



Intégration de TAP dans SITools 2

Integrated Data Operation Center

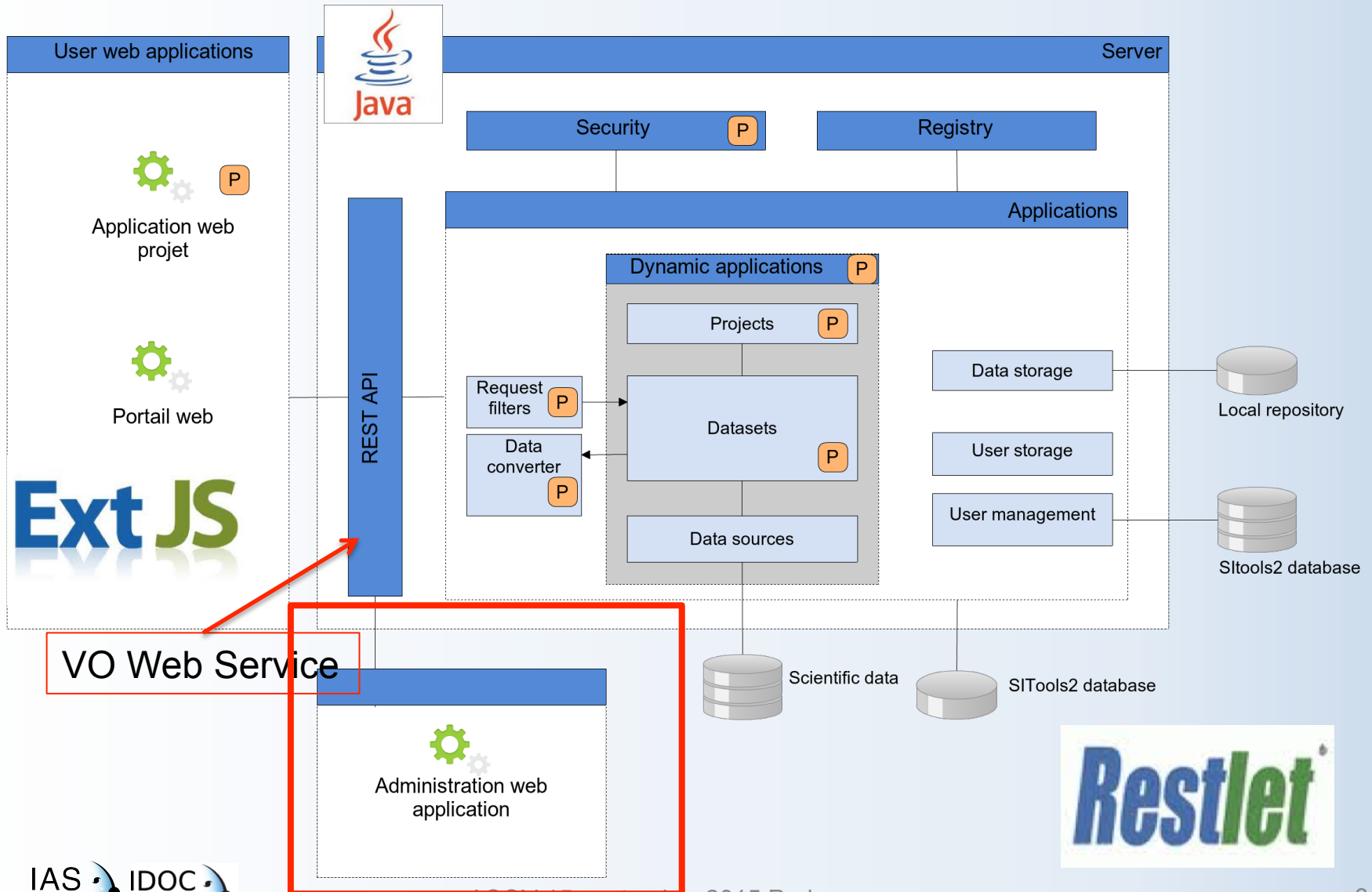
Institut d'Astrophysique Spatiale

Karin Dassas, Marc Nicolas

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/>



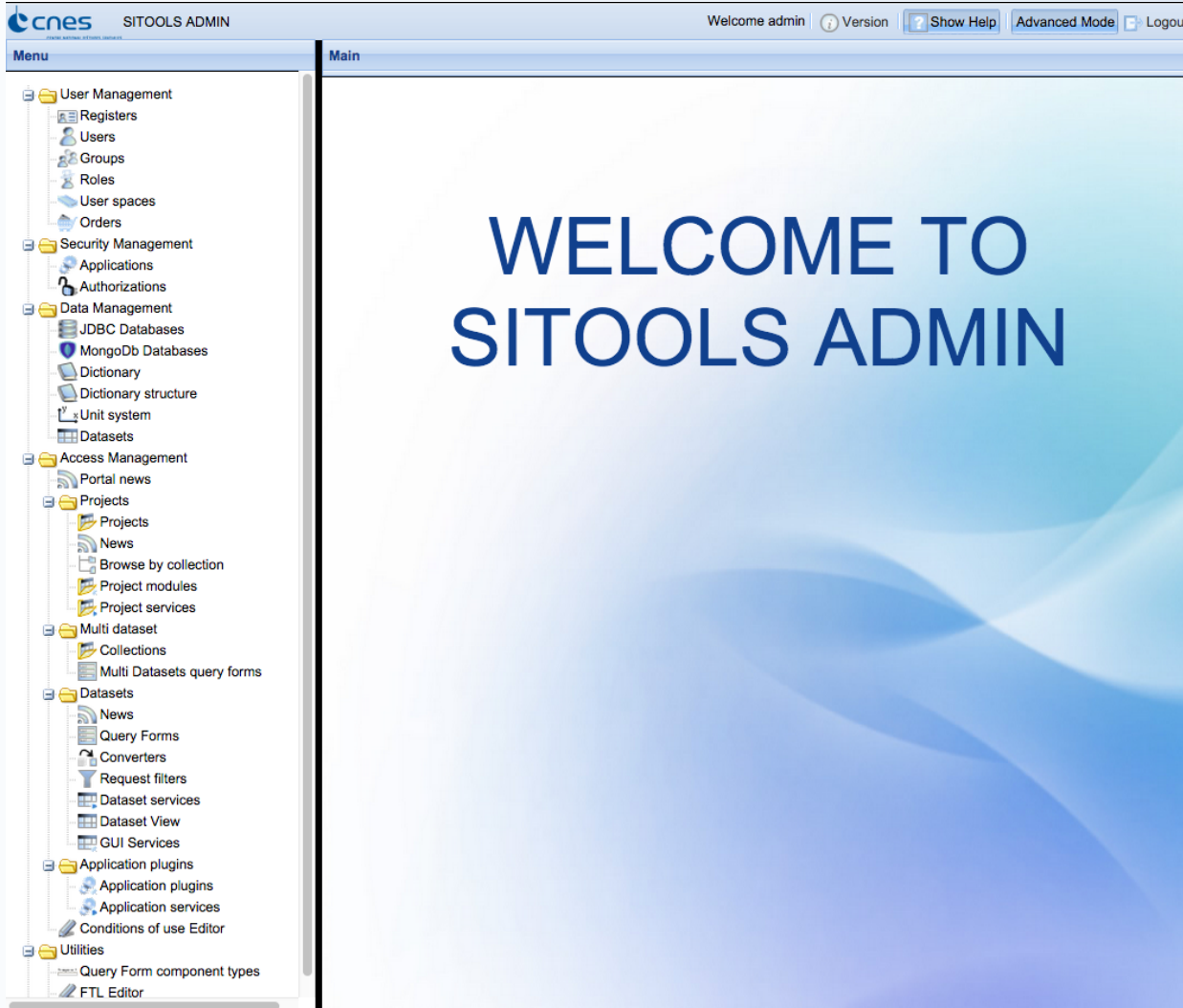
The screenshot displays the HESIOD client interface. At the top, there is a navigation bar with the cnes logo, SITools2 logo, and user information (Welcome Guest, Version, Login). The main header features the IDOC logo and the text 'HERSHEL IdOc Database' and 'HESIOD'. Logos for IAS, CNRS, Université Paris Sud, cnes, and esa are also present.

The interface is divided into several sections:

- Public Projects:**
 - Main Public Project:** A large image of a galaxy cluster labeled 'Herschel All public Archive'.
 - Other Public Projects:** A grid of smaller images representing different projects: DDT_MustDo_4, Lens_Mahotra, SAG-4, Cluster-Low-Z, OT1_ateliens, and SAG-3.
- Private Projects:** A grid of images representing private projects: OT2_ehabart, OT1_lho, OT1_mmville, SAG-1, H-ATLAS, and Planck-High-z OT2_hole OT1_limiter and DDT_mustdo_5.
- News:** A section with a dropdown menu for 'HESIOD' and a 'Date' filter. It contains several news items:
 - Sky Viewer (Mizar) is now available!** by marc.nicolas@ias.u-psud.fr, dated 4/27 11:12 am. Text: 'Sky viewer (Mizar) is available in Herschel project. You can see Hips, spire catalog and spire photo level 2.5 on sky map. Link : http://idoc-herschel.ias.u-psud.fr/sitools/client-user/Herschel/project-index.html'
 - Density Products added for Planck High-z project** by karin.dassas@ias.u-psud.fr, dated 9/15 10:19 am. Text: 'Density profiles and significance colour maps and contour are available for all obsids. Contact David Guéry @ IAS Link: http://idoc-herschel.ias.u-psud.fr/sitools/client-user/Planck-High-z/project-index.html'
 - Release R4 Spire FTS** by karin.dassas@ias.u-psud.fr, dated 4/25 2:56 pm. Text: 'All SPIRE FTS data from SAG-4 (IAS and LAM) reprocessed with v12 and caitree SPIRE_CAL_12_2 Naive, nearest and gridding cube projections available. R4_spire_fts also available for OT1_ateliens'
 - Release R5 Spire Photo** by karin.dassas@ias.u-psud.fr, dated 4/18 2:36 pm. Text: 'All SAG-4 public data have been reprocessed with the last HIPE version (v12.0) with SPIRE_CAL_12_2 Combined and destripped maps available. R4_spire_photo also available for SAG-3, Cluster Low-z, OT1_mmville, and Planck High-z'
 - Release R1 Pacs Photo** by karin.dassas@ias.u-psud.fr, dated 11/22 4:29 pm. Text: 'With Level2 products from HIPE (v11.1), calibration and from UNIMAP (v5.5). Combined obsids.'

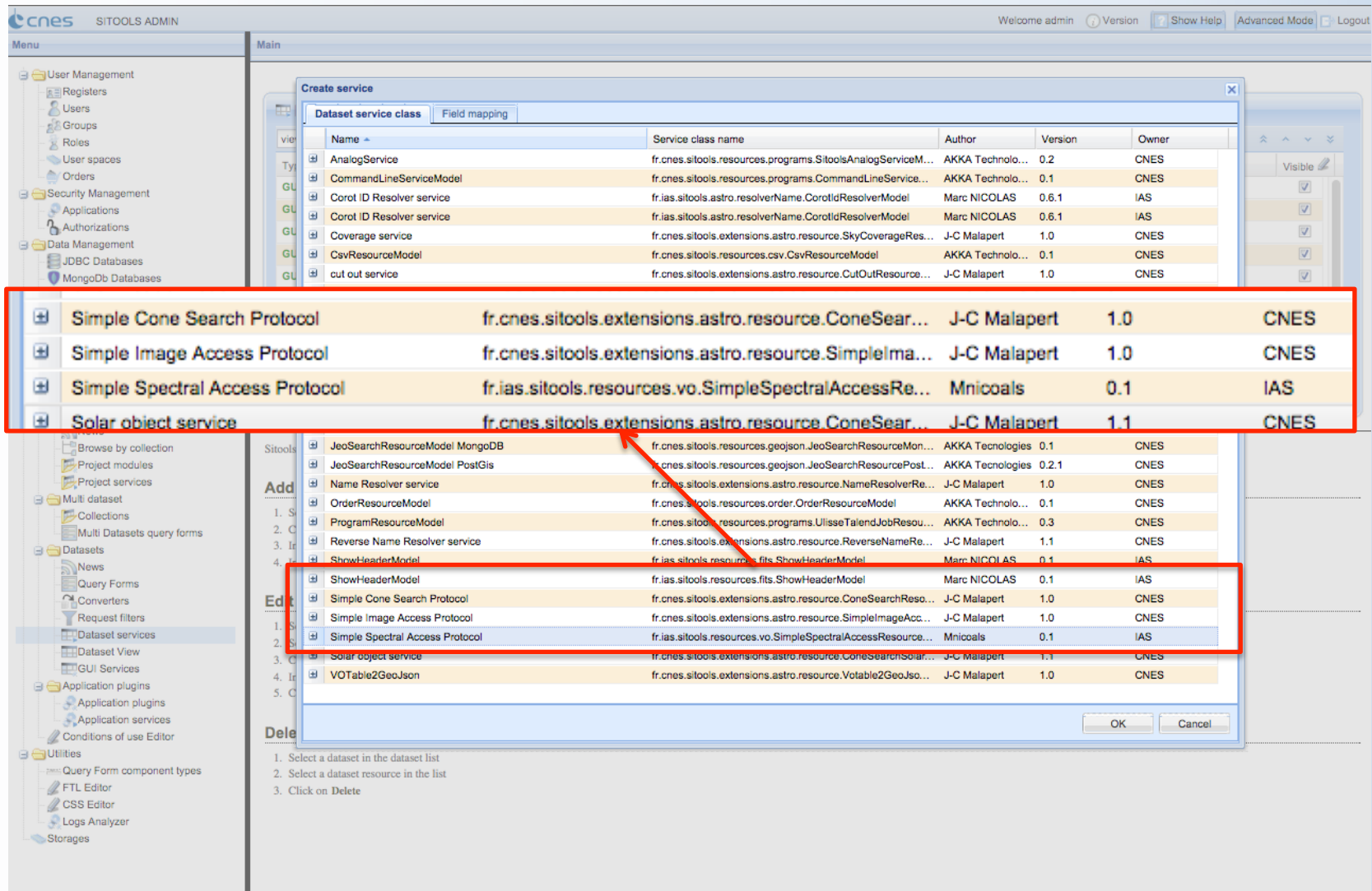
SITools2 HESIOD administration interface

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



The screenshot displays the SITools2 ADMIN web interface. The top navigation bar includes the Cnes logo, the text 'SITOOOLS ADMIN', and user information: 'Welcome admin', 'Version', 'Show Help', 'Advanced Mode', and 'Logout'. The interface is divided into two main sections: a 'Menu' sidebar on the left and a 'Main' content area on the right. The 'Menu' sidebar contains a hierarchical list of administrative functions, including User Management (Registers, Users, Groups, Roles, User spaces, Orders), Security Management (Applications, Authorizations), Data Management (JDBC Databases, MongoDB Databases, Dictionary, Dictionary structure, Unit system, Datasets), Access Management (Portal news, Projects, Multi dataset, Datasets, Application plugins), and Utilities (Query Form component types, FTL Editor). The 'Main' content area features a large, stylized blue background with the text 'WELCOME TO SITOOOLS ADMIN' in a bold, blue, sans-serif font.

SITools VO services availables



The screenshot shows the 'Create service' dialog box in the SITools ADMIN interface. The dialog has two tabs: 'Dataset service class' (selected) and 'Field mapping'. Below the tabs is a table listing available services. A red box highlights a subset of these services.

Name	Service class name	Author	Version	Owner
AnalogService	fr.cnes.sitools.resources.programs.SitoolsAnalogServiceM...	AKKA Technolo...	0.2	CNES
CommandLineServiceModel	fr.cnes.sitools.resources.programs.CommandLineService...	AKKA Technolo...	0.1	CNES
Corot ID Resolver service	fr.ias.sitools.astro.resolverName.CorotIdResolverModel	Marc NICOLAS	0.6.1	IAS
Corot ID Resolver service	fr.ias.sitools.astro.resolverName.CorotIdResolverModel	Marc NICOLAS	0.6.1	IAS
Coverage service	fr.cnes.sitools.extensions.astro.resource.SkyCoverageRes...	J-C Malapert	1.0	CNES
CsvResourceModel	fr.cnes.sitools.resources.csv.CsvResourceModel	AKKA Technolo...	0.1	CNES
cut out service	fr.cnes.sitools.extensions.astro.resource.CutOutResource...	J-C Malapert	1.0	CNES
Simple Cone Search Protocol	fr.cnes.sitools.extensions.astro.resource.ConeSear...	J-C Malapert	1.0	CNES
Simple Image Access Protocol	fr.cnes.sitools.extensions.astro.resource.SimpleIma...	J-C Malapert	1.0	CNES
Simple Spectral Access Protocol	fr.ias.sitools.resources.vo.SimpleSpectralAccessRe...	Mnicoals	0.1	IAS
Solar object service	fr.cnes.sitools.extensions.astro.resource.ConeSear...	J-C Malapert	1.1	CNES

Below the highlighted services, there is another list of services with their respective database types. A red box highlights a subset of these services, and a red arrow points from the 'Simple Cone Search Protocol' entry in the top list to the 'JeoSearchResourceModel MongoDB' entry in the bottom list.

Name	Service class name	Author	Version	Owner
JeoSearchResourceModel MongoDB	fr.cnes.sitools.resources.geojson.JeoSearchResourceMon...	AKKA Technologies	0.1	CNES
JeoSearchResourceModel PostGis	fr.cnes.sitools.resources.geojson.JeoSearchResourcePost...	AKKA Technologies	0.2.1	CNES
Name Resolver service	fr.cnes.sitools.extensions.astro.resource.NameResolverRe...	J-C Malapert	1.0	CNES
OrderResourceModel	fr.cnes.sitools.resources.order.OrderResourceModel	AKKA Technolo...	0.1	CNES
ProgramResourceModel	fr.cnes.sitools.resources.programs.UlisseTalandJobResou...	AKKA Technolo...	0.3	CNES
Reverse Name Resolver service	fr.cnes.sitools.extensions.astro.resource.ReverseNameRe...	J-C Malapert	1.1	CNES
ShowHeaderModel	fr.ias.sitools.resources.fits.ShowHeaderModel	Marc NICOLAS	0.1	IAS
ShowHeaderModel	fr.ias.sitools.resources.fits.ShowHeaderModel	Marc NICOLAS	0.1	IAS
Simple Cone Search Protocol	fr.cnes.sitools.extensions.astro.resource.ConeSearchReso...	J-C Malapert	1.0	CNES
Simple Image Access Protocol	fr.cnes.sitools.extensions.astro.resource.SimpleImageAcc...	J-C Malapert	1.0	CNES
Simple Spectral Access Protocol	fr.ias.sitools.resources.vo.SimpleSpectralAccessResource...	Mnicoals	0.1	IAS
Solar object service	fr.cnes.sitools.extensions.astro.resource.ConeSearchSolar...	J-C Malapert	1.1	CNES
VOTable2GeoJson	fr.cnes.sitools.extensions.astro.resource.Votable2GeoJso...	J-C Malapert	1.0	CNES

At the bottom of the dialog, there are instructions for deleting a dataset:

1. Select a dataset in the dataset list
2. Select a dataset resource in the list
3. Click on Delete

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 guaranteed time program on Interstellar Medium (SAG-4) and other public data processed at IDOC. All data have been reprocessed at IDOC using advanced 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 guaranteed time program on Interstellar Medium (SAG-4) and other public data processed at IDOC. All data have been reprocessed at IDOC using advanced 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

Main

Dataset services

spire_catalog Add GUI Service Add SERVER Service Edit Delete Save properties

Type	Name	Description	Label	Category	Position	Icon	Visible
GUI	Columns Definition	retrieve the columns definition for a dataset	label.definitionTitle				<input type="checkbox"/>
GUI	Filter Tool	a filter tool for dataset	label.filter				<input type="checkbox"/>
GUI	Record details Service	Display the details of a selected record	label.details				<input type="checkbox"/>
GUI	Sorter Tool	a GUI service to sort	label.multiSort				<input type="checkbox"/>
SERVER	Table Access Protocol	This plugin provides an access to your data th...					<input type="checkbox"/>
GUI	ViewCubeFits	service to display spectrum cube data	label.cubeExplorer				<input type="checkbox"/>
GUI	viewShowHeader	display the showHeader GUI service	View Header				<input type="checkbox"/>
GUI	Window Image Zoomer	Display an image with zoom functions	label.windowImgZoomer				<input type="checkbox"/>

Page 1 of 1 Display 1 - 8 to 8

Click on the icon to add dataset services

SITools VO service TAP

TAP-1.1-20150512.pdf

[ADQL-20081030.pdf](#) (ADQL 2.0)

UCDlist-20070402.pdf

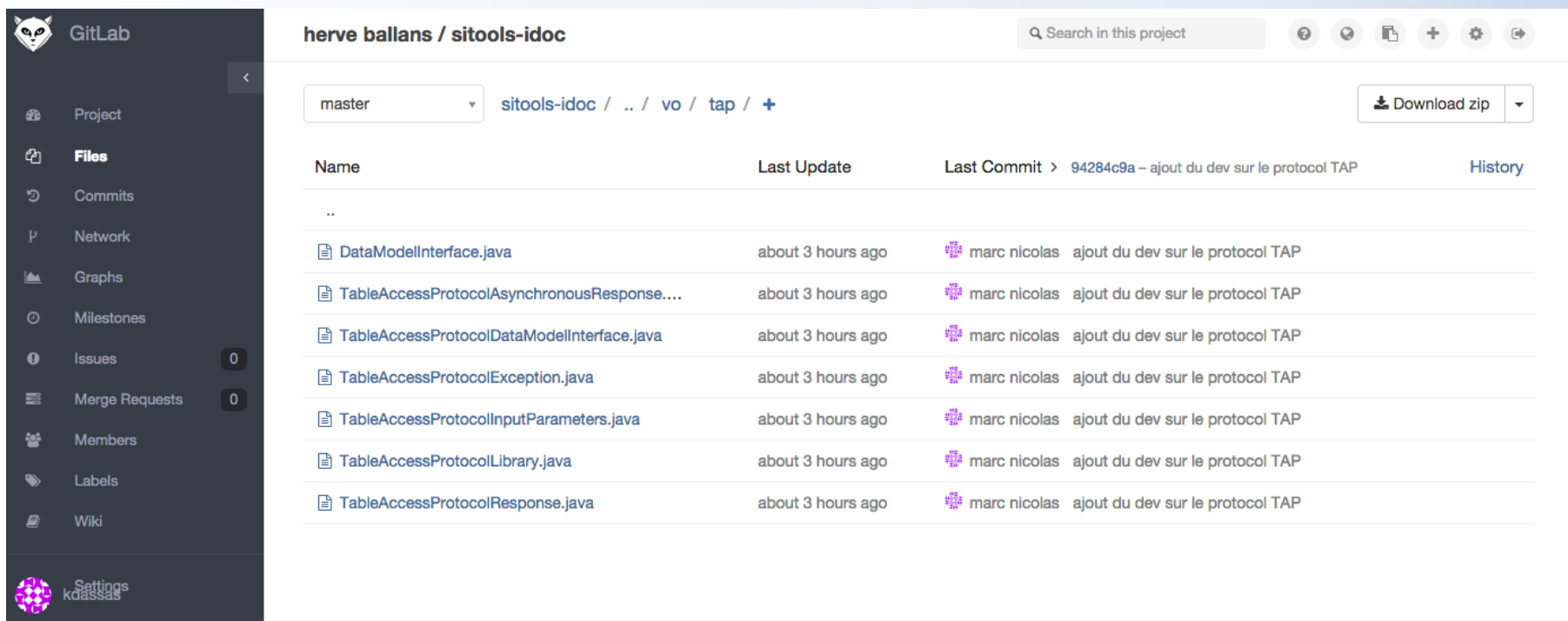
Java 1.6 - postgres (PostgreSQL) 8.3.1

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

ADQL Library1.1 from CDS (Grégory Mantelet)

<http://cdsportal.u-strasbg.fr/adqltuto/>

VOTable 1.2



herve ballans / sitools-idoc

Search in this project

master sitools-idoc / .. / vo / tap / +

Download zip

Name	Last Update	Last Commit	History
..			
DataModellInterface.java	about 3 hours ago	94284c9a – ajout du dev sur le protocol TAP	
TableAccessProtocolAsynchronousResponse....	about 3 hours ago	94284c9a – ajout du dev sur le protocol TAP	
TableAccessProtocolDataModellInterface.java	about 3 hours ago	94284c9a – ajout du dev sur le protocol TAP	
TableAccessProtocolException.java	about 3 hours ago	94284c9a – ajout du dev sur le protocol TAP	
TableAccessProtocolInputParameters.java	about 3 hours ago	94284c9a – ajout du dev sur le protocol TAP	
TableAccessProtocolLibrary.java	about 3 hours ago	94284c9a – ajout du dev sur le protocol TAP	
TableAccessProtocolResponse.java	about 3 hours ago	94284c9a – ajout du dev sur le protocol TAP	

SITools VO service TAP

```
4  * and open the template in the editor.  
5  */  
6  
7  package fr.ias.sitools.vo.tap;  
8  
9  import adql.parser.ADQLParser;  
10 import adql.parser.ParseException;  
11 import adql.query.ADQLQuery;  
12 import adql.translator.ADQLTranslator;  
13 import adql.translator.PostgreSQLTranslator;  
14 import adql.translator.TranslationException;  
15 //import fr.cnes.sitools.astro.representation.DatabaseRequestModel;  
16 import fr.cnes.sitools.common.exception.SitoolsException;  
17 import fr.cnes.sitools.dataset.DataSetApplication;  
18 import fr.cnes.sitools.dataset.converter.business.ConverterChained;  
19 import fr.cnes.sitools.dataset.database.DatabaseRequest;  
20 import fr.cnes.sitools.dataset.database.DatabaseRequestFactory;  
21 import fr.cnes.sitools.dataset.database.DatabaseRequestParameters;  
22 import fr.cnes.sitools.dataset.database.common.DataSetExplorerUtil;  
23 import fr.cnes.sitools.dataset.dto.ColumnConceptMappingDTO;  
24 import fr.cnes.sitools.dataset.dto.DictionaryMappingDTO;  
25 import fr.cnes.sitools.dataset.model.Column;  
26 import fr.cnes.sitools.dataset.model.Predicat;  
27 import fr.cnes.sitools.dictionary.model.Concept;  
28 import fr.cnes.sitools.plugins.resources.model.ResourceModel;  
29 import fr.cnes.sitools.util.Util;  
30 import fr.ias.sitools.vo.representation.DatabaseRequestIasModel;  
31 import freemarker.template.TemplateSequenceModel;  
32 import java.math.BigInteger;  
33
```

Modules de la librairie CDS utilisés :

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

Dataset services

spire_catalog

1 : rajout du service TAP pour un dataset donné (SPIRE_CATALOG ici)

Type	Name	Description	Label	Categ
GUI	Columns Definition	retrieve the columns definition for a dataset	label.definitionTitle	
GUI	Filter Tool	a filter tool for dataset	label.filter	
GUI	Record details Service	Display the details of a selected record	label.details	
GUI	Sorter Tool	a GUI service to sort	label.multiSort	
SERVER	Table Access Protocol	This plugin provides an access to your data throu...		
GUI	ViewCubeFits	service to display spectrum cube data	label.cubeExplorer	
GUI	viewShowHeader	display the showHeader GUI service		
GUI	Window Image Zoomer	Display an image with zoom functions		

Edit service

Field mapping

Name: Table Access Protocol

Purpose: DISPLAY_IN_DESKTOP

Behavior: DISPLAY_IN_DESKTOP

2 : configuration du service TAP

Parameters Mapping

Name	Type	Value
url	PARAMETER_ATTACHMENT	/plugin/services/vo/tap/{tapRequestType}
methods	PARAMETER_INTERN	GET
fileName	PARAMETER_USER_INPUT	
image	PARAMETER_INTERN	
PARAM_Dictionary	PARAMETER_INTERN	TableAccessProtocolForSpireCatalog
Description	PARAMETER_INTERN	Spire Source Catalog Table Access Service
Service Name	PARAMETER_INTERN	Table Access Protocol
Instrument	PARAMETER_INTERN	Spire
Max records	PARAMETER_INTERN	-1

Edit dictionary

3 : définition du dictionnaire pour SPIRE Catalog

Name	Description	ID	datatype	width	precision	unit
source_id	primary key in spire catalog table		double			
ra	ICRS right-ascension of the cent...	pos.eq.ra	double			degree
dec	ICRS declination of the center of ...	pos.eq.dec	double			degree
object	Observed source viewed on the ...	src	char			
x	coord x		double			
y	coord y		double			
rapluserr	ra + err		double			
decpluserr	dec + err		double			
raminuserr	ra - err		double			
decminuserr	dec - err		double			
xpluserr	x + err		double			
ypluserr	y + err		double			
xminuserr	x - err		double			
yminuserr	y - err		double			
flux	Flux density in mJ/?	phot.flux.density	double			mJ
fluxpluserr	flux + err		double			

SI Tools VO service TAP

[http://idoc-herschel-test.ias.u-psud.fr/ds/priv/spirecatalog/plugin/services/vo/tap/sync?](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)
[REQUEST=doQuery&PHASE=RUN&QUERY=SELECT%20ra,%20dec,%20flux%20FROM%20spire_catalog%20WHERE%20flux%20%3E%20500&FORMAT=votable&LANG=ADQL](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>
            <TD>181.68522</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`

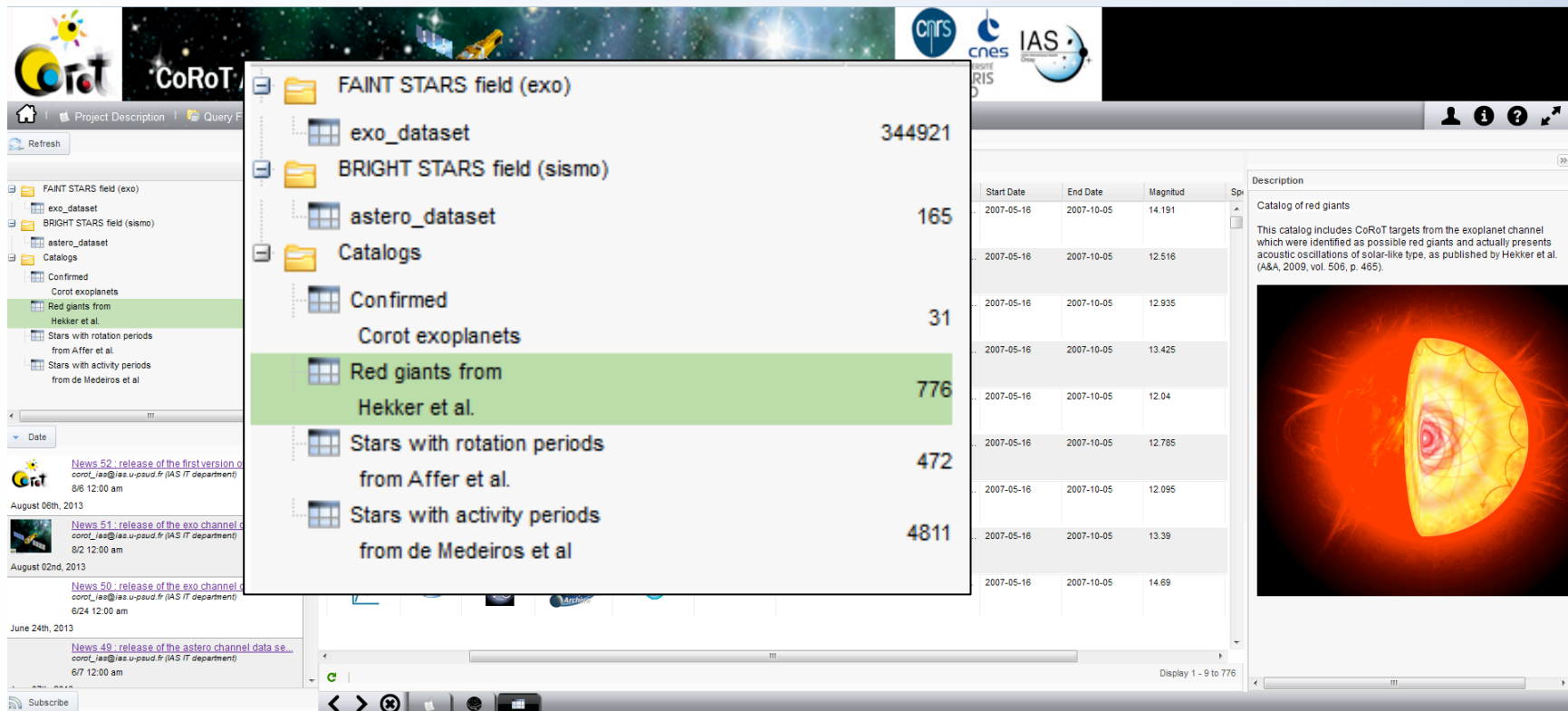
« *In TAP-1.0 the base URL was described with a single standard identifier; in TAP-1.1 and beyond, individual resources are described with their own standardID.* »

TAP_SCHEMA ? Quand 1 table ?

Tests des erreurs

TAP @ IDOC

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



The screenshot shows the CoRoT IDOC interface. On the left, a tree view displays the following datasets:

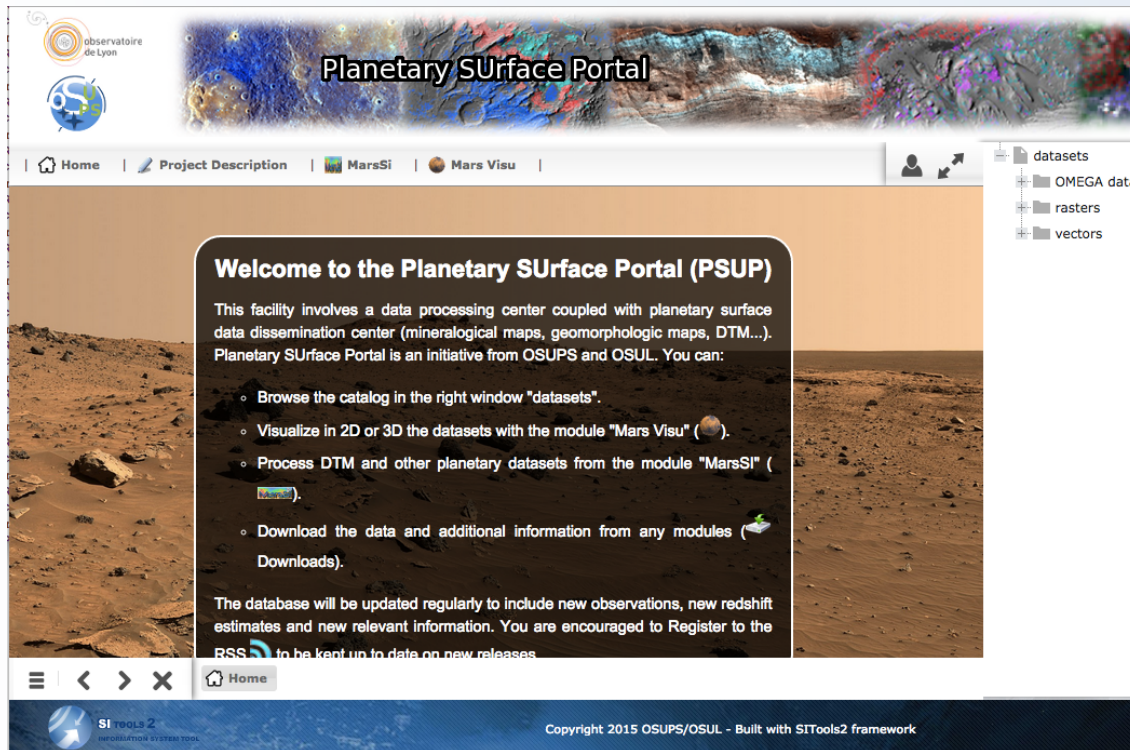
- FAINT STARS field (exo)
 - exo_dataset: 344921
- BRIGHT STARS field (sismo)
 - astero_dataset: 165
- Catalogs
 - Confirmed: 31
 - Corot exoplanets
 - Red giants from Hekker et al.: 776
 - Stars with rotation periods from Affer et al.
 - Stars with activity periods from de Medeiros et al.: 4811

On the right, a table displays star data with columns for Start Date, End Date, Magnitud, and Sp. The table shows 9 rows of data, all with a Start Date of 2007-05-16 and an End Date of 2007-10-05. The Magnitud values range from 12.04 to 14.191, and the Sp values range from 12.095 to 14.69.

Below the table, a description for the 'Catalog of red giants' is provided: 'This catalog includes CoRoT targets from the exoplanet channel which were identified as possible red giants and actually presents acoustic oscillations of solar-like type, as published by Hekker et al. (A&A, 2009, vol. 508, p. 465).' An image of a red giant star is also shown.

TAP @ IDOC Futur plus lointain

- TAP-EPN pour PSUP (instance martienne)



The screenshot shows the Planetary Surface Portal (PSUP) website. At the top, there is a header with the logo of the Observatoire de Lyon and the text "Planetary Surface Portal". Below the header is a navigation bar with links for "Home", "Project Description", "MarsSI", and "Mars Visu". A central panel displays a "Welcome to the Planetary Surface Portal (PSUP)" message. The message describes the facility as a data processing center coupled with a planetary surface data dissemination center, mentioning mineralogical maps, geomorphologic maps, and DTM. It lists several capabilities: browsing the catalog, visualizing datasets in 2D or 3D using "Mars Visu", processing DTM and other datasets using "MarsSI", and downloading data. A sidebar on the right shows a "datasets" menu with options for "OMEGA data", "rasters", and "vectors". The footer of the page includes the SI TOOLS 2 logo and the text "Copyright 2015 OSUPS/OSUL - Built with SITools2 framework".

- 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

<http://idoc-herschel.ias.u-psud.fr/ds/pub/spirephoto2/services/sia?>

<http://voparis-validator.obspm.fr>

Edit service

Field mapping


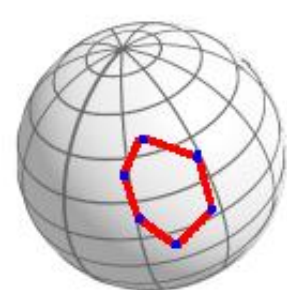
Name: Simple Image Access Protocol

Purpose:

Behavior: DISPLAY_IN_NEW_TAB

Parameters Mapping

Name	Type	Value
uri	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
Max image size	PARAMETER_INTERN	



SITools2 SIA Module spoly



SI TOOLS 2
INFORMATION SYSTEM TOOL

```
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
```

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