



Data discovery in planetary science complementary approach to TAP portal

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several communities = several habits:

- **Solar physics**
surface, activity, corona, wind
- **Planets**
Interior, surface (OGC), atmosphere
- **Plasma**
interplanetary medium, solar wind, planetary atmosphere
- **Small bodies & comets**
- **Exoplanets**
- **Minerals and samples**

Vespa portal

Refine your search ADQL Query **Data Services** Help -

Main Parameters

Target Name

[Target Class](#)

[Dataproduct Type](#)

Instrument Host Name

Instrument Name
-

Processing level

Time

Location

Spectral

Illumination

Data Reference

Optional

abs_cs - Data for numerical modeling of planetary atmospheres 13 results	●	○	○
AMDA - Planetary and heliophysics plasma data at CDDP/AMDA 2539504 results	●	○	○
APIS - Auroral Planetary Imaging and Spectroscopy 74535 results	●	○	○
BaseCom - The Nançay Cometary Database 6886 results	●	○	○
bass2000 - Bass2000 solar survey archive 370931 results	●	○	○
BDIP - IAU database of historical planetary Images 16906 results	●	○	○
cassini_jupiter - Cassini RPWS/HFR Calibrated Jupiter Flyby Dataset 7 results	●	○	○
CLIMSO - CLIMSO coronagraphs at Pic du Midi de Bigorre 2943730 results	●	○	○
cpstasm - CLUSTER STAFF-SA Spectral Matrix Data 11688 results	●	○	○
DynAstVO - Asteroid orbital database and ephemerides 31320 results	●	○	○
eit_syn - Synchronous synoptic maps of the solar corona from EIT/SoHO 18482 results	●	○	○
ExoPlanet - Extrasolar Planets Encyclopaedia 5335 results	●	○	○
Exotopo - Simulated Topography of Exoplanets 1800 results	●	○	○
expres - ExPRES Simulation Database 100581 results	●	○	○
Gaia-DEM - Thermal structure maps of the solar corona from SDO 746364 results	●	○	○
GEM_Mars - Profiles from Mars Global Climate Model 1399680 results	●	○	○
HFC1AR - Heliophysics Feature Catalog active regions 1194277 results	●	○	○
HFC1T3 - Heliophysics Feature Catalog type 3 radio bursts 90845 results	●	○	○
hrsc3nd - HRSC nadir Images of Mars 4093 results	●	○	○
hst_planeto - Planetary data from the Hubble Space Telescope 52768 results	●	○	○
IKS - IR spectroscopy of comet Halley 206 results	●	○	○



EPN-TAP Services Custom Service

Main Parameters

Target Name

[Target Class](#)

[Dataproduct Type](#)

Instrument Host Name

Instrument Name
=

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Location

Spectral

Illumination

abs_cs - Data for numerical modeling of planetary atmospheres 13 results	●	○	○
AMDA - Planetary and heliophysics plasma data at CDDP/AMDA 1198088 results	●	○	○
APIS - Auroral Planetary Imaging and Spectroscopy 36091 results	●	○	○
BASECOM - The Nançay Cometary Database 15611 results	●	○	○
bass2000 - Bass2000 solar survey archive 305603 results	●	○	○
BDIP - Base de Données d'Images Planétaires 16906 results	●	○	○
BIRA-IASB TAP - Profiles from SPICAV-SOIR/VEX 13465 results	●	○	○
cassini_jupiter - Cassini RPWS/HFR Calibrated Jupiter Flyby Dataset 7 results	●	○	○
CLIMSO - CLIMSO coronagraphs at pic du midi de Bigorre 498038 results	●	○	○
cpstasm - CLUSTER STAFF-SA Spectral Matrix Data 11688 results	●	○	○
CRISM - CRISM georeferenced cubes 20722 results	●	○	○
DynAstVO - Asteroid orbital database and ephemerides 20035 results	●	○	○
ExoPlanet - Extrasolar Planets Encyclopaedia 4037 results	●	○	○
expres - ExPRES Simulation Database 77526 results	●	○	○
HFC1AR - Heliophysics Feature Catalog active regions 948627 results	●	○	○
HFC1T3 - Heliophysics Feature Catalog type 3 radio bursts 90845 results	●	○	○
hisaki - Hisaki Planetary Database 4112 results	●	○	○
hrsc3nd - HRSC nadir images of Mars 4093 results	●	○	○
hst_planeto - Planetary data from the Hubble Space Telescope 44260 results	●	○	○
litateHF - litate HF data 3614 results	●	○	○
IKS - IR spectroscopy of comet Halley 206 results	●	○	○

Plotting tools

- TOPCAT
- Aladin
- SPLAT
- CASSIS
- 3DView

Example queries

Saturn in March 2012

Help

Help

- Each service appear indepently in the portal
- NASA (PPI) come with 170 services
- Vespa succes increase with 20 services / year

<http://vespa.obspm.fr>

development version

<http://voparis-europlanet-dev.obspm.fr/>

- **How web portail can handle that?**
 - Thematic sort ?
 - Other grouping of services ?
 - What is the response time to the query ?
 - When does the dynamic display break ?





User feedback Complains

- **You can't find what you're looking for ?**
- **It's not intuitive !**
- **We don't work like that !**
- **Everyone has a point of view on ergonomy !**

Local approach

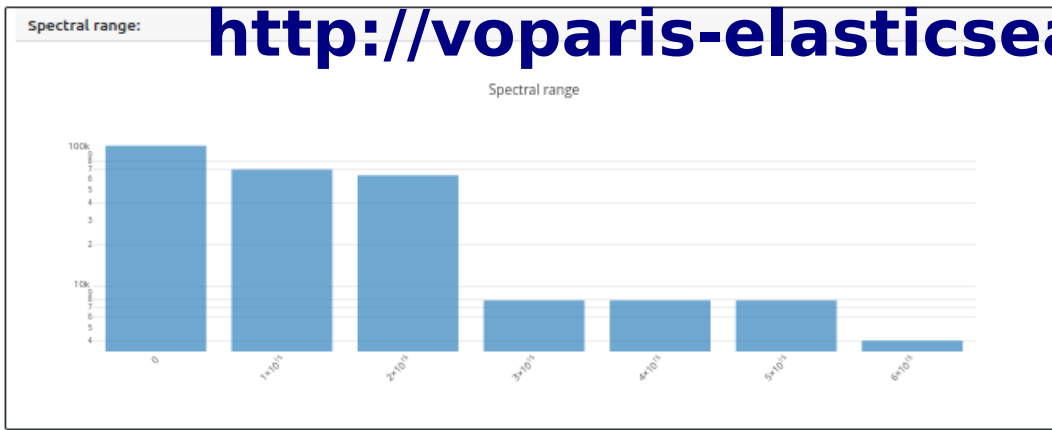
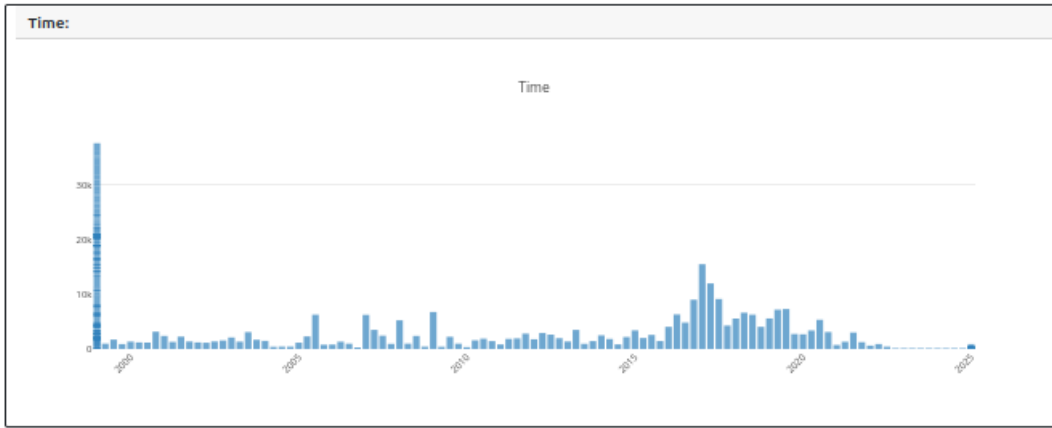
- **retrieval of the 34Millions metadata set**
 - **creation-date, modification_date, release_date**
- **ingestion in a search engine.**

- **Creation of spatial range zone (time, frequency) to be treated separately**
 - **Polygons management problem**
 - **Range long/lat**
 - **Moc**



NoSQL facilities/difficulties

- **Easy way to scan meta datas**
- **Facets search make it intuitive**
 - **Search in large heterogeneous datasets**
- **Many difficulties on displaying heterogeneous outputs (mixing carrot and califlower) !**
- **range filed type are usefull but weighs down the queries.**
- **We have to optimized before clustering.**



<http://voparis-elasticsearch.obspm.fr/dev3>

Missions

hst	64514
HST	51055
Juno	40748
SRN	20586
Station de Radioastronomie de Nancy	20086
Cassini	13224
cassini	7985

Instruments

STIS	51801
EXPRES	38946
ACS	31811
WFC3	20431
NDA	20086
Nancy Decameter Array	20086
UVIS	7385
WAVES	6483

Services

apis	74173
hst_planeto	51055
expres	38946
pvol	38523
AMDADB	54246
nda	20086
bdip	14996
mpc	12019

Datatype

image	158404
dynamic_spectrum	83287
time_series	31630
catalogue_item	19216
spectrum	14013

Target region

Magnetosphere	51680
Aurora	49537
	36118
Solar Wind	9705
Corona	8119

Target class

planet	264182
satellite	53227
asteroid	12227
star	4709
dwarf_planet	4383

Target name

Jupiter	199259
Saturn	52180
Io	17309
Mars	16281
Europa	16159



Interface

Search

Results

Results:



0 pvol-Jupiter(undefined)-59101 



[59101](#)



1 pvol-Jupiter(undefined)-63335 



2 pvol-Jupiter(undefined)-78688 



3 pvol-Jupiter(undefined)-60054 



4 pvol-Jupiter(undefined)-60055 



5 pvol-Jupiter(undefined)-60060 



- **Image presentation to improve**
- **Better link to portal**
- **Save elastic queries**

Refine your search

Form [Back To Services Results](#)

Results in service [PVOL](#) 

ADQL

SELECT (...) WHERE

```
granule_uid='59101'
```

Reset

PVOL - Amateur images database

Images, maps, photometries and other kind of planetary graphic platforms made by amateur astronomers. Data is received by the astronomers themselves and can be subject of change.

Credits:

Creators: Jon Juaristi-Campillo

Contributors: Ricardo Hueso

Publisher: Euskal Herriko Unibertsitatea, Universidad del Pais Vasco, University of the Basque Country

Column visibility

granule_uid	dataprodect_type	target_name	time_min (d)	time_max (d)	access_url
59101	image	Jupiter	2012-12-25T07:57:59.999	2012-12-25T07:57:59.999	http://pvol2.ehu.eus...

Showing 1 to 1 of 1 entries

Show entries

ADQL query:

```
SELECT * FROM pvol.epn_core WHERE granule_uid='59101'
```

- **real progres to do**
- **Complementary to the calassical VO portal.**
- **Main question remain how to display results**
- **Introduce intuitive spatial search**
- **Take advantage of the Nasa portal ?**