



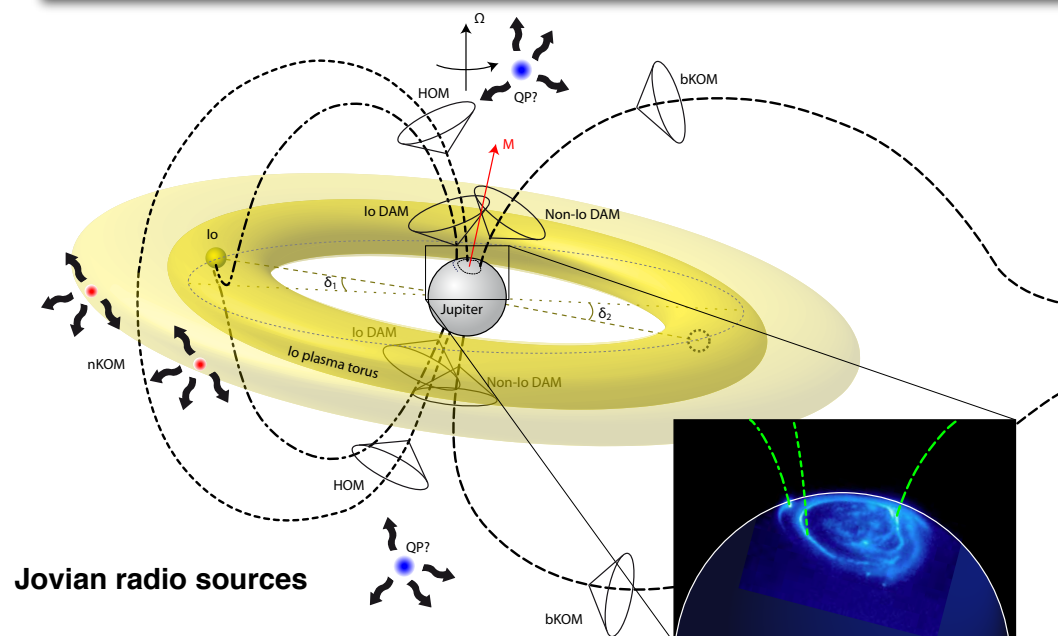
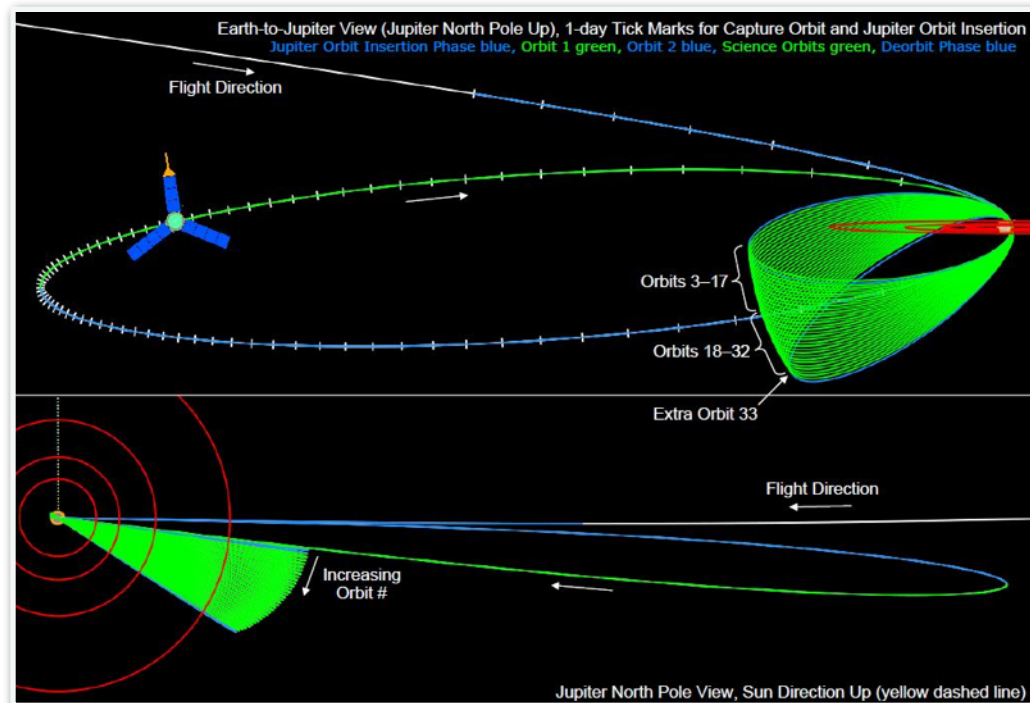
JUNO-Ground-Radio Observation Support

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1.LESIA, Observatoire de Paris, CNRS, PSL Research University, Meudon, France, 2.DIO, Observatoire de Paris, CNRS, PSL Research University, Paris, France, 3.ONERA, Toulouse, France, 4.USN, Observatoire de Paris, CNRS, PSL Research University, Nançay, France, 5.IRAP, CNRS, Université Paul Sabatier, OMP, Toulouse, France, 6.Rhodes University, Cape Town, South Africa, 7.LPC2E, CNRS, Université d'Orléans, Orléans, France, 8.NRL, Washington DC, USA, 9.CalTech, California, USA, 10.SwRI, Texas, USA, 11.RadioJOVE Team, USA, 12.University of Electro-Communications, Tokyo, Japan, 13.Kochi National College of Technology, Nankoku, Japan, 14.University of Iowa, Iowa, USA, 15.Tohoku University, Sendai, Japan, 16.Institute of Radio Astronomy, Kharkov, Ukraine, 17.Fukui University of Technology, Fukui, Japan, 18.NASA-JPL, California, USA, 19.Future University, Hakodate, Japan

JUNO Mission

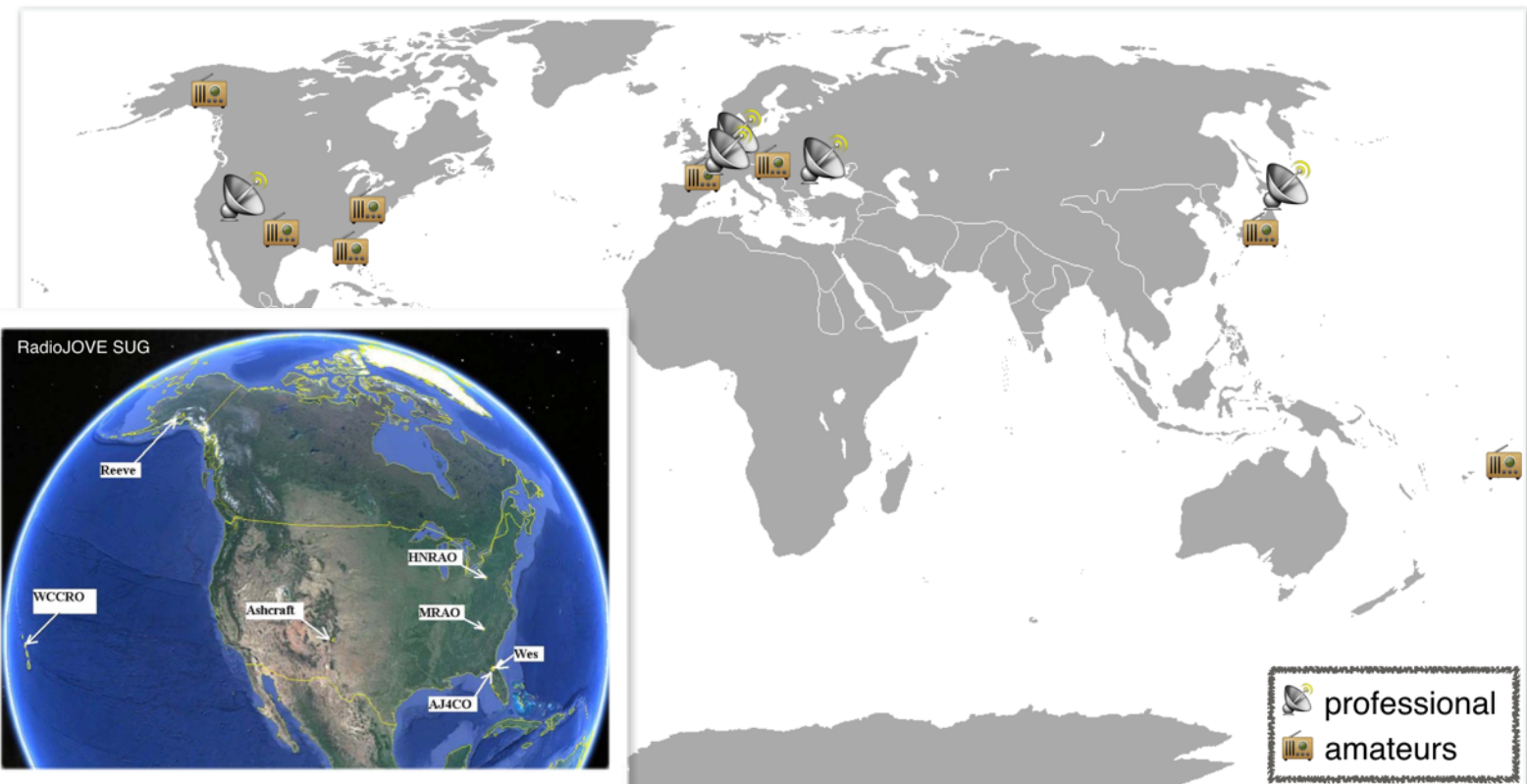
NASA lead space mission to Jupiter arriving July 2016, dedicated to origins and interior of Jupiter (hence its magnetic field)



Professional low frequency telescopes (10-40 MHz):

- Nançay: Decameter Array (NDA):
routine + new receiver
- Europe: LOFAR-LBA (PL, SE, FR)
- Kharkov (Ukraine): UTR-2
- Japan: Iitate and Fukui observatories
- New Mexico (USA): LWA1

More info: <http://maser.lesia.obspm.fr/>





JUNO-Ground-Radio Observation Support

Observation Planning

Data Providers define their instrument and planning using an online interface developed at PADC (Obs. Paris).

Juno-Ground-Radio Observations Support

Logout

JGROSP version 0.5 by RS

Welcome

Users

Instruments

Observations

New Instrument

Search:

Id	User	Name	Hostname	Longitude	Latitude	Created	Modified	Actions
5	Atsushi Kumamoto	Spectrograph	litite HF radio monitor	140.67	37.7	2016-02-17 01:19:56	2016-02-17 01:19:56	Edit Delete
4	Philippe Zarka	NewRoutine	Nançay Decameter Array	47.38	2.193	2016-01-19 09:26:15	2016-01-19 09:26:15	Edit Delete
3	Chuck Higgins	Spectrograph	LWA1	-107.628	34.069	2016-01-06 20:05:47	2016-01-06 20:05:47	Edit Delete
2	Chuck Higgins	Digital Receiver (DRX)	LWA1	-107.628	34.069	2016-01-05 20:38:56	2016-01-06 20:08:44	Edit Delete

Showing 1 to 4 of 4 entries

Juno-Ground-Radio Observations Support

Logout

JGROSP version 0.5 by RS

Welcome

Users

Instruments

Observations

New Observation

Export Observations

Import Observations

Search:

Id	User	Instrument hostname/name	JD Start	JD Stop	Date Start UTC	Date Stop UTC
1,172	Atsushi Kumamoto	litite HF radio monitor/Spectrograph	2,457,454.5	2,457,455.499988	2016-03-07T00:00:00Z	2016-03-07T23:59:58Z
1,165	Philippe Zarka	Nançay Decameter Array/NewRoutine	2,458,482.747222	2,458,483.080544	2018-12-30T05:55:59Z	2018-12-30T13:55:59Z
1,164	Philippe Zarka	Nançay Decameter Array/NewRoutine	2,458,481.75	2,458,482.083322	2018-12-29T06:00:00Z	2018-12-29T13:59:59Z
1,163	Philippe Zarka	Nançay Decameter Array/NewRoutine	2,458,480.752083	2,458,481.085405	2018-12-28T06:02:59Z	2018-12-28T14:02:59Z

Showing 84 to 101 of 1,173 entries

litite HF radio monitor

LWA1

Nançay Decameter Array

Jan 2016

Apr

Jul

Afficher un menu

Showing 84 to 101 of 1,173 entries

litite HF radio monitor

LWA1

Nançay Decameter Array

21

26

1

6

11

16

21

February 2016

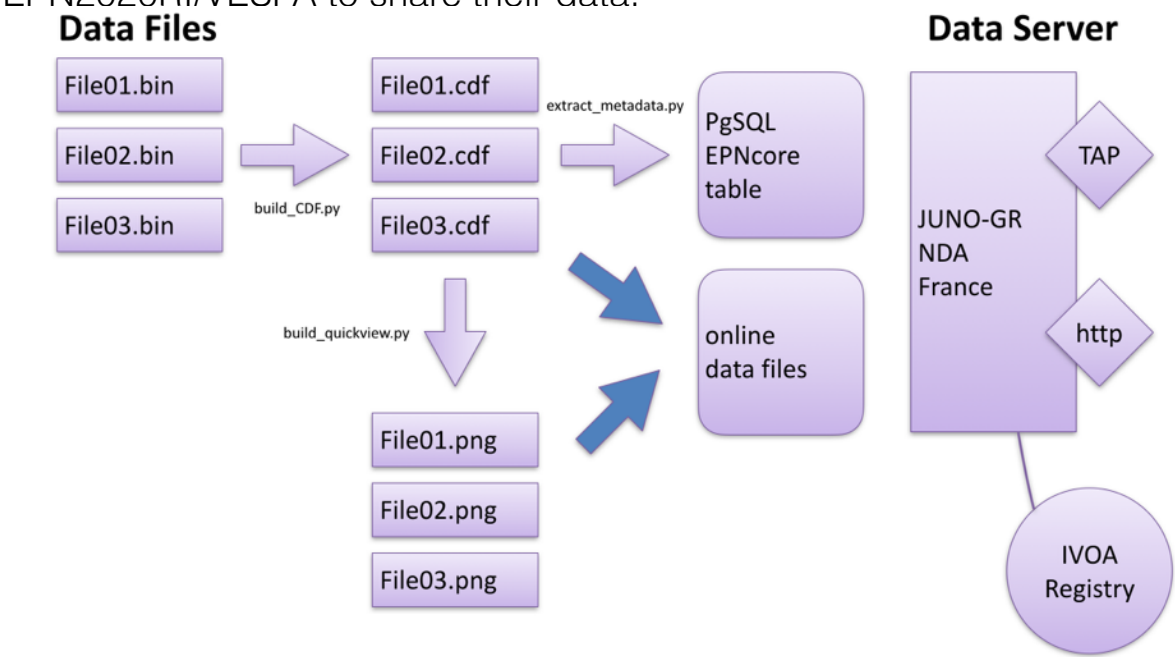
March 2016

<https://voparis-juno.obspm.fr/>

Using Cake-PHP and http://visjs.org/timeline_examples.html

Data Distribution

Data Providers are using the Virtual Observatory (VO) as proposed by EPN2020RIVESPA to share their data.



Each team distributes their data using standard format. We recommend CDF. Scripting from any documented format to CDF is easy (especially with PyCDF Python library).

CDF Metadata are compliant with ISTEP (Space Physics), PDS4 (Planetary Sciences). CDF files can then be archived at NASA/PDS next to the JUNO archive.

Raw or original format (such as FITS, HDF5 or native format) can also be distributed, so that usual user can still use their own software.

VESPA* is a “virtual research infrastructure”. It provides tools to share, access and work with data using standard protocols.

VESPA is using existing standards developed by the astronomy community (IVOA). Hence the infrastructure is not maintained by VESPA.

VESPA data services are hosted by science teams, and must registered with the IVOA registry to be accessible from VO tools.

The Europlanet H2020 Research Infrastructure project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654208.



*VESPA: Virtual European Solar and Planetary Access. <http://www.europlanet-vespa.eu/>

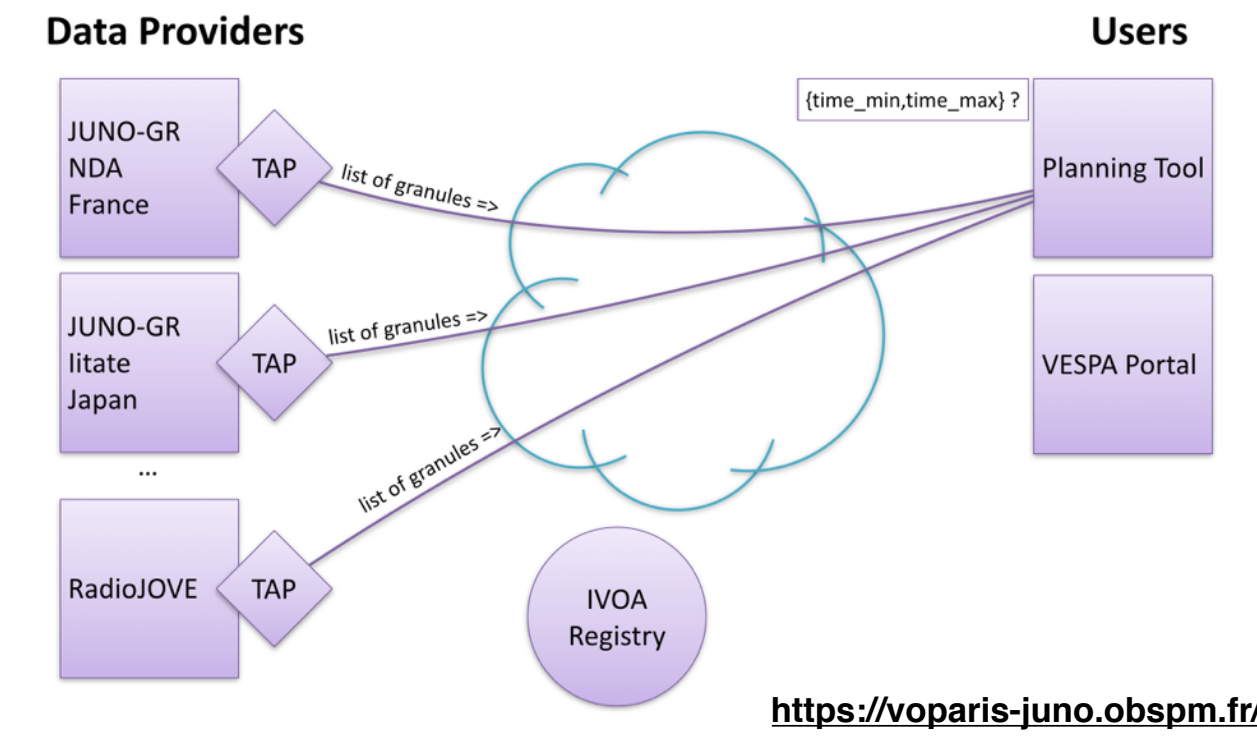


JUNO-Ground-Radio Observation Support

Data Access

The VESPA infrastructure allows multiple access means, that can easily be implementable in tools or web pages

Available Observations



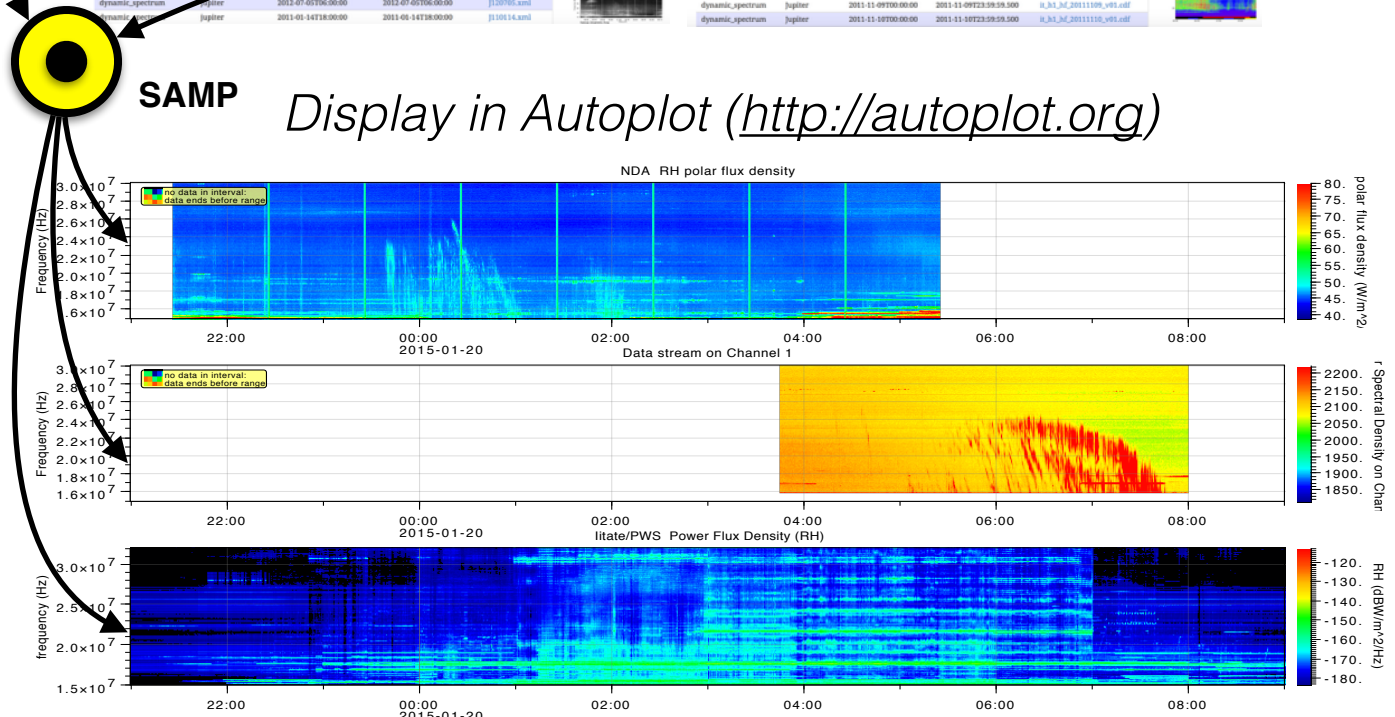
Access through VESPA Portal (<http://vespa.obspm.fr>)

The screenshot shows the VESPA Virtual European Solar and Planetary Access portal. The 'Query form: All VO' section includes fields for Target name (Jupiter), Resource type (granule), Dataset ID, Time selection (Data range is included in), Time min, Time max, Dataproduct type (image, spectrum, dynamic_spectrum, spectral_cube), and Measurement type (em.radio). To the right, a diagram shows 'Data Providers' (JUNO-GR NDA France, JUNO-GR litate Japan, RadioJOVE) connected via 'TAP' to the 'IVOA Registry', which then connects to 'Users' (Planning Tool, VESPA Portal). A 'VESPA QUERY' is shown: target_name=Jupiter + ucd=em.radio [2].

Result pages for Nançay/NDA (left) and litate (right)

Two screenshots of VESPA result pages. The left page is titled 'Results in service dam' and shows a table of data products for Jupiter. The right page is titled 'Results in service litate' and shows a table of data products for Jupiter. Both pages include search filters, plotting tools, and example queries.

The screenshot shows the 'Juno-Ground-Radio Observations Support' web interface. It includes a sidebar with links to Welcome, Users, Instruments, Observation Planning, and Available Observations. The main content area displays a table of observations for the 'litate Observatory' and 'Nancay Decametric Array'. Below the table, there are three spectral plots: 'Right Handed Polarization', 'Left Handed Polarization', and 'Nancay Decametric Array'. The plots show frequency (MHz) vs. time (UT) for the J1101 observation.



Display in Autoplot (<http://autoplot.org>)