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Paris Data Centre

TAP Implementations by VOParis

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Context and Goals

Context

- TAP is a useful DAL protocol for different data types
- TAP will provide simple access to “non-simple” data

Goals

- Provide a TAP service for Exoplanet Encyclopaedia where cone search is available
- Try TAP on planetary atmosphere profiles
  - Titan (Cassini)
  - Mars (Phobos)

Implementation

- **Level of implementation**
  - Param only for exoplanet
  - Partial implementation of ADQL
    - synchronous
    - Only respont to CIRCLE (for exoplanet)
      - No multi-positional queries
      - No joins
    - getCapability is not yet implemented
    - No vospace

Exoplanet TAP

TAP request example:

http://voparis-srv.obspm.fr/tap/tap_exoplanet.php?QUERY=SELECT * FROM vo_exoplanet WHERE REGION('CIRCLE J2000 10 -20 180)&REQUEST=AdqlQuery&QUERYTYPE=ADQL&FORMAT=votable

That could be constrained like

http://voparis-srv.obspm.fr/tap/tap_exoplanet.php?QUERY=SELECT TOP 10 * FROM vo_exoplanet WHERE REGION('CIRCLE J2000 10 -20 1') AND mass < 1 AND period < 4&REQUEST=AdqlQuery&QUERYTYPE=ADQL&FORMAT=votable

For param access

http://voparis-srv.obspm.fr/tap/tap_exoplanet.php?REQUEST=ParamQuery&POS=0,0&SIZE=10&FROM=vo_exoplanet&WHERE=mass,/1

Thanks to J. Schneider

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Exoplanet TAP

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- exoplanet
- titan
- mars

Conclusion

TAP Result :

```
<?xml version="1.0" encoding="UTF-8" ?>
<VOTABLE version="1.1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
                       xsi:noNamespaceSchemaLocation="xmlns=http://www.ivoa.net/xml/VOTable/v1.1">
<COOSYS equinox="J2000" system="eq_FK5"/>
<INFO name="QUERY_STATUS" value="OK"/>
<RESOURCE name="exoplanet"><TABLE><FIELD ID="name" name="Name" ucd="meta.id;meta.main" datatype="char" un
</FIELD>
<FIELD ID="mass" name="Mass" ucd="phys.mass" datatype="double" unit="M_Jupiter"><DESCRIPTION>Mass of the
</FIELD>
<FIELD ID="radius" name="Radius" ucd="phys.radius" datatype="double" unit="R_Jupiter"><DESCRIPTION>Radius
</FIELD>
<FIELD ID="period" name="Period" ucd="time.period" datatype="double" unit="d"><DESCRIPTION>Period of the
</FIELD>
<FIELD ID="axis" name="Semi-major Axis" ucd="phys.size.smajAxis" datatype="double" unit="AU"><DESCRIPTION
</FIELD>
<FIELD ID="eccentricity" name="Eccentricity" ucd="src.orbital.eccentricity" datatype="double" unit="--"><
</FIELD>
<FIELD ID="inclination" name="Inclination" ucd="src.orbital.inclination" datatype="double" unit="deg"><DE
</FIELD>
<FIELD ID="angular_distance" name="Ang. Dist." ucd="pos.angDistance" datatype="double" unit="arsec"><DESC
</FIELD>
<FIELD ID="ra_star" name="RA" ucd="pos.eq.ra;meta.main" datatype="double" unit="deg"><DESCRIPTION>Right A.
</FIELD>
<FIELD ID="dec_star" name="DEC" ucd="pos.eq.dec;meta.main" datatype="double" unit="deg"><DESCRIPTION>Decl
</FIELD>
<DATA><TABLEDATA><TR><TD>HD 83443 b</TD>
<TD>0.4</TD>
<TD></TD>
<TD>2.985625</TD>
<TD>0.0406</TD>
```

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Exoplanet TAP

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  - exoplanet
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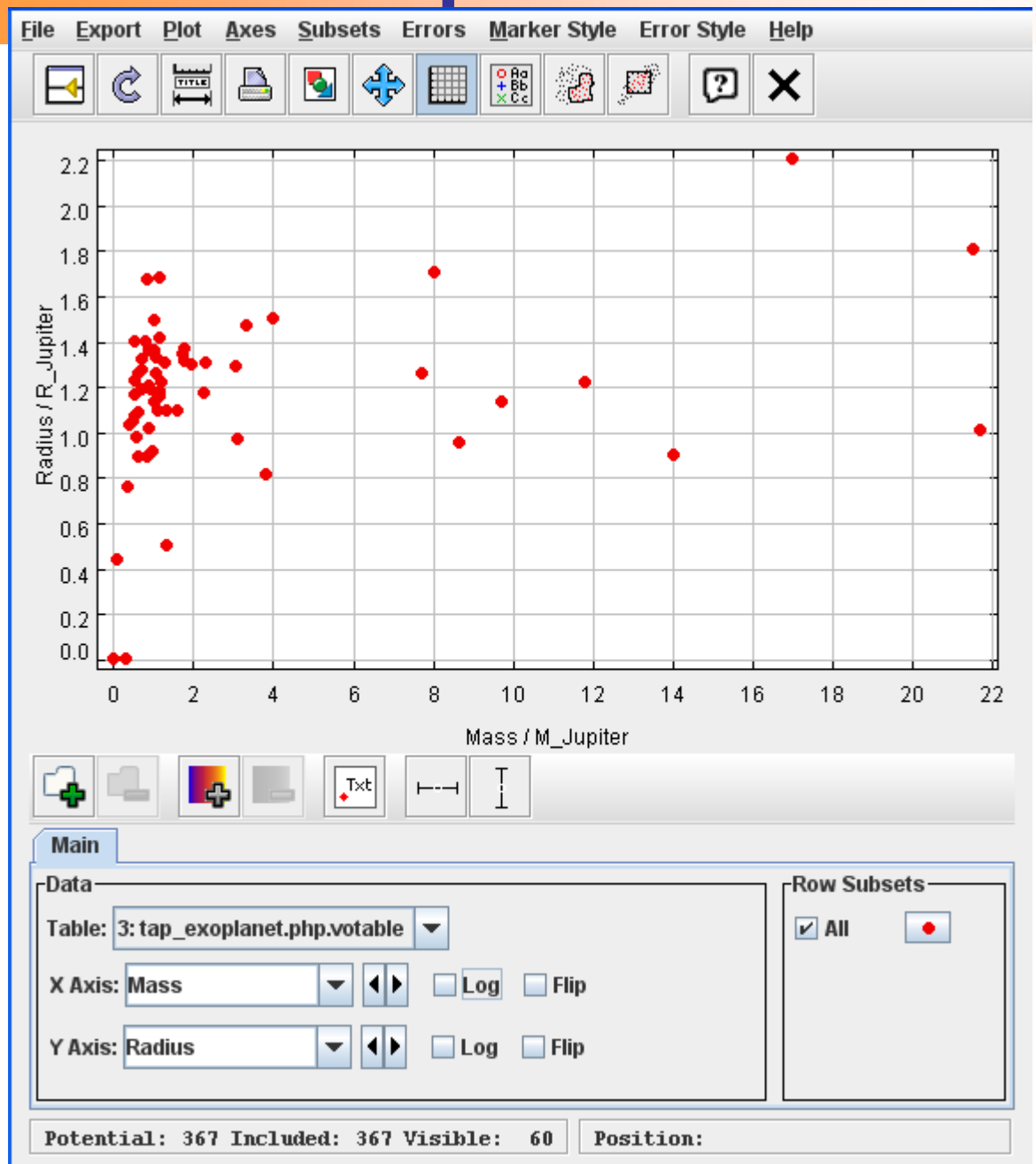

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TAP Planet

- TAP FOR PLANETARY ATMOSPHERES
- http://voparis-srv.obspm.fr/tap/tap_titan.php?REQUEST=AdqlQuery&QUERYTYPE=ADQL&QUERY=SELECT ALL altitude,abundance,pressure FROM view_abundance WHERE element='22C2H2'&FORMAT=votable

Thanks to S. Vinatier

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TAP Planet

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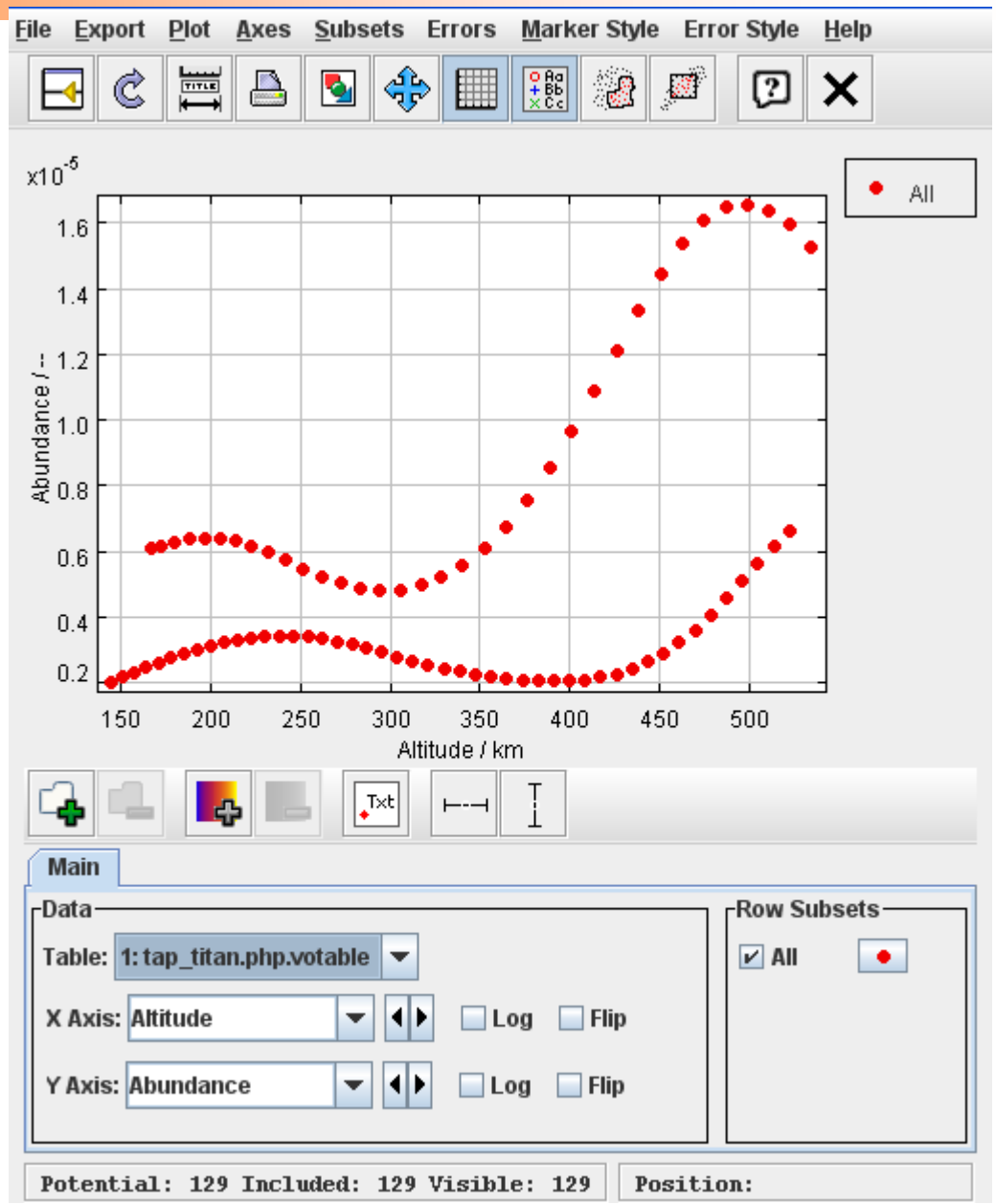
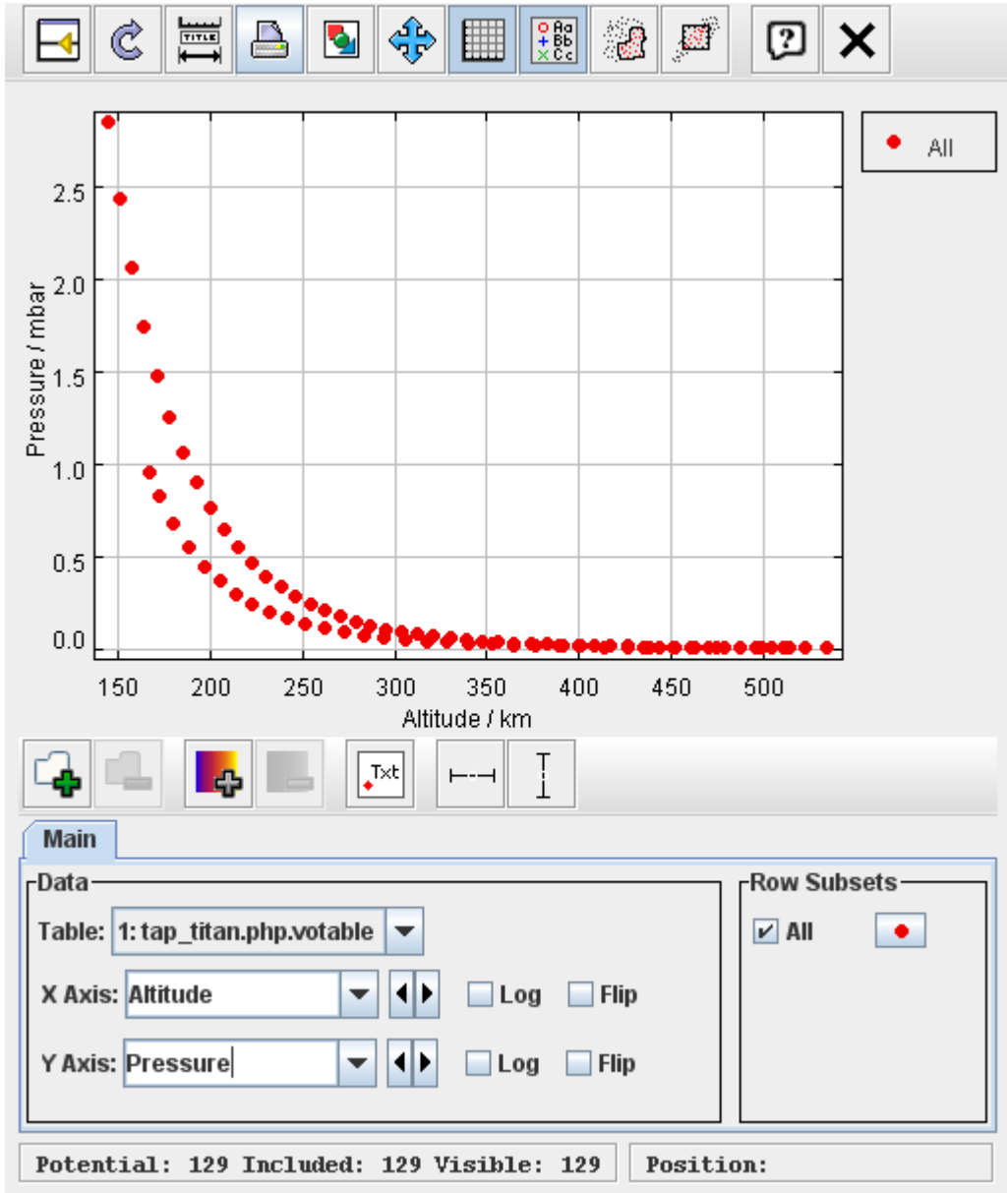
Abundance / altitude On TITAN For C_2H_2



TAP Planet

Presure / Altitude On TITAN For C_2H_2



TAP Planet

- **TAP FOR PLANETARY ATMOSPHERES**

- **Atmosphere of Mars**

http://voparis-srv.obspm.fr/tap/tap_mars.php?REQUEST=AdqlQuery&QUERYTYPE=ADQL&QUERY=SELECT ALL altitude,aerosol FROM view_aerosol WHERE date = '1989-03-02 '&FORMAT=votable

Thanks to A. Sarkissian

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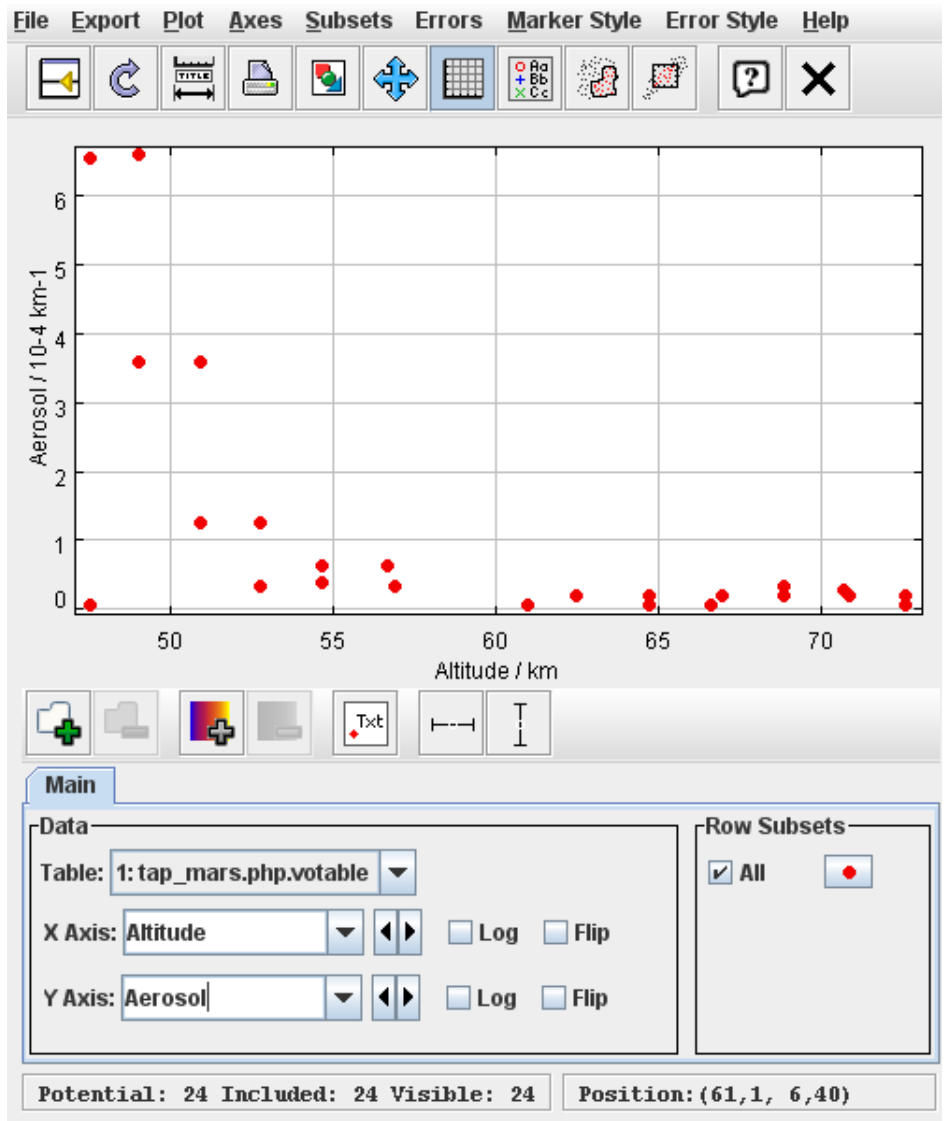

Conclusions

- **TAP QL vs TAP Param**
- **TAP param is easier to implement**
  - Just list of parameters to parse
  - Laguage is quite simple and derived from Simple access DAL protocols
  - Ready to use
  - But too restrictive (if position is needed)
- **TAP QL is more flexible**
  - TAP QL allows all queries equivalent to TAP PARAM
  - TAP QL is powerful (but data model dependant ?)
  - TAP QL is a powerfull protocol to allow different non-astronomical communuties to join « VO ».

Conclusions

- **TAP QL must be promoted as an extensible protocol**
  - TAP is not only the succesor of Cone search
  - ra dec must not be mandatory
  - Need to promote data models
  - How to locate TAP services in a registry?