Large Synoptic Survey Telescope Catalogue Contribution of the CDS

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Paris, 10-11 June 2014



- One of the major tools of the CDS
- Access to > 12 000 catalogues and tables published in journals
 - Description of content is standardized
 - Queries can be done on metadata (e.g. "which catalogue contains magnitude K?")
 - VO-compatible
- 450 000 queries per day excellent visibility, 7 mirrors
- Big data surveys (GUMS with > 2 billion stars)
- > 1000 catalogues / year in the database
- LSST final database size ~ 15 PB



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Tools related to VizieR

- new Photometry viewer : Plot photometry (sed) including all VizieR
- TAP VizieR : query VizieR using ADQL (a SQL extension dedicated for astronomy)
- CDS cross-match service : fast cross-identification between any 2 tables, including VizieR catalogues, SIMBAD

→ Thanks for acknowledging the VizieR Service



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Tools related to VizieR

- *new Photometry viewer* : Plot photometry (sed) including all VizieR
- <u>TAP VizieR</u> : query VizieR using ADQL (a SQL extension dedicated for astronomy)
- <u>CDS cross-match service</u> : fast cross-identification between any 2 tables, including VizieR catalogues, SIMBAD

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list of catalogues and tables available



Simbad VizieR Aladin X-Match Other - Help

Catalog Selection Page

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→ Thanks for acknowledging the VizieR Service



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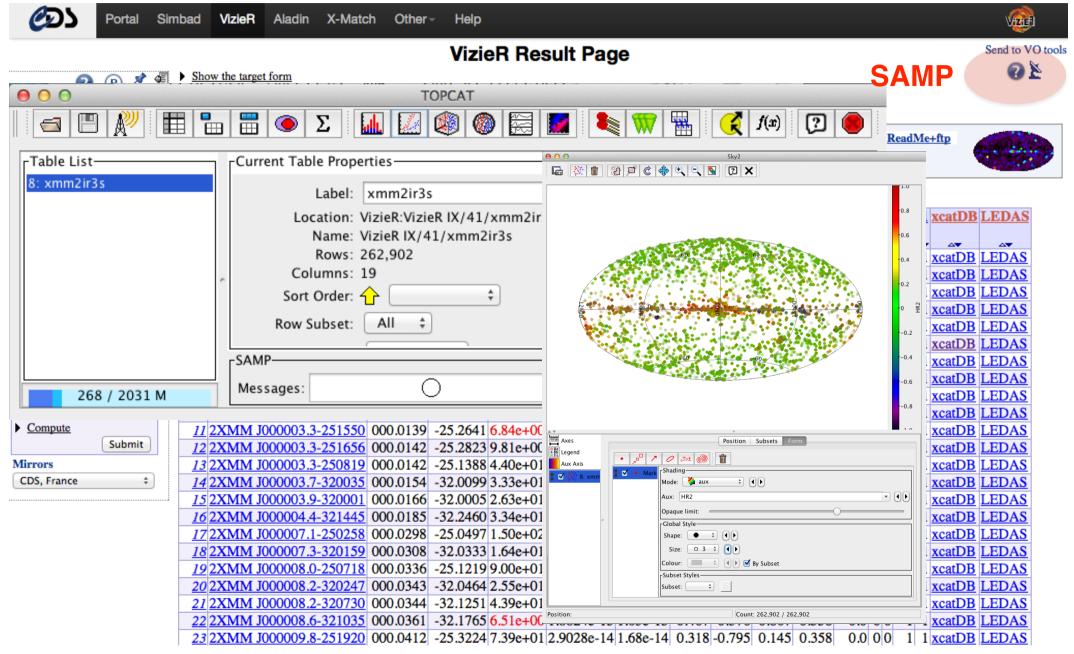


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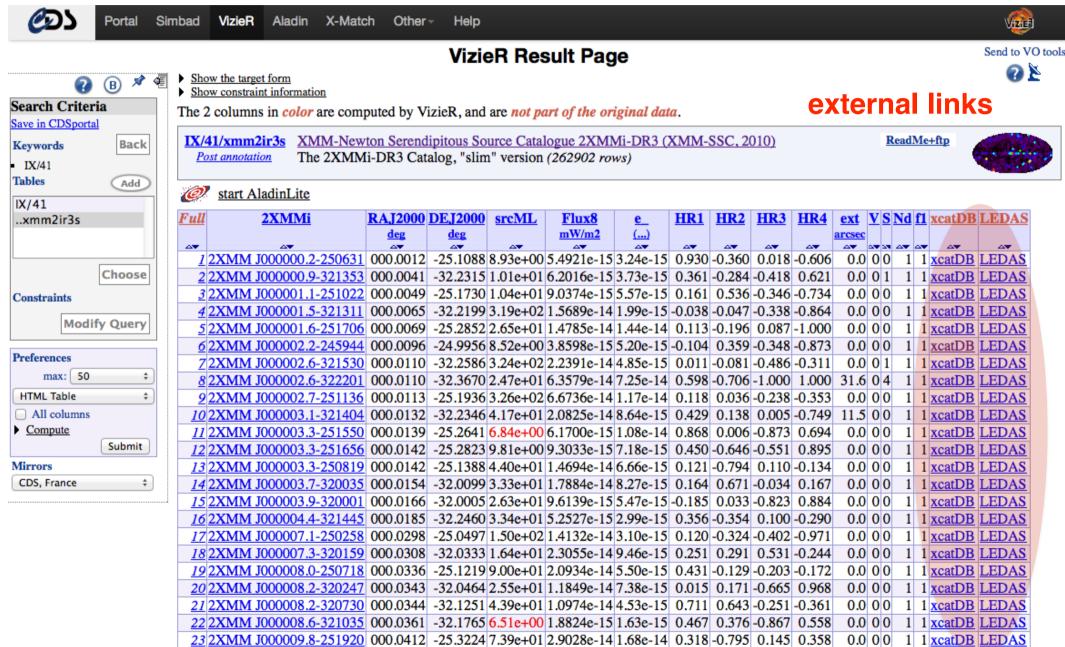


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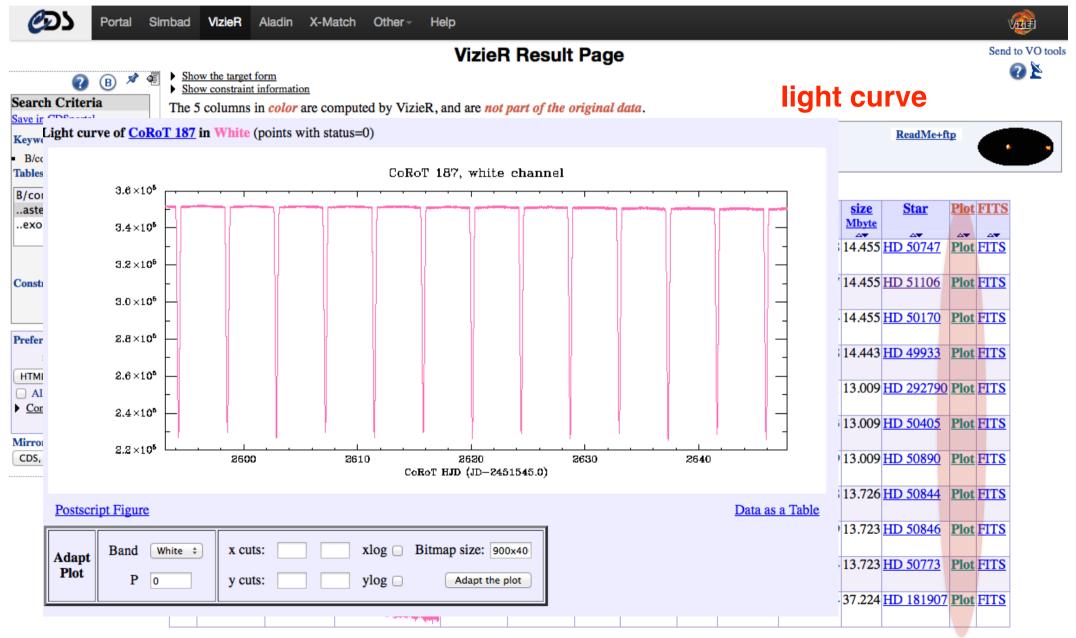


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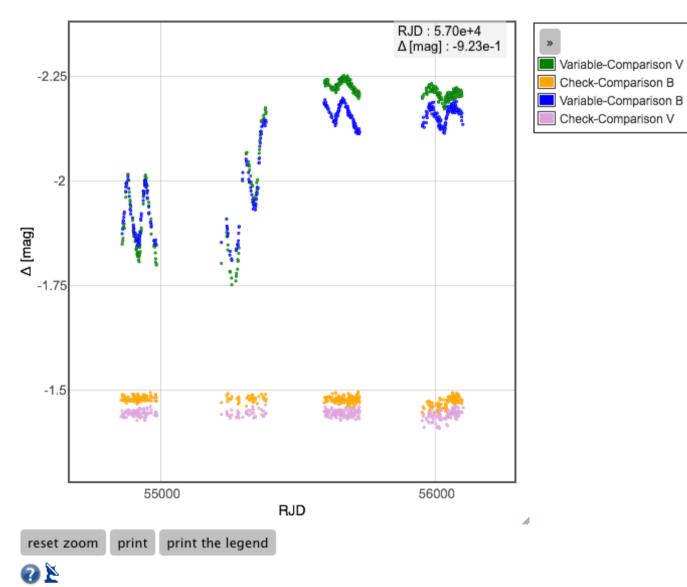
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VE

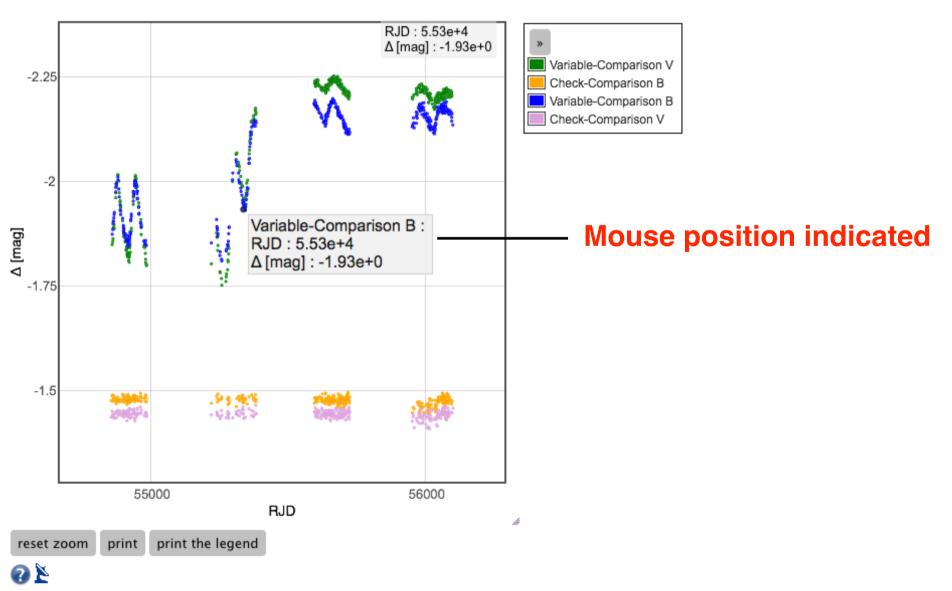
▶ settings → share



J/AJ/145/142 Differential photometry of δ Sco

V

▶ settings ▶ share

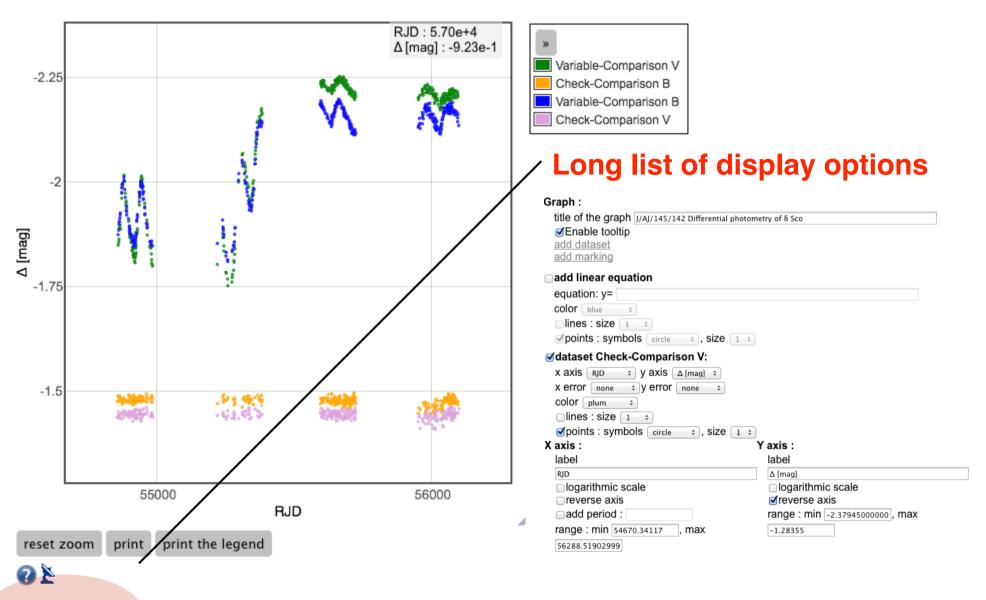


J/AJ/145/142 Differential photometry of δ Sco

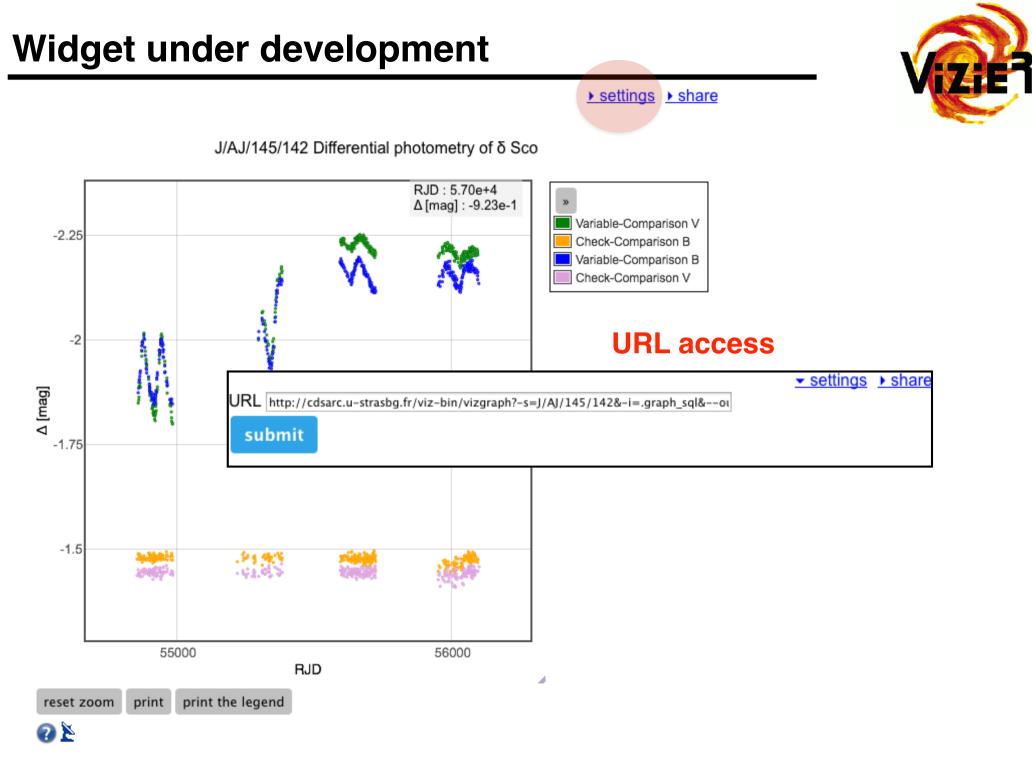
display options

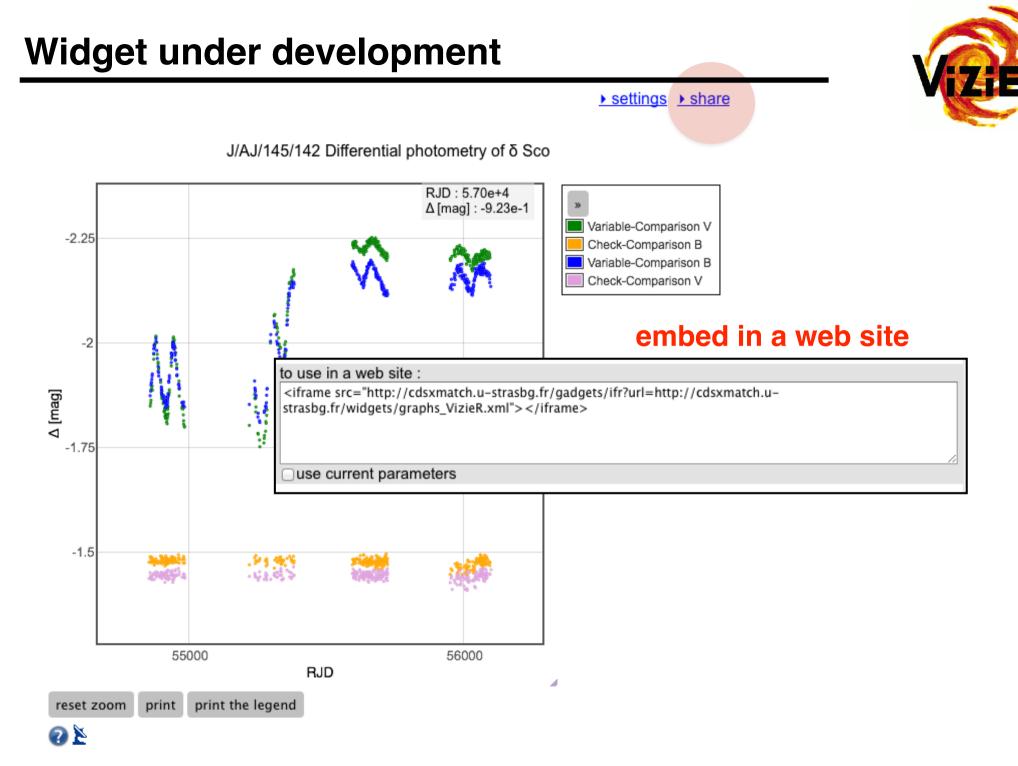
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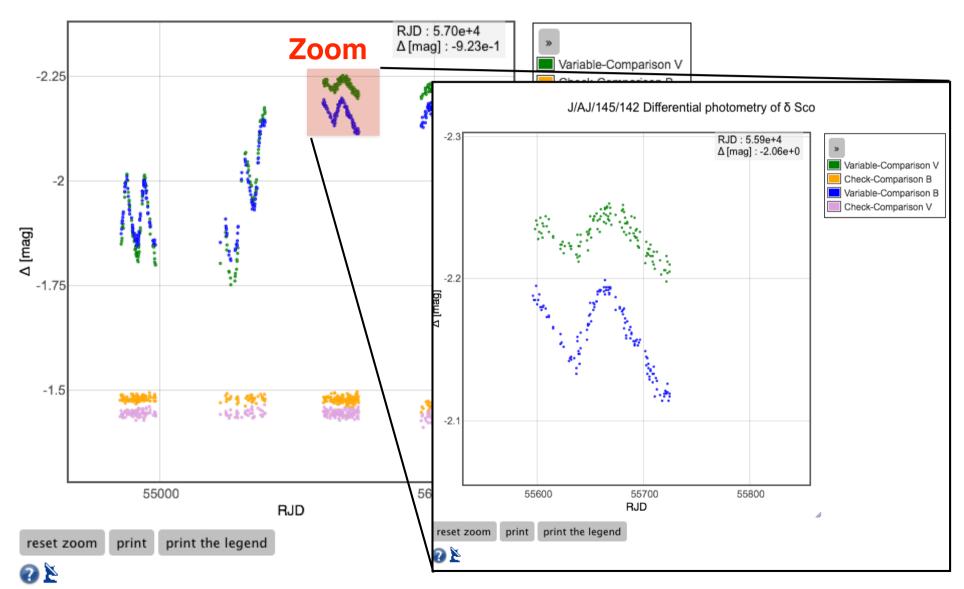
J/AJ/145/142 Differential photometry of δ Sco





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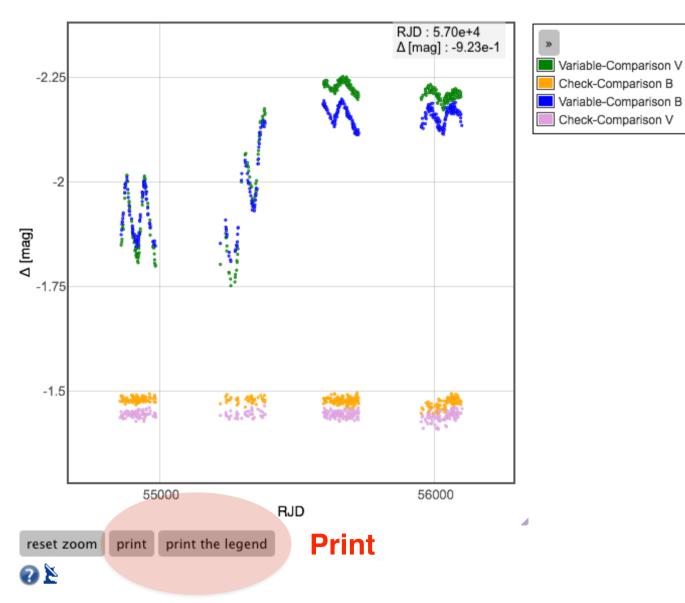
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J/AJ/145/142 Differential photometry of δ Sco

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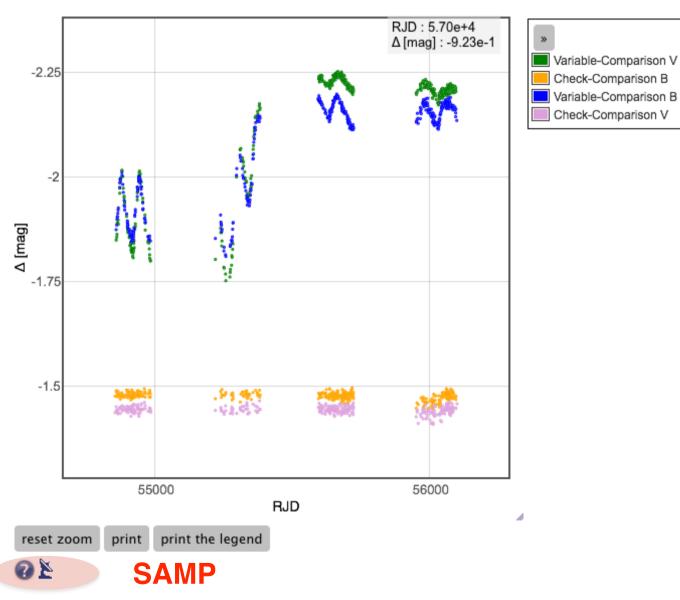
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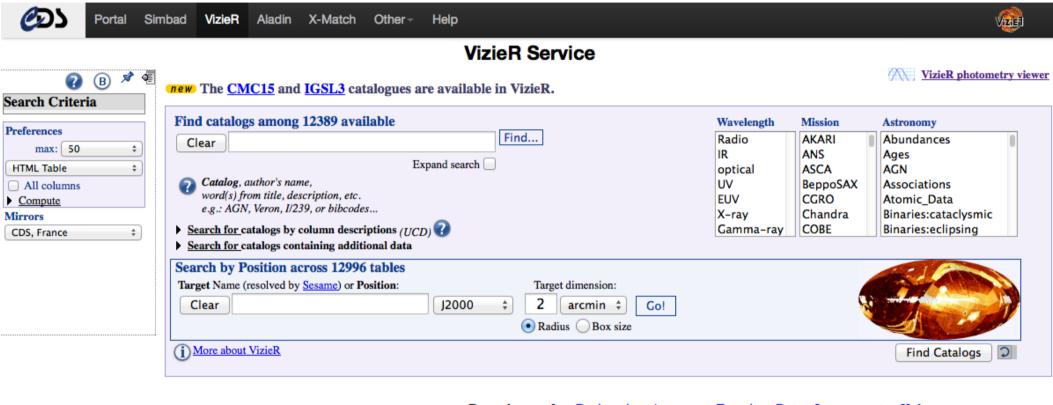
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J/AJ/145/142 Differential photometry of δ Sco



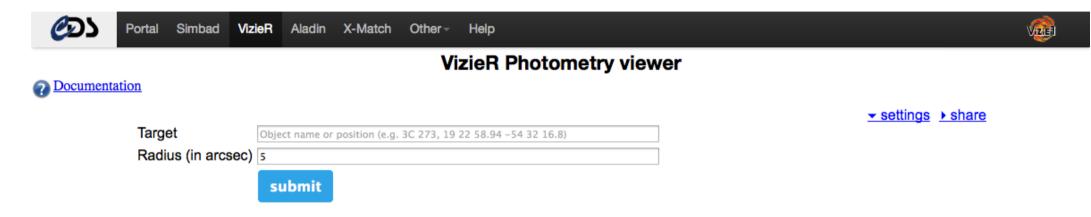
Browsing modes: Designation, Acronyms, Favorites, Dates, Image, spectra, Kohonen

Or list the large surveys

Tools related to VizieR

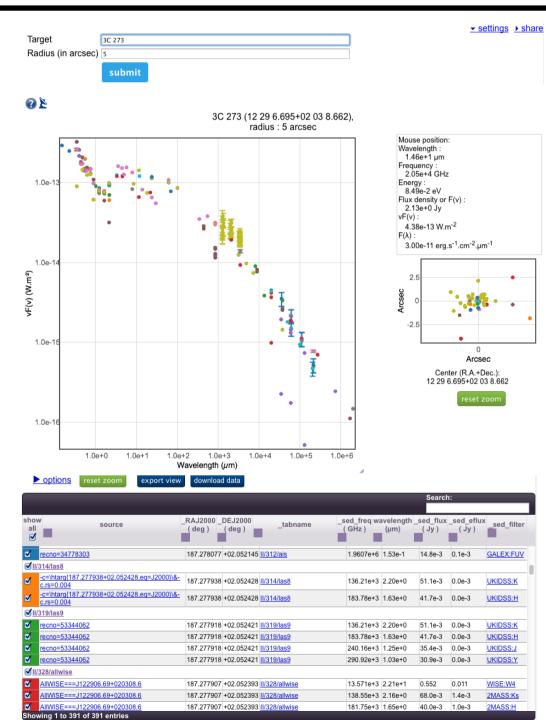
- **new** Photometry viewer : Plot photometry (sed) including all VizieR
- <u>TAP VizieR</u> : query VizieR using ADQL (a SQL extension dedicated for astronomy)
- CDS cross-match service : fast cross-identification between any 2 tables, including VizieR catalogues, SIMBAD

→ Thanks for acknowledging the VizieR Service

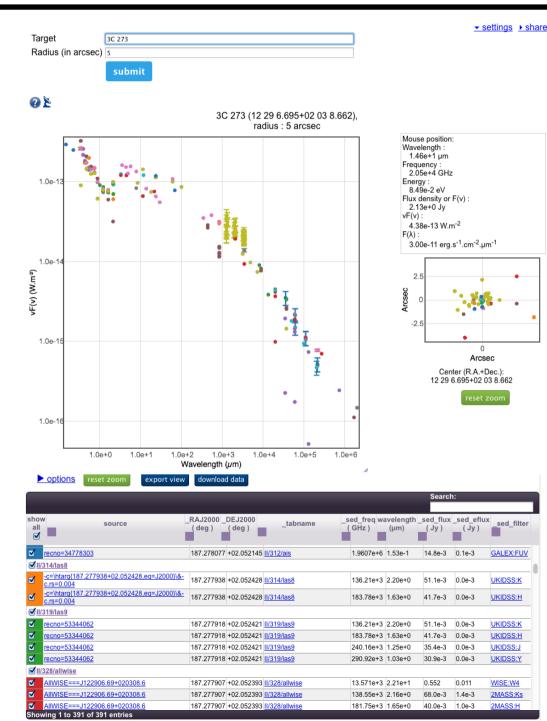


Search by object name or by coordinates





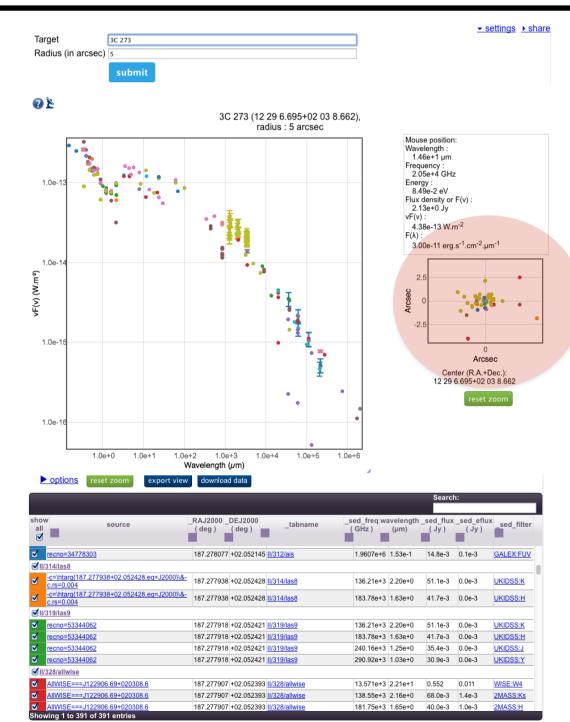
- 391 entries found
- ~1 second



VIE

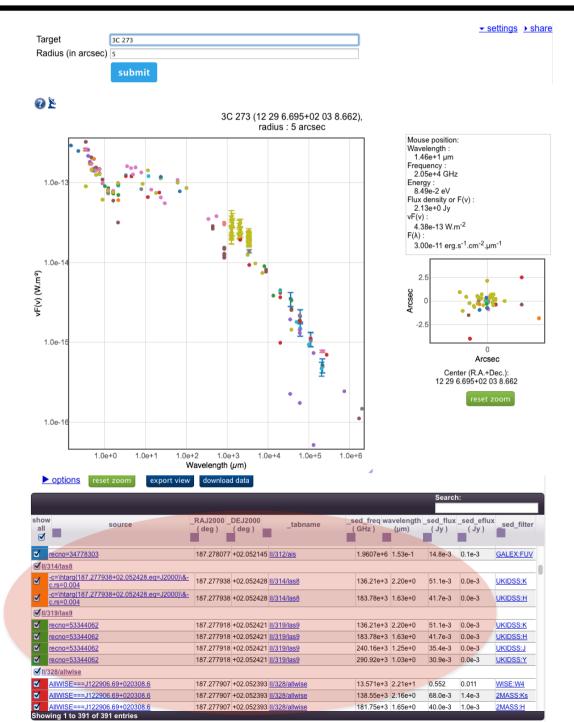
- url / embed in web
- mouse position
- SAMP
- display options





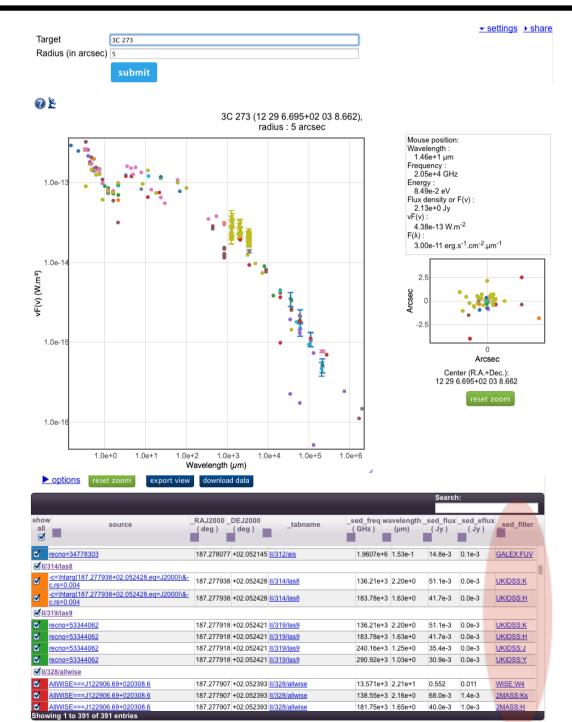
distance between catalogue and input coordinates





list of catalogues and associated magnitudes





filter information



Portal Simbad VizieR Aladin X-Match Other Help	
CDS X-Match Service X-match Tables management Documentation	Login Preferences Register
Select below the two tables to cross-match. Then, choose cross-match method and sky area in options. Finally, click on Begin the X-Match to launch the computation.	
Choose tables to cross-match	Positional cross-correlation of
e.g. VII/260/dr7qso, or select in list 🔀 e.g. VII/233/xsc, or select in list	sources in 2 tables among:
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Show options	- SIMBAD data
Begin the X-Match	 user-uploaded list
	Result in VOTable, CSV or

Visualize and manage your cross-match jobs

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List of X-match	jobs								
Table 1	Table 2	Options	Begin	Status	Actions				
No job in list									
					For the selected job(s	s): 👸 Delete			



Portal Simbad VizieR	Aladin X-Match Other Help			
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List of X-match jobs Table 1 Table 2 No job in list	Healpix cell (ICRS, NESTED scheme)			
	Index:		3	





Available through:

- Web interface
- HTTP API (programmatic access)

Performances

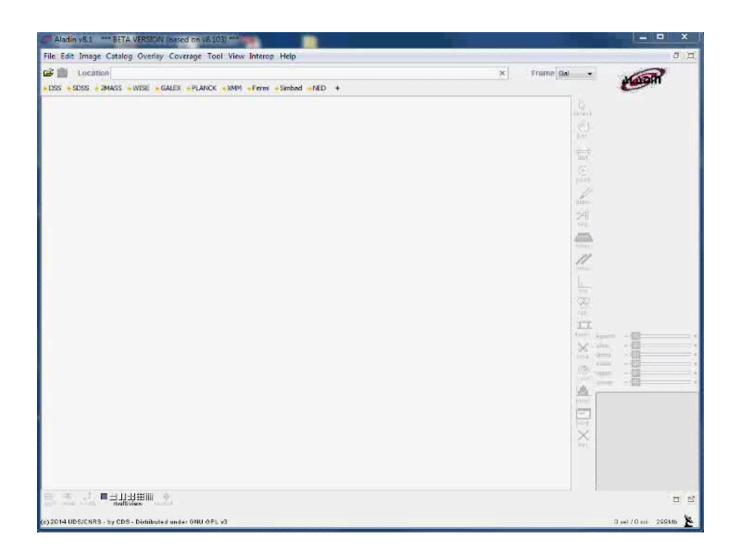
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GLIMPSE 104M	NOMAD	6 min	17 min	19 GB	23 min
SIMBAD 7M	USNOBI 1 billion	3 min	l min	I GB	4 min
List of 40k	SIMBAD 7M	l second	4 seconds	10 MB	5 sec

http://cdsxmatch.u-strasbg.fr/xmatch/doc/

Aladin



HiPS : Hierarchical Progressive Surveys



Hierarchical tiling mechanism of:

- images
- catalogues
- data cubes

Allows to:

- access
- visualize
- browse

New ! HiPS cube

Planck (2D)

CGPS (3d)

- 84 data cubes
- 3D: 272 Channels



Reminder of photometric viewer

لاک	Portal	Simbad	VizieR	Aladin	X-Match	Other -	Help								@
						V	izieR	Photon	metry	viewe	r				
7 Documentation															
													✓ settings	▶ share	
	Target Object name or position (e.g. 3C 273, 19 22 58.94 - 54 32 16.8)														
Radius (in arcsec) 5															
			รเ	ubmit											

Access to data by:

- Name
- Cone search, radius

Requirements of time series viewer:

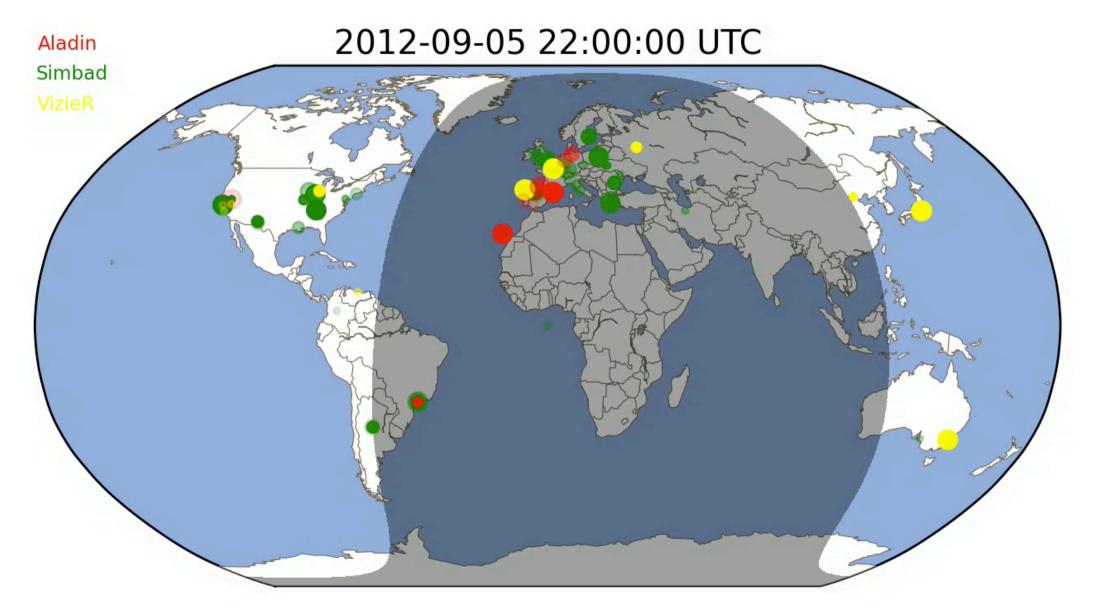
- Photometric data should be associated to time of observation
- Standardization of time partly done
- Any other requirement?

Gaia as predecessor



- CDS is a good vehicle for disseminating the data
- Added value:
 - Longterm curation
 - Excellent visibility
 - VO-compatible
- Several ways of accessing data (VizieR, Aladin, X-match)
- Interoperability with other services (e.g. TOPCAT)





http://cdsweb.u-strasbg.fr/~boch/24-hours-queries/24-hours-queries-at-CDS.mov