Intégration de TAP dans SITools 2

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SITools2 Présentation

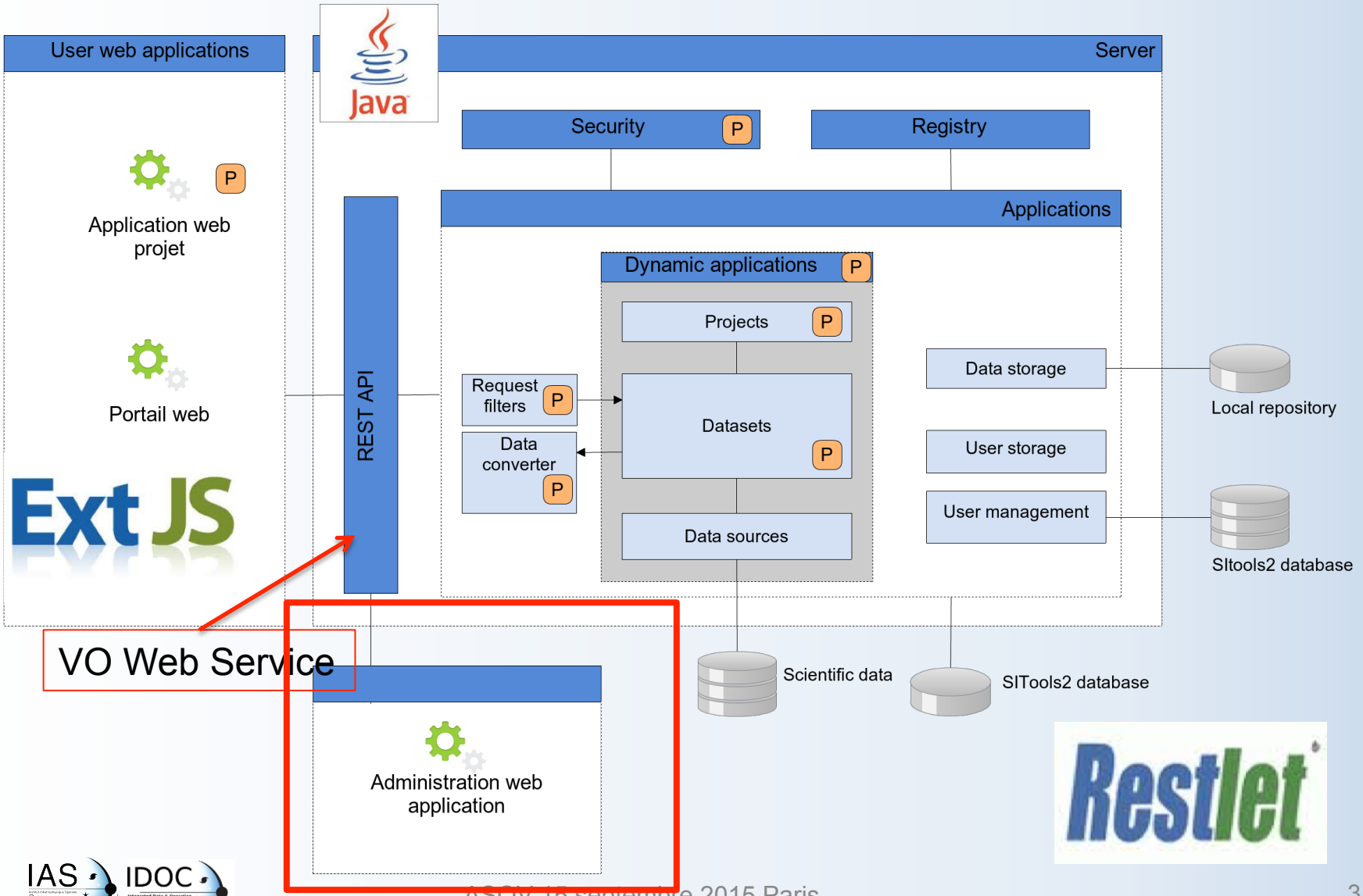
- Un outil générique du CNES issu d'une collaboration entre le CNES et plusieurs laboratoires spatiaux français.

- Il s'agit d'une application Client/Serveur sécurisée qui permet la gestion des droits utilisateurs et des données ainsi qu'un accès aux données à travers une interface Web 2.

- L'ajout de plugins permet d'ajouter des fonctionnalités aussi bien au niveau client qu'au niveau serveur (cas pour le web service VO).

- https://github.com/SITools2
- Contact: jean-christophe.malapert@cnes.fr

SITools2 General Architecture

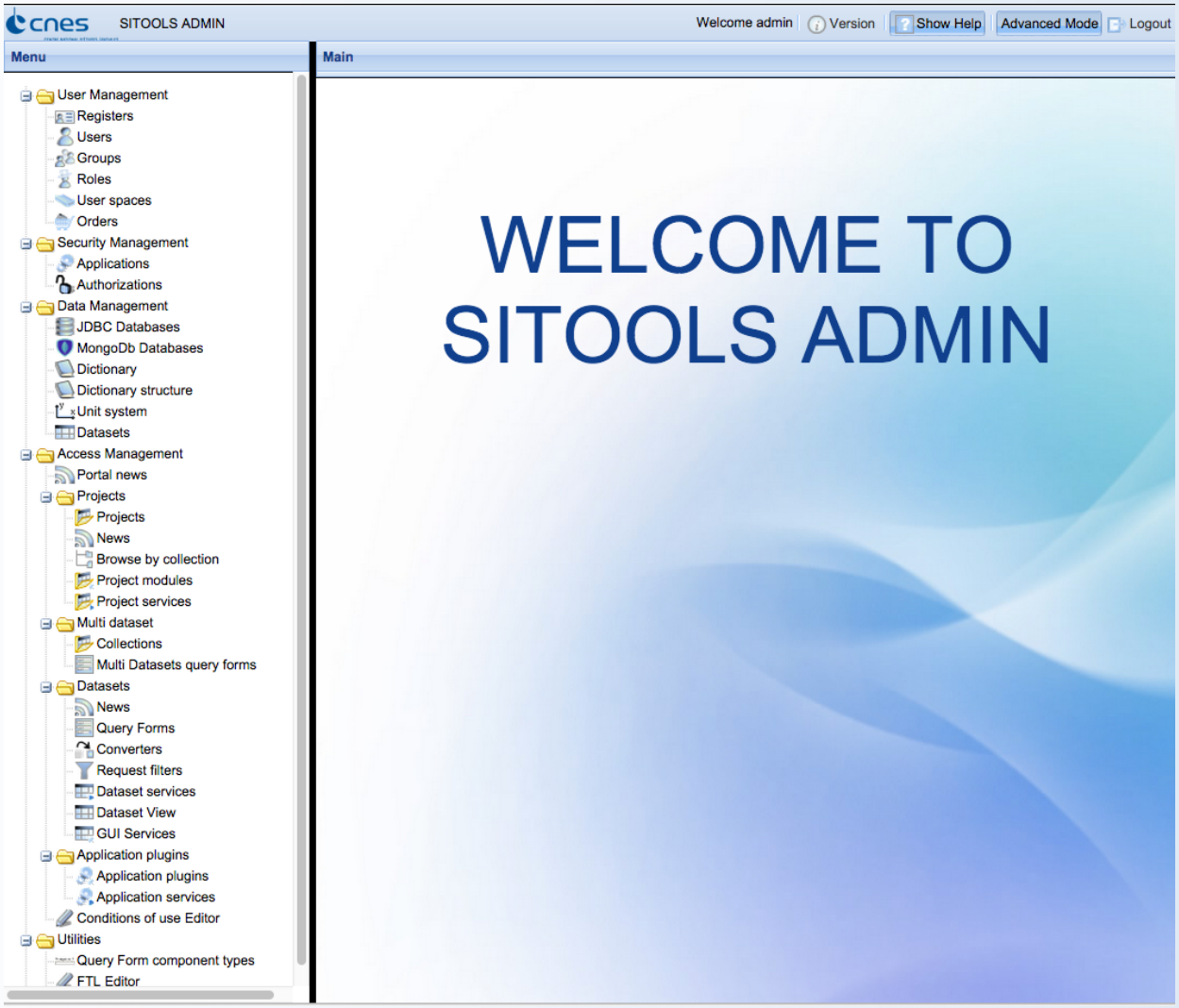


SITools2 HESIOD client interface

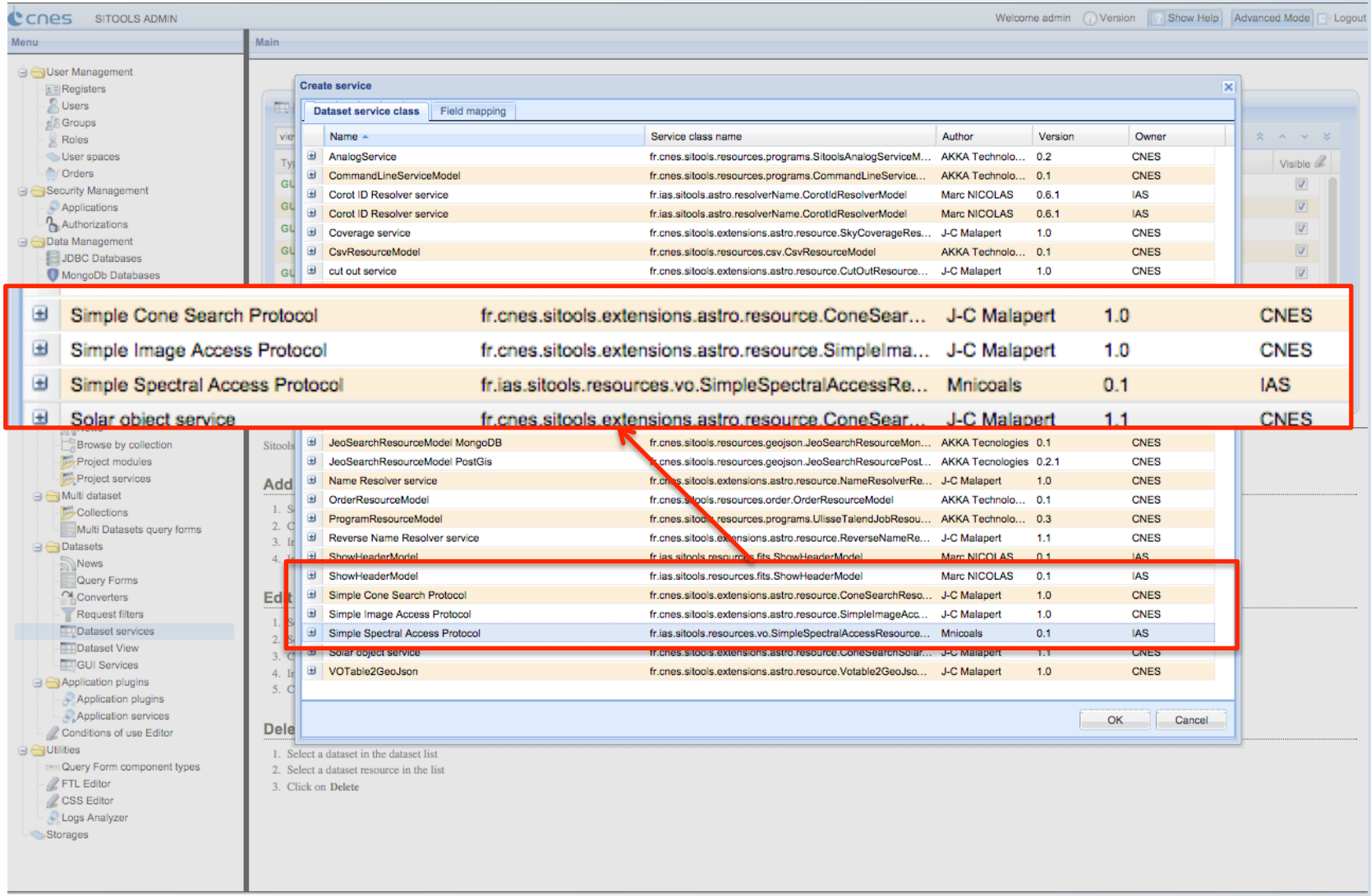
HESIOD (HErSchel IdOc Database) Portail IDOC = Integrated Data and Operation Center
http://idoc-herschel.ias.u-psud.fr/client-user/

SITools2 HESIOD administration interface

HESIOD (HErSchel IdOc Database) Portail IDOC = Integrated Data and Operation Center
http://idoc-herschel.ias.u-psud.fr/client-admin/



SITools VO services availables



Registered IDOC VO services

Herschel Idoc Database (HESIOD) SPIRE PACS [HESIOD]

[CHECK | XML | EDIT | CLONE]

IVOA identifier: ivo://idoc.ginco/herschel/spirepacs [CatalogService] [SimpleImageAccess]

All data for the Herschel SPIRE and PACS guaranted time program on Interstellar Medium (SAG-4) and other public data processed at IDOC. All data have been reprocessed at IDOC using advanded reprocessing pipeline.

Published by: IDOC GINCO on the 2014-03-20T13:35:29Z and last updated on the 2014-03-20T13:35:29Z

Herschel Idoc Database (HESIOD) SPIRE PACS CutOut [HESIOD]

[CHECK | XML | EDIT | CLONE]

IVOA identifier: ivo://idoc.ginco/herschel/spirepacsCutOut [CatalogService] [SimpleImageAccess]

All data for the Herschel SPIRE and PACS guaranted time program on Interstellar Medium (SAG-4) and other public data processed at IDOC. All data have been reprocessed at IDOC using advanded reprocessing pipeline.

Published by: IDOC GINCO on the 2014-03-27T12:30:58Z and last updated on the 2014-03-27T12:30:58Z

IDOC SZ Clusters (szcluster-db) ACT/PLANCK/SPT ConeSearch [SZCLUSTER-DB]

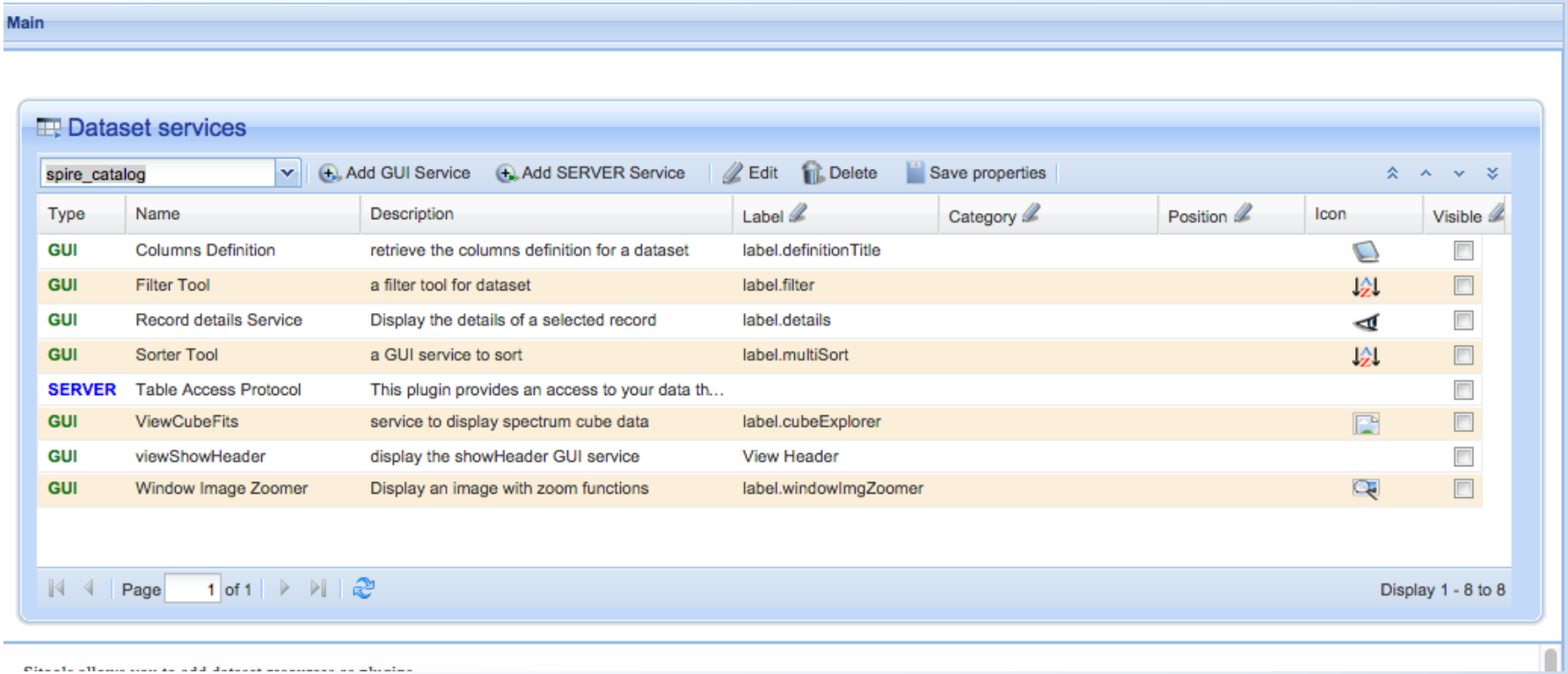
[CHECK | XML | EDIT | CLONE]

IVOA identifier: ivo://idoc.ginco/szcluster-db/szcluster-db-conesearch [CatalogService] [ConeSearch]

This database provides access to IDOC catalogues and complementary information on clusters of galaxies observed through the Sunyaev-Zeldovich (SZ) effect.

Published by: IDOC GINCO on the 2014-04-16T09:20:13Z and last updated on the 2014-04-16T09:20:13Z

SITools VO service TAP



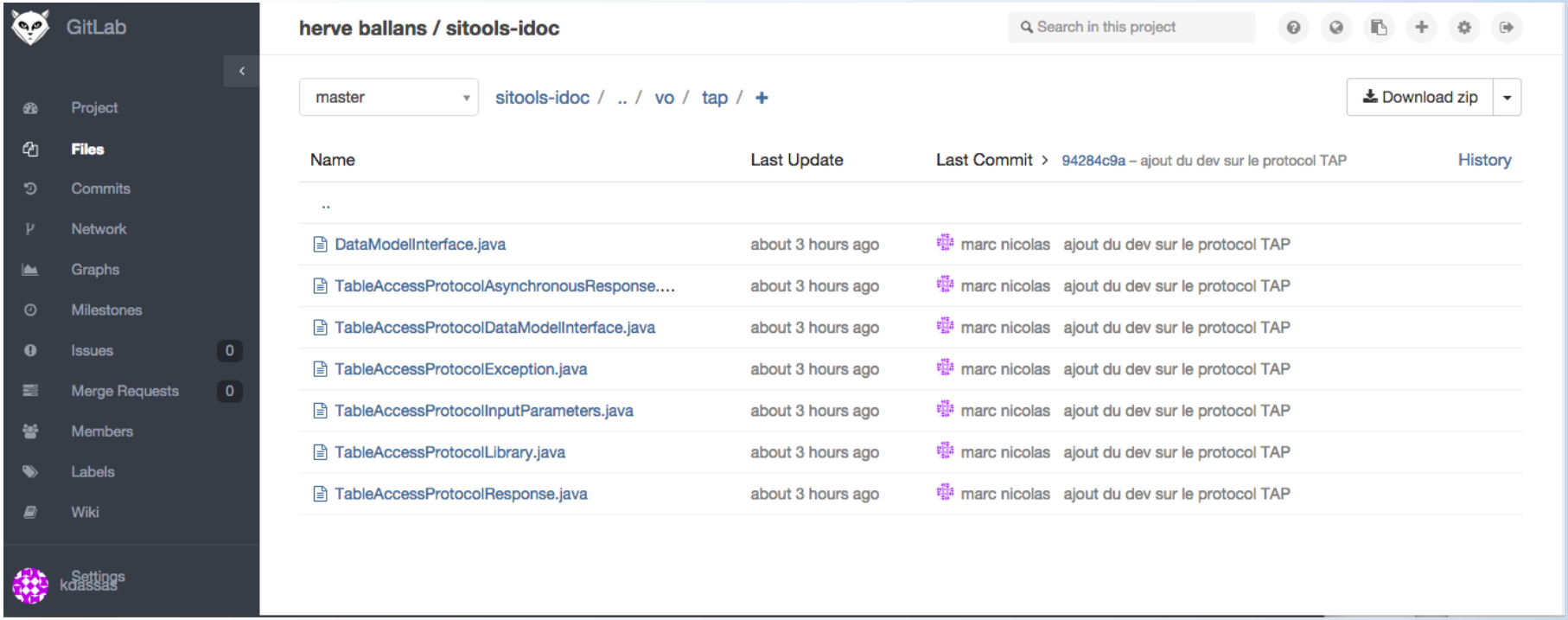
SITools VO service TAP

TAP-1.1-20150512.pdf
ADQL-20081030.pdf (ADQL 2.0)
UCDlist-20070402.pdf
Java 1.6 - postgres (PostgreSQL) 8.3.1

ADQL Library1.1 from CDS (Grégory Mantelet)
http://cdsportal.u-strasbg.fr/adqltuto/

https://git.ias.u-psud.fr/hballans/sitools-idoc/

VOTable 1.2



SITools VO service TAP

```
 * and open the template in the editor.
 */

package fr.ias.sitools.vo.tap;

import adql.parser.ADQLParser;
import adql.parser.ParseException;
import adql.query.ADQLQuery;
import adql.translator.ADQLTranslator;
import adql.translator.PostgreSQLTranslator;
import adql.translator.TranslationException;
//import fr.cnes.sitools.astro.representation.DatabaseRequestModel;
import fr.cnes.sitools.common.exception.SitoolsException;
import fr.cnes.sitools.dataset.DataSetApplication;
import fr.cnes.sitools.dataset.converter.business.ConverterChained;
import fr.cnes.sitools.dataset.database.DatabaseRequest;
import fr.cnes.sitools.dataset.database.DatabaseRequestFactory;
import fr.cnes.sitools.dataset.database.DatabaseRequestParameters;
import fr.cnes.sitools.dataset.database.common.DataSetExplorerUtil;
import fr.cnes.sitools.dataset.dto.ColumnConceptMappingDTO;
import fr.cnes.sitools.dataset.dto.DictionaryMappingDTO;
import fr.cnes.sitools.dataset.model.Column;
import fr.cnes.sitools.dataset.model.Predicat;
import fr.cnes.sitools.dictionary.model.Concept;
import fr.cnes.sitools.plugins.resources.model.ResourceModel;
import fr.cnes.sitools.util.Util;
import fr.ias.sitools.vo.representation.DatabaseRequestIasModel;
import freemarker.template.TemplateSequenceModel;
import java.math.BigInteger;

```

Modules de la librairie CDS utlisés :

AQLParser

PostgreSQLTranslator

Coming soon :
utilisation de PGSphereTranslator

PostGISTranslator ?

SITools VO service TAP

- Requête ADQL :

```
SELECT TOP 5 ra,dec,flux FROM spire_catalog WHERE  flux > 500
```

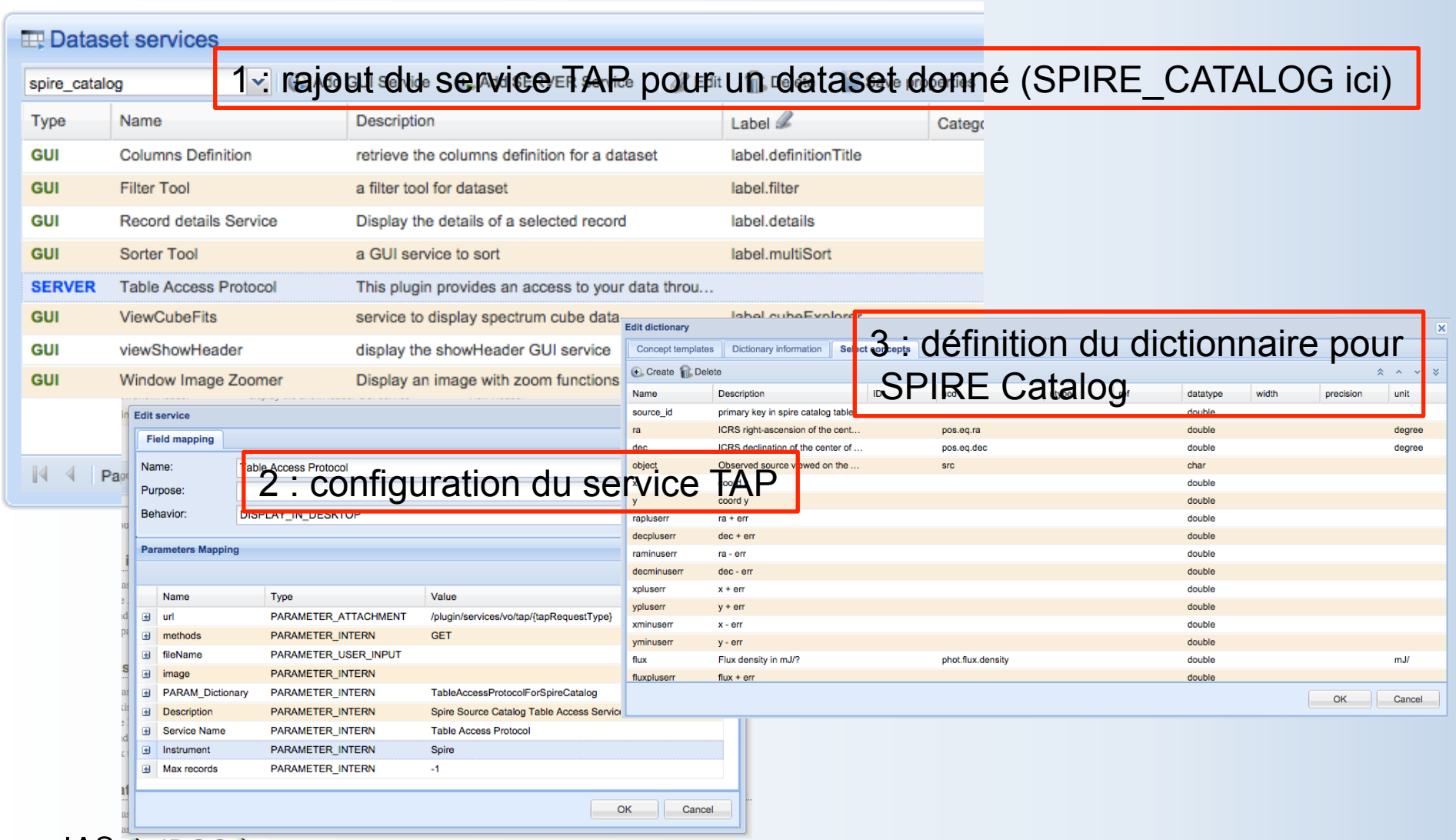
- Requête PSQL traduite :

```
SELECT ra AS ra , dec AS dec , flux AS flux
   FROM spire_catalog
   WHERE flux > 500
   Limit 5
```

- Requête envoyée par SiTools2:

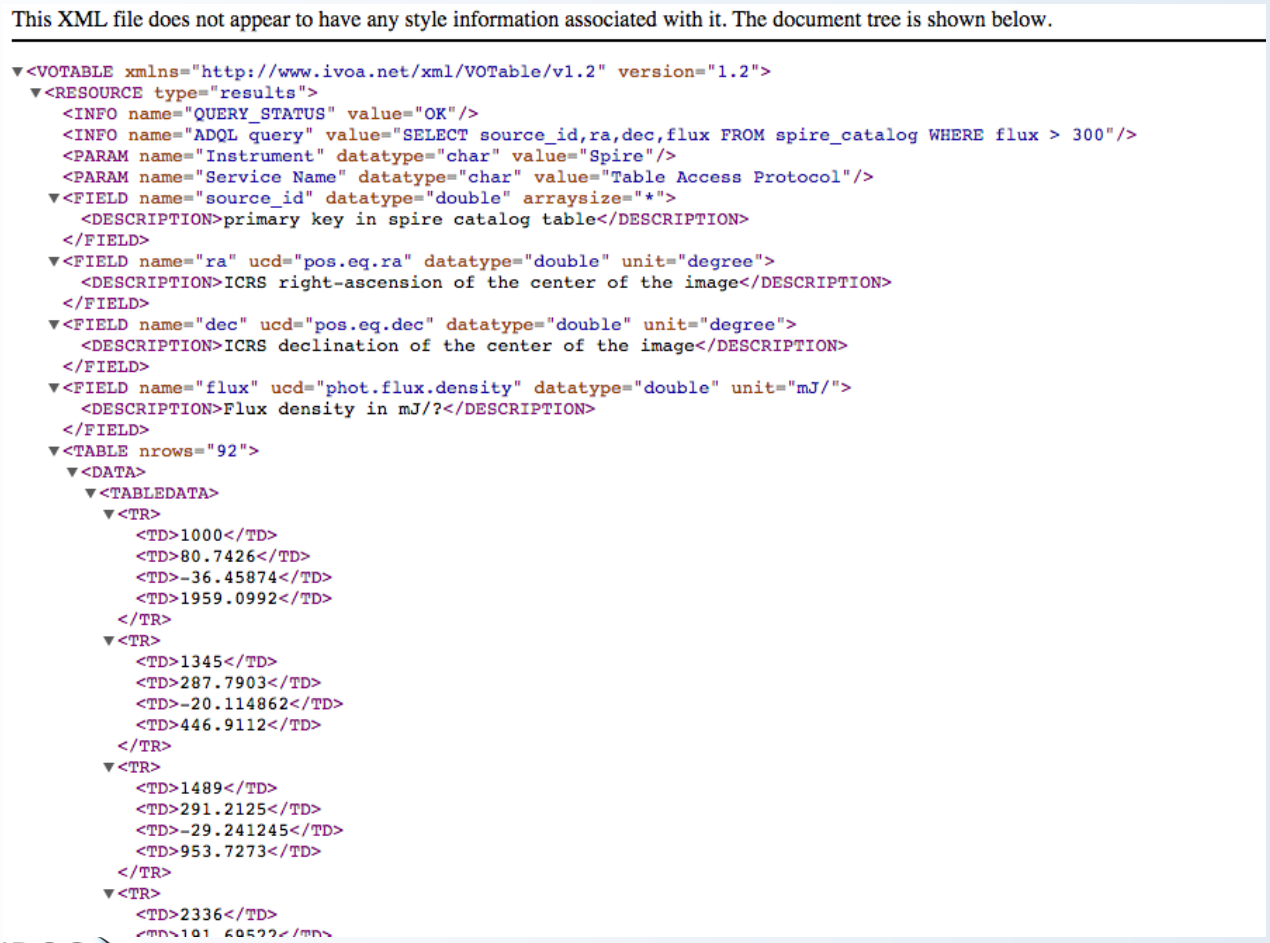
```
   SQL = SELECT "spire_catalog".ra as ra, "spire_catalog".dec as dec,
 "spire_catalog".flux as flux, "spire_catalog".source_id as source_id
FROM "public"."spire_catalog"  WHERE 1=1 and  ("spire_catalog".source_id<=35000 )
AND flux > 500 ORDER BY "spire_catalog".source_id ASC
```

SITools VO service TAP configuration



SITools VO service TAP

http://idoc-herschel-test.ias.u-psud.fr/ds/priv/spirecatalog/plugin/services/vo/tap/sync?REQUEST=doQuery&PHASE=RUN&QUERY=SELECT%20ra,%20dec,%20flux%20FROM%20spire_catalog%20WHERE%20flux%20%3E%20500&FORMAT=votable&LANG=ADQL



This XML file does not appear to have any style information associated with it. The document tree is shown below.


```
▼<VOTABLE xmlns="http://www.ivoa.net/xml/VOTable/v1.2" version="1.2">
  ▼<RESOURCE type="results">
     <INFO name="QUERY_STATUS" value="OK"/>
     <INFO name="ADQL query" value="SELECT source_id,ra,dec,flux FROM spire_catalog WHERE flux > 300"/>
     <PARAM name="Instrument" datatype="char" value="Spire"/>
     <PARAM name="Service Name" datatype="char" value="Table Access Protocol"/>
    ▼<FIELD name="source_id" datatype="double" arraysize="*">
       <DESCRIPTION>primary key in spire catalog table</DESCRIPTION>
     </FIELD>
    ▼<FIELD name="ra" ucd="pos.eq.ra" datatype="double" unit="degree">
       <DESCRIPTION>ICRS right-ascension of the center of the image</DESCRIPTION>
     </FIELD>
    ▼<FIELD name="dec" ucd="pos.eq.dec" datatype="double" unit="degree">
       <DESCRIPTION>ICRS declination of the center of the image</DESCRIPTION>
     </FIELD>
    ▼<FIELD name="flux" ucd="phot.flux.density" datatype="double" unit="mJ/">
       <DESCRIPTION>Flux density in mJ/?</DESCRIPTION>
     </FIELD>
    ▼<TABLE nrows="92">
      ▼<DATA>
        ▼<TABLEDATA>
          ▼<TR>
             <TD>1000</TD>
             <TD>80.7426</TD>
             <TD>-36.45874</TD>
             <TD>1959.0992</TD>
           </TR>
          ▼<TR>
             <TD>1345</TD>
             <TD>287.7903</TD>
             <TD>-20.114862</TD>
             <TD>446.9112</TD>
           </TR>
          ▼<TR>
             <TD>1489</TD>
             <TD>291.2125</TD>
             <TD>-29.241245</TD>
             <TD>953.7273</TD>
           </TR>
          ▼<TR>
             <TD>2336</TD>
```

VO service TAP questions

MANDATORY synchrone et asynchrone, getCapabilities
sync /sync must (anonymous)
async /async must (anonymous)
VOSI-availability /availability should
VOSI-capabilities /capabilities must
VOSI-tables /tables should
DALI-examples /examples should

TAP 1.1 / 1.0 avec seulement standardID="ivo://ivoa.net/std/TAP#sync-1.1

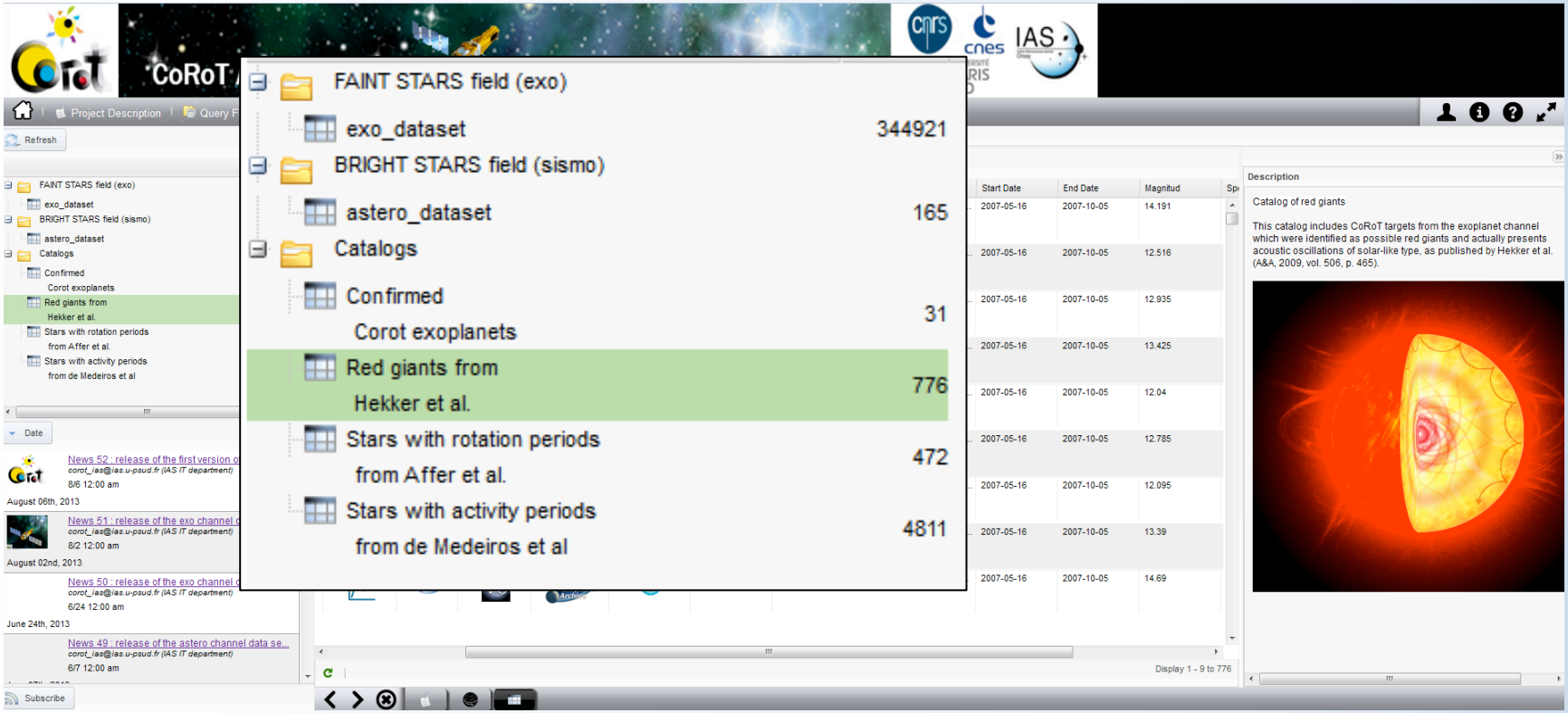
« *In TAP-1.0 the base URL was described with a single standard identifier; in TAP-1.1 and beyond, individual resources are described with their on standardID.* »

TAP_SCHEMA ? Quand 1 table ?

Tests des erreurs

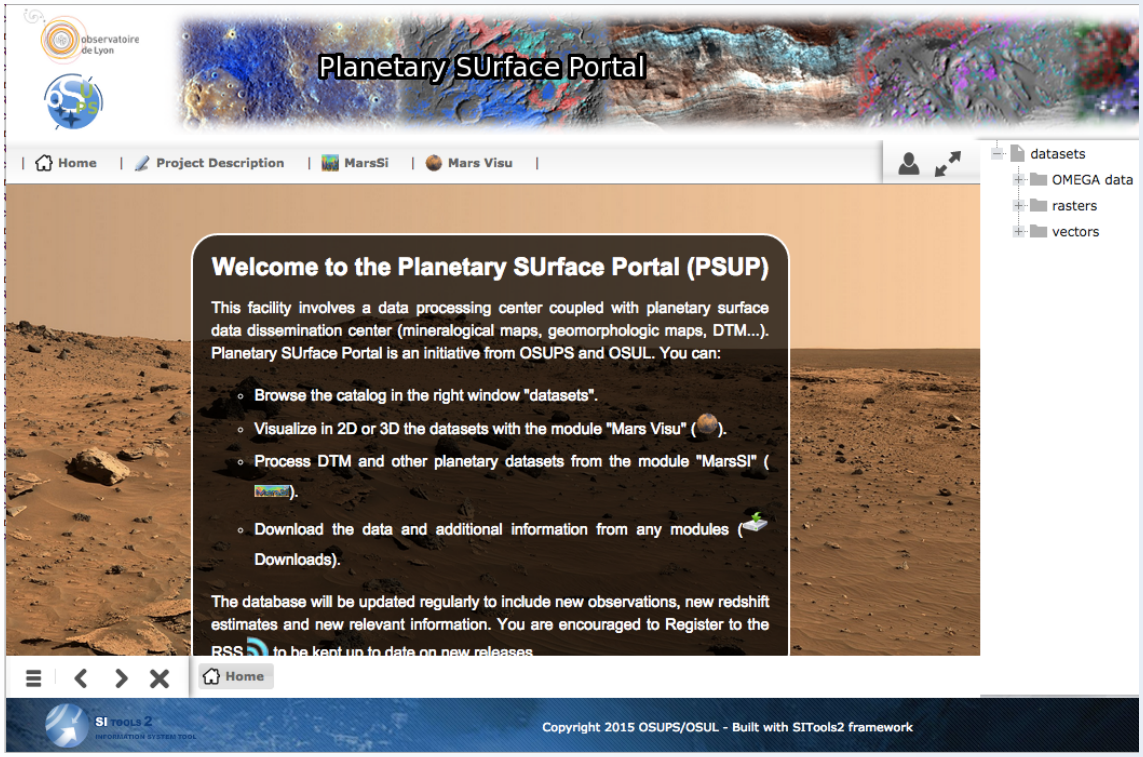
TAP @ IDOC

- Catalogues de sources Herschel, Planck
- Au moins 4 catalogues Corot IDOC



TAP @ IDOC Futur plus lointain

- TAP-EPN pour PSUP (instance martienne)



- TAP pour autres données MEDOC (filaments solaires…)

Conclusion

- TAP :
  - implémentation en bonne voie grâce à la librairie ADQL du CDS
  - fonctions mathématiques et géométriques (+ postGIS)
  - validateur TAP (taplint ?)
- Intérêt du cone search protocol / TAP ?

- Contacts IDOC VO: scientifique alexandre.beelen@ias.u-psud.fr, ingénieur karin.dassas@ias.u-psud.fr
- Contact SITools2 at IDOC herve.ballans@ias.u-psud.fr

ANNEXES

SITools2 SIA Module

SI TOOLS 2
INFORMATION SYSTEM TOOL

http://idoc-herschel.ias.u-psud.fr/ds/pub/spirephotol2/services/sia?
http://voparis-validator.obspm.fr

Edit service

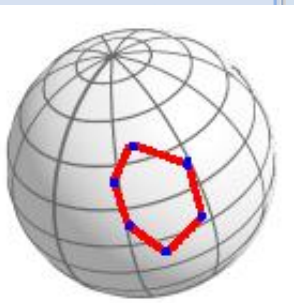
Field mapping

Name: Simple Image Access Protocol
Purpose:
Behavior: DISPLAY_IN_NEW_TAB

Parameters Mapping

Name	Type	Value
url	PARAMETER_ATTACHMENT	/services/sia
methods	PARAMETER_INTERN	GET
fileName	PARAMETER_USER_INPUT	
image	PARAMETER_INTERN	
PARAM_Dictionary	PARAMETER_INTERN	SIADico
Description : Dictionary name that sets up the service		
INTERSECT	PARAMETER_INTERN	OVERLAPS
Description : how matched images should intersect the region of interest		
geoAttribut	PARAMETER_INTERN	spoly
Description : Geographical attribut for OVERLAPS mode. The geographical attribut must be spoly datatype from pgsphere		
VERB	PARAMETER_INTERN	1
Responsible party	PARAMETER_INTERN	
Image service	PARAMETER_INTERN	Pointed Image Archive
Description	PARAMETER_INTERN	Herschel Spire SIA protocol
Instrument	PARAMETER_INTERN	Spire
Waveband Coverage	PARAMETER_INTERN	infrared
Description : The waveband of the observations		
Spatial Coverage	PARAMETER_INTERN	
Temporal Coverage	PARAMETER_INTERN	
Max query size	PARAMETER_INTERN	64800

SIADico



OK Cancel

SITools2 SIA Module spoly

```
def calculateSpoly(filepath=""):
        hdulist=pyfits.open(filepath)
        try:
                Image = hdulist['Image']
                wcs = pywcs.WCS(Image.header)
                hdr1=hdulist[1].header
        except:
                try:
                        ###### for SCANAMORPHOS fits files
                        Image=hdulist['PrimaryImage']
                        PrimaryHeader=hdulist['Primary'].header
                        wcs = pywcs.WCS(PrimaryHeader)
                        hdr1=Image.header
                        print wcs
                        print hdr1
                except KeyError:
                        print "EE - No 'Image' extension in "+os.path.basename(inputImage)
                        return 2
        poly1=wcs.wcs_pix2sky([[0.5,0.5]],0)
        print poly1
        poly2=wcs.wcs_pix2sky([[0.5+hdr1['NAXIS1'],0.5]],0)
        print poly2
        poly3=wcs.wcs_pix2sky([[0.5+hdr1['NAXIS1'],0.5+hdr1['NAXIS2']]],0)
        print poly3
        poly4=wcs.wcs_pix2sky([[0.5,0.5+hdr1['NAXIS2']]],0)
        print poly4
         poly1="("+str(poly1[0,0])+"d,"+str(poly1[0,1])+"d)"
        poly2="("+str(poly2[0,0])+"d,"+str(poly2[0,1])+"d)"
        poly3="("+str(poly3[0,0])+"d,"+str(poly3[0,1])+"d)"
        poly4="("+str(poly4[0,0])+"d,"+str(poly4[0,1])+"d)"
        poly="{"+poly4+","+poly3+","+poly2+","+poly1+"}"
        #poly="("+poly1+","+poly3+")"
        return poly
```

Registered IDOC VO services

VO Integrated Data Operation Center [IDOC]

[XML | EDIT | CLONE]

IVOA identifier: ivo://idoc [Authority]

This naming authority is the root of the naming of the resources from IDOC

Published by: IDOC on the 2013-01-25T09:21:30Z and last updated on the 2013-01-25T10:31:24Z

GINCO: Galaxy, INterstellar matter and Cosmology [GINCO]

[XML | EDIT | CLONE]

IVOA identifier: ivo://idoc.ginco [Authority]

GINCO is a center for expertise for several space, balloon and ground mission. It has an important role in data processing, distribution and interpretation, for several astronomy missions at long wavelength. In this matter, GINCO : develops and maintains high level analysis pipelines develops and maintains data archives & access develops, maintains and distribute high level software for data analysis offers scientific expertise for mission using long wavelength detectors plays an important role in education and outreach to the general public

Published by: IDOC on the 2013-01-25T09:21:30Z and last updated on the 2013-01-25T14:21:11Z

HErSchel IdOc Database (HESIOD) [HESIOD]

[XML | EDIT | CLONE]

IVOA identifier: ivo://idoc.ginco/herschel [Organisation]

HErSchel IdOc Database (HESIOD)

Published by: IDOC GINCO on the 2013-01-25T11:01:53Z and last updated on the 2013-03-29T10:57:43Z