

# Valorisation des données de la recherche dans les services du CDS



Emmanuelle Perret

Présentation stagiaires  
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# VizieR en bref

## I. Les données récupérées

## II. Valeur ajoutée

Métadonnées & données additionnelles

Curation

## III. Diffusion :

Découverte des données

Exploitation des données

Conclusion : les données fournies

# VizieR en bref

## Objectifs :

Pérennité

Réutilisation

Découverte

- VizieR : 1992 (>26 ans)
- >17,000 catalogues  
(pour >37,000 tables)
- 1,500 catalogues ajoutés par an  
(actuellement 3 documentalistes,  
1 astronome et 1 ingénieur)
- DSA (Data Seal of Approval)



# I. Les données récupérées



## - Tables hétérogènes :

- Différents formats :  
=> PDF, XML, HTML, ASCII, MRTs, FITS...
- Différents contenus :  
=> Objets astronomiques (planéto), modèles, physique atomique, logs d'observations, grands surveys (Gaia)...

## - Origines :

- Publications d'astrophysique (sélections DJIN – *Evelyne* ; envois directs par les auteurs)
- Sites web (3Dhst, Heasarc, SDSS)...

# I. Données récupérées : Exemples de formats



PDF, HTML

LateX

```
\begin{document}
%
\section{Measured maser feature parameters}
\label{apx:feats}
%
These tables list the maser feature parameters.
Lists for VX Sgr were
published by M03.
% S Per 1994
\begin{table*}
\begin{tabular}{ccrrrrrr}
\hline
 $V_{\text{LSR}}$  &  $\Delta V$  & \multicolumn{1}{c}{c} &
y & \multicolumn{1}{c}{c} & \{ \$ a \$ \} & \multicolumn{1}{c}{c} & \{ \$ 1
(km s-1) & (km s-1) & \multicolumn{1}{c}{c} & \{ (k
& \multicolumn{1}{c}{c} & \{ (mas) & \multicolumn{1}{c}{c} & \{ (ma
\hline
-52.5 & 0.6 & 0.00 & 0.00 & -11.6 & 1.3 & -29.7 & 1.3 & 31.8 & 2.8 & 7.2 & 0.15 \\
-51.8 & 0.4 & 0.39 & 0.13 & 0.5 & 1.5 & -18.7 & 1.5 & 18.8 & 6.6 & 7.1 & 0.22 \\
-51.6 & 1.4 & 1.09 & 0.17 & -11.4 & 0.7 & -29.7 & 0.7 & 31.8 & 11.3 & 8.0 & 0.35
\end{tabular}
\end{table*}
```

Table 1. HD numbers,  $T_{\text{eff}}$ ,  $\log g$ , [Fe/H], and the derived elemental abundances for thick-disk stars

HD	$T_{\text{eff}}$ , K	$\log g$	[Fe/H]	[Na/Fe]	[Al/Fe]	[Cu/Fe]	[Zn/Fe]
245	5400	3.4	-0.84	0.13	0.32	-0.08	0.22
3765	5079	4.3	-0.01	0.13	0.23	0.01	0.07
6582	5240	4.3	-0.94	0.10	0.38	-0.03	0.25
13783	5350	4.1	-0.75	0.10	0.37	0.02	0.34
22879	5972	4.5	-0.77	-0.01	0.19	-0.03	0.13
65583	5373	4.6	-0.67	0.05	0.35	0.10	0.21
76939	5840	4.0	-0.05	0.10	0.30	0.05	0.28

```
temp + (-) - VIM - Shell - Konsole
Session Edit View Bookmarks Settings Help
Table 1. HD numbers,  $T_{\text{eff}}$ ,  $\log g$ , [Fe/H], and the derived elemental abundances for thick-disk stars
HD Teff, K log g [Fe/H] [Na/Fe] [Al/Fe] [Cu/Fe] [Zn/Fe]
245 5400 3.4 [34m-H-R0.84 0.13 0.32 [34m-H-R0.08 0.22
3765 5079 4.3 0.01 0.13 0.23 0.01 0.07
6582 5240 4.3 [34m-H-R0.94 0.10 0.38 [34m-H-R0.03 0.25
13783 5350 4.1 [34m-H-R0.75 0.10 0.37 0.02 0.34
22879 5972 4.5 [34m-H-R0.77 [34m-H-R0.01 0.19 [34m-H-R0.03 0.13
65583 5373 4.6 [34m-H-R0.67 0.05 0.35 0.10 0.21
76939 5840 4.0 [34m-H-R0.95 0.10 0.30 [34m-H-R0.05 0.28
106516 6165 4.4 [34m-H-R0.72 0.02 [34m-e-S [34m-H-R0.13 0.21
110897 5925 4.2 [34m-H-R0.45 [34m-H-R0.14 0.14 [34m-H-R0.08 0.07
135204 5413 4.0 [34m-H-R0.16 0.01 0.23 [34m-H-R0.13 0.11
152391 5495 4.3 [34m-H-R0.08 [34m-H-R0.07 0.02 [34m-H-R0.18 [34m-H-R0.04
-52.5 0.6 0.00 0.00 -11.6 1.3 -29.7 1.3 31.8 2.8 7.2 0.15
-51.8 0.4 0.39 0.13 0.5 1.5 -18.7 1.5 18.8 6.6 7.1 0.22
-51.6 1.4 1.09 0.17 -11.4 0.7 -29.7 0.7 31.8 11.3 8.0 0.35
```

Table 2  
Energetics of the Type II GRB Sample

ASCII

GRB	Redshift z	Fluence Band (10 <sup>-7</sup> erg cm <sup>-2</sup> )	Low-energy (keV)	High-energy Index alpha_B	E <sub>p, rest</sub> Index beta_B (keV)	log E <sub>iso, bol</sub> (erg) (for Energetics)	References
970508	0.8349 ± 0.0003	26 ± 3	20-2000	-1.71 ± 0.1	-2.2 ± 0.25	168.8 ± 47.7	51.87 <sup>+0.06</sup> <sub>-0.07</sub> 1, 2
990123	1.6004 ± 0.0008	5090 ± 20	20-2000	-0.89 ± 0.08	-2.45 ± 0.97	2031 ± 161.0	54.60 ± 0.05 1, 3
990510	1.6187 ± 0.0015	270 ± 50	20-2000	-1.23 ± 0.05	-2.7 ± 0.4	423.0 ± 42.0	53.34 <sup>+0.07</sup> <sub>-0.09</sub> 1, 2
991208	0.7063 ± 0.0017	1630 ± 50	20-2000	-1.1 ± 0.4	-2.2 ± 0.4	312.3 ± 5.1	53.43 <sup>+0.05</sup> <sub>-0.06</sub> 1, 2, 4
991216	1.02 ± 0.01	2480 ± 120	20-2000	-1.23 ± 0.25	-2.18 ± 0.39	763.6 ± 20.2	53.93 <sup>+0.04</sup> <sub>-0.05</sub> 1, 2
000131	4.5 ± 0.015	440 ± 60	20-2000	-1.2 ± 0.1	-2.4 ± 0.1	1293 ± 110.0	54.28 <sup>+0.06</sup> <sub>-0.07</sub> 1, 2
000301C	2.0404 ± 0.0008	83 ± 6	20-2000	-1.0 ± 0.3	-2.3 ± 0.3	1213 ± 303.0	52.99 <sup>+0.03</sup> <sub>-0.04</sub> 2
000911	1.0585 ± 0.0001	1920 ± 340	20-2000	-1.11 ± 0.12	-2.32 ± 0.41	2106 ± 177.0	53.86 <sup>+0.08</sup> <sub>-0.09</sub> 1, 2
000926	2.0387 ± 0.0008	260 ± 40	20-2000	-1.1 ± 0.1	-2.43 ± 0.4	306.9 ± 18.2	53.52 <sup>+0.06</sup> <sub>-0.08</sub> 1, 2, 4
010222	1.47688 ± 0.00002	1390 ± 80	20-2000	-1.35 ± 0.19	-1.64 ± 0.02	765.4 ± 29.7	54.06 ± 0.03 1, 2
011121	0.362 ± 0.001	2270 ± 250	20-2000	-1.1 ± 0.3	-2.1 ± 0.2	1201 ± 126.7	53.01 <sup>+0.06</sup> <sub>-0.07</sub> 2, 5
011211	2.1418 ± 0.0018	50 ± 5	40-700	-0.84 ± 0.09	-2.3 ± 0.46	185.0 ± 22.0	53.01 <sup>+0.05</sup> <sub>-0.06</sub> 1
020405	0.68986 ± 0.00004	830 ± 60	20-2000	-0.0 ± 0.25	-1.87 ± 0.23	532.3 ± 25.3	53.17 <sup>+0.06</sup> <sub>-0.07</sub> 1, 2
020813	1.254 ± 0.005	1410 ± 130	20-2000	-0.94 ± 0.03	-1.57 ± 0.04	710.0 ± 33.8	53.94 ± 0.04 1, 2
021004	2.3304 ± 0.0005	25.5 ± 6	2-400	-1.01 ± 0.19	-2.3 ± 0.46	266.0 ± 117.0	52.65 <sup>+0.12</sup> <sub>-0.17</sub> 1
030226	1.98691 ± 0.00015	130 ± 60	20-2000	-0.89 ± 0.17	-2.3 ± 0.46	349.5 ± 41.8	53.17 <sup>+0.17</sup> <sub>-0.27</sub> 1, 2
030323	3.3718 ± 0.0005	12.3 <sup>+3.7</sup> <sub>-3.4</sub>	2-400	-0.80 <sup>-0.80</sup> <sub>+0.83</sub>	sdotsdtsdtsdts	192.4 <sup>+393.5</sup> <sub>-113.7</sub>	52.53 <sup>+0.23</sup> <sub>-0.19</sub> 1, 6

# II. La valeur ajoutée : standardisation & données additionnelles



## - Standardisation des données

#Table: J/ApJ/763/32/table2.dat (cdsarc.u-strasbg.fr)

ID	u0mag	g0mag	r0mag	i0mag	z0mag	Vgsr	Fe/H
CSS_J004056.6-020802	18.19	17.03	16.76	16.69	16.63		
CSS_J003621.0-015958	17.55	16.45	16.15	16.08	16.07		
CSS_J004212.4-004251	18.22	17.16	16.91	16.82	16.81	123.7	-2.19
CSS_J004424.5-002743	18.97	17.88	17.59	17.51	17.49	-78.6	-1.47
CSS_J005150.9-024858	17.05	15.96	15.74	15.69	15.68		
CSS_J005328.6-004321	19.03	17.84	17.59	17.57	17.55	-134.1	-1.71
CSS_J004923.6-001800	18.98	17.76	17.51	17.48	17.44	-89.5	-1.20
CSS_J005338.1-000303	17.76	16.73	16.44	16.42	16.38		-1.92
CSS_J010533.7-002344	19.30	18.20	17.96	17.91	17.88		-1.82

Objectif :

- Réutilisation

- Description standardisée dans un **ReadMe** :  
=> données additionnelles

# II. Valeur ajoutée : métadonnées



Summary ReadMe **VizieR** Browse FTP Tar

J/ApJ/763/32 Galactic halo RRab stars from CSS (Drake+, 2013)

Probing the outer Galactic halo with RR Lyrae from the Catalina Surveys.  
Drake A.J., Catelan M., Djorgovski S.G., Torrealba G., Graham M.J.,  
Belokurov V., Kozlov S.E., Mahabal A., Prieto J.L., Donalek C.,  
Williams R., Larson S., Christensen E., Beshore E.  
<Astrophys. J., 763, 32 (2013)>  
=[2013ApJ...763...32D](#)

**ADC\_Keywords** Stars, variable ; Stars, distances ; Photometry, SDSS ; Surveys

**Keywords:** galaxies: stellar content; Galaxy: formation; Galaxy: stellar content;  
Galaxy: structure; stars: variables: RR Lyrae

**Abstract:**

**Description:**

The Catalina Sky Survey began in 2004 and uses three telescopes to cover the sky between declination  $\delta = -75^\circ$  and  $+65^\circ$  in order to discover near-Earth objects (NEOs) and potential hazardous asteroids (PHAs). Each of the survey telescopes is run as separate sub-surveys. These consist of the Catalina Schmidt Survey (CSS) and the Mount Lemmon Survey (MLS) in Tucson Arizona, and the Siding Spring Survey (SSS) in Siding Spring, Australia.

**File Summary:**

FileName	Lrecl	Records	Explanations
----------	-------	---------	--------------

ReadMe	80	.	This file
<a href="#">table1.dat</a>	118	12379	Parameters of RRab stars
<a href="#">table2.dat</a>	63	7760	SDSS data for CSS RRab stars

**See also:**

[B/vsx](#) : AAVSO International Variable Star Index VSX (Watson+, 2006-2014)  
[II/294](#) : The SDSS Photometric Catalog, Release 7 (Adelman-McCarthy+, 2009)  
[J/ApJS/213/9](#) : Catalina Surveys periodic variable stars (Drake+, 2014)  
[J/AJ/144/114](#) : Radial velocities of 6 field RR Lyrae (Sesar+, 2012)  
[J/AJ/144/39](#) : Galactic RRab from the GEOS RR Lyr Survey (Le Borgne+, 2012)

**Byte-by-byte Description of file:** [table2.dat](#)

Bytes	Format	Units	Label	Explanations
1- 4	A4	---	---	[CSS_
5- 20	A16	---	ID	CSS identifier;
22- 26	F5.2	mag	u0mag	<[DCD2013] CSS JHHMSS.s+DDMMSS> in Simbad [10.1/25] Extinction corrected SDSS u band magnitude
28- 32	F5.2	mag	g0mag	[10.3/25.1] Extinction corrected SDSS g band magnitude
34- 38	F5.2	mag	r0mag	[11/24.7] Extinction corrected SDSS r band magnitude
40- 44	F5.2	mag	i0mag	[11/24.4] Extinction corrected SDSS i band magnitude
46- 50	F5.2	mag	z0mag	[11.5/22.8] Extinction corrected SDSS z band magnitude
52- 57	F6.1	km/s	Vgsr	[-359/308]? Galactic standard of rest velocity <a href="#">(1)</a>
59- 63	F5.2	[Sun]	[Fe/H]	[-3/-0.7]? Metallicity <a href="#">(1)</a>

**Note (1)** : Based on SDSS spectra. The galactic standard of rest assumes the solar peculiar motion of (U,V,W) = (9, 12+220, 7)km/s

**History**

From electronic version of the journal

**Reference:**

Drake et al. Paper II. [2013ApJ...765..154D](#) Cat. [J/ApJ/765/154](#)

(End)

Greg Schwarz [AAS], Emmanuelle Perret [CDS] 09-Oct-2014

## II. La valeur ajoutée : métadonnées enrichies



- Standardisation et description des données.

### Métadonnées enrichies

- **UCDs (Unified Content Descriptors)** pour chaque colonne
- **Coordonnées**
- **Liens** internes/externes (entre tables, catalogues VizieR, SIMBAD, NED, ...)

## II. La valeur ajoutée : validation des données



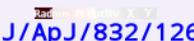
- Vérifications semi-automatiques
- Vérification du contenu
- => échanges avec les astronomes

14-Sep-2011: SMM J141800.40+512820.3 is a **misprint** for J141800.40+522820.3; corrected at CDS.

- Errata / nouvelles versions
- => mises à jour

Objectifs :

- Vérifications
- Mises à jour
- => Fiabilité

 RESOLVE survey: 21cm obs. with GBT & Arecibo (Stark+, 2016)  
[J/ApJ/832/126](#) [Similar Catalogs](#) [2016ApJ...832..126S](#) [ReadMe+ftp](#) 

*Post annotation*

1. [J/ApJ/832/126/table1](#)<sup>(c)</sup> RESOLVE Spectroscopy Of a Local Volume (RESOLVE) 21cm catalog; from **erratum** published in 2017, ApJ, 851, 153 (2164 rows)
2. [J/ApJ/832/126/table2](#)<sup>(c)</sup> RESOLVE environment metrics (1384 rows)

# III. Diffusion : découverte des données



## VizieR

[VizieR home](#) . [Photometry viewer](#) . [Query VizieR using TAP](#) . [X-match tables](#) . [Query images/spectra](#)

[Pan-STARRS](#) catalogue is available in VizieR [\[more\]](#)

Find catalogs among 16945 available

Expand search

**?** *Catalog, author's name, word(s) from title, description, etc. e.g.: AGN, Veron, I/239, or bibcodes...*

**▼ Hide catalogs by column descriptions (UCD) ?**

Wavelength	Mission	Astronomy
Radio	AKARI	Abundances
IR	ANS	Ages
optical	ASCA	AGN
UV	BeppoSAX	Associations
EUV	CGRO	Asteroseismology
X-ray	Chandra	Atomic_Data
Gamma-ray	COBE	Binaries:cataclysmic

**?** [UCD search](#)

Search catalogs containing a type of columns (UCD). Use the logical characters '|' (or) or '&' (and) to link them together.

Simple examples    Textual search    UCD tree

Choose catalogs containing a type of column by clicking on the below checkbox

- Position
  - J2000 *pos.eq\**
  - Galactic *pos.gal\**
  - parallax *pos.parallax\**
- Motion
  - redshift *src.redshift\**
  - radial velocity *spect.dopplerVeloc\*/phys.veloc\**
  - proper motion *pos.pm\**

Search Criteria

Preferences

max: 50

HTML Table

All columns

► Compute

Mirrors

CDS, France

Send to V0 tools

# III. Diffusion : découverte des données



=> **Découverte via différents moyens d'interrogations**

(texte libre, mots-clefs, coordonnées, UCDS, TAP...)

=> **Interopérabilité**

- accès via outils VO : VO registry ; TOPCAT...

Objectifs :

- **Découverte**
- **Visibilité** accrue
- **Réutilisation**

Send to VO tools



# III. Exploitation des données

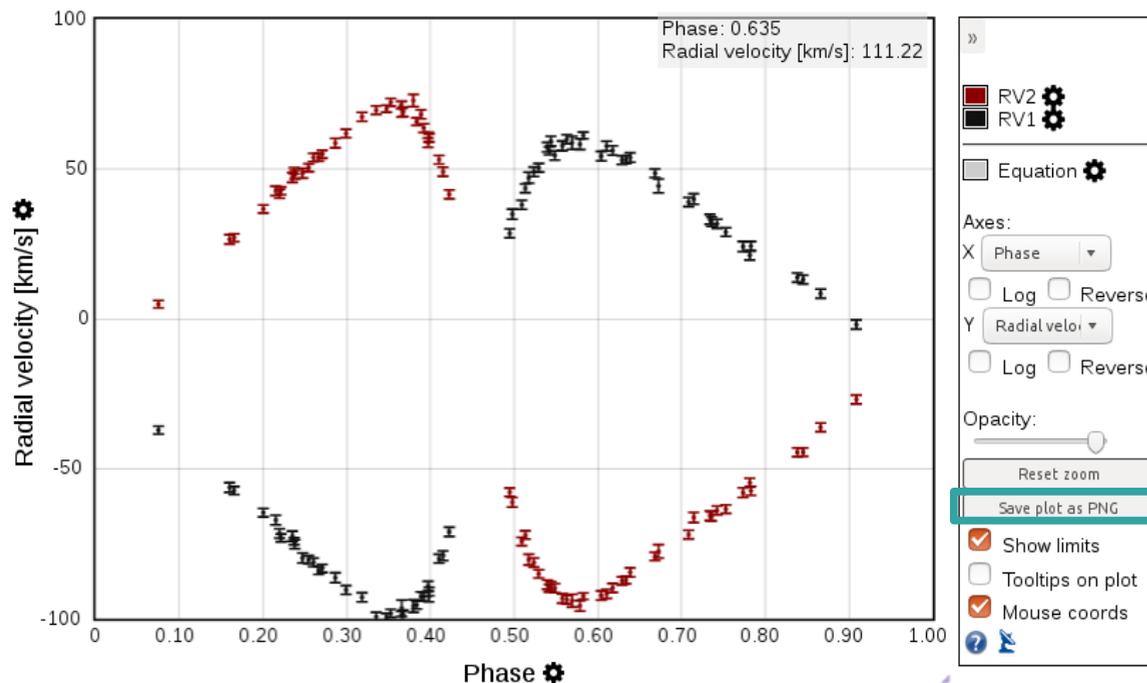


=> Plots interactifs

Objectifs :

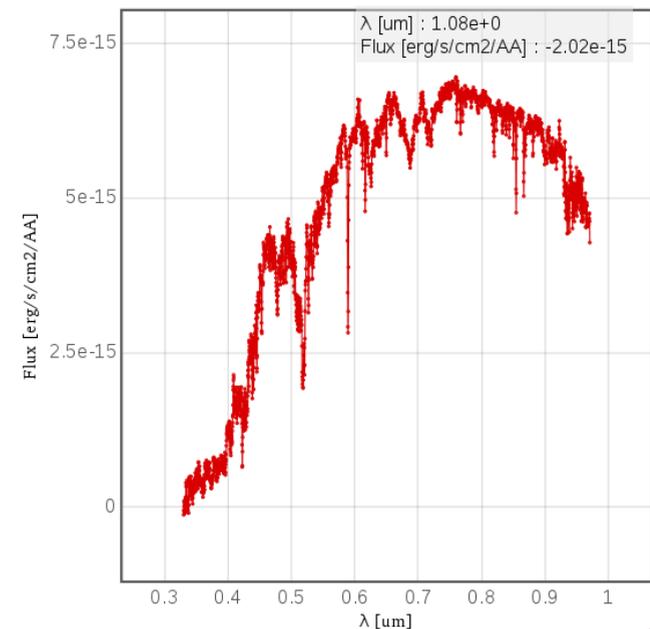
- Visualisation
- Découverte

J/ApJ/836/177 Radial velocities of V541 Cyg ⚙



Download: [VOTable](#) - [TSV](#)

J/ApJ/779/188 Spectrum of KOI 227



# III. Exploitation des données



=> **Base de données associée** –  
formats FITS : images, spectres

Objectifs :

- **Découverte**
- **Visualisation**

Search associated data among the VizieR catalogues

This web page is an access to the VizieR Associated data (images, spectra, timeseries, SED) which comes from publications. This tool is the result of the documentation assigned by the authors of the catalogues and supervised by the CDS documentalists team (see the VizieR Ingestion tool).

**VO compatibility**  
The meta-data and the search engine are built according to the VO framework (SIA, SSA, ObsTAP) and can so be queried by VO softwares. The data are gathered with the Saada engines, and the VO data model ObsCore has been chosen for the documentation.

Simple search **ObsTAP Query**

Q Search by position :  radius 1 deg

Q Search by spectral band : min 100 max 300 nm UV

Q Search by time data : start  stop  (MJD)

Q Search by catalog:  Q Identifier:

Spectrum / Time series  Image

500 entries max **Search**

Show 10 entries  Filter

28 entries

Preview	Target	Data collection	Ra	Dec	Band min (nm)	Band max (nm)	Begin time (MJD)	End time (MJD)	Facility
		J/ApJ/830/51	53.127	-27.800	108.000	973.600			HST/WFC3
		J/ApJ/830/51	150.130	2.289	108.000	973.600			HST/WFC3
		J/ApJ/830/51	34.312	-5.200	108.000	973.600			HST/WFC3

<http://cdsarc.u-strasbg.fr/assocdata/>

# III. Exploitation des données



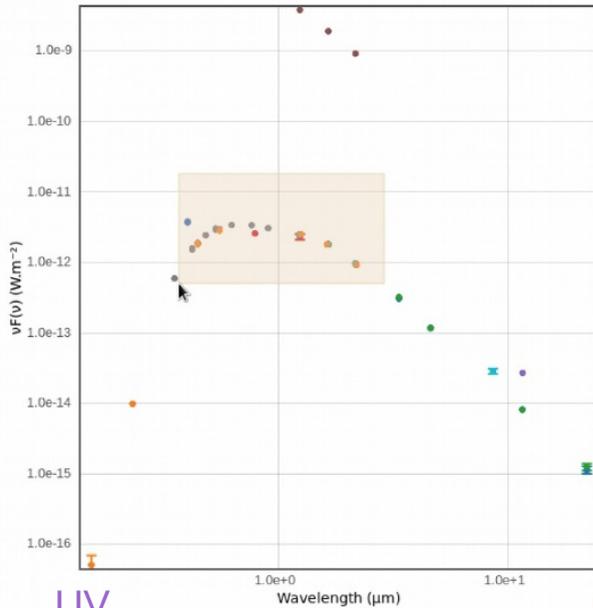
Target

Radius (in arcsec)

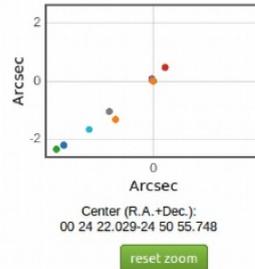
[settings](#) [share](#)



hd2014 (00 24 22.029-24 50 55.748),  
radius : 5 arcsec



Mouse position:  
Wavelength : 3.72e-1 μm  
Frequency : 8.06e+5 GHz  
Energy : 3.34e+0 eV  
Flux density or F(ν) : 6.23e-2 Jy  
νF(ν) : 5.02e-13 W.m<sup>-2</sup>  
F(λ) : 1.35e-9 erg.s<sup>-1</sup>.cm<sup>-2</sup>.μm<sup>-1</sup>



[options](#)

=> **Photometry viewer :**

Filtres indexés dans une table  
« METAFilter »

Plot tracé automatiquement

[Documentation](#)

[settings](#) [share](#)

Target

Radius (in arcsec)

show	source	_RAJ2000 (deg)	_DEJ2000 (deg)	_tabname	_sed_freq (GHz)	_sed_wavelength (μm)	_sed_flux (Jy)	_sed_efflux (Jy)	_sed_filter
<input checked="" type="checkbox"/>	-c=Ultrag[006.0918009-24.8487977,cc=J2000],W,c,rs=0.004	006.091801	-24.848798	U20/spm4	541.43e+3	5.54e-1	0.546		Johnson_V
<input checked="" type="checkbox"/>	-c=Ultrag[006.0918009-24.8487977,cc=J2000],W,c,rs=0.004	006.091801	-24.848798	U20/spm4	674.90e+3	4.44e-1	0.279		Johnson_B

# Conclusion : les données fournies



- Standardisation

- Pérennité



- Validation

14-Sep-2011: SMM J141800.40+512820.3 is a misprint for J141800.40+522820.3; corrected at CDS.

- Enrichissement

- Exploitation

Search Criteria

Preferences

max: 50

HTML Table

All columns

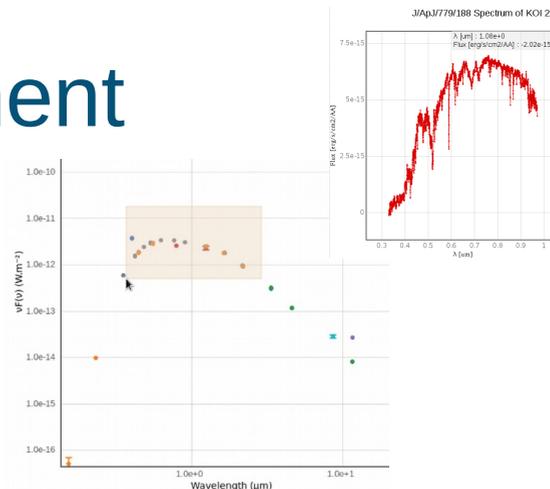
► Compute

Mirrors

CDS, France

CDS Portal  
V0 Table  
XML + CSV  
FITS  
| -separated values  
ASCII

Send to V0 tools



# Conclusion : large diffusion



**VizieR** interface showing search results for Galactic halo RRab stars. The search criteria include 'Galactic RRab stars' and 'match'. The results table shows columns for RA, Dec, and other parameters.

Full	l	b	RAJ2000	DEJ2000	RAJ2000	DEJ2000	<Vmag>	Per	Amp	Num	Dist	Av	T0	AI
arcsec	arcsec	"h:m:s"	"d:m:s"	"d:m:s"	deg	deg	mag	d	mag		kpc	mag	d	
1	0.303	00 01 14.85	-18 06 17.8	17.915	000.3117930554	-18.1049763814	0.226	-18.1049763814	0.166	2414168509690302464		0.703	01.5402e	

**GAVO** (Germany Astrophysical Virtual Observatory) interface with various service links like 'Image Services', 'Spectral Services', etc.

**Web Interface to the Relational Registry** showing search results for Galactic RRab stars. A table lists publications with columns for Publisher, Creator, Contributor, and Contact.

Publisher	Creator	Contributor	Contact
CDS	Drake A.J., Catean M., Djorgovski S.G., Torrealba G., Graham M.J., Belokurov V., Koposov S.E., Mahabal A., Prieto J.L., Donalek C., Williams R., Larson S., Christensen E., Beshore E.	Greg Schwarz [AAS], Emmanuelle Perret [CDS]	CDS support team, cds-question@unistra.fr

**CDS** (Centre de Données Astronomiques de Strasbourg) interface showing search results for Teff and metallicities for Tycho-2 stars. The results table shows columns for ID, RAJ2000, DEJ2000, <Vmag>, Per, Amp, Num, Dist, Av, T0, and AI.

Full	l	b	RAJ2000	DEJ2000	ID	RAJ2000	DEJ2000	<Vmag>	Per	Amp	Num	Dist	Av	T0	AI
arcsec	arcsec	"h:m:s"	"d:m:s"	"d:m:s"	J0000114.8-180617	000.31187-18.10495	17.62	0.5818541	0.78	112.24	50	0.042	53705	58907	
1	0.03	00 01 14.85	-18 06 17.8	J0000114.8-180617	000.31187-18.10495	17.62	0.5818541	0.78	112.24	50	0.042	53705	58907		

**Aladin v8.0** interface showing a color-magnitude diagram (CMD) of stars. The plot displays SDSS colored stars with axes for magnitude and color. A red crosshair is visible on the plot.

Search criteria: JApJ/763/32/table1. Parameters of RRab stars (12379 rows).



- **Astronomes :**  
**Pierre Ocvirk, Caroline Bot //Heddy Arab, Sébastien Derrière**
- **Informaticiens :**  
**Gilles Landais, Thomas Boch & F.-X. Pineau**
- **Documentalistes :**  
**Patricia Vannier, Emmanuelle Perret, Tiphaine Pouvreau, Marianne Brouty**