

# VESPA = TAP + EPNcore

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- TAP = Table Access Protocol.  
IVOA developed standard
- Query to relational database, using SQL-type language  
(*ADQL, astronomy data query language*)  
Results in VOTable (*many servers allow other output types, such as JSON*)
- **TAP is generic** (*i.e., can be reused outside astronomy*)
- TAP services are implemented for many ESA science mission (astronomy, planetary and heliophysics)



# EPN-TAP

- **EPN-TAP = EPNcore (metadata dictionary) + TAP**  
Developed by Europlanet/VESPA for Solar System sciences (i.e.: planetary + heliophysics)
- **EPN-TAP = data discovery API**
  - Query metadata = coverage (time, spectra, location), provenance, content, access...
  - Service is registered in IVOA registry (discoverable by clients)
- EPN-TAP compliance allows:
  - same query sent once to all services
  - access through any TAP client
- Currently: 55 services (1/3 serving heliophysics data)



## EPNcore metadata

- Coverage: temporal, spectral, spatial (range, sampling, resolution)
- Target: name, class, region, feature
- Instrument: name, host name, measured quantity
- Geometry: incidence, emergence, phase, local time, season, distance
- Access: URL, size, create date, modification date, thumbnail
- Reference: publisher, bibliographic reference...

<https://ivoa.net/documents/EPNTAP/> (IVOA Recommendation since Aug. 2022)



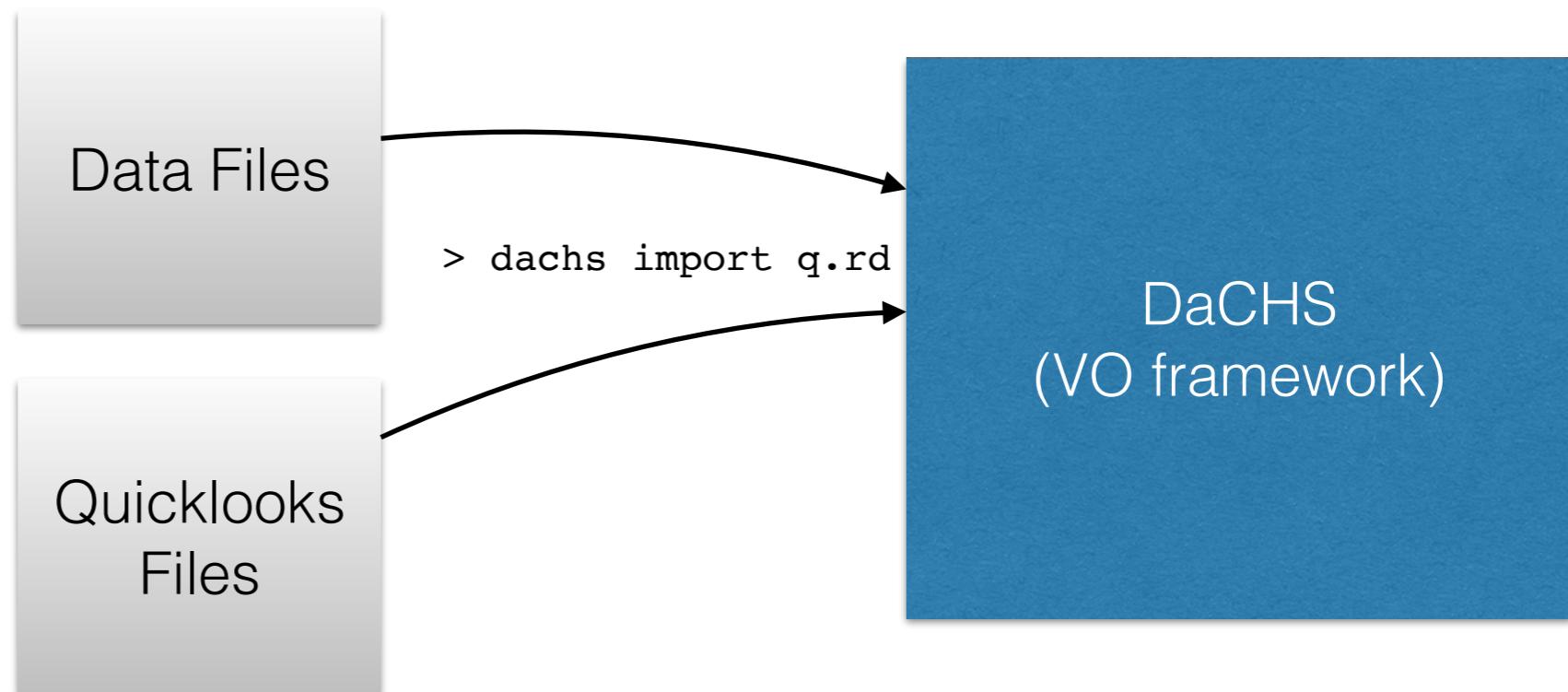
# Data Providers

- **VESPA (EPN-TAP) data services = metadata catalogue of your data products**
  - A table describing each of the service files (using std parameters)
  - Stored in PostgreSQL + TAP-handling application at the institutes
  - Searches through an optimized interface, connected to VO tools

VESPA  
git repo  
[https://voparis-  
gitlab.obspm.fr/vespa](https://voparis-gitlab.obspm.fr/vespa)

- q.rd (epn\_core service configuration)  
- extra scripts (reading data)

+ Issues, testing



# Service repository: support and knowledge base

This repository gathers services configuration for VESPA services using DaCHS, as part of the VESPA-H... [Read more](#)

**Subgroups and projects** Shared projects Archived projects

- IAA (Granada - Spain) Owner
- ORB (Brussels - Belgium) Owner
- DLR (Berlin - Germany) Owner
- IASB-BIRA (Brussels - Belgium) Owner
- CBK-PAN (Warsaw - Poland) Owner
- UCL (London - UK) Owner
- OATS (Trieste - Italy) Owner
- OMP (Toulouse - France) Owner
- Tohoku (Sendai - Japan) Owner
- FHNW.CH (Windisch - Switzerland) Owner  
Repository for FHNW.CH services
- IDOC (Orsay - France) Owner
- JacobsUni (Bremen - Germany) Owner  
DaCHS Resource Descriptors (RDS) for Jacobs Uni VESPA services
- PADC (Paris - France) Owner  
VESPA DaCHS PADC services
- IPSL (Paris - France) Owner
- UPV (Bilbao - Spain) Owner  
Repository for UPV/EHU services

**voparis-tap-maser** Group ID: 93 [Leave group](#)

Repositories for services in voparis-tap-maser DaCHS server. [Read more](#)

**Subgroups and projects** Shared projects Archived projects

- wind\_waves Maintainer
- voyager\_pra Maintainer
- stereo\_waves Maintainer
- tfcat Maintainer
- expres Maintainer
- cassini\_rpws Maintainer

**expres** Project ID: 76 [Leave project](#)

7 Commits 1 Branch 0 Tags 164 KB Files 164 KB Storage

master / expres / + History Find file Web IDE Clone

published table and new query service Cecconi Baptiste authored 5 months ago 235d570e

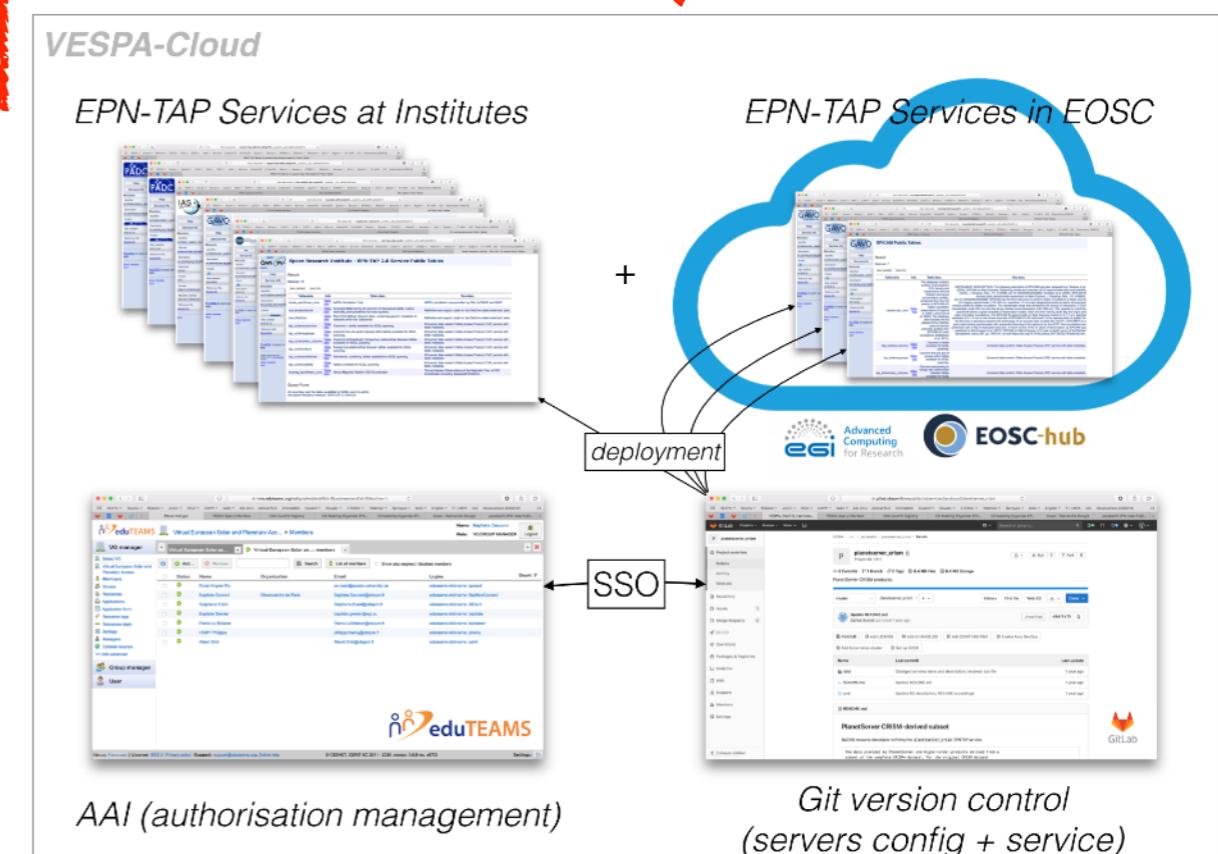
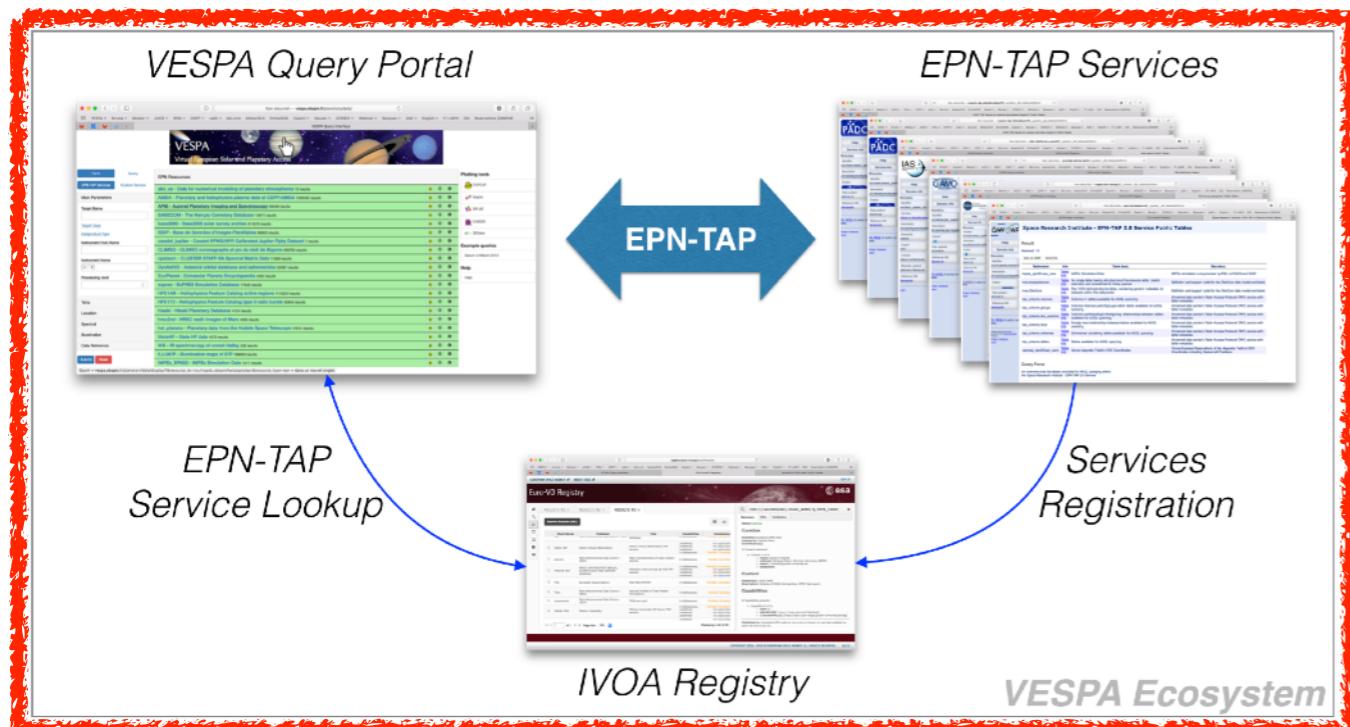
Auto DevOps enabled Add README Add LICENSE Add CHANGELOG Add CONTRIBUTING Add Kubernetes cluster Configure Integrations

Name	Last commit	Last update
log	Initial commit	1 year ago
res	fixed for python3	6 months ago
epn.rd	published table and new query service	5 months ago

# VESPA-Cloud

Virtual European Solar and Planetary Access

## A distributed Virtual Observatory for Solar System Sciences



**A cloud-based instance of EPN-TAP provider's server (hosted on EOSC) was used during last VESPA provider's workshop**

# VESPA-Cloud

Virtual European Solar and Planetary Access

## Marketplace

A screenshot of the VESPA Marketplace search interface. The search bar at the top contains the text "vespa". Below the search bar, the message "Looking for: vespa" is displayed. The results section shows 2 found results, sorted by "Best match". The first result is "B2HANDLE", which is described as "Register your Research Data" and "Provided by: EUDAT, GRNET, SURFserve". It has filters for "Compute", "Data management", "Networking", "Processing & Analysis", "Security & Operations", "Sharing & Discovery", "Storage", "Training & Support", and "Research Area". A green oval highlights the search bar area.

## eduTEAMS

A screenshot of the eduTEAMS VO manager interface. The left sidebar shows "Selected VO: Virtual European Solar and Planetary Access" and "Group manager". The main area displays a table of group members with columns "Sync", "Name", and "Description". Members listed include "admins" (VESPA Administrators), "admincloud" (VESPA Cloud Hub), "adminfrance" (VESPA Hub FR), "admingermany" (VESPA Hub DE), "adminitaly" (VESPA Hub IT), "admingitlab" (Administrators of gitlab), "adminvo" (VESPA VO Administrators), "coordination" (VESPA Coordination), "Devs" (Developers), "providers" (VESPA Data Providers), "providersteam1" (data provider team 1), and "providersteam2" (data provider team 2). A grey oval highlights the main content area.

## GitLab

A screenshot of the GitLab Community Edition sign-in page. The page title is "GitLab Community Edition" and it describes "A complete DevOps platform". It features a "Sign In" button and a "Sign in with eduTEAMS" button. A grey oval highlights the sign-in form area.

## AAI

## DaCHS

A screenshot of the PADC TAP Server interface. The title is "PADC TAP Server on voparis-tap-astro.obspm.fr". The "Result" section shows "Matched: 20". Below it is a table with columns "Tablename", "Info", "Table desc.", and "Res desc.". Rows include "heise\_dr.vo\_obscore", "heise\_ssa.data", "hyperleda.galaxies", "ivova.ObsCore", "posse.main", and "specphot.galaxyzoo". Each row provides a brief description of the table's purpose and data source. A grey oval highlights the table area.

## server config.

## VESPA

A screenshot of the VESPA Query Interface. The title is "Non sécurisé - voparis-tap-astro.obspm.fr (localhost) /". The main area is titled "EPN Resources" and lists various datasets: "abts.cs - Data for numerical modeling of planetary atmospheres", "APIS - Auroral Planetary Imaging and Spectroscopy", "BDIP - Base d'Images Planétaires", "cassini\_jupiter - Cassini RPWS/HFR Calibrated Jupiter Flyby Dataset", "cpstplan - CLUSTER STAFF-SA Spectral Matrix Data", "DynAIVD - Asteroid orbital database and spinematics", "ExoPlanet - Extrasolar Planets Encyclopédie", "expres - EXPRES Simulation Database", "HFC1AR - Heliosphysics Feature Catalog", "HFC1T3 - Heliosphysics Feature Catalog type 3 radio bursts", "hrcsdnd - HRCSD nadir images of Mars", "IKS - IR spectroscopy of comet Halley", "IMPEX\_EPN20 - IMPEX Simulation Data", "MCD - EPN-TAP access to the MCD database", "Venus atmospheric profiles - From SPICAV-SORVEX", "CLIMSO - CLIMSO coronagraphs at pic du midi de Bigorre", "PSA - ESA Planetary Science Archive", and "hiraki - Hiraki Planetary Database". A grey oval highlights the resource list area.

service config.

openstack deployment

accessible and findable



### List of (accessible/working) Data services related to Heliophysics (as of Oct 2023):

**AMDA** (FR) - Planetary and heliophysics plasma data at CDPP/AMDA

**APIS** (FR) - Auroral Planetary Imaging and Spectroscopy

**bass2000** (FR) - Bass2000 solar survey archive

**CLIMSO** (FR) - CLIMSO coronagraphs at pic du midi de Bigorre

**SPoCA-CH** (BE) - Coronal Hole catalogue - SPoCA CH

**cpstasm** (CZ — CLUSTER STAFF-SA Spectral Matrix Data

**E-Callisto** (CH)

**eit\_syn** (FR) - Synchronous synoptic maps of the solar corona from EIT/SoHO

**expres** (FR) - ExPRES Simulation Database

**Gaia-DEM** (FR) - Thermal structure maps of the solar corona from SDO

**HFC1AR** (FR) - Heliophysics Feature Catalog active regions

**HFC1T3** (FR) - Heliophysics Feature Catalog type 3 radio bursts

**litateHF** (JP) - litate HF data

**IMPEX** (CZ) - IMPEX Simulation Data

**ionosondes** (PL) - Warsaw Ionogrammes data

**IPRT** (JP) - IPRT/AMATERAS data

**JASMIN** (UK) - Jovian thermosphere model

**lofar\_jupiter** (PL) - Jupiter obs. by LOFAR

**MDISC** (UK) - UCL Magnetodisc Model for Jupiter and Saturn

**NDA** (FR) - Nancay Decameter Array observation database

**NRH** (FR) - Nancay Radio Heliograph

**ORFEES** (FR)

**PSWS Transplanet** (FR) - Magnetosphere Ionosphere coupling simulation runs

**thmsm** (CZ) - THEMIS Spectral Matrix Data

**voyager\_pra** (FR) - Voyager radio datasets

+ 175 services from PDS/PPI ! (US)

 **VESPA** Virtual European Solar and Planetary Access

Refine your search [ADQL Query](#) [Back To Services Results](#)

Main Parameters	Results in service <a href="#">Coronal Hole catalogue</a> 	
Target Name	Coronal Hole catalogue - SPoCA CH	
Target Class	This service provides a catalog of Coronal Holes obtained with the Spatial Poss and corrected for degradation) are used, at a cadence of one AIA image every box and characteristics such as areas and pixel intensity statistics, on AIA 19.3	
Dataproduct Type	Credits: Creators: Freek Verstrigne Contributors: Veronique Delouille Publisher: ORB	
Instrument Host Name	Column visibility <input type="button" value="Show all"/> <input type="button" value="Hide all"/>	
Instrument Name	<input type="button" value="Select All in current page"/> <input type="button" value="Reset Selection"/>	
Processing level	granule_uid	dataproduct_type
	spoca_coronalhole_9998_20171205_060005	catalogue_item
Time	spoca_coronalhole_9998_20171205_000005	catalogue_item
Location	spoca_coronalhole_9996_20171202_120005	catalogue_item
Spectral	spoca_coronalhole_9996_20171202_060005	catalogue_item
Illumination	spoca_coronalhole_9995_20171202_060005	catalogue_item
Data Reference	spoca_coronalhole_9994_20171202_060005	catalogue_item
Other	spoca_coronalhole_9994_20171202_060005	catalogue_item
	spoca_coronalhole_9993_20171202_060005	catalogue_item
	spoca_coronalhole_9991_20171202_060005	catalogue_item
	spoca_coronalhole_9987_20171201_180005	catalogue_item
	spoca_coronalhole_9987_20171201_120005	catalogue_item