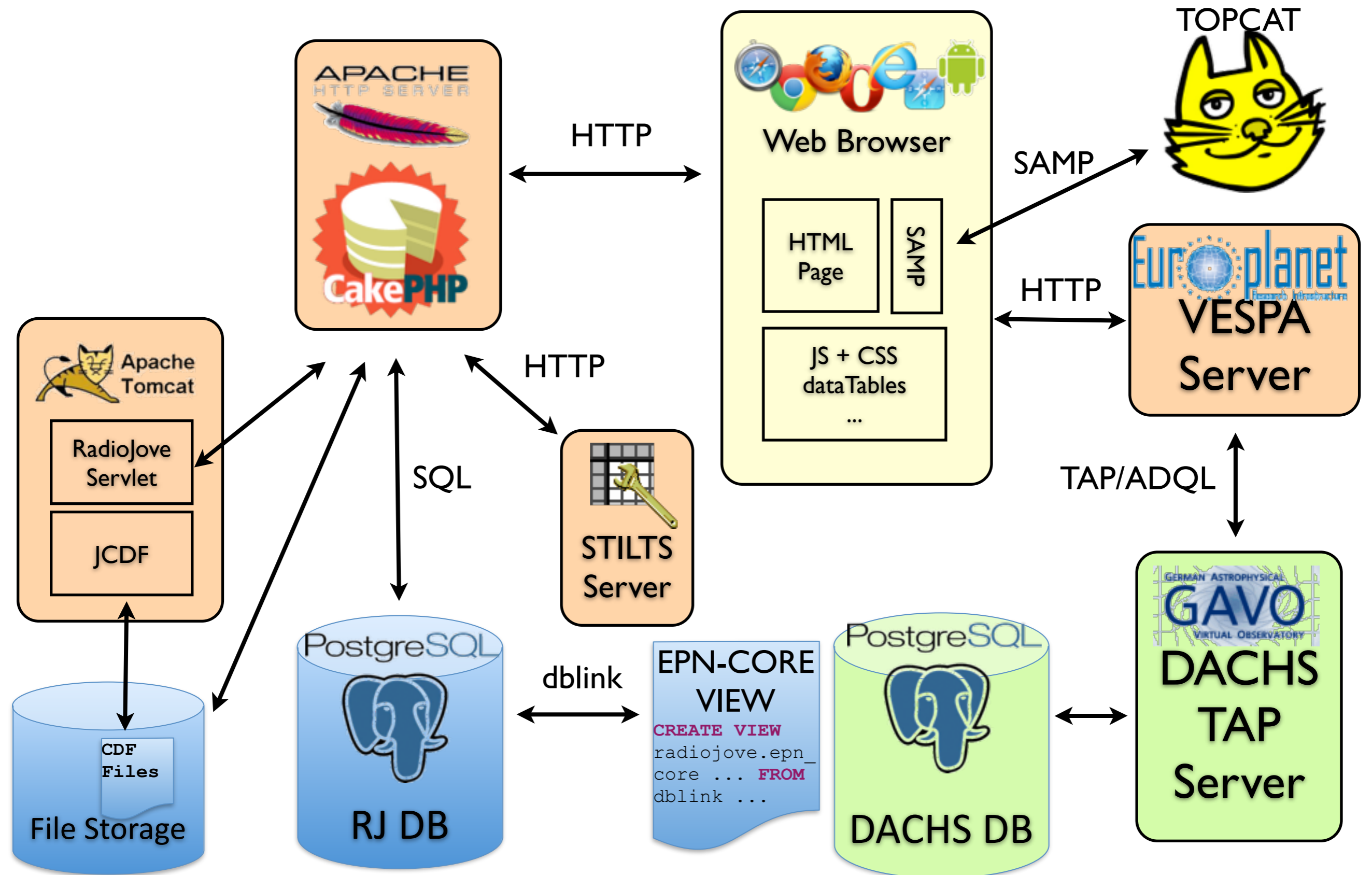
Guess which is the RadioJOVE spectrogram ? ... :-)



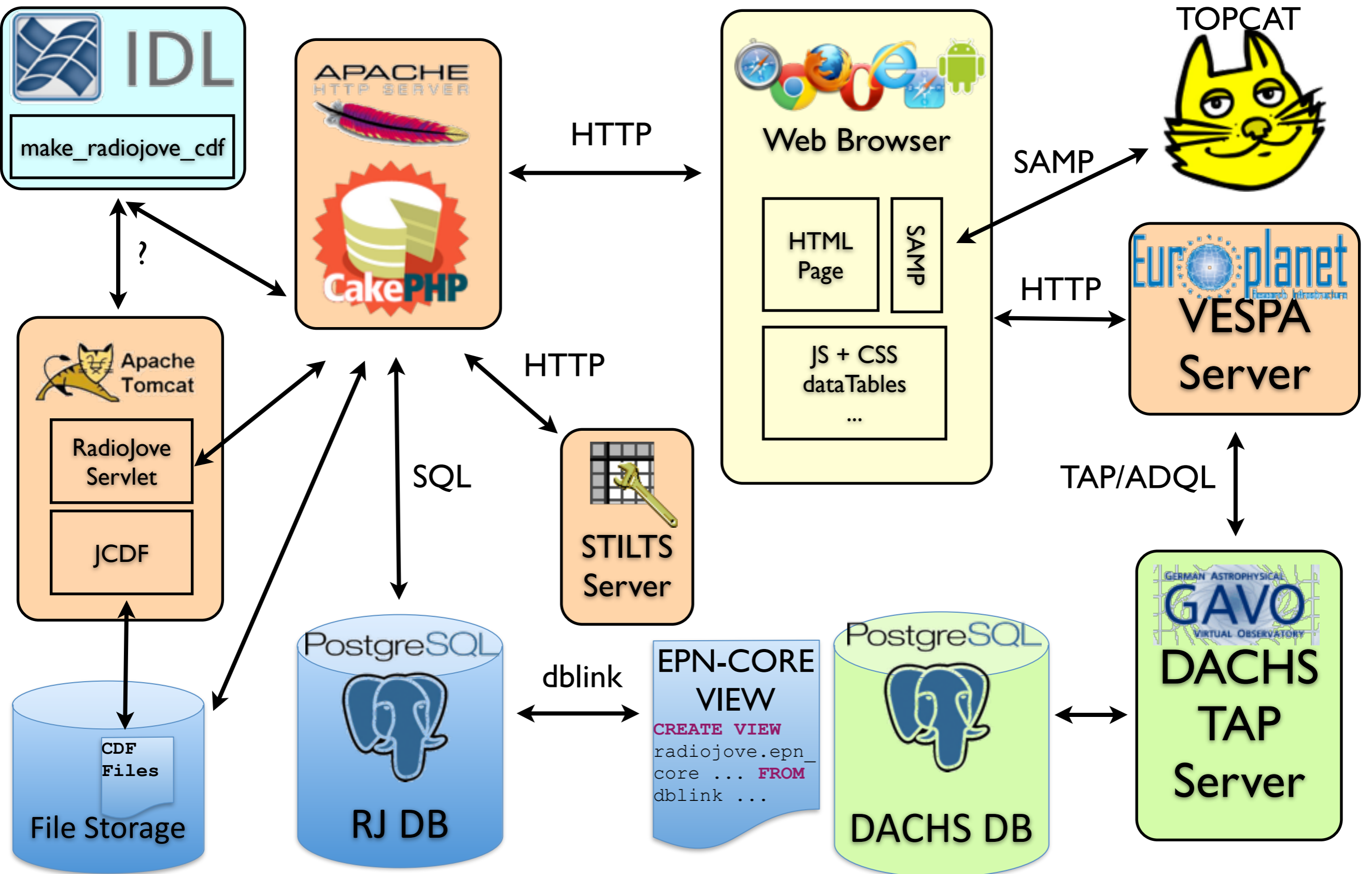
Adding metadata

- Several metadata standards:
 - ISTP (International Solar Terrestrial Program):
required for archivable CDF
 - NASA/PDS (Planetary Data System):
required for archiving at PDS
 - VESPA (Virtual European Solar and Planetary Access)
required for distribution with EPN-TAP
 - RadioJOVE specific
- VESPA \Leftrightarrow EPN-TAP (= Planetary ObsCore), main keywords
 - time_min, time_max
 - target(='Jupiter'),
 - spectral_range_min, spectral_range_max
 - measurement_type(='em.radio')

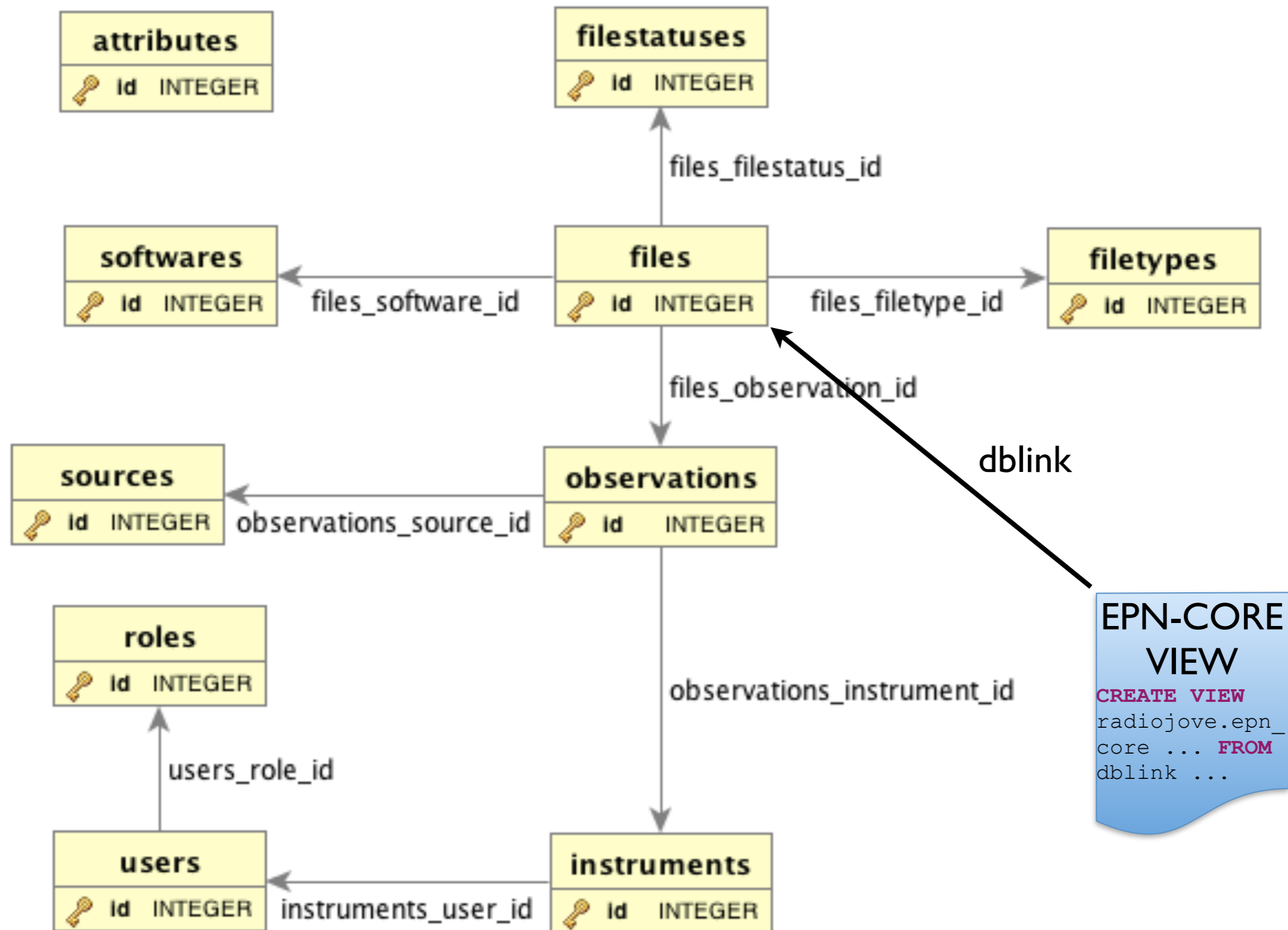
Radio-Jove Archive Architecture



Radio-Jove Archive Architecture



Radio-Jove Archive Database



RadioJOVE and beyond

- RadioJOVE community is eager to see their data used in science papers
(D. Typinki, a “semi-pro” amateurs has read all papers on the subject :-)
- **Next step for RadioJOVE:**
 - upload raw data files and online conversion into CDF
 - NASA/PSD archive proposal
 - connexion with VWO (Virtual Waves Observatory), a US-based solar system radio VO, using the SPASE data model and registry.
- **Same type of infrastructure will be used to ground based low frequency radio observation the NASA JUNO mission** (arrival at Jupiter within 1 year). Datasets from: *Nançay Obs (France), Iitate Obs (Japan), Kharkov (Ukraine), LWA (New Mexico, USA), LOFAR (EU) & RadioJOVE*
- Working on interface for JUNO support teams at VOParis, with VESPA infrastructure. “Private data period (6 months)” to be set up.

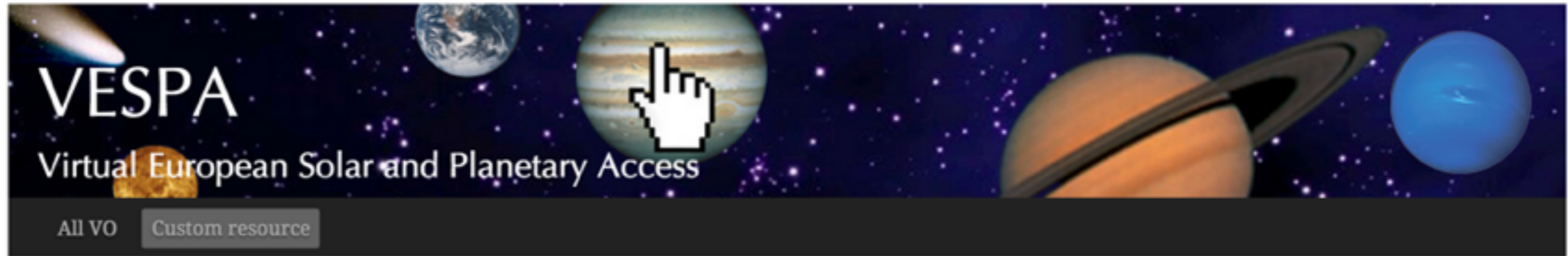
Demo

RadioJOVE resources on VESPA

<http://vespa.obspm.fr>

RadioJOVE archive user interface

<http://voplus.obspm.fr/radiojove>



Query form: custom resource

Resource URL	<input type="text" value="http://voparis-cdpp.obspm.fr/___"/>	Schema name	<input type="text" value="radiojove "/>
Target name	<input type="text"/>	Target class	<ul style="list-style-type: none">asteroidcometdwarf_planetexoplanetinterplanetary_mediumplanet
Resource type	<input type="text" value="granule"/>	Time selection	<input type="text" value="Data range is included in"/> <input type="text" value="the range between"/>
Dataset ID	<input type="text"/>	Time min	<input type="text"/>
		Time max	<input type="text"/>
Dataproduct type	<ul style="list-style-type: none">imagespectrumdynamic_spectrum	Measurement type	<input type="text"/>

Location +
Spectral +
Time +
Photometry +
Instrument +
Optional +

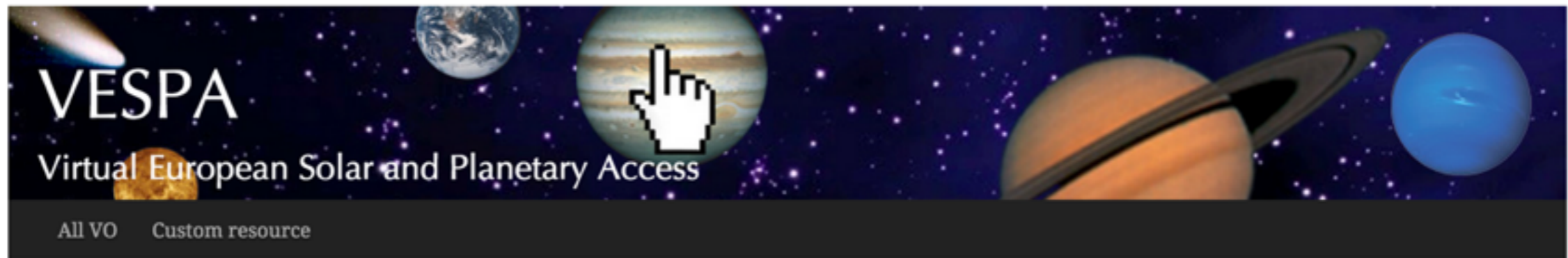
Plotting tools

- TOPCAT
- Aladin
- VOSpec
- SPLAT

Example queries

- [Saturn in March 2012](#)

VESPA portal: Custom Resource (because the prototype is not registered)



Query results for specific schema : radiojove

granule ▾

Plotting tools

-  TOPCAT
-  Aladin
-  VOSpec
-  SPLAT

EPN Resources

Custom resource for schema: radiojove ✓

Results : 16

[DISPLAY RESULTS](#) [DISPLAY VOTABLE](#) [SAMP VOTABLE](#) [ADVANCED QUERY FORM](#)

► [Description](#) :

[Credits](#):

Generated WHERE clause of ADQL statement:

```
SELECT * FROM ... WHERE resource_type = 'granule'
```

Example queries

- [Saturn in March 2012](#)

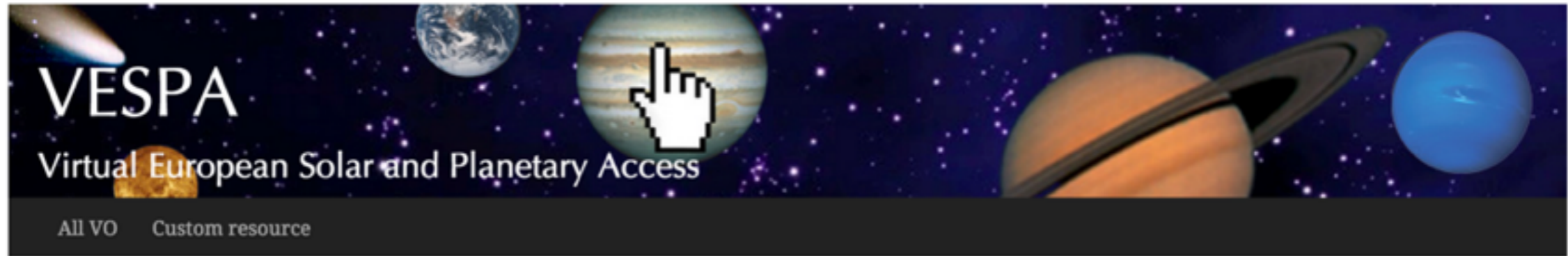
© Paris Observatory 2014 – [Tutorial](#) for search interface

Contact : support.epntap@obspm.fr

Layout based on [YAMI](#)



VESPA portal: 16 files are available in the RadioJOVE database



Results in service radiojove

Full Text

Show / hide columns Select all Deselect all

Show 20 entries Search:

datapoint_type	target_name	time_min (d)	time_max (d)	access_url
DS>Dynamic Spe...	Jupiter	2015-02-15T0...	2015-02-15T1...	13-radiojove_edr_sp2_300_201502150120_201502151029
TS>Time Series	Jupiter	2014-02-01T1...	2014-02-01T1...	14-radiojove_edr_ts1_201402011725_201402011725_v07.
DS>Dynamic Spe...	Jupiter	2014-01-25T0...	2014-01-25T0...	15-radiojove_edr_sp1_300_201401250521_201401250527
DS>Dynamic Spe...	Jupiter	2013-10-16T0...	2013-10-16T0...	16-radiojove_edr_sp1_300_201310160900_201310160907
DS>Dynamic Spe...	Jupiter	2013-01-30T1...	2013-01-30T1...	17-radiojove_edr_sp1_400_201301301953_201301301955
DS>Dynamic Spe...	Jupiter	2013-01-30T1...	2013-01-30T1...	18-radiojove_edr_sp1_400_201301301953_201301301955
DS>Dynamic Spe...	Jupiter	2013-01-30T1...	2013-01-30T1...	19-radiojove_edr_sp1_400_201301301953_201301301955
TS>Time Series	Jupiter	2014-02-01T1...	2014-02-01T1...	2-radiojove_edr_ts1_201402011725_201402011725_v07.c
TS>Time Series	Jupiter	2014-02-01T1...	2014-02-01T1...	20-radiojove_edr_ts1_201402011737_201402011737_v07.
TS>Time Series	Jupiter	2014-02-01T1...	2014-02-01T1...	21-radiojove_edr_ts1_201402011725_201402011725_v07.
DS>Dynamic Spe...	Jupiter	2014-12-13T1...	2014-12-13T1...	22-radiojove_edr_sp1_200_201412131000_201412131007
TS>Time Series	Jupiter	2014-02-01T1...	2014-02-01T1...	23-radiojove_edr_ts1_201402011725_201402011725_v07.
DS>Dynamic Spe...	Jupiter	2013-10-16T0...	2013-10-16T0...	24-radiojove_edr_sp1_300_201310160900_201310160907
TS>Time Series	Jupiter	2014-02-01T1...	2014-02-01T1...	3-radiojove_edr_ts1_201402011725_201402011725_v07.c
DS>Dynamic Spe...	Jupiter	2013-01-30T1...	2013-01-30T1...	4-radiojove_edr_sp1_400_201301301953_201301301955
DS>Dynamic Spe...	Jupiter	2013-01-30T1...	2013-01-30T1...	5-radiojove_edr_sp1_400_201301301953_201301301956

Showing 1 to 16 of 16 entries

First Previous 1 Next Last

SAMP selection as Samp VOTable selection Samp all VOTable

Plotting tools

- TOPCAT
- Aladin
- VOSpec
- SPLAT

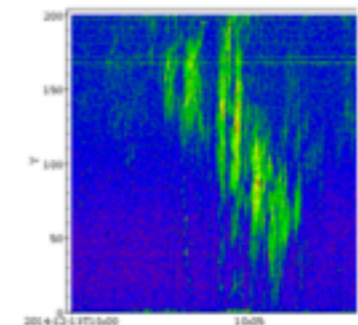
Example queries

- Saturn in March 2012

SELECTED DATA

- 1 selected data
- 1 : DS>Dynamic Spectra

PREVIEW



VESPA portal: put your mouse on a line and see a preview

Browser window showing the login page for the Radio-Jove Archive. The address bar displays `voplus.obspm.fr`. The page header includes logos for Paris Data Centre, l'Observatoire de Paris, LESIA, and RADIO JOVE Users. The version information is "RJAP version 0.2 by RS".

Welcome to the Radio-Jove Archive

Please enter your email and password

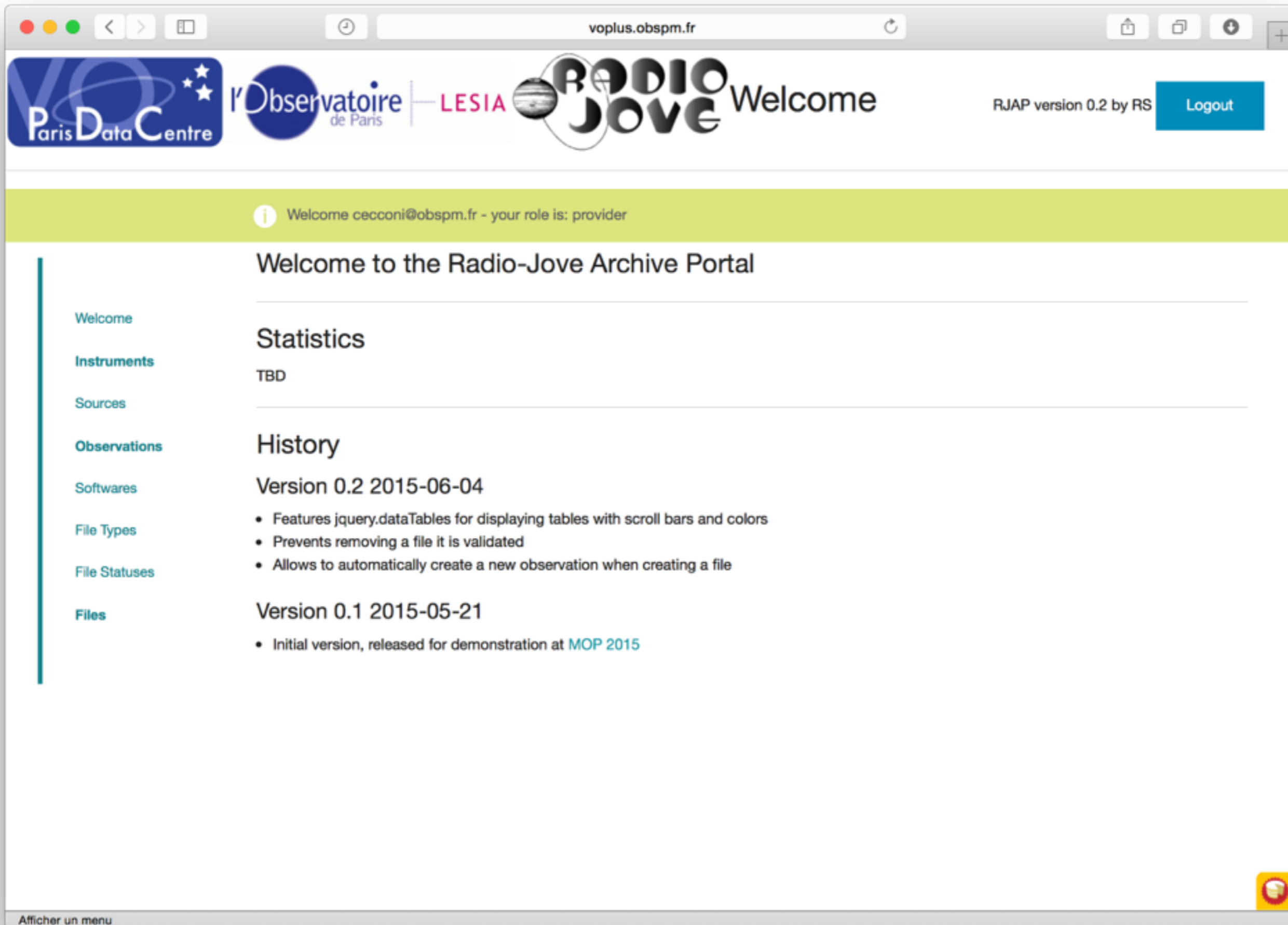
Email *

Password

[New user ? Register](#) [FORGOT PASSWORD ?](#) [LOGIN](#)

Afficher un menu

RadioJOVE archive: login page



RadioJOVE archive: logged in as a data provider



LESIA



RJAP version 0.2 by RS

Logout

New File

Id	Name	Observation	Software
24	radiojove_edr_sp1_300_201310160900_201310160907_v07.cdf	11	RadioSkyPipe
22	radiojove_edr_sp1_200_201412131000_201412131007_v07.cdf	9	make_radiojove_cdf IDL routines
21	radiojove_edr_ts1_201402011725_201402011725_v07.cdf	6	make_radiojove_cdf IDL routines
20	radiojove_edr_ts1_201402011737_201402011737_v07.cdf	6	make_radiojove_cdf IDL routines
19	radiojove_edr_sp1_400_201301301953_201301301955_v07.cdf	6	make_radiojove_cdf IDL routines
18	radiojove_edr_sp1_400_201301301953_201301301955_v07.cdf	6	make_radiojove_cdf IDL routines
17	radiojove_edr_sp1_400_201301301953_201301301955_v07.cdf	6	make_radiojove_cdf IDL routines
16	radiojove_edr_sp1_300_201310160900_201310160907_v07.cdf	8	make_radiojove_cdf IDL routines
15	radiojove_edr_sp1_300_201401250521_201401250527_v07.cdf	3	make_radiojove_cdf IDL routines
13	radiojove_edr_sp2_300_201502150120_201502151029_v07.cdf	6	make_radiojove_cdf IDL routines

< previous next >



RadioJOVE archive: Files page

voplus.obspm.fr

Paris Data Centre | l'Observatoire de Paris | LESIA | RADIO JOVE Files

RJAP version 0.2 by RS [Logout](#)

- Welcome
- Instruments
- Sources
- Observations**
- Softwares
- File Types
- File Statuses
- Files

Add File

Observation
(create one)

Instrument (only required if you require to create an observation, ignored else)
Meudon test radiojove setup


Source (only required if you require to create an observation, ignored else)
Sun

Software
RadioSkyPipe

Filetype
CDF

Description

Choose the file upload
 aucun fichier sél.



[Afficher un menu](#)

RadioJOVE archive: “add new file” form (with creation of new observation)

Paris Data Centre | l'Observatoire de Paris | LESIA | RADIO JOVE Files

RJAP version 0.2 by RS [Logout](#)

i The file radiojove_edr_sp2_300_201501200345_201501200759_v07.cdf has been saved with status new and uploaded. Validators have been notified.

New File

Id	Name	Observation	Software
25	radiojove_edr_sp2_300_201501200345_201501200759_v07.cdf	12	RadioSkyPipe
24	radiojove_edr_sp1_300_201310160900_201310160907_v07.cdf	11	RadioSkyPipe
22	radiojove_edr_sp1_200_201412131000_201412131007_v07.cdf	9	make_radiojove_cdf IDL routines
21	radiojove_edr_ts1_201402011725_201402011725_v07.cdf	6	make_radiojove_cdf IDL routines
20	radiojove_edr_ts1_201402011737_201402011737_v07.cdf	6	make_radiojove_cdf IDL routines
19	radiojove_edr_sp1_400_201301301953_201301301955_v07.cdf	6	make_radiojove_cdf IDL routines
18	radiojove_edr_sp1_400_201301301953_201301301955_v07.cdf	6	make_radiojove_cdf IDL routines
17	radiojove_edr_sp1_400_201301301953_201301301955_v07.cdf	6	make_radiojove_cdf IDL routines
16	radiojove_edr_sp1_300_201310160900_201310160907_v07.cdf	8	make_radiojove_cdf IDL routines
15	radiojove_edr_sp1_300_201401250521_201401250527_v07.cdf	3	make_radiojove_cdf IDL routines

< previous 1 2 next >

1 of 2

Afficher un menu

RadioJOVE archive: new file (id=25), and new observation (12)



Logout

- Welcome
- Instruments
- Sources
- Observations**
- Softwares
- File Types
- File Statuses
- Files

New Observation

Id	Source	Instrument	Date Start	Date Stop	Created	Modified
12	Jupiter	AJ4CO DPS	2015-06-16 16:30:00	2015-06-16 16:30:00	2015-06-16 16:30:29	2015-06-16 16:30:
11	Jupiter	AJ4CO DPS	2015-06-15 15:54:00	2015-06-15 15:54:00	2015-06-15 15:54:57	2015-06-15 15:54:
9	Jupiter	AJ4CO DPS	2014-12-13 10:00:00	2014-12-13 10:07:00	2015-06-08 22:15:20	2015-06-08 22:15:
8	Jupiter	HNRAO Industry, PA	2013-10-16 09:00:00	2015-10-16 09:08:00	2015-06-01 18:04:38	2015-06-01 18:04:
7	Jupiter	HNRAO Industry, PA	2014-01-25 05:21:00	2014-01-25 05:28:00	2015-06-01 17:53:29	2015-06-01 17:53:
6	Jupiter	Meudon test radiojove setup	2015-01-01 00:00:00	2016-12-31 23:59:00	2015-05-22 08:24:16	2015-05-22 08:24:
3	Jupiter	AJ4CO DPS	2015-02-15 01:20:00	2015-02-15 10:30:00	2015-05-21 16:01:51	2015-05-21 16:01:

< previous next >



RadioJOVE archive: list of observations

Browser window showing the website `voplus.obspm.fr`. The page header includes logos for Paris Data Centre, Observatoire de Paris, LESIA, and RADIO JOVE Files. The version is noted as "RJAP version 0.2 by RS" with a "Logout" button.

The main content area is titled "Add File" and contains the following form fields:

- Observation: 12
- Instrument (only required if you require to create an observation, ignored else): Meudon test radiojove setup
- Source (only required if you require to create an observation, ignored else): Sun
- Software: make_radiojove_cdf IDL routines
- Filetype: CDF
- Description: (empty text area)

Below the form, there is a "Choose the file upload" section with a "Choisir le fichier" button and a file selection: `radiojove_edr_sp2_300_201501190800_201501190909_v07.cdf`.

At the bottom right, there is a "SUBMIT" button and a small yellow icon.

At the bottom left, there is a link "Afficher un menu".

RadioJOVE archive: yet another upload, but under observation id=12

Paris Data Centre | l'Observatoire de Paris | LESIA | RADIO JOVE Files

RJAP version 0.2 by RS [Logout](#)

i The file radiojove_edr_sp2_300_201501190800_201501190909_v07.cdf has been saved with status new and uploaded. Validators have been notified.

New File

Id	Name	Observation	Software
26	radiojove_edr_sp2_300_201501190800_201501190909_v07.cdf	12	make_radiojove_cdf IDL routines
25	radiojove_edr_sp2_300_201501200345_201501200759_v07.cdf	12	RadioSkyPipe
24	radiojove_edr_sp1_300_201310160900_201310160907_v07.cdf	11	RadioSkyPipe
22	radiojove_edr_sp1_200_201412131000_201412131007_v07.cdf	9	make_radiojove_cdf IDL routines
21	radiojove_edr_ts1_201402011725_201402011725_v07.cdf	6	make_radiojove_cdf IDL routines
20	radiojove_edr_ts1_201402011737_201402011737_v07.cdf	6	make_radiojove_cdf IDL routines
19	radiojove_edr_sp1_400_201301301953_201301301955_v07.cdf	6	make_radiojove_cdf IDL routines
18	radiojove_edr_sp1_400_201301301953_201301301955_v07.cdf	6	make_radiojove_cdf IDL routines
17	radiojove_edr_sp1_400_201301301953_201301301955_v07.cdf	6	make_radiojove_cdf IDL routines
16	radiojove_edr_sp1_300_201310160900_201310160907_v07.cdf	8	make_radiojove_cdf IDL routines

< previous **1** 2 next >

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Afficher un menu

RadioJOVE archive: new file (id=26) in observation (12)

voplus.obsprm.fr

Paris Data Centre | l'Observatoire de Paris | LESIA | RADIO JOVE Users

RJAP version 0.2 by RS

Goodbye cecconi@obsprm.fr. You are now disconnected

Welcome to the Radio-Jove Archive

Please enter your email and password

Email *

baptiste.cecconi@obsprm.fr

Password

New user ? Register FORGOT PASSWORD ? LOGIN

Afficher un menu

RadioJOVE archive: log out

vo plus.obs pm.fr

Paris Data Centre | Observatoire de Paris | LESIA | RADIO JOVE Welcome

RJAP version 0.2 by RS Logout

Welcome baptiste.cecconi@obs pm.fr - your role is: validator

Welcome to the Radio-Jove Archive Portal

Statistics

TBD

History

Version 0.2 2015-06-04

- Features jquery.dataTables for displaying tables with scroll bars and colors
- Prevents removing a file it is validated
- Allows to automatically create a new observation when creating a file

Version 0.1 2015-05-21

- Initial version, released for demonstration at [MOP 2015](#)

Afficher un menu

RadioJOVE archive: logged in as a data validator

voplus.obspm.fr

Paris Data Centre | l'Observatoire de Paris | LESIA | RADIO JOVE Files

RJAP version 0.2 by RS [Logout](#)

New File

Id	User	Name	Status
26	cecconi@obspm.fr	radiojove_edr_sp2_300_201501190800_201501190909_v07.cdf	new
25	cecconi@obspm.fr	radiojove_edr_sp2_300_201501200345_201501200759_v07.cdf	new
24	cecconi@obspm.fr	radiojove_edr_sp1_300_201310160900_201310160907_v07.cdf	validated
23	renaud.savaille@obspm.fr	radiojove_edr_ts1_201402011725_201402011725_v07.cdf	validated
22	cecconi@obspm.fr	radiojove_edr_sp1_200_201412131000_201412131007_v07.cdf	validated
21	cecconi@obspm.fr	radiojove_edr_ts1_201402011725_201402011725_v07.cdf	validated
20	cecconi@obspm.fr	radiojove_edr_ts1_201402011737_201402011737_v07.cdf	validated
19	cecconi@obspm.fr	radiojove_edr_sp1_400_201301301953_201301301955_v07.cdf	validated
18	cecconi@obspm.fr	radiojove_edr_sp1_400_201301301953_201301301955_v07.cdf	validated
17	cecconi@obspm.fr	radiojove_edr_sp1_400_201301301953_201301301955_v07.cdf	validated

< previous 1 2 next >

1 of 2

Afficher un menu

RadioJOVE archive: list of files, with 2 new files to validate

voplus.obspm.fr

Paris Data Centre | Observatoire de Paris | LESIA | RADIO JOVE Files

RJAP version 0.2 by RS [Logout](#)

- Welcome
- Users
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- Softwares
- File Types
- File Statuses
- Files

Validating File 25

Preview

Validation

Please confirm the EPN-TAP information for file: radiojove_edr_sp2_300_201501200345_201501200759_v07.cdf

dataprodukt_type (from VESPA_dataprodukt_type) *

target_name (from PDS_Observation_target) *

[Afficher un menu](#)

RadioJOVE archive: validation process, with previews (stilts-made)

RadioJOVE Dual Channel Spectrograph

measurement_type (from VESPA_measurement_type) *

phys.flux;em.radio

access_format (from VESPA_access_format) *

cdf

observer_name (from RadioJOVE_observer_name) *

Dave Typinski

observatory_location (from RadioJOVE_observatory_location) *

High Springs, FL

observatory_longitude (from RadioJOVE_observatory_longitude) *

82.62139129638672

observatory_latitude (from RadioJOVE_observatory_latitude) *

29.836944580078125

original_filename (from RadioJOVE_original_filename) *

./data/dat/V01/spectrogram/AJ4CO_DPS_150119034500_corrected_using_CA_2014_12_18_B.sps

n_channel (from RadioJOVE_n_channel) *

2

dipole_orientation_angle (from RadioJOVE_dipole_orientation_angle) *

0.0;0.0

access_url: http://voplus.obspm.fr/radiojove/f/25-radiojove_edr_sp2_300_201501200345_201501200759_v07.cdf
preview_url: http://voplus.obspm.fr/radiojove/p/25-radiojove_edr_sp2_300_201501200345_201501200759_v07.png
thumbnail_url: http://voplus.obspm.fr/radiojove/t/25-radiojove_edr_sp2_300_201501200345_201501200759_v07.png

Afficher un menu

RadioJOVE archive: validation process, with metadata and links

voplus.obspm.fr

Paris Data Centre | l'Observatoire de Paris | LESIA | RADIO JOVE Files

RJAP version 0.2 by RS [Logout](#)

i The file was validated. Thank you. The provider cecconi@obspm.fr has been notified

New File

Id	User	Name	Observation
26	cecconi@obspm.fr	radiojove_edr_sp2_300_201501190800_201501190909_v07.cdf	12
25	cecconi@obspm.fr	radiojove_edr_sp2_300_201501200345_201501200759_v07.cdf	12
24	cecconi@obspm.fr	radiojove_edr_sp1_300_201310160900_201310160907_v07.cdf	11
23	renaud.savalle@obspm.fr	radiojove_edr_ts1_201402011725_201402011725_v07.cdf	10
22	cecconi@obspm.fr	radiojove_edr_sp1_200_201412131000_201412131007_v07.cdf	9
21	cecconi@obspm.fr	radiojove_edr_ts1_201402011725_201402011725_v07.cdf	6
20	cecconi@obspm.fr	radiojove_edr_ts1_201402011737_201402011737_v07.cdf	6
19	cecconi@obspm.fr	radiojove_edr_sp1_400_201301301953_201301301955_v07.cdf	6
18	cecconi@obspm.fr	radiojove_edr_sp1_400_201301301953_201301301955_v07.cdf	6
17	cecconi@obspm.fr	radiojove_edr_sp1_400_201301301953_201301301955_v07.cdf	6

< previous **1** 2 next >

1 of 2

Afficher un menu

RadioJOVE archive: one file remains to be validated



Query results for specific schema : radiojove

granule

EPN Resources

Custom resource for schema: radiojove

Results : 17

[DISPLAY RESULTS](#) [DISPLAY VOTABLE](#) [SAMP VOTABLE](#) [ADVANCED QUERY FORM](#)

▶ Description :

Credits:

Plotting tools

- TOPCAT
- Aladin
- VOSpec
- SPLAT

Example queries

- [Saturn in March 2012](#)

Generated WHERE clause of ADQL statement:

```
SELECT * FROM ... WHERE resource_type = 'granule'
```

© Paris Observatory 2014 – [Tutorial](#) for search interface

Contact : support.epntap@obspm.fr

Layout based on [YAML](#)



VESPA portal: back to result list, the validated file is automatically inserted



Results in service radiojove

[Full Text](#)

Show / hide columns Select all Deselect all

Show entries Search:

dataprod..._type	target_name	time_min (d)	time_max (d)	access_url
DS>Dynamic Spe...	Jupiter	2015-01-20T03...	2015-01-20T0...	25-radiojove_edr_sp2_300_201501200345_2015012007...
DS>Dynamic Spe...	Jupiter	2014-12-13T10...	2014-12-13T1...	22-radiojove_edr_sp1_200_201412131000_20141213100...
TS>Time Series	Jupiter	2014-02-01T17...	2014-02-01T1...	23-radiojove_edr_ts1_201402011725_201402011725_v0...
DS>Dynamic Spe...	Jupiter	2013-10-16T09...	2013-10-16T0...	24-radiojove_edr_sp1_300_201310160900_20131016090...
DS>Dynamic Spe...	Jupiter	2013-01-30T19...	2013-01-30T1...	17-radiojove_edr_sp1_400_201301301953_20130130195...
TS>Time Series	Jupiter	2014-02-01T17...	2014-02-01T1...	20-radiojove_edr_ts1_201402011737_201402011737_v0...
TS>Time Series	Jupiter	2014-02-01T17...	2014-02-01T1...	21-radiojove_edr_ts1_201402011725_201402011725_v0...
DS>Dynamic Spe...	Jupiter	2013-01-30T19...	2013-01-30T1...	19-radiojove_edr_sp1_400_201301301953_20130130195...
DS>Dynamic Spe...	Jupiter	2013-01-30T19...	2013-01-30T1...	18-radiojove_edr_sp1_400_201301301953_20130130195...
DS>Dynamic Spe...	Jupiter	2013-10-16T09...	2013-10-16T0...	16-radiojove_edr_sp1_300_201310160900_20131016090...
DS>Dynamic Spe...	Jupiter	2014-01-25T05...	2014-01-25T0...	15-radiojove_edr_sp1_300_201401250521_20140125052...
TS>Time Series	Jupiter	2014-02-01T17...	2014-02-01T1...	14-radiojove_edr_ts1_201402011725_201402011725_v0...
TS>Time Series	Jupiter	2014-02-01T17...	2014-02-01T1...	2-radiojove_edr_ts1_201402011725_201402011725_v07...
DS>Dynamic Spe...	Jupiter	2013-01-30T19...	2013-01-30T1...	4-radiojove_edr_sp1_400_201301301953_20130130195...
TS>Time Series	Jupiter	2014-02-01T17...	2014-02-01T1...	3-radiojove_edr_ts1_201402011725_201402011725_v07...
DS>Dynamic Spe...	Jupiter	2013-01-30T19...	2013-01-30T1...	5-radiojove_edr_sp1_400_201301301953_20130130195...
DS>Dynamic Spe...	Jupiter			50215102...

Plotting tools

- TOPCAT
- Aladin
- VOSpec
- SPLAT

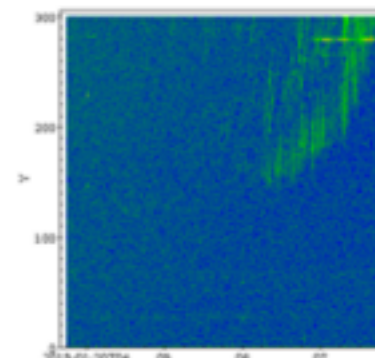
Example queries

- [Saturn in March 2012](#)

SELECTED DATA

- 1 selected data
- 1 : DS>Dynamic Spectra

PREVIEW



VESPA portal: preview of the new file

Full Text

Show entries Search: Show / hide columns

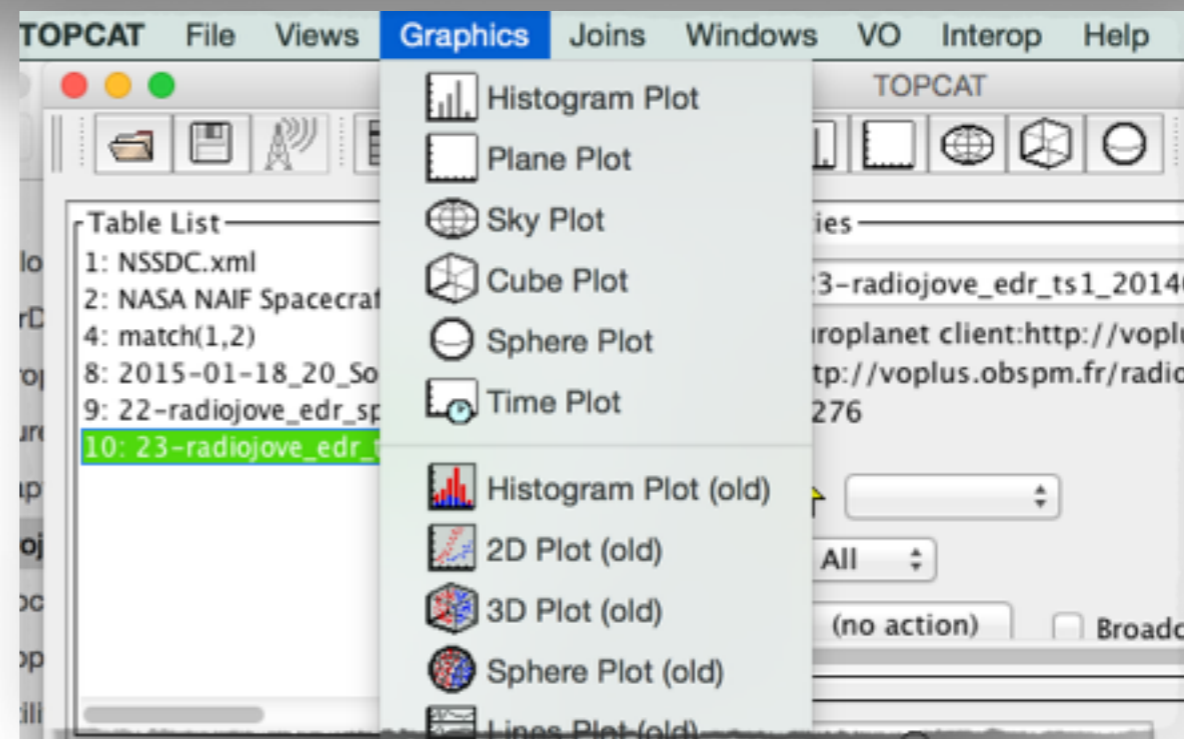
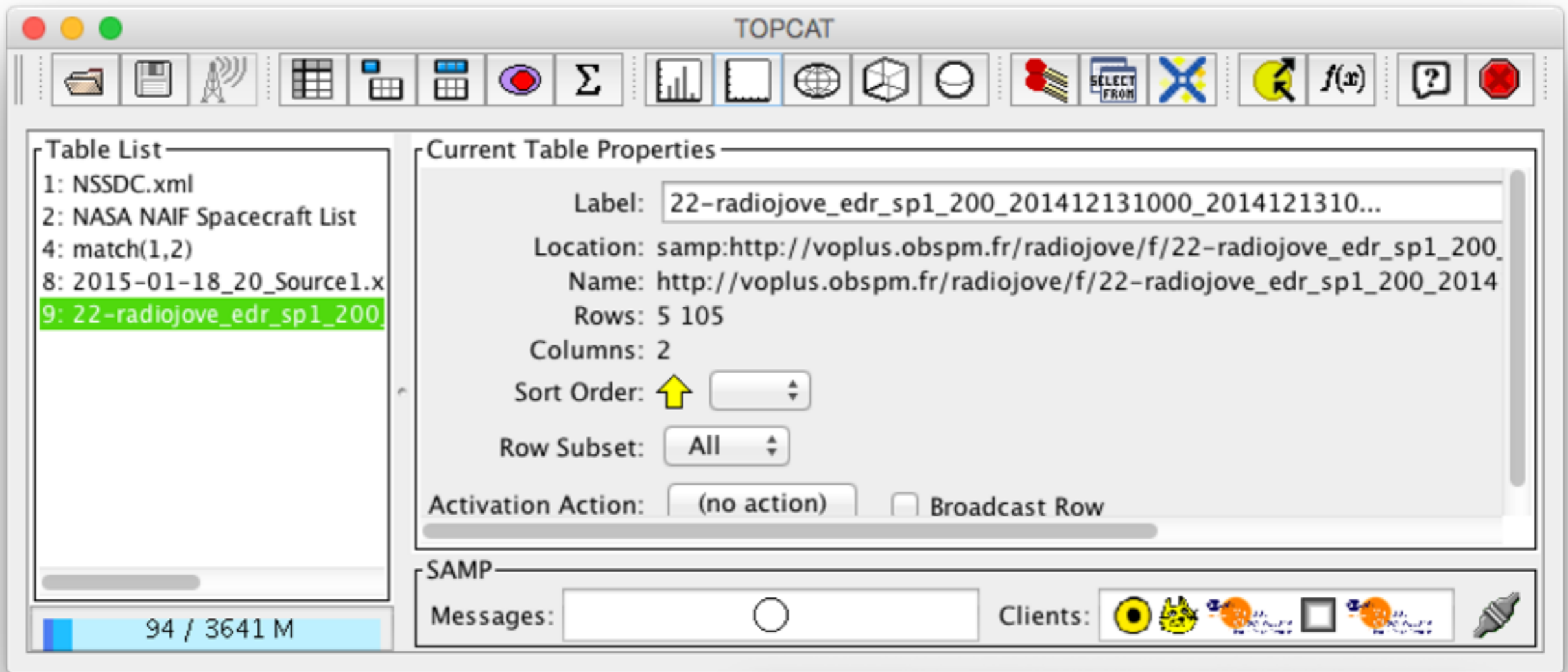
dataproduct_type	target_name	time_min (d)	time_max (d)	access_url
DS>Dynamic Spe...	Jupiter	2015-01-20T0...	2015-01-20T0...	25-radiojove_edr_sp2_300_201501200345_201501200...
DS>Dynamic Spe...	Jupiter	2014-12-13T1...	2014-12-13T1...	22-radiojove_edr_sp1_200_201412131000_2014121310...
TS>Time Series	Jupiter	2014-02-01T1...	2014-02-01T1...	23-radiojove_edr_ts1_201402011725_201402011725_v...
DS>Dynamic Spe...	Jupiter	2013-10-16T0...	2013-10-16T0...	24-radiojove_edr_sp1_300_201310160900_2013101609...
DS>Dynamic Spe...	Jupiter	2013-01-30T1...	2013-01-30T1...	17-radiojove_edr_sp1_400_201301301953_2013013019...
TS>Time Series	Jupiter	2014-02-01T1...	2014-02-01T1...	20-radiojove_edr_ts1_201402011737_201402011737_v...
TS>Time Series	Jupiter	2014-02-01T1...	2014-02-01T1...	21-radiojove_edr_ts1_201402011725_201402011725_v...
DS>Dynamic Spe...	Jupiter	2013-01-30T1...	2013-01-30T1...	19-radiojove_edr_sp1_400_201301301953_2013013019...
DS>Dynamic Spe...	Jupiter	2013-01-30T1...	2013-01-30T1...	18-radiojove_edr_sp1_400_201301301953_2013013019...
DS>Dynamic Spe...	Jupiter	2013-10-16T0...	2013-10-16T0...	16-radiojove_edr_sp1_300_201310160900_2013101609...
DS>Dynamic Spe...	Jupiter	2014-01-25T0...	2014-01-25T0...	15-radiojove_edr_sp1_300_201401250521_2014012505...
TS>Time Series	Jupiter	2014-02-01T1...	2014-02-01T1...	14-radiojove_edr_ts1_201402011725_201402011725_v...
TS>Time Series	Jupiter	2014-02-01T1...	2014-02-01T1...	2-radiojove_edr_ts1_201402011725_201402011725_v0...
DS>Dynamic Spe...	Jupiter	2013-01-30T1...	2013-01-30T1...	4-radiojove_edr_sp1_400_201301301953_2013013019...
TS>Time Series	Jupiter	2014-02-01T1...	2014-02-01T1...	3-radiojove_edr_ts1_201402011725_201402011725_v0...
DS>Dynamic Spe...	Jupiter	2013-01-30T1...	2013-01-30T1...	5-radiojove_edr_sp1_400_201301301953_2013013019...
DS>Dynamic Spe...	Jupiter	2015-02-15T0...	2015-02-15T1...	13-radiojove_edr_sp2_300_201502150120_2015021510...

Showing 1 to 17 of 17 entries

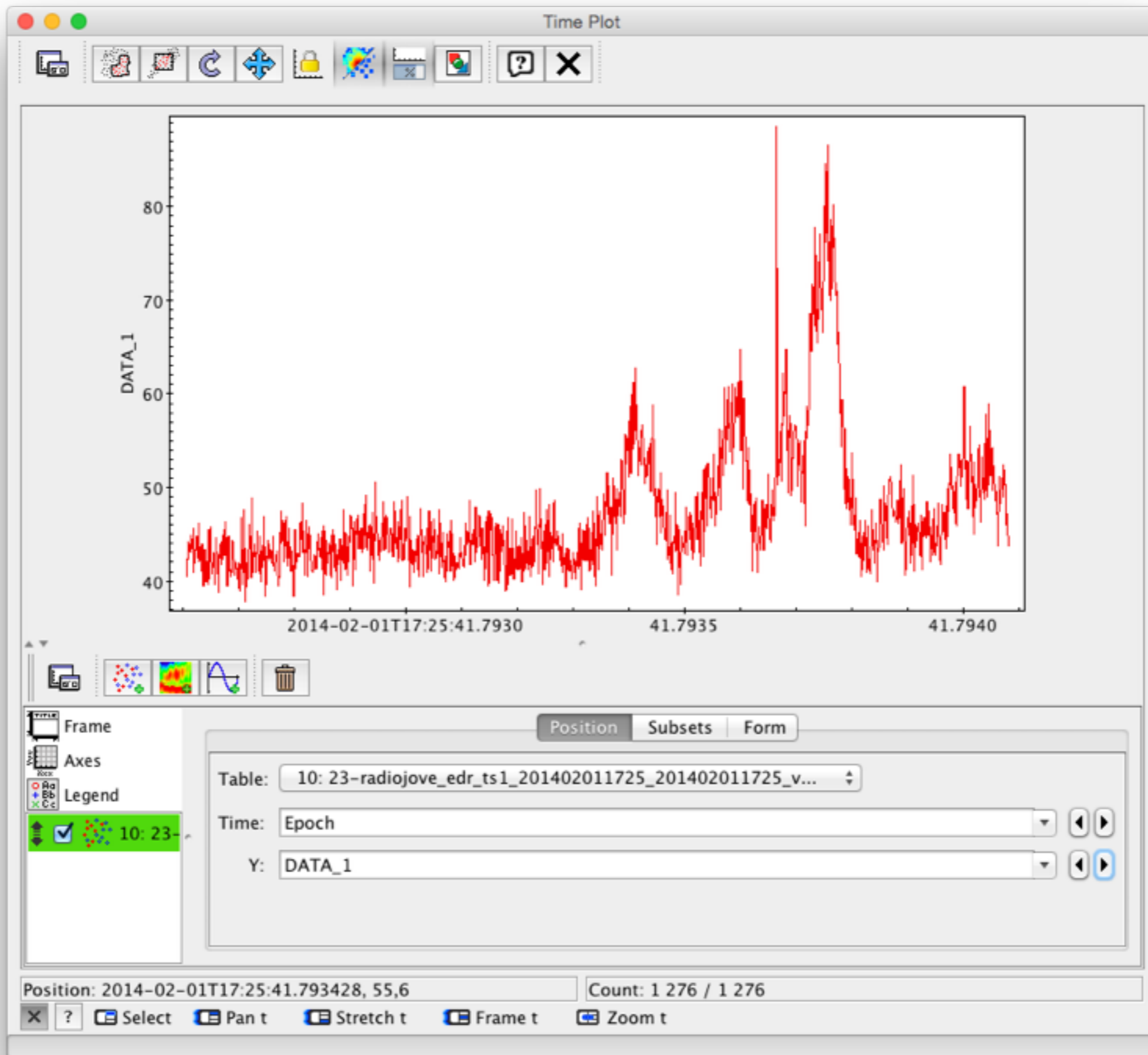
SAMP selection as tables
 spectra
 images
 CDF

014 - Tutorial for search interface

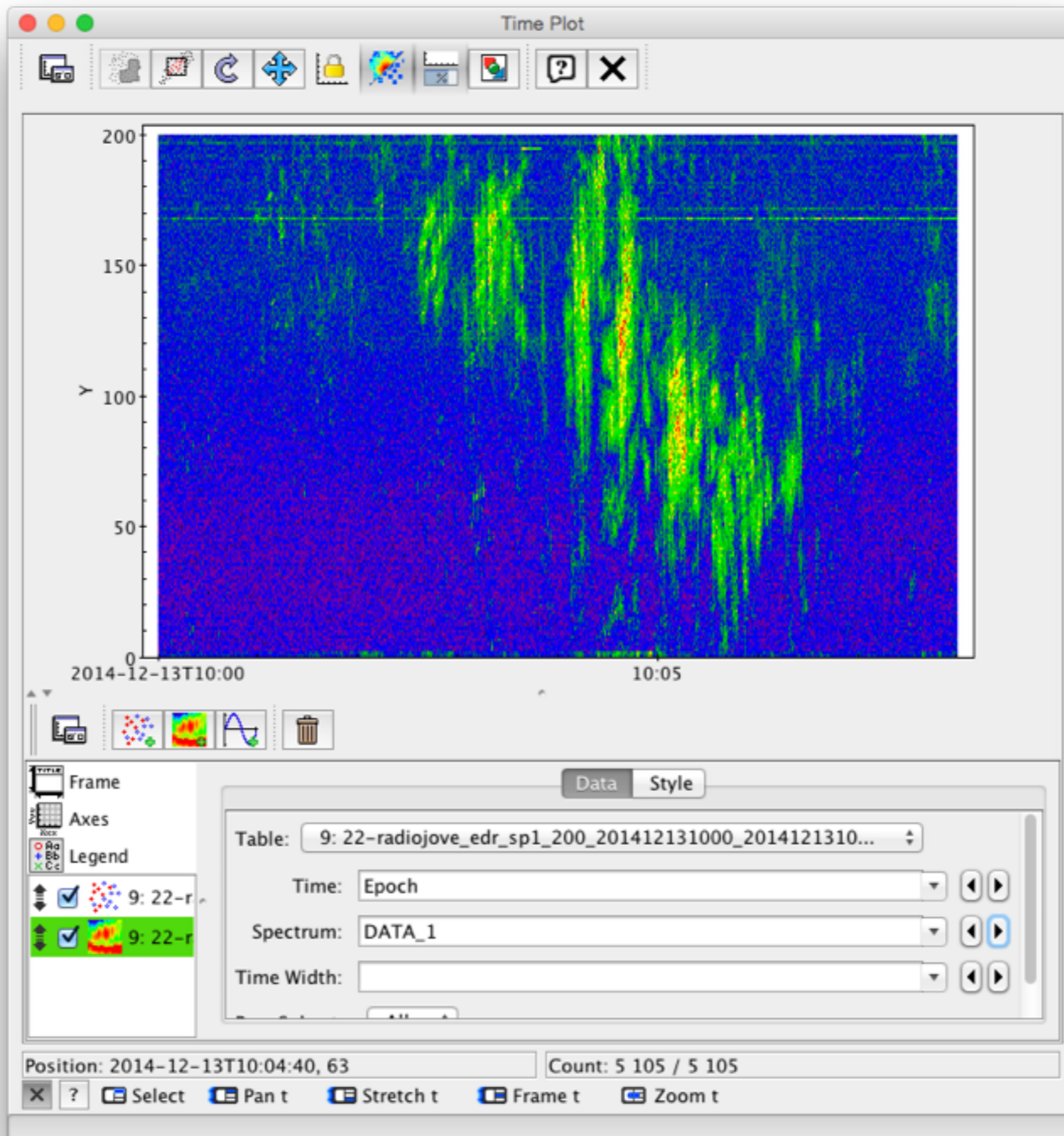
VESPA portal: select a file and send it to TOPCAT (as a CDF file)



VESPA portal: in TOPCAT, use "TimePlot" feature, in Graphics menu



VESPA portal: Data plot for RadioJOVE “time series”



VESPA portal: Data plot for RadioJOVE “spectrogram”