

Projet Visu 3D - OV

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Objectifs du projet

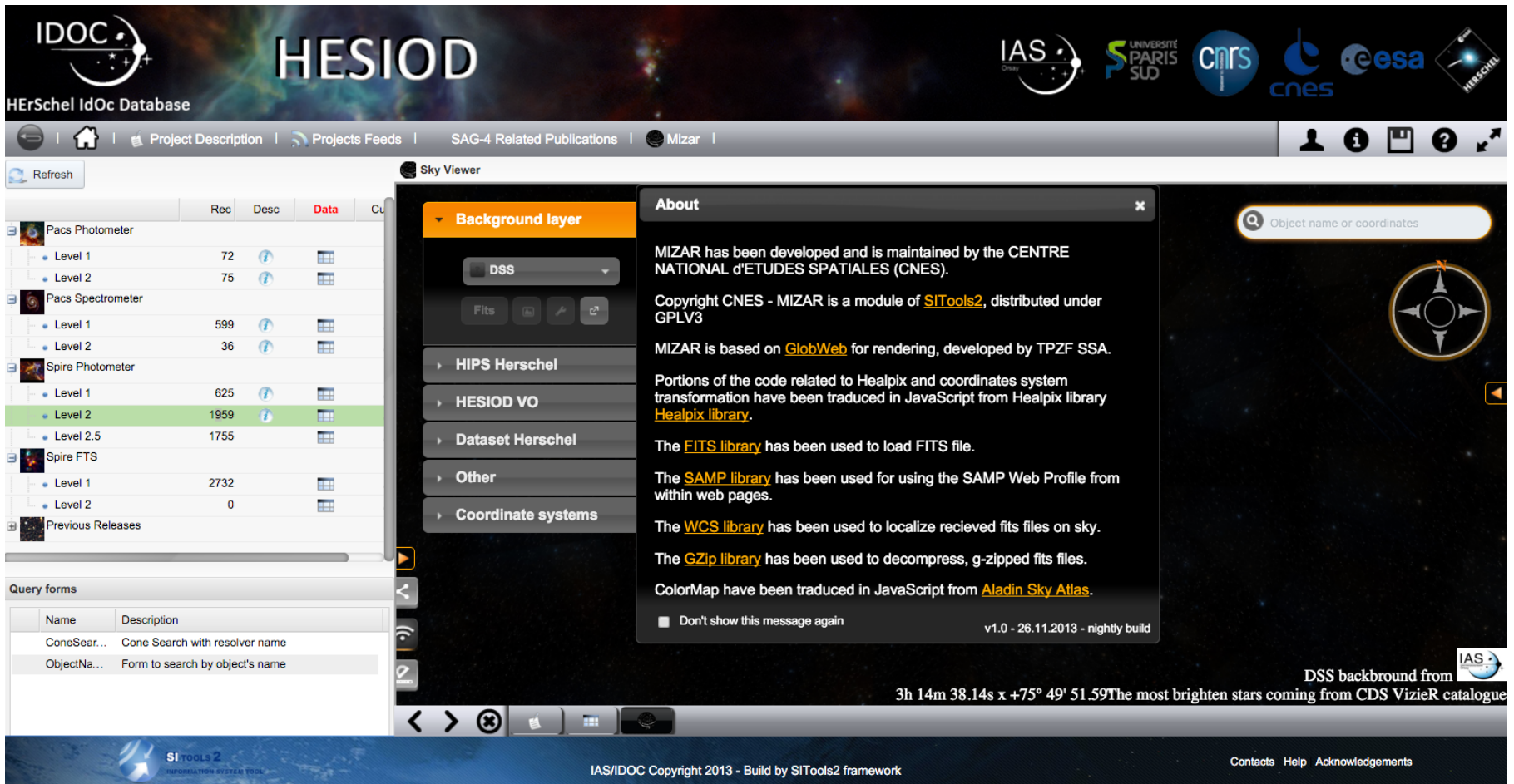
Axe Mise à disposition et visualisation des données *Axe Interopérabilité des données*

Intégration et extensions d'outils CNES génériques :

- Accès aux données locales et externes (IVOA, OGC)
- Visualisation 3D avec analyse de données
- Intégration de services web permettant l'interopérabilité des données

Exemple Projet Cosmo HESIOD MIZAR 1/2

http://idoc-herschel.ias.u-psud.fr/sitools/client-user/Herschel/project-index.html



IDOC HESIOD
HErSchel IdOc Database

Navigation: Project Description | Projects Feeds | SAG-4 Related Publications | Mizar

	Rec	Desc	Data	Cu
Pacs Photometer				
Level 1	72			
Level 2	75			
Pacs Spectrometer				
Level 1	599			
Level 2	36			
Spire Photometer				
Level 1	625			
Level 2	1959			
Level 2.5	1755			
Spire FTS				
Level 1	2732			
Level 2	0			
Previous Releases				

Background layer

- DSS
- Fits
- HIPS Herschel
- HESIOD VO
- Dataset Herschel
- Other
- Coordinate systems

About

MIZAR has been developed and is maintained by the CENTRE NATIONAL d'ETUDES SPATIALES (CNES).

Copyright CNES - MIZAR is a module of [SITools2](#), distributed under GPLv3

MIZAR is based on [GlobWeb](#) for rendering, developed by TPZF SSA.

Portions of the code related to Healpix and coordinates system transformation have been traduced in JavaScript from Healpix library [Healpix library](#).

The [FITS library](#) has been used to load FITS file.

The [SAMP library](#) has been used for using the SAMP Web Profile from within web pages.

The [WCS library](#) has been used to localize recieved fits files on sky.

The [GZip library](#) has been used to decompress, g-zipped fits files.

ColorMap have been traduced in JavaScript from [Aladin Sky Atlas](#).

Don't show this message again

v1.0 - 26.11.2013 - nightly build

3h 14m 38.14s x +75° 49' 51.59" The most brighten stars coming from CDS VizieR catalogue

SI TOOLS 2 INFORMATION SYSTEM TOOL

IAS/IDOC Copyright 2013 - Build by SITools2 framework

Contacts Help Acknowledgements

Exemple Projet Cosmo HESIOD MIZAR 2/2

The screenshot shows the Sky Viewer interface with the following components:

- Left Panel:**
 - Background layer
 - HIPS Herschel
 - HESIOD VO
 - Dataset Herschel**
 - Spire_photo_I25 (Opacity: 100%)
 - Spire Catalog
 - Other
 - Coordinate systems
- Top Right:** Search bar with "Orion", a compass, and a "Show metadata" button.
- Right Panel (Images):**
 - Spire_photo_I25
 - Orion_B-S-1_ExtEmGainsApplied_destri...
- Center Panel (Overlapped observations):**
 - OrionB-S-1 PLW map
 - OrionB-S-1 PMW map
 - OrionB-S-1 PSW map** (highlighted)
 - OrionB-S-1 PLW map
 - OrionB-S-1 PMW map
 - OrionB-S-1 PSW map
 - OrionB-S-1 PLW map
 - OrionB-S-1 PMW map
- Right Panel (Metadata):**

<i>description:</i>	PSW map
<i>buildversion:</i>	12.0.2603
<i>program:</i>	SAG-3
<i>identifier:</i>	Orion_B-S-1_Ext...
<i>ra:</i>	86.05235
<i>object:</i>	OrionB-S-1
<i>filesize:</i>	2.019312E8
<i>dec:</i>	-1.7549866
- Bottom Center:** Coordinates: 5h 37m 15.34s x +1° 42' 54.12"
- Bottom Right:** Attribution text: "DSS background from IAS, The most brighten stars coming from CDS VizieR catalogue, HIPS Herschel from IAS, Hips Spire Planck Fields background from IAS".

Exemple Projet Cosmo HESIOD Explorateur de cube 1/2

The screenshot displays the HESIOD web interface. At the top, there are logos for IDOC, IAS, Université Paris Sud, CNRS, ESA, and CNES. The main navigation bar includes 'Project Description', 'Projects Feeds', 'SAG-4 Related Publications', and 'Mizar'. The current view is 'Display data : pacs_spectro_l2'. On the left, a sidebar lists instrument levels: Pacs Photometer (Level 1: 72, Level 2: 75), Pacs Spectrometer (Level 1: 599, Level 2: 36), Spire Photometer (Level 1: 625, Level 2: 1959, Level 2.5: 1755), Spire FTS (Level 1: 2732, Level 2: 0), and Previous Releases. The main table lists data rows with columns for 'header', 'preview', 'download', 'filesize', 'obsid', 'object', 'line', and 'filename'. The 6th row is highlighted in green. Below the table, there are 'Query forms' and a status bar at the bottom right indicating 'Display 1 - 13 to 112'.

header	preview	download	filesize (...)	obsid	object	line	filename
Show			6.38	1342225576	Ced 201-2	157.67 micron, 1 repetition(s), ID: CII	Ced201-2_1342225576_L2_red_157.67_CII_ProjectedCube.fits
Show			6.86	1342225577	Ced 201-2	145.52 micron, 1 repetition(s), ID: O I 3P0-3P1	Ced201-2_1342225577_L2_red_145.52_OI_ProjectedCube.fits
Show			9.09	1342225578	Ced 201-2	63.18 micron, 1 repetition(s), ID: OI	Ced201-2_1342225578_L2_blue_63.18_OI_ProjectedCube.fits
Show			7.48	1342226894	HD 37022 (towards)	63.18 micron, 1 repetition(s), ID: OI	HD37022-towards_1342226894_L2_blue_63.18_OI_ProjectedCube.
Show			3.94	1342226895	HD 37022 (towards)	145.52 micron, 1 repetition(s), ID: O I 3P0-3P1	HD37022-towards_1342226895_L2_red_145.52_OI_ProjectedCube.
<input checked="" type="checkbox"/> Show			4.57	1342226896	HD 37022 (towards)	121.9 micron, 1 repetition(s), ID: N II 3P2-3P1	HD37022-towards_1342226896_L2_red_121.9_NII_ProjectedCube.f
Show			3.71	1342226897	HD 37022 (towards)	157.67 micron, 1 repetition(s), ID: CII	HD37022-towards_1342226897_L2_red_157.67_CII_ProjectedCube
Show			5.88	1342228507	HH_IR_int-2	157.67 micron, 1 repetition(s), ID: CII	HH_IR_int-2_1342228507_L2_red_157.67_CII_ProjectedCube.fits
Show			6.25	1342228508	HH_IR_int-2	145.52 micron, 1 repetition(s), ID: O I 3P0-3P1	HH_IR_int-2_1342228508_L2_red_145.52_OI_ProjectedCube.fits
Show			6.57	1342228509	HH_IR_int-2	121.9 micron, 1 repetition(s), ID: N II 3P2-3P1	HH_IR_int-2_1342228509_L2_red_121.9_NII_ProjectedCube.fits
Show			3.79	1342228511	HH_dense_core	157.67 micron, 1 repetition(s), ID: CII	HH_dense_core_1342228511_L2_red_157.67_CII_ProjectedCube.fi
Show			4.02	1342228512	HH_dense_core	145.52 micron, 1 repetition(s), ID: O I 3P0-3P1	HH_dense_core_1342228512_L2_red_145.52_OI_ProjectedCube.fi

Exemple Projet Cosmo HESIOD Explorateur de cube 2/2

The screenshot displays the HESIOD web interface. On the left, a tree view shows the data structure:

- Pacs Photometer
 - Level 1: 72
 - Level 2: 75
- Pacs Spectrometer
 - Level 1: 599
 - Level 2: 36
- Spire Photometer
 - Level 1: 625
 - Level 2: 1959
 - Level 2.5: 1755
- Spire FTS
 - Level 1: 2732
 - Level 2: 0
- Previous Releases

The main area shows a 'View cube : pacs_spectro_i2' interface with a 'Cube Explorer' and a 'Header(s)' tab. A large grayscale image of the spectral cube is displayed, with a blue square and two red squares indicating selected pixels. Below the image, the following parameters are shown:

- Coordinates: RA 83°50'13.21" DEC -6°35'5.62"
- Selection Type: Pixel(s) Line
- Cube Depth Index: 49 - 123.41 (micrometer)
- Slice color scale: [Slider]

On the right, a plot titled 'Flux (Jy/pixel) for each selected pixel(s)' shows the flux spectrum. The x-axis is 'Wavelength (micrometer)' ranging from 122.50 to 124.50. The y-axis is 'Flux (Jy/pixel)' ranging from 8e+0 to 1.6e+1. A blue line shows the flux for the selected pixel, and a red line shows the flux for the selected area. A prominent emission line is visible at approximately 123.2 micrometers.

Exemple Projet Planetologie PSUP <http://psup.ias.u-psud.fr/>

The screenshot displays the Mars Visu MIZAR web application interface. The main view is a 3D globe of Mars with a color-coded background layer. A left sidebar contains a 'Catalog' panel with various features and layers. A search bar is located in the top right corner. A detailed information window is open over the Viking 1 landing site, showing its name, description, and location. Performance metrics are shown in the bottom left, and the background source is noted in the bottom right.

Background layer

- Catalog
 - Crater catalog
 - Opacity: 100%
 - Central peaks hydrated phases between Isidis and Hellas
 - Landing sites
 - crocus
 - Scalloped depression
 - Hydrated mineral sites
 - Valles Marineris low Calcium-Pyroxene
 - Central peaks mineralogy south Valles Marineris
- Layer
- Mineral Layer
- Layer Marssi

Object: Viking 1

name:	Viking 1
description:	Viking 1 Landing ...
location:	Utopia Planitia

FPS : 30
Average render time : 16.17 ms
rendered tiles : 0

DSS background from
Color background provided by [Mars Database](#)

-59.449° x 27.131°

Instances existantes à IDOC



PSUP (Mars)

SZ-Cluster (cosmo Planck)

HESIOD (cosmo Herschel)

SDO (soleil)



Corot (les exoplanètes)

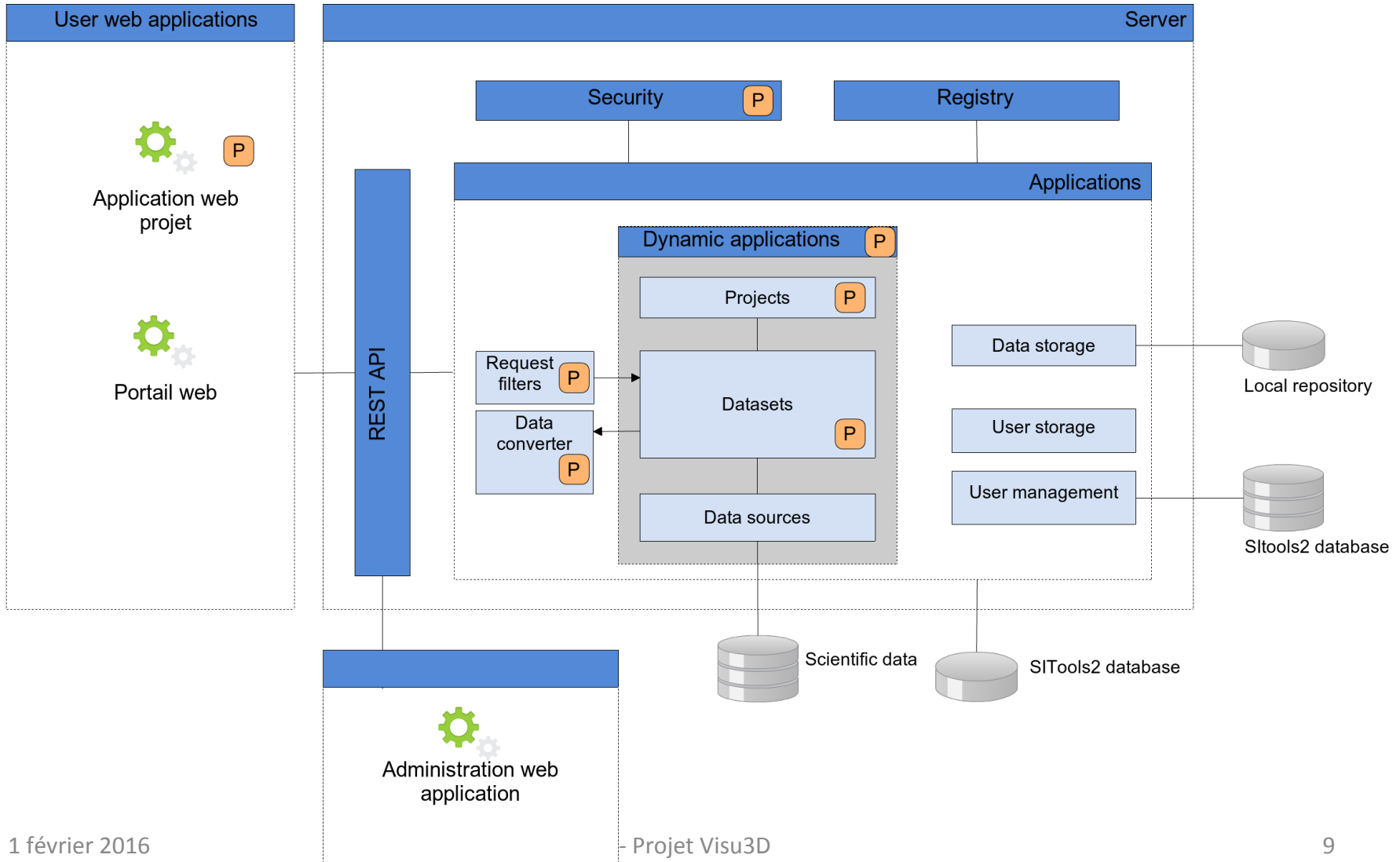
Picard (soleil)

Flarecast (éruptions solaires)

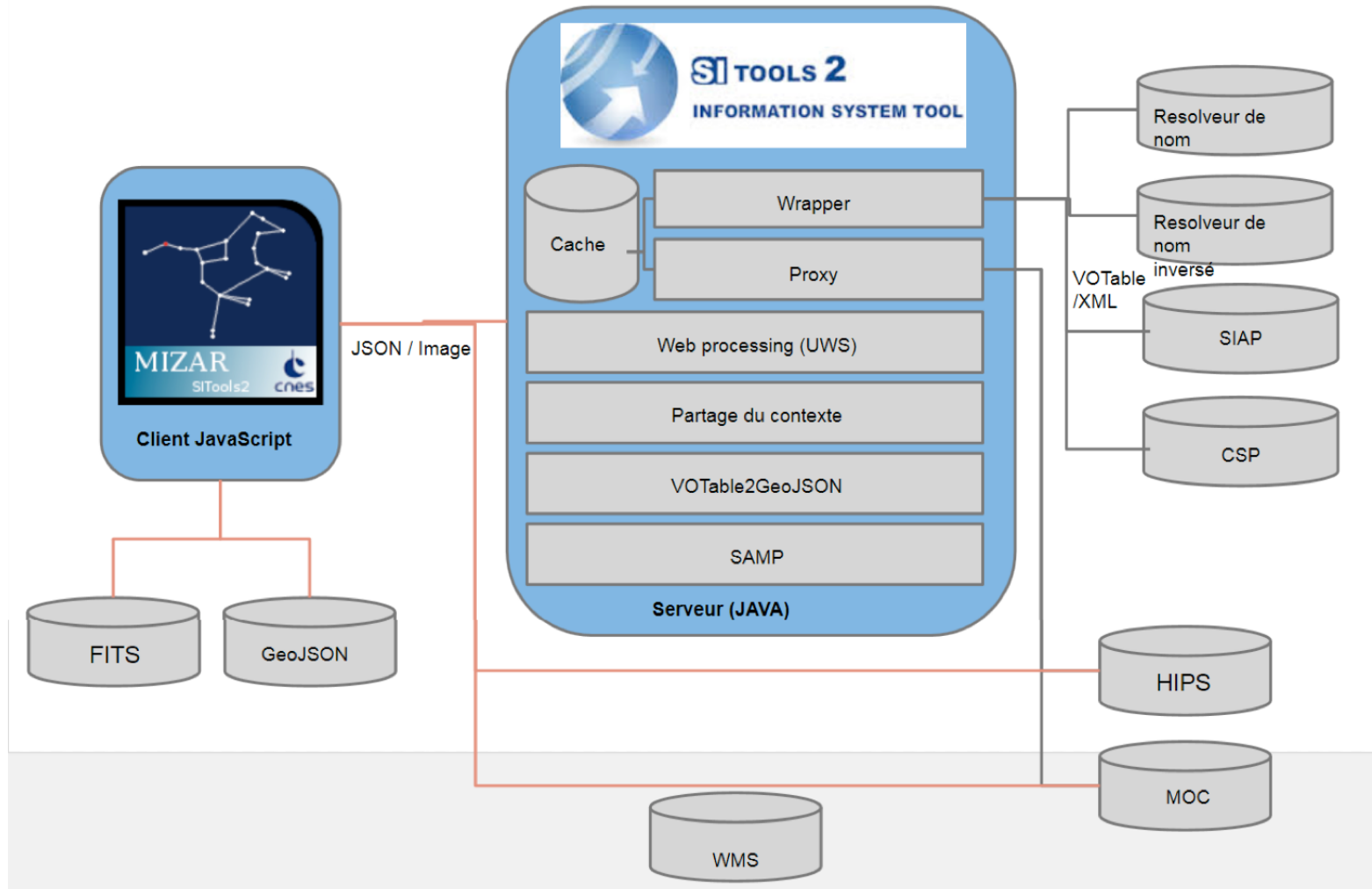


JWST MIRI

Sitools2 - <https://github.com/SITools2/>



MIZAR



Standards Interopérabilité



OGC

The OGC (Open Geospatial Consortium) is an international not for profit organization committed to making quality open standards for the global geospatial community. These standards are made through a consensus process and are freely available for anyone to use to improve sharing of the world's geospatial data.



IVOA

The Virtual Observatory (VO) is the vision that astronomical datasets and other resources should work as a seamless whole.

Many projects and data centres worldwide are working towards this goal.

The International Virtual Observatory Alliance (IVOA) is an organisation that debates and agrees the technical standards that are needed to make the VO possible.

Like the World Wide Web, the VO is not a fixed system, but rather a way of doing things.

Standards Interopérabilité

Astrophysique



**IVOA : International Virtual
Observatory Alliance**

<http://www.ivoa.net/documents/>
Services VO : SIAP CSP TAP
TAP-EPN

HIPS Centre de données de
Strasbourg



VOTable

Géosciences



**OGC : Open Geospatial
Consortium**

Opensearch

OpenGIS® Web Map Service
Interface Standard (WMS)

GeoJson

Nouveaux développements

Rajout Explorateur de Cube :

Partie serveur à rendre générique :

- formats de fichiers d'entrée

Partie client à améliorer (mais déjà suffisante).

Fonctionnement pour de gros cubes.

Application « responsive »

=== > widget portable et adaptable dans des environnements différents (test d'intégration dans MIZAR et dans CESIUM).

Inclusion client VO pour affichage autres données VO (VO TAP-EPN compris).

Amélioration MIZAR : ergonomie, nouvelles fonctionnalités.

Conclusions

- Total projet Visu 3D - OV : 100k€ 95 k€ CDDs (1 CDD plein temps Upsay - CNES 50k€ + autres CDDs CNES à 20 % sur ce projet) + 5 k€ matériel et workshop
- Mettre en avant la collaboration inter labos à Paris-Saclay mais aussi nationale et internationale.
- Code opensource (github).
- Importance pour la visibilité des projets. Liens avec Opendata du CDS (<https://io.datascience-paris-saclay.fr>)

MIZAR'S FEATURES



Browsing



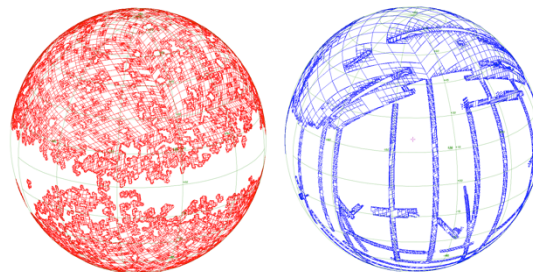
Background Images



Query form



Use its own information



« survey » coverage & intersection



CSP & SIAP



services



Configuration



Open source