SIMBAD

SIMBAD - Overview

- An astronomical object database
  - 7,000,000 objects
  - 17,000,000 identifiers
  - 270,000 bibliographical references
- Queries
  - By object name
  - By coordinates
  - By criteria (250 different criteria)
  - By references (bibcode)
  - Through scripts
  - Through a C language library

SIMBAD – data content

Basic data

HD 3 -- Star in double system

Other object types:	*i* () ,* (HR,AG,AGKR,BD,CSI,FK5,GC,GCRV,C UV (TD1)
ICRS coord. (ep=J2000) :	00 05 09.75853 +45 13 44.5109 (Optical)
FK5 coord. (ep=J2000 eq=2000) :	00 05 09.759 +45 13 44.51 (Optical) [2.
FK4 coord. (ep=B1950 eq=1950) :	00 02 34.99 +44 57 03.6 (Optical) [17.2
Gal coord. (ep=J1900) :	114.4451 -16.8783 (Optical) [34.13 34.1
Proper motions *mas/yr* [error ellipse]:	-26.84 -19.81 [0.34 0.34 0] A 2007A&A...47
Radial velocity / Redshift / cz :	V(km/s) -18 [5] / z(~) -0.000060 [0.00001
Parallaxes *mas*:	7.22 [0.53] A 2007A&A...474..653V
Spectral type:	A1Vn D 2007A&A...463..671R
Fluxes (6) :	U 6.840 [0.010] C 1991A&AS...89..415O
	B 6.770 [0.007] C 1991A&AS...89..415O
	V 6.710 [0.009] C 1991A&AS...89..415O
	J 6.466 [0.029] C 2003yCat.2246....0C
	H 6.481 [0.020] C 2003yCat.2246....0C
	K 6.437 [0.021] C 2003yCat.2246....0C

Identifiers

HR 1	FK5 4009
ADS 46 A	GC 54
AG+44 7	GCRV 35
AGKR 40	GEN# +1.00000003
BD+44 4550	GSC 03246-01952
CCDM J00052+4514A	HD 3
CSI+44 4550 1	HIC 424

References

1994A&AS..104..121H
Astron. Astrophys., Suppl. Ser., 104, 121-143 (1994)
Reliable photometric reductions to the standard UBV (or uvby) system.
HARMANEC P., HORN J. and JUZA K.
Comments & notes:
notes: Objects in IC 4665 and NGC 7092 without cross-id. not identified, not in Simbad.
flags: (abstract)

1993A&AS..101..599C
Astron. Astrophys., Suppl. Ser., 101, 599-619 (1993)
An atlas of Balmer lines (H-delta and H-gamma).
CANANZI K., AUGARDE R. and LEQUEUX J.

1991A&AS...89..415O **[d , 1]**
Astron. Astrophys., Suppl. Ser., 89, 415-419 (1991)
UBV photometry of stars whose positions are accurately known. VI.
OJA T.
Comments & notes:
notes: <in CDS catalogue: II/182>

Measurements

hbet1 (2)

	Hbet	nmes	rrrr	reference
m	2.860	3		1998A&AS..129..431H
	2.860	3		1972A&AS....5..109C

orv (2)

	RVel.	Q	(Nmes)	Rem.	Or Dis	reference
m	-18	C	(6)		##	1953GCRV..C.....0W
	-18.5		(6)			1939PDDO....1...71Y

plx (2)

plx	:m.e R	reference
0.007	:000	2007A&A...474..653V
0.007	:000	1997A&A...323L..49P

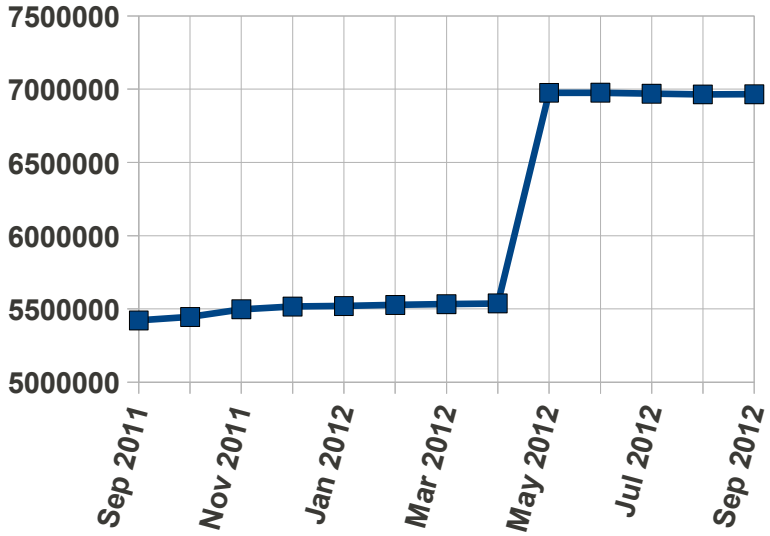
pm (5)

pm-ra [m.e]	pm-de [m.e]	syst	reference
-0.027[0.000]	-0.020[0.000]	ICRS	2007A&A...474..653V
-0.038[0.009]	-0.008[0.008]	FK4	1971IAUCo...7..153L
-0.030[0.002]	-0.011[0.003]	FK4	1978IAUCo..48..505C
-0.016[ ]	-0.017[ ]	FK4	1933GCCat.C.....0B
-0.029[ ]	-0.011[ ]	FK4	1952N30...C.....0M

Simbad – content evolution

- **Object increase over the last 12 months**

  ➔Integration of the Tycho catalogue



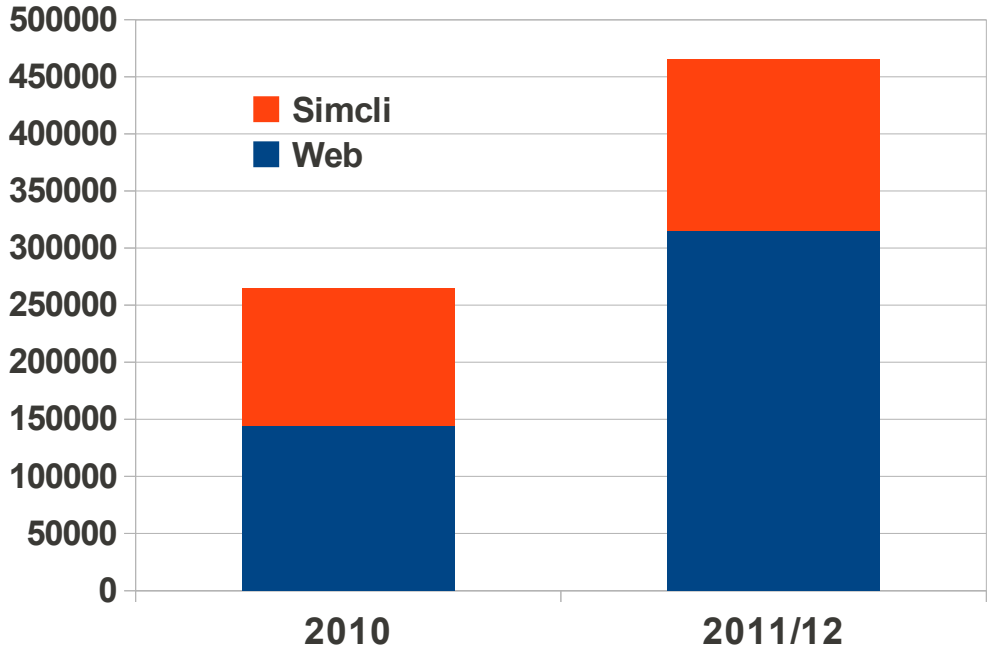
- **Important addition of magnitudes (> 18.5 millions today) in 13 wavelengths**
- **Addition of about 170,000 distance measurements**
- **Hierarchical links implemented for 330,000 objects**

  ➔ Adds new work to the *documentalists*

SIMBAD – Usage statistics

- **Queries/day :**
  - **Web accesses : 315,000 (*2010: 145,000*)**
  - **Simcli (client C library) : 150,000 (*2010: 120,000*)**

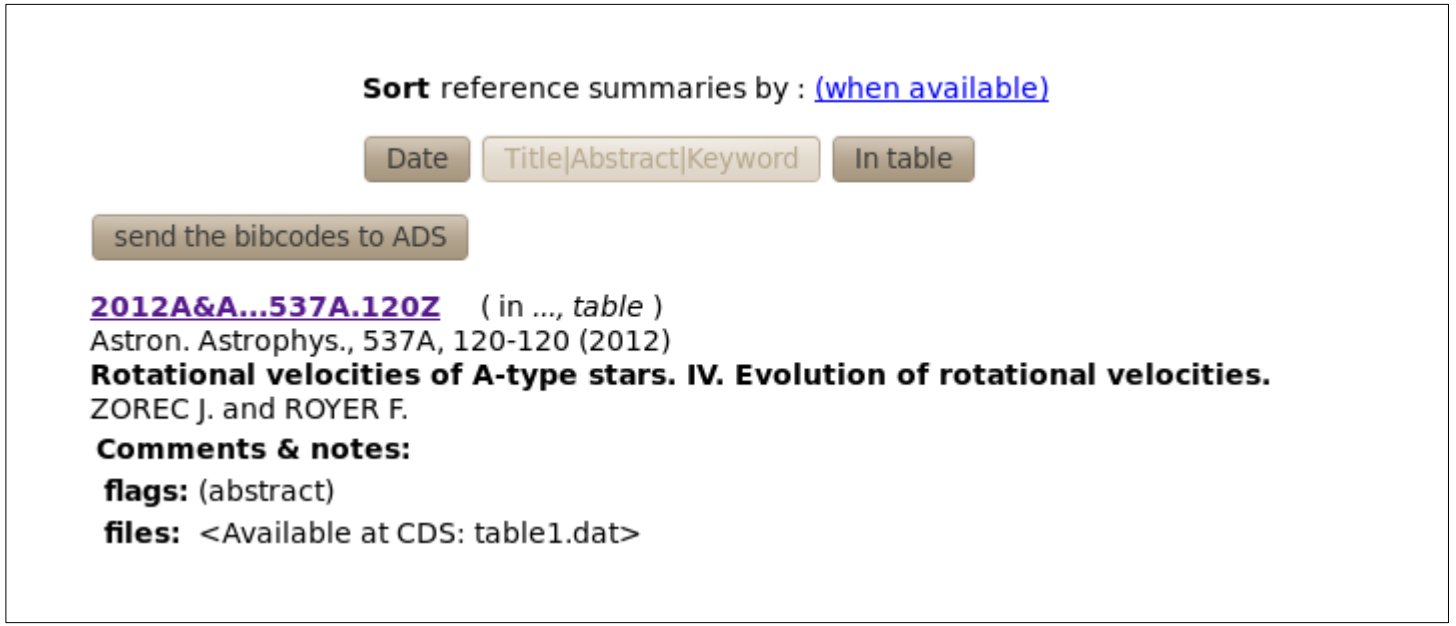
    ➔ 465,000 queries / day



- **Different IP addresses : 2,012,000 (on C classes: 1,084,000)**

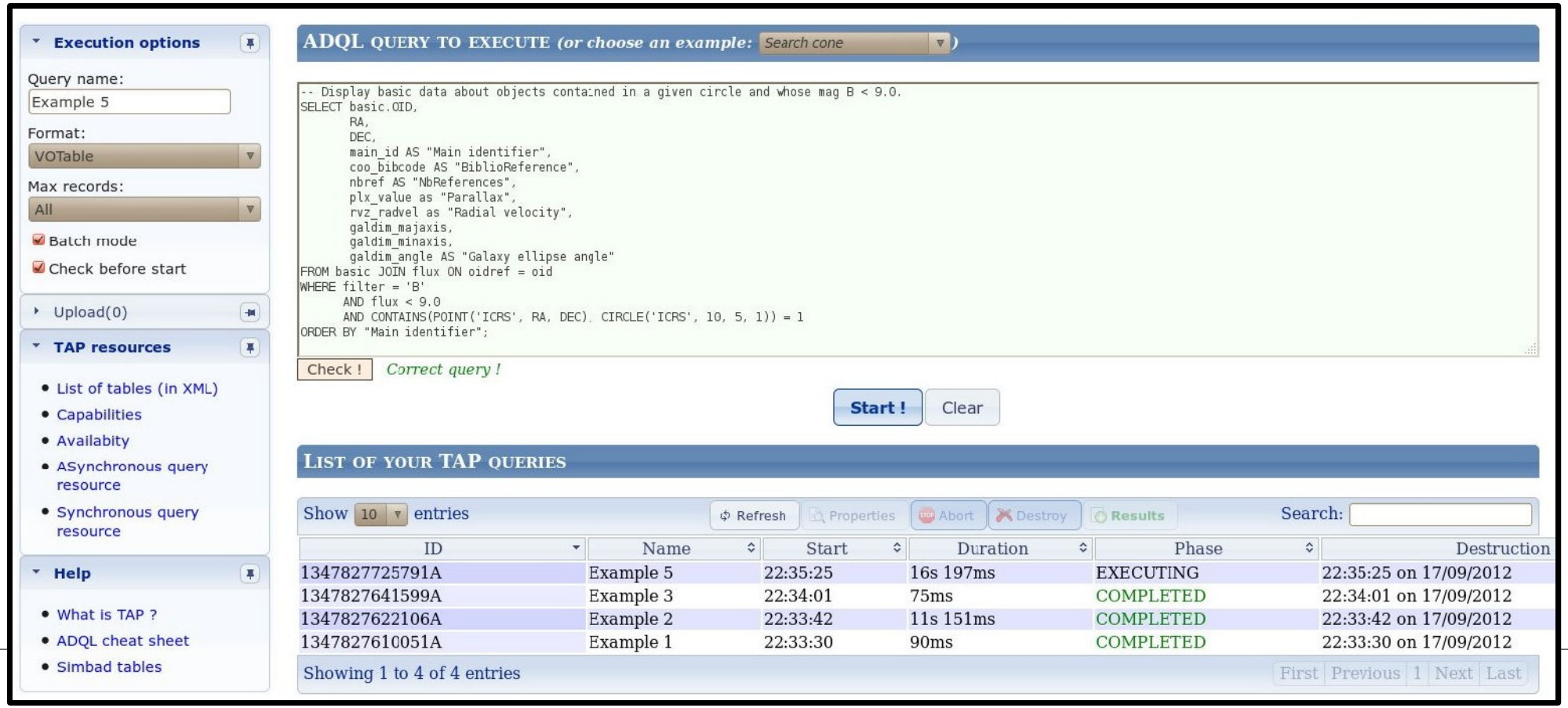
SIMBAD – software evolution : Reference sorting

- **Flags have been added to a couple (object-reference), allowing to sort a list of references**
  - **by date (current situation)**
  - **by presence of the object in the title, the abstract or the list of keywords**
  - **By presence of the object in a table, which means that there is likely additional data available in the paper**

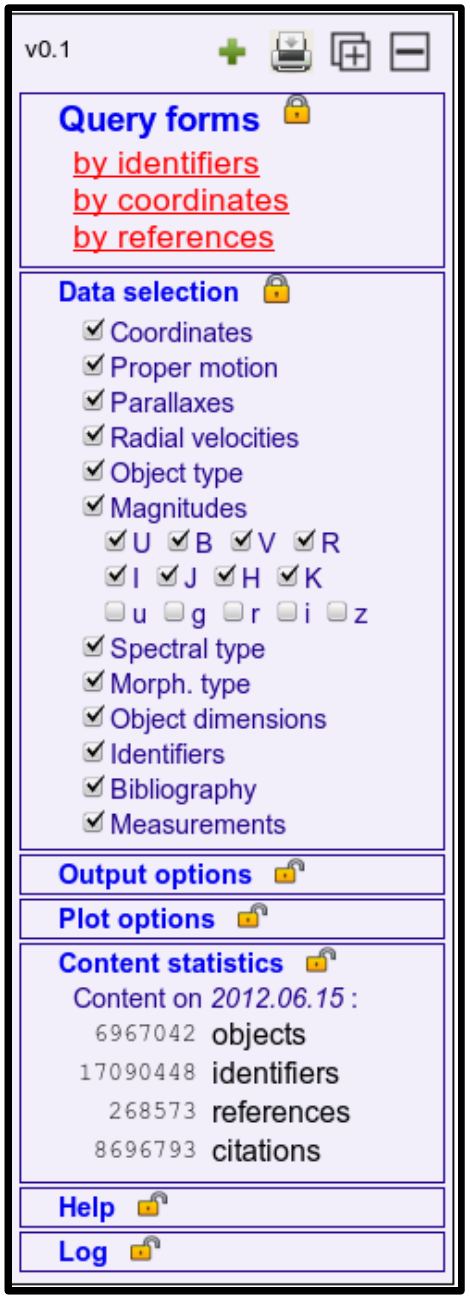


SIMBAD - software evolution : TAP interface

- TAP : Table Access Protocol. An IVOA protocol
- Execute queries using ADQL language, a SQL dialect
- Allows interactive and batch processing
- Implemented in January 2012. Already about 180 queries/day



SIMBAD – software evolution : Web interface



- **A major evolution of the web interface is on-going**
  - **Moving many functionalities from the server side to the user/browser side**
  - **Using HTML5/Javascript/JSON/CSS technologies**
  - **Easier to use and faster response time**

SIMBAD – new Web Interface

- **New features like local statistics, reference filtering**

References (3468)

3468 references from 1987 to 2012 Reset

Search gamma-ray Clear

163 references from 1987 to 2012 containing gamma-ray

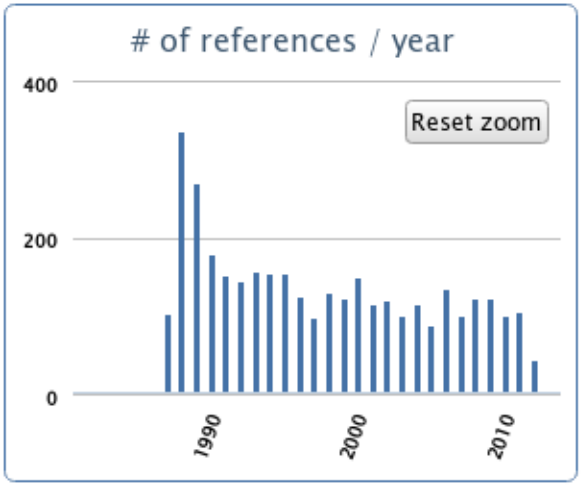
1987ApJ...318L..51C
Calculated gamma-ray line fluxes from the type II supernova 1987A.
CHAN K.W. and LINGENFELTER R.E.
Astrophys. J., 318, L51L0 (1987)

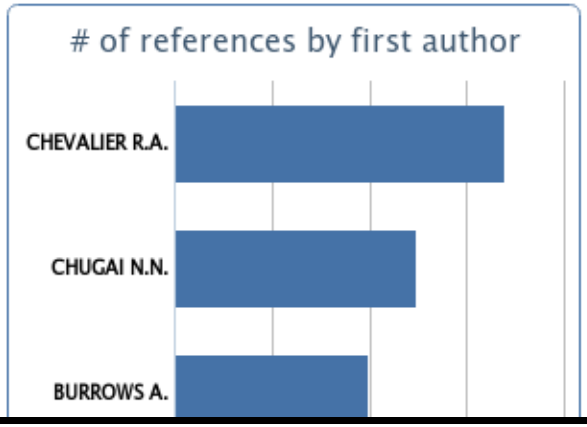
1987ApJ...320L..19G
Prospects for observations of nucleosynthetic gamma-ray lines and continuum from SN 1987A.
GEHRELS N., MacCALLUM C.J. and LEVENTHAL M.
Astrophys. J., 320, L19L0 (1987)

1988A&A...193L..11R
VHE gamma-ray observations of SN 1987A during November 1987.
RAUBENHEIMER B.C., DE JAGER O.C., NEL H.I., NORTH A.R. and VAN URK G.
Astron. Astrophys., 193, L11L0 (1988)

1988A&A...197L...7K
Hard X-rays and gamma-rays from SN 1987A and mixing of the supernova ejecta.
KUMAGAI S., ITOH M., SHIGEYAMA T., NOMOTO K. and NISHIMURA J.
Astron. Astrophys., 197, L7L0 (1988)

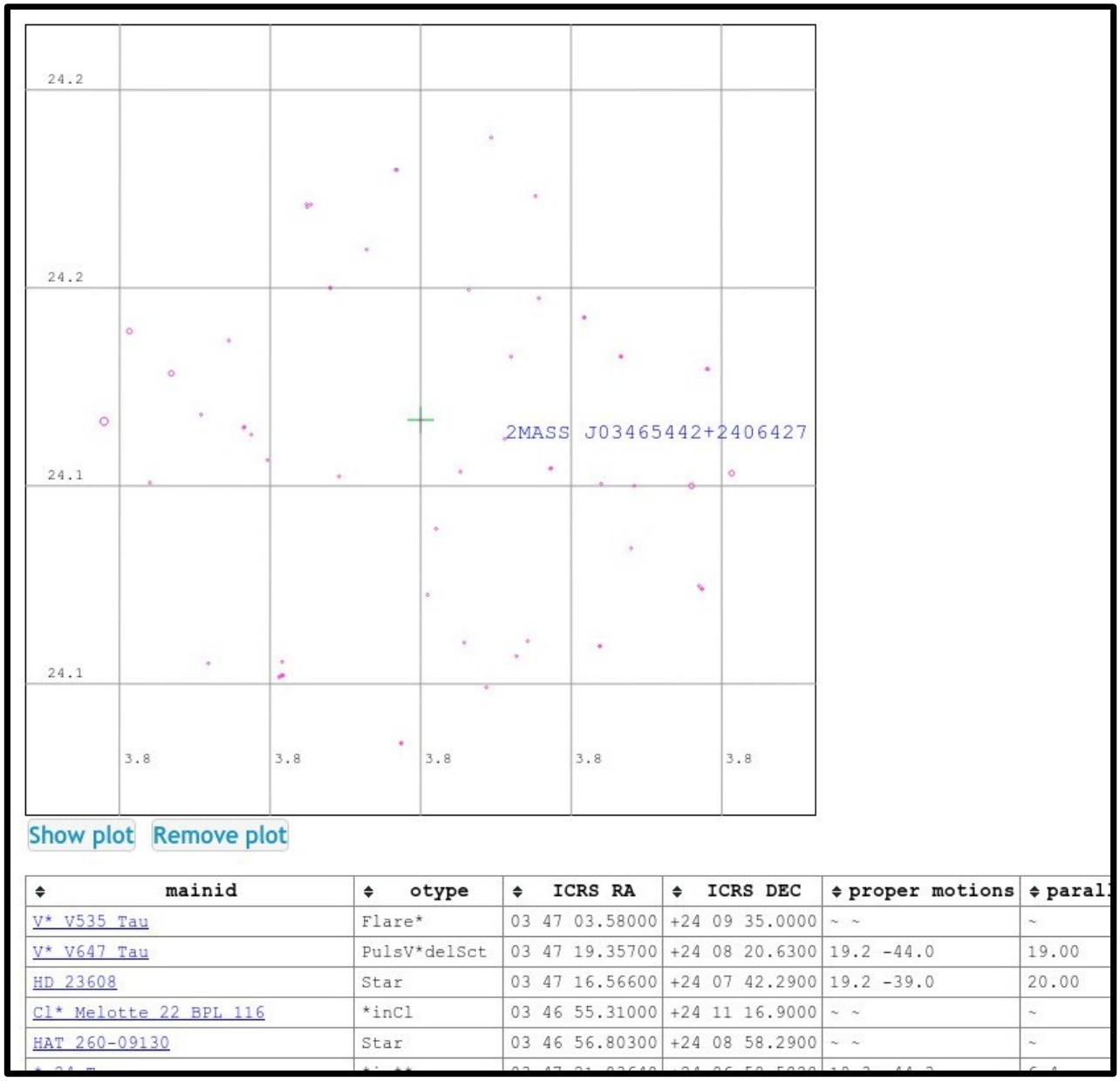
☑ number of references by year
☑ number of references by author
☑ number of references by journal





SIMBAD – new Web interface

- **New interactive chart with very fast creation time**



mainid	otype	ICRS RA	ICRS DEC	proper motions	paral
V* V535 Tau	Flare*	03 47 03.58000	+24 09 35.0000	~ ~	~
V* V647 Tau	PulsV*delSct	03 47 19.35700	+24 08 20.6300	19.2 -44.0	19.00
HD 23608	Star	03 47 16.56600	+24 07 42.2900	19.2 -39.0	20.00
Cl* Melotte 22 BPL 116	*inCl	03 46 55.31000	+24 11 16.9000	~ ~	~
HAT 260-09130	Star	03 46 56.80300	+24 08 58.2900	~ ~	~

SIMBAD – next steps

- **Launching the new web interface in 2013**
- **Rewriting and reorganizing the online help and user's guide**
- **Improving the links between SIMBAD and VizieR**
- **...**