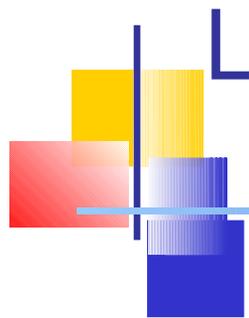


**La gestion  
des données astronomiques  
au Centre de Données astronomique  
de Strasbourg**



Soizick Lesteven



# Le CDS : 40 ans au service de la communauté scientifique

---

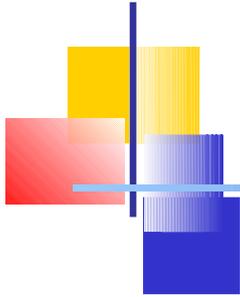
Depuis 1972, les missions du CDS :

- Collecter et stocker l'information "utile" sur les objets astronomiques
- L'améliorer par évaluations et comparaisons
- La distribuer à la communauté internationale
- Effectuer des recherches

Le CDS est dans l'observatoire astronomique de Strasbourg  
UMR 7550 CNRS/UdS

# Le CDS : les bases de données

---



- La base de données de référence mondiale pour l'identification, la nomenclature et la bibliographie des objets astronomiques.

7 millions d'objets, 18 millions d'identifiants,  
~10 millions de citations dans 280.000  
références bibliographiques,  
520.000 requêtes/jour

# SIMBAD



## Etoile polaire

### Basic data :

V\* **alf UMi** -- Classical Cepheid (delta Cep type)  with radius  arcmin

Other object types: `cc* ( ) , *`  
 (\*, AG, BD, CSI, FKS, GC, GCRV, GEN#, GSC, HD, HIC, HIP, HR, JP11, N30, PLX, PMC, PPM, ROT, SAO, SKY#, TYC, UBV)  
 \*\*, (ADS, CCDM, IDS, WDS) , SB\* (SBC7, SBC9) , V\* (V\*, AAVSO) , IR (IRAS) , UV (TD1)

ICRS coord. (ep=J2000) : **02 31 49.09456 +89 15 50.7923 ( Optical ) [ 1.14 0.97 90 ] A [2007A&A...474..653V](#)**

FK5 coord. (ep=J2000 eq=2000) : **02 31 49.095 +89 15 50.79 ( Optical ) [ 1.14 0.97 0 ] A [2007A&A...474..653V](#)**

FK4 coord. (ep=B1950 eq=1950) : **01 48 47.78 +89 01 43.6 ( Optical ) [ 6.60 5.58 0 ] A [2007A&A...474..653V](#)**

Gal coord. (ep=J2000) : **123.2805 +26.4614 ( Optical ) [ 1.14 0.97 0 ] A [2007A&A...474..653V](#)**

Proper motions *mas/yr* [error ellipse]: **44.48 -11.85 [0.11 0.13 0] A [2007A&A...474..653V](#)**

Radial velocity / Redshift / cz : **V(km/s) -17.4 [0.9] / z(-) -0.000058 [0.000003] / cz -17.40 [0.90] (-) A [1953GCRV..C.....0W](#)**  
**7.54 [0.11] A [2007A&A...474..653V](#)**

Parallaxes *mas*: **7.54 [0.11] A [2007A&A...474..653V](#)**

Spectral type: **F7: Ib-IIv C -**

Fluxes (2) : **B 2.591 [-] C -**  
**V 2.005 [-] C -**

- essential notes:
- see also [NAME POLARIS CIRRUS CLOUD](#) [ 01-Jan-2000 ]
  - see also [NAME POLARIS FLARE](#) [ 01-Jan-2000 ]

## Identifiers (39) :

<a href="#">V*</a> <b>alf UMi</b>	<a href="#">GCRV</a> <b>1037</b>	<a href="#">N30</a> <b>381</b>	<a href="#">SBC7</a> <b>51</b>
<a href="#">*</a> <b>1 UMi</b>	<a href="#">GEN#</a> <b>+1.00008890A</b>	<a href="#">NAME</a> <b>Lodestar</b>	<a href="#">SBC9</a> <b>76</b>
<a href="#">*</a> <b>alf UMi</b>	<a href="#">GSC</a> <b>04628-00237</b>	<a href="#">NAME</a> <b>NORTH STAR</b>	<a href="#">SKY#</a> <b>3738</b>
<a href="#">ADS</a> <b>1477 A</b>	<a href="#">HD</a> <b>8890</b>	<a href="#">NAME</a> <b>POLARIS</b>	<a href="#">TD1</a> <b>835</b>
<a href="#">AG+89</a> <b>4</b>	<a href="#">HIC</a> <b>11767</b>	<a href="#">PLX</a> <b>299</b>	<a href="#">TYC</a> <b>4628-237-1</b>
<a href="#">BD+88</a> <b>8</b>	<a href="#">HIP</a> <b>11767</b>	<a href="#">PLX</a> <b>299.00</b>	<a href="#">UBV</a> <b>21589</b>
<a href="#">CCDM</a> <b>J02319+8915A</b>	<a href="#">HR</a> <b>424</b>	<a href="#">PMC</a> <b>90-93 640</b>	<a href="#">UBV M</a> <b>8201</b>
<a href="#">CSI+88</a> <b>8 1</b>	<a href="#">IDS</a> <b>01226+8846 A</b>	<a href="#">PPM</a> <b>431</b>	<a href="#">WDS</a> <b>J02318+8916Aa, Ab</b>
<a href="#">FK5</a> <b>907</b>	<a href="#">IRAS</a> <b>01490+8901</b>	<a href="#">ROT</a> <b>3491</b>	<a href="#">AAVSO</a> <b>0122+88</b>
<a href="#">GC</a> <b>2243</b>	<a href="#">JP11</a> <b>498</b>	<a href="#">SAO</a> <b>308</b>	

### References (490 between 1850 and 2013)

Simbad bibliographic survey began in 1950 for stars (at least bright stars) and in 1983 for all other objects (outside the solar system).

from:  to:

Sort reference summaries by : not exhaustive, [explanation here](#)

[2012A&A...538A.24G](#) [ o x , 1 ]  
 Astron. Astrophys., 538A, 24-24 (2012)  
**Thermal infrared properties of classical and type II cepheids. Diffraction limited 10 {mu}m imaging with VLT/VISIR.**

GALLENNE A., KERVELLA P. and MERAND A.

#### Comments & notes:

flags: (abstract)

[2012A&A...538A.27L](#) [ x , 1 ]  
 Astron. Astrophys., 538A, 27-27 (2012)

**Rotational excitation of simple polar molecules by H<sub>2</sub> and electrons in diffuse clouds.**

LISZT H.S.

#### Comments & notes:

flags: (abstract)

[2012A&A...538A.143K](#) [ d , 1 ]  
 Astron. Astrophys., 538A, 143-143 (2012)

**Stellar population models in the UV. I. Characterisation of the new generation stellar library.**

KOLEVA M. and VAZDEKIS A.

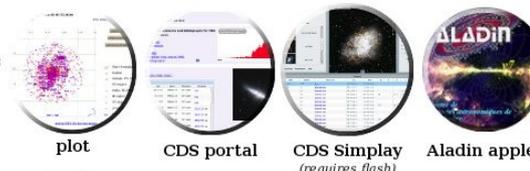
#### Comments & notes:

flags: (abstract)

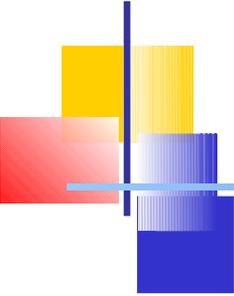
files: <Available at CDS: param.dat refs.dat>



Plots and Images



radius  arcmin



# Le CDS : les bases de données

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- La base de données de référence mondiale pour l'identification, la nomenclature et la bibliographie des objets astronomiques.

7 millions d'objets, 18 millions d'identifiants,  
~10 millions de citations dans 280.000  
références bibliographiques,  
520.000 requêtes/jour



- La collection des catalogues astronomiques et *des tables publiées dans les journaux de la discipline.*

VizieR : >36.500 tables ou catalogues de  
données, de mesures, de spectres, ...  
600.000 requêtes/jour.

# VizieR



Find catalogs among 11550 available

Clear  Find...

Expand search

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

Search for catalogs by column descriptions (UCD)

Hide catalogs containing additional data

time serie  spectrum  images  cube  SED (Spectral Energy Distribution)  none

Search by Position across 12024 tables

Target Name (resolved by [Sesame](#)) or Position:

Target dimension:  arcmin

Radius  Box size

## 20 catalogs found

ALL	Reset All	Show table details	or	Query selected Catalogs
<input type="checkbox"/>	<a href="#">III/157</a>	<a href="#">(6)</a>	An Ultraviolet Atlas of Quasar and Blazar Spectra (Kinney+, 1991)	<a href="#">ReadMe+ftp</a>
<input type="checkbox"/>	<a href="#">VII/241</a>	<a href="#">(6)</a>	The 2dF QSO Redshift Survey (Croom+ 2004)	<a href="#">ReadMe+ftp</a>
<input type="checkbox"/>	<a href="#">J/ApJ/640/579</a>	<a href="#">(6)</a>	Near-infrared spectra of 27 SDSS quasars (Glikman+, 2006)	<a href="#">ReadMe+ftp</a>
<input type="checkbox"/>	<a href="#">J/ApJ/643/680</a>	<a href="#">(6)</a>	Imaging and spectroscopy around PKS 0405-123 (Prochaska+, 2006)	<a href="#">ReadMe+ftp</a>
<input type="checkbox"/>	<a href="#">J/ApJ/666/806</a>	<a href="#">(6)</a>	SED of Spitzer quasars (QUEST) (Netzer+, 2007)	<a href="#">ReadMe+ftp</a>
<input type="checkbox"/>	<a href="#">J/ApJ/675/49</a>	<a href="#">(6)</a>	High-redshift QSOs in the SWIRE survey (Siana+, 2008)	<a href="#">ReadMe+ftp</a>
<input type="checkbox"/>	<a href="#">J/ApJ/697/182</a>	<a href="#">(6)</a>	Dust emission from unobscured AGN (Thompson+, 2009)	<a href="#">ReadMe+ftp</a>
<input type="checkbox"/>	<a href="#">J/ApJ/732/110</a>	<a href="#">(6)</a>	SDSS 2175Å extinction bump candidates (Jiang+, 2011)	<a href="#">ReadMe+ftp</a>
<input type="checkbox"/>	<a href="#">J/ApJ/732/116</a>	<a href="#">(6)</a>	IR spectra of γ-ray bright blazars (Malmrose+, 2011)	<a href="#">ReadMe+ftp</a>
<input checked="" type="checkbox"/>	<a href="#">J/ApJ/736/42</a>	<a href="#">(6)</a>	HST QSO Catalog (Ribaud+, 2011)	<a href="#">ReadMe+ftp</a>

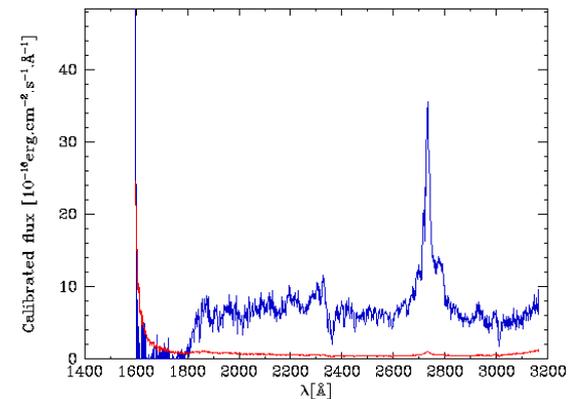
[J/ApJ/736/42/tables](#) [HST QSO Catalog \(Ribaud+, 2011\)](#) [2011ApJ...736...42R](#) [ReadMe+ftp](#)

[Post annotation](#) QSOs observed with STIS and FOS and a few observation details (312 rows)

Full	RAJ2000 "h:m:s"	DEJ2000 "d:m:s"	QSO	sp	RAJ2000 deg	DEJ2000 deg	z	GLON deg	GLAT deg	FileName	Inst	Grat
1	00 21 33.26	+00 43 00.7	J0021+0043	sp	005.38860	+00.71687	1.243	107.25376	-61.24186	stis/j0021+0043a.dat	STIS	G230L
2	00 21 27.89	+01 04 20.1	J0021+0104	sp	005.36619	+01.07225	1.829	107.38476	-60.89146	stis/j0021+0104a.dat	STIS	G230L
3	01 06 03.88	+01 05 06.2	J0106+0105	sp	016.51618	+01.08506	1.611	130.62865	-61.56786	stis/j0106+0105a.dat	STIS	G230L
4	01 07 37.05	-00 19 11.9	J0107-0019	sp	016.90437	-00.31997	0.738	131.84292	-62.91140	stis/j0107-0019a.dat	STIS	G230L
5	01 10 56.94	+00 19 11.2	J0110+0019	sp	017.73724	+00.31978	0.806	133.42027	-62.15394	stis/j0110+0019a.dat	STIS	G230L
6	01 16 15.53	-00 43 35.3	J0116-0043	sp	019.06470	-00.72648	1.273	136.67287	-62.93410	stis/j0116-0043a.dat	STIS	G230L
7	01 23 03.22	-00 58 19.4	J0123-0058	sp	020.76341	-00.97205	1.550	140.41613	-62.76559	stis/j0123-0058a.dat	STIS	G230L
8	01 26 30.35	-01 05 01.0	J0126-0105	sp	021.62647	-01.08362	1.609	142.28996	-62.62992	stis/j0126-0105a.dat	STIS	G230L
9	01 32 33.88	+01 16 07.1	J0132+0116	sp	023.14115	+01.26864	1.786	143.79277	-59.92684	stis/j0132+0116a.dat	STIS	G230L
10	01 34 05.74	+00 51 09.6	J0134+0051	sp	023.52393	+00.85268	1.522	144.78842	-60.19627	stis/j0134+0051a.dat	STIS	G230L

Tables publiées dans les articles  
+ autres données

STIS spectrum of [J0021+0043](#) (in  $10^{-16} \text{erg.cm}^{-2} \cdot \text{s}^{-1} \cdot \text{\AA}^{-1} = \text{aW/m}^2/\text{nm}$ )



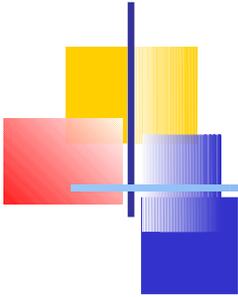
Postscript Figure

Data as a Table

Summary	ReadMe	VizieR	Browse	FTP	Int																				
<p><b>J/ApJ/736/42</b> HST QSO Catalog (Ribaud+, 2011)</p> <p>A Hubble space telescope study of Lyman limit systems: census and evolution. Ribaudo J., Lehner N., Hawk J.C. &lt;astrophys.j., 736, 42 (2011)&gt; =2011ApJ...736...42R</p> <p><b>ABC_Keys:</b> QSOs ; Spectra, ultraviolet</p> <p><b>Keywords:</b> intergalactic medium; quasars; absorption lines</p> <p><b>Abstract:</b> We present a survey for optically thick Lyman limit absorbers at z&lt;2.6 using archival Hubble Space Telescope observations with the Point Object Spectrograph and Space Telescope Imaging Spectrograph. We identify 206 Lyman limit systems (LLS), increasing the number of cataloged LLS at z&lt;2.6 by a factor of ~10.</p> <p><b>Description:</b> The HST QSO Catalog combines archival observations of QSOs to provide the largest source of HST observed QSOs in the literature. This catalog was an essential component of the large survey for low redshift Lyman limit systems produced by Ribaudo et al. Included in our sample, but not reproduced here, are the QSO observations from Bechtold et al. (2002, Cat. <a href="#">J/ApIS/140/143</a>).</p> <p><b>File Summary:</b></p> <table border="1"> <thead> <tr> <th>FileName</th> <th>Rec1</th> <th>Records</th> <th>Explanations</th> </tr> </thead> <tbody> <tr> <td>ReadMe</td> <td>80</td> <td></td> <td>This file</td> </tr> <tr> <td>tables.dat</td> <td>98</td> <td>312</td> <td>OSOs observed with STIS and FOS and a few observation details</td> </tr> <tr> <td>stis/*</td> <td>48</td> <td>230</td> <td>Individual spectra from STIS</td> </tr> <tr> <td>fos/*</td> <td>45</td> <td>79</td> <td>Individual spectra from FOS (Costar) (and from FOS (Pre-Costar) (*c.dat) [frecdoc13.odp]</td> </tr> </tbody> </table>						FileName	Rec1	Records	Explanations	ReadMe	80		This file	tables.dat	98	312	OSOs observed with STIS and FOS and a few observation details	stis/*	48	230	Individual spectra from STIS	fos/*	45	79	Individual spectra from FOS (Costar) (and from FOS (Pre-Costar) (*c.dat) [frecdoc13.odp]
FileName	Rec1	Records	Explanations																						
ReadMe	80		This file																						
tables.dat	98	312	OSOs observed with STIS and FOS and a few observation details																						
stis/*	48	230	Individual spectra from STIS																						
fos/*	45	79	Individual spectra from FOS (Costar) (and from FOS (Pre-Costar) (*c.dat) [frecdoc13.odp]																						

# Le CDS : les bases de données

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- L'Atlas interactif du ciel qui permet aux utilisateurs de visualiser et de manipuler les images astronomiques (stockées à Strasbourg ou dans les archives d'observatoires).  
30 To d'images en ligne, 30.000 requêtes/jour

# Aladin



Aladin v7.0

File Edit Image Catalog Overlay Tool View Interop Help

Location 12:39:48.88 - 11:37:53.9

Frame ICRS

Alksy opt Alksy IR DSS Simbad NED PPMX 2MASS MyBookmark

SERC.J.D581.717 1.545

M104

Zoom 2x

Search 60

city	Redshift	Mag	Separ.	Ref	Note
...	...	20.2B	2.869	2	0
...	...	...	2.918	2	0
0	30	13			
2	12	0			20.2

5 sel / 844 src 12Mb

Server selector

Others File Allsky all VO FOV Sextractor Watch

Image servers

Aladin image server ?

Step 1: Specify a target/radius and press SUBMIT

Target (ICRS coord., obj.) M104

Search cone..... 0 arcmin

>>> Step 2: load one or several images

by list or tree

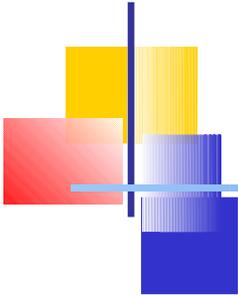
<input type="checkbox"/>	2MASS	H (IR H)	8.6' x 17.1'	990106S_HI1120021	1.1
<input type="checkbox"/>	2MASS	J (IR J)	8.6' x 17.1'	990106S_JI1120021	1.1
<input type="checkbox"/>	SERC	I-DSS2(0.807um)	13.0' x 13.0'	717	1.1
<input type="checkbox"/>	POSSI	0-DSS2(0.645um)	13.0' x 13.0'	736	1.1
<input checked="" type="checkbox"/>	SERC	J-DSS1(0.468um)	14.2' x 14.2'	717	1.7
<input type="checkbox"/>	SERC	J-DSS1(0.468um)	1.7" x 1.7"	717-LOW	6.8
<input type="checkbox"/>	SERC	I-DSS2(0.807um)	6.5" x 6.5"	717-PLATE	24.
<input type="checkbox"/>	POSSI	0-DSS2(0.645um)	6.5" x 6.5"	736-PLATE	24.
<input type="checkbox"/>	SERC	J-DSS1(0.468um)	6.7" x 6.7"	717-PLATE	27.
<input type="checkbox"/>	IRAS-IRIS	2SMU(25.0um)	12.5" x 12.5"	I181B2HO	1.5

Default image format:  JPEG  FITS

Reset Clear Help SUBMIT Close

# Le CDS : les bases de données

---



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30 To d'images en ligne, 30.000 requêtes/jour



- Dictionnaire de nomenclature des objets célestes  
>20.000 acronymes

# Le dictionnaire de la nomenclature des objets célestes


[Portal](#) [Simbad](#) [VizieR](#) [Aladin](#) [X-Match](#) [Other](#) [Help](#)

## Dictionary of Nomenclature of Celestial Objects

(Last update: 24-Sep-2013)

Designations of astronomical objects are often confusing. Astronomical designations (also called Object Identifiers) have been collected and published by Lortet and collaborators in *Dictionaries of Nomenclature of Celestial Objects outside the solar system* ([Bibliography](#)). This *Info service* is the electronic look-up version of the *Dictionary* which is updated on a regular basis: it provides full references and usages about 21379 different acronyms.

To find out the meaning of specific acronyms or related references, choose and fill the form below; the words you type in the box are *anded*, i.e. the acronyms matching *all words* will be displayed.

Choose one of:  Object class  CDS home

Select the output layout:  Default  SIMBAD Usage

Select the number of answers:

[How to refer to a source or designate a new one](#) is a short document from the IAU Commission 5 which provides basic advices in this topic. [A concerning designations for astronomical radiation sources outside the solar system](#) complete definitions and examples.

If you are preparing a new catalogue, we wish to encourage to [register for an acronym](#) new objects become referenced (even informally).

This service is mirrored at: [Tokyo, Japan](#) · [CFA/Harvard, USA](#) · [INASAN, Russia](#)

Result of query: info cato (I^ ( I\*( I)\*YSO

Obj. Type	Acronym	Explanation	Format
? (NAME Ass Cep OB 3b)	<a href="#">[AGK2012]</a>	(Allen+Gutermuth+Kryukova+2012)	[AGK2012] JH#MSS.ss+DDMMSS.s [AGK2012] Cep OB3b East [AGK2012] Cep OB3b West
E+ YSO (NAME RHO OPH CLOUD)	<a href="#">[AMD2002]</a>	(Allen+Myers+Di Francesco+2002)	[AMD2002] JH#MSS+DDMMSSA
+ Candidate_YSO (Barnard 59)	<a href="#">[BHB2007]</a>	(Brooke+Huard+Bourke+2007)	[BHB2007] NN
E YSO (NAME RHO OPH CLOUD)	<a href="#">[BHM2012b]</a>	(Barsony+Haisch+Marsh+2012)	(not yet in Simbad)
+ YSO (NAME ORION NEBULA)	<a href="#">[BSD98]</a>	(Bally+Sutherland+Devine+1998)	[BSD98] NN
E Candidate_YSO (SMC = SMC)	<a href="#">[BSS2007]</a>	(Bolatto+Simon+Stanimirovic+2007)	[BSS2007] NNW
E ? in...	<a href="#">[CAH2008]</a>	(Chavarría+Allen+Hora+2008)	[CAH2008] DD.ddddd+DD.ddddd [CAH2008] JH#MSS.s+DDMMSS.s [CAH2008] GLLL.ll+B.bb
Radio (LDN 723)	<a href="#">[CAR2008]</a>	(Carrasco-Gonzalez+Anglada+Rodriguez+2008)	[CAR2008] VLA 2Aa [CAR2008] wN
+ YSO (NAME CHA I)	<a href="#">[CCE98]</a>	(Cambresy+Copet+Epchtein+1998)	[CCE98] 1-NNN [CCE98] 2-NN
E IR (LHA 120-N 44 = LHA 120-N 44)	<a href="#">[CCG2009]</a>	(Chen+Chu+Gruendl+2009)	[CCG2009] JH#MSS.s+DDMMSS.s
Star (Cl Terzan 5)	<a href="#">[CDJ2011]</a>	(Clapson+Domainko+Jamrozny+2011)	(not yet in Simbad)
E+ YSO	<a href="#">[CG2010]</a>	(Connelley+Greene 2010)	[CG2010] IRAS H#Hm+DDMM(W) [CG2010] IRAS 04181+2655(M) [CG2010] IRAS H#Hm+DDMM(WN) [CG2010] IRAS H#Hm+DDMM(N)



> 20000 acronymes  
+ 800 acronymes / an


[Portal](#) [Simbad](#) [VizieR](#) [Aladin](#) [X-Match](#) [Other](#) [Help](#)

## Dictionary of Nomenclature of Celestial Objects

Details on Acronym: [\[CG2010\]](#)

**[CG2010]** (Connelley+Greene, 2010)

**Write:** <<[CG2010] IRAS H#Hm+DDMM(W)>>  
<<[CG2010] IRAS 04181+2655(M)>>  
<<[CG2010] IRAS H#Hm+DDMM(WN)>>  
<<[CG2010] IRAS H#Hm+DDMM(N)>>

N: 50

**Object:** YSO ([SIMBAD class](#): YSO = Young Stellar Object)

Stat: is **completely incorporated in Simbad**

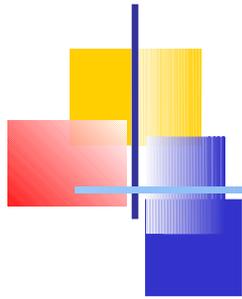
**Note:** NASA IRTF spectroscopic observations of Class I YSOs.

**Ref:** =[2010AJ...140.1214C](#)  
by CONNELLEY M.S. , GREENE T.P.  
Astron. J., 140, 1214-1240 (2010)  
*A near-infrared spectroscopic survey of class I protostars.*

- several IRAS names fixed in table2
- Table 1: <[CG2010] IRAS H#Hm+DDMM(W)>, <[CG2010] IRAS H#Hm+DDMM(WN)>, <[CG2010] IRAS H#Hm+DDMM(N)> N=50.

**=E=** Catalogue in electronic form as <[AJ/140/1214/>

**Origin** of the Acronym: **S** = Created by Simbad, the CDS Database

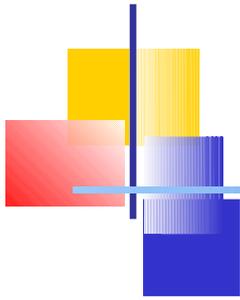


# Objectifs

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Fournir aux astrophysiciens des ressources nécessaires à leurs recherches :

- Tenir compte de l'évolution de la recherche pour faire évoluer le contenu des bases.
- Tenir compte des évolutions technologiques pour faire évoluer les systèmes de bases de données et les interfaces utilisateurs.
- Tenir de l'augmentation continue du volume de données à traiter.



# Evolution permanente



1972

1980

1990

TOC

1993

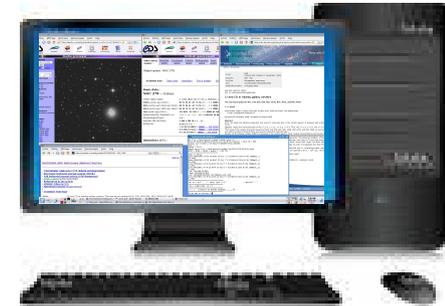
Articles en ligne

1998

2006

DJIN

2008



Cartes perforées

alpha 20 → vt100 → terminal X → PC



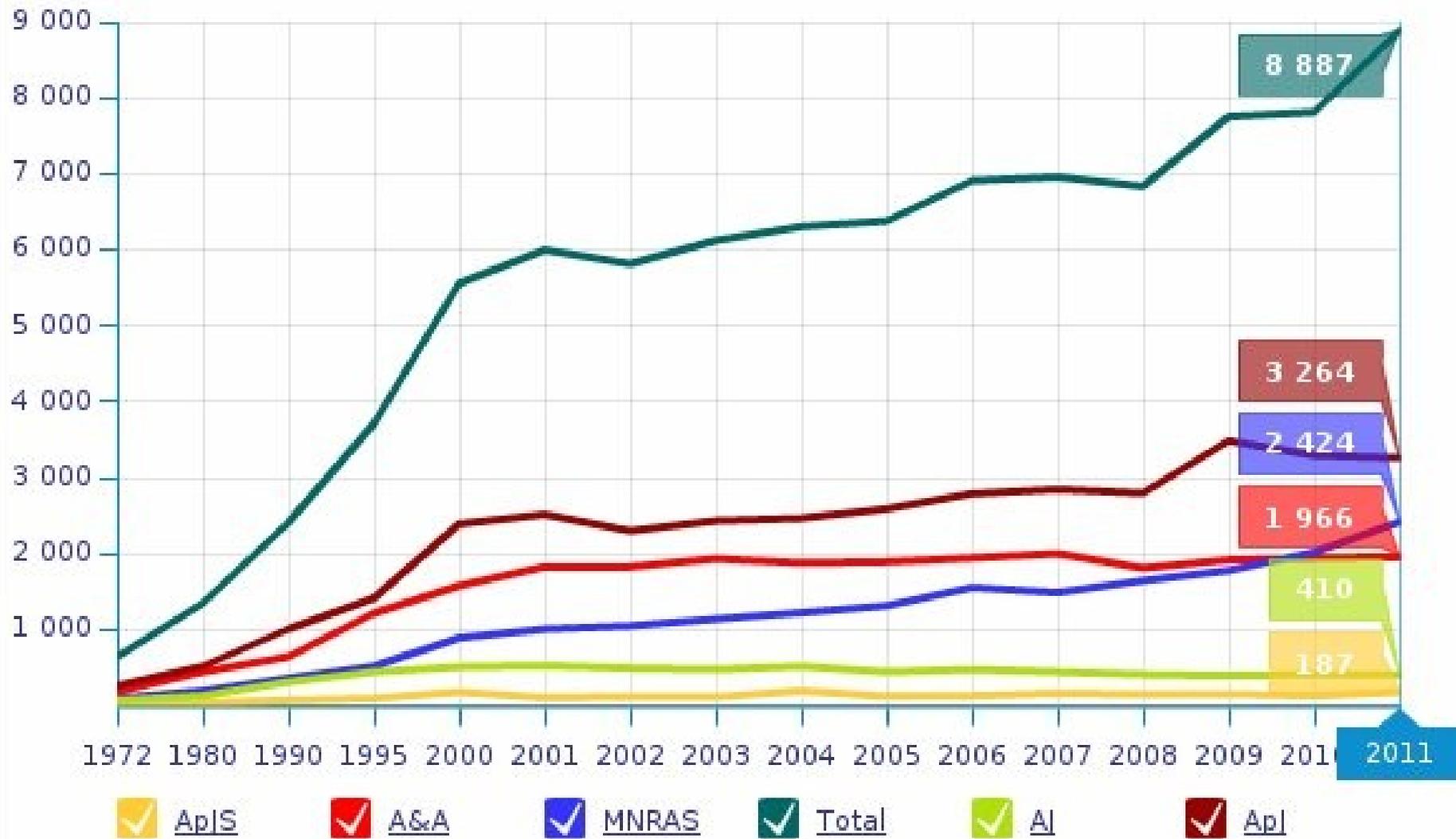
CSI

SIMBAD2

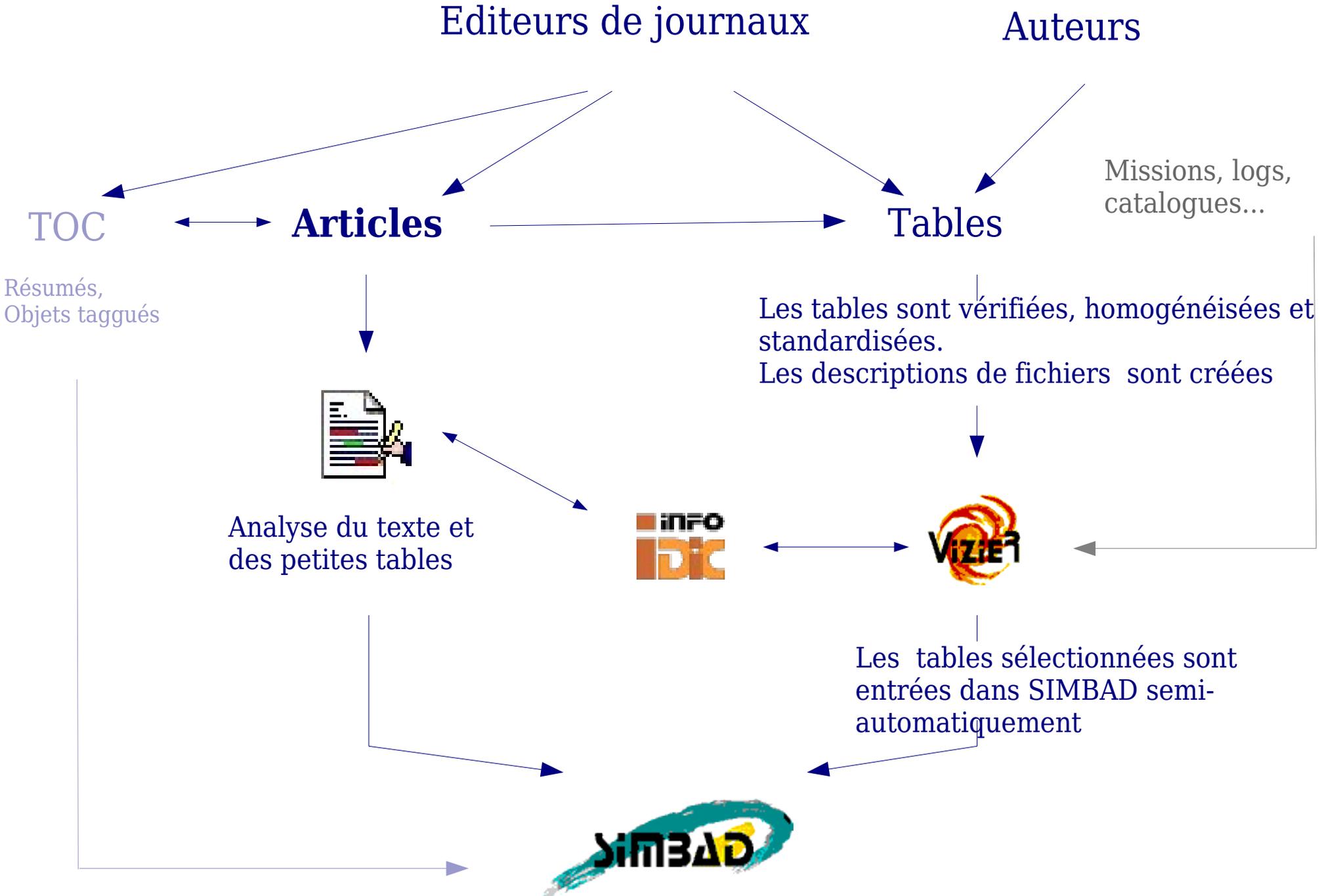
SIMBAD3

SIMBAD4

Number of references by journal (1972 - 2011)



# La construction du contenu



# DJIN

2009A&A...508..371H

Raw PDF document

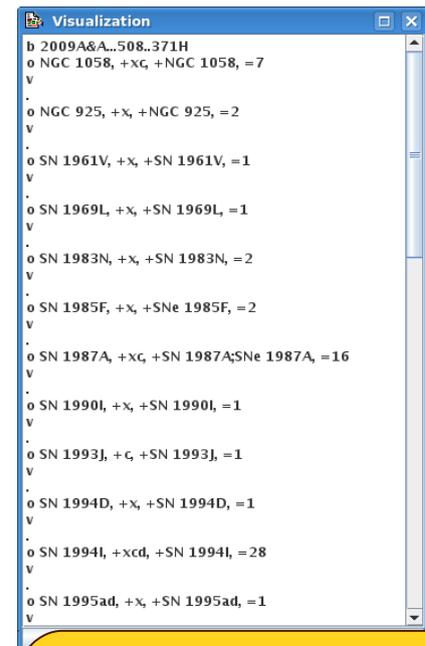
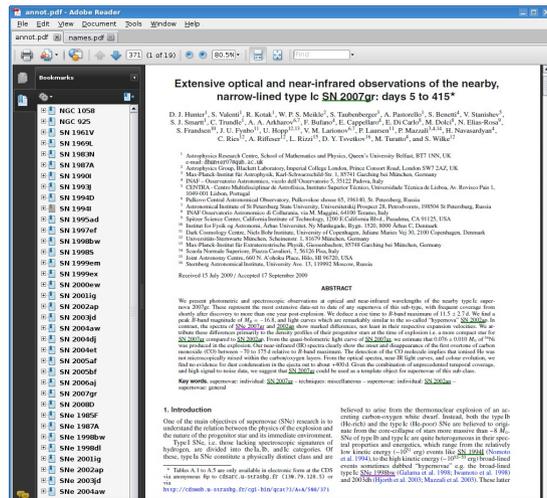
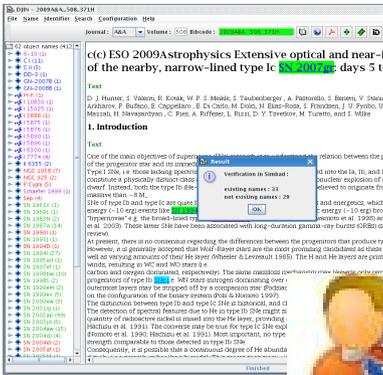
Dictionary of nomenclature

Detection of astronomical objects

Extraction of the text



Working document



Update



Annotated document

Identifiers list

- 62 object names (412)
- 6-10 (1)
- C I (11)
- C II (3)
- DD-3 (1)
- GN-2007B (1)
- GN-2008B (1)
- H-K (1)
- I 10830 (1)
- I 15025 (1)
- I 3888 (1)
- I 5875 (1)
- I 5876 (1)
- I 5890 (1)
- I 5896 (1)
- I 6300 (1)
- I 7774 (4)
- II 6355 (2)
- NGC 1058 (7)
- NGC 925 (2)
- P Cygni (5)
- Schafer 1999 (1)
- Sep (4)
- SN 1961V (1)
- SN 1969L (1)
- SN 1983N (2)
- SN 1987A (14)
- SN 1990I (1)
- SN 1993J (1)
- SN 1994D (1)
- SN 1994I (27)
- SN 1995ad (1)
- SN 1997ef (1)
- SN 1998bw (10)
- SN 1998S (2)
- SN 1999em (2)
- SN 1999ex (5)
- SN 2000ew (3)
- SN 2001ig (1)
- SN 2002ap (49)
- SN 2003jd (6)
- SN 2004aw (15)
- SN 2004dj (4)
- SN 2004et (2)
- SN 2005af (1)
- SN 2005bf (1)
- SN 2006aj (4)
- SN 2007qr (159)

Fig. 7. Evolution of the optical spectra of [SN 2007qr](#). The spectra have been corrected for reddening,  $E(B - V)_r = 0.092$ , and for the host galaxy redshift of [NGC 1058](#),  $z = 0.001728$ . The spectra have also been magnified and displaced vertically for clarity by the numbers shown in brackets.

Identifications are shown in the spectra of [SN 2007qr](#) at [Fig. 8](#). Comparison of spectra of SNe close to B-band maximum (left) and at maximum light (right). All spectra are de-reddened and vertically displaced for clarity. The lines in the right-hand panel next to [SN 2007qr](#) are identified as in [SN 2007qr](#), while the other SNe show a variety of features. The velocities of the SNe shown here, with the [CI](#) lines, are given in Table 2. The [P-Cygni](#) absorptions of Na I D ( $\lambda$  5891,  $\lambda$  5897), O I ( $\lambda$  7774) and the Ca II near-IR triplet are clearly visible in the spectra. The [P-Cygni](#) absorption lines are indicated in the right panel. The [CI](#) lines are described in Sect. 5.2, with the exception of type Ia SNe. The [CI](#) lines are from references listed in Table 2 with the exception of [SN 2006sa](#) (Mazzali et al. 2007; Taubenberger et al. 2009) and [SN 1999ex](#) (Valenti et al., in prep.). The spectra of the type Ib [SNe 2007Y](#) (Stritzinger et al. 2009) and 1985F (Filippenko & Sargent 1986), and the type IIb [SN 1993J](#) (Fransson et al. 2005) have also been used. They were corrected for extinction before the measurements were made.

Fig. 11. Left: the profiles of [O I] 6300, 6364 and Mg I] 4571 at +158 d past B maximum. The profile of [O I] is plotted in velocity space using a rest wavelength of 6315 Å, as obtained via Gaussian fitting from the modified profile of [O I] in the normal and low-density limits, 1:1, 3:1. The Mg I] profile includes the contribution of an artificial component with an intensity ratio of 1 and 0.33 (top and bottom panel, respectively) relative to the real peak and the same velocity offset as found in the oxygen doublet. The peaks of the Mg I] profiles have been scaled to match the peak of the oxygen doublet at +158 d. Centre: evolution of forbidden [O I] 5577, Mg I] 4571 and [O I] 6300, 6364. Right: evolution of the profiles of the permitted lines of O I] 7774 Å and Mg I] 15025 Å. The vertical line in the panels correspond to zero velocity i.e. the rest wavelengths of the line profiles.

Fig. 12. The near-infrared spectral evolution of [SN 2007qr](#). The spectra are displayed in the rest frame of [NGC 1058](#). To increase the temporal coverage we include the spectrum obtained by Valenti et al. (2008a) on day +15. The +376.6 d spectrum has been smoothed with a box size of 5 pixels. The spectra have been displaced vertically for clarity by the numbers shown in brackets. The rest wavelengths of possibly identified lines are also included.

Fig. 13. Comparison of the near-IR spectra of [SN 2007qr](#) to [SNe 2002ap](#) (broad-lined Ic), 1998bw (broad-lined Ic), 1999ex (type Ib), and 2004aw (type Ic). Note the presence of the prominent He I 1.083, and 2.0581  $\mu$ m lines in the spectrum of [SN 1999ex](#). See text for references.

Fig. 14. Evolution of the velocities from the different spectral lines observed in [SN 2007qr](#). The errors in the measured velocities are estimated to be ~10%. The minimum error is not less than 500 km s<sup>-1</sup>.

Fig. 15. Comparison of the velocity evolution of the type Ic [SNe 2007qr](#), [2004aw](#), [2002ap](#), and [1994I](#) using different spectral lines.

Fig. 16. Left: the CO emission profile of [SN 2007qr](#) (+137.7 d post B maximum) overlaid with the 192 d (post-explosion) spectrum of [SN 1987A](#). The features indicated refer to [SN 1987A](#). Right: CO profile of [SN 2007qr](#) at +137.7 d (post-B-maximum) overlaid with that of [SN 2004dj](#) at 137 d post-explosion.

Fe II

Acknowledgements. We would like to thank all the staff from the Asiago Ekar Telescope, Campo Imperatore Telescope, Calar Alto Observatory, Gemini North Telescope, Nordic Optical Telescope (operated on the island of La Palma jointly by Denmark, Finland, Iceland, Norway, and Sweden), Osservatorio di Teramo, Sternberg Astronomical Institute Telescope, Telescopio Nazionale Galileo, UKIRT, and the Wendelstein Telescope. The Gemini data reported here were obtained via programmes [GN-2007B-DD-3](#) and [GN-2008B-Q-58](#).

We are grateful to the staff at the NOT: Amanda Djupvik, Thierry Morel, Jarkko Niemela, Tapio Pursimo, Auni Somero, John Telting and Helena Uthas, for observing [SN 2007qr](#). We would also like to thank the staff at Gemini North: Thomas Dall, Tom Geballe, Silas Laycock, Atsuko Nitta, Kathy Roth, Ricardo Schiavon, Chad Trujillo and Kevin Volk, and also to the observers at the TNG: Avet Harutyunyan, Lorenzi Vania, and the Wendelstein observatory: Remus Bergemann, Florian Lang and Johannes Koppenhoefer.

I. Rymbo acknowledges the Dark Cosmology Centre which is supported by the DNRF. R.K. and S.J.S. acknowledge financial support from STFC.

**Result**

**Verification in Simbad :**

**existing names : 33**

**not existing names : 29**

**rejected occurrences : 20**

# DJIN

2009A&A...508..371H

Raw PDF document

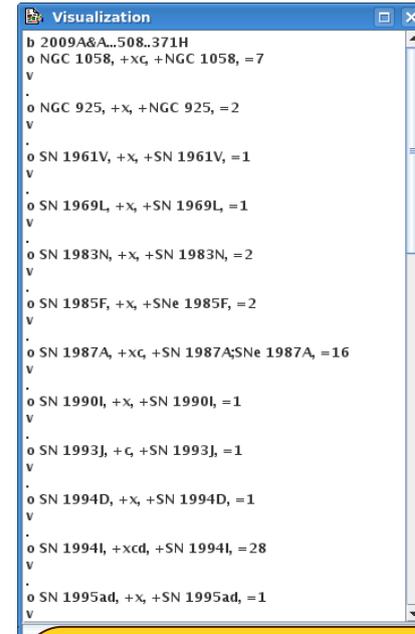
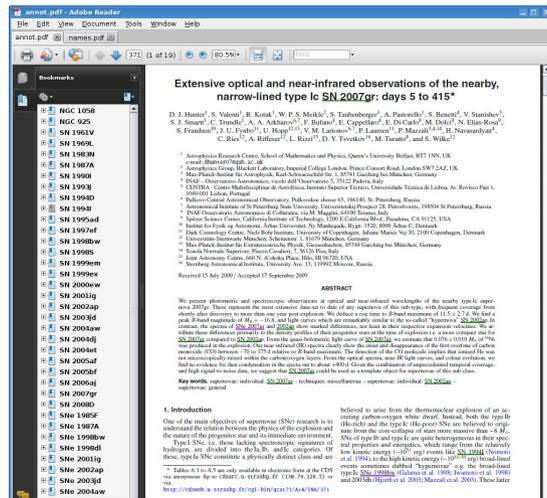
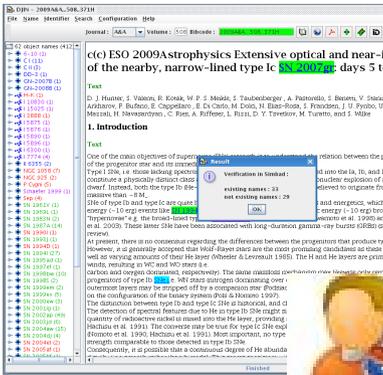
Dictionary of nomenclature

Detection of astronomical objects

Extraction of the text



Working document



Update



Annotated document

Identifiers list

# DJIN

2009A&A...508..371H

Raw PDF document

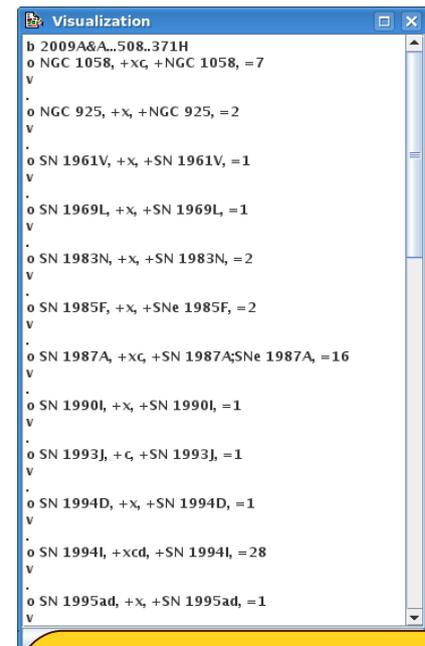
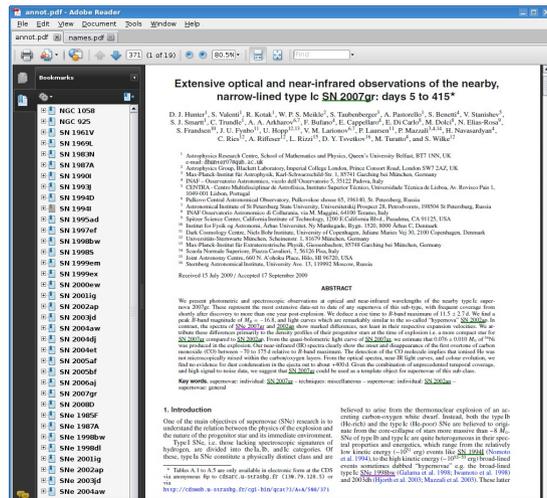
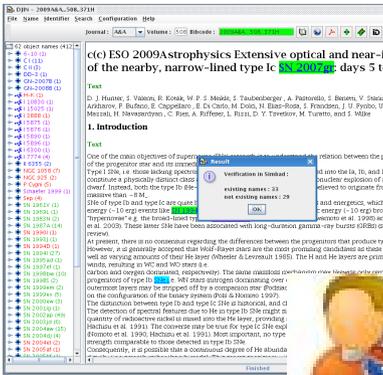
Dictionary of nomenclature

Detection of astronomical objects

Extraction of the text



Working document



Update



Astronomes référents

Annotated document

Identifiers list

## CDS bibliographic service

[WORD QUERY FORM](#)[BIBCODE QUERY FORM](#)[HELP](#)2009A&A...508..371H - Astron. Astrophys., 508, 371-389 (2009) - 08.12.09 21.01.11 December(II) 2009 [ t k a s o x c , 172 ]

Extensive optical and near-infrared observations of the nearby, narrow-lined type IC SN 2007gr: days 5 to 415.

HUNTER D.J.; VALENTI S.; KOTAK R.; MEIKLE W.P.S.; TAUBENBERGER S.; PASTORELLO A.; BENETTI S.; STANISHEV V.; SMARTT S.J.; TRUNDLE C.; ARKHAROV A.A.; BUFANO F.; CAPPELLARO E.; DI CARLO E.; DOLCI M.; ELIAS-ROSA N.; FRANDSEN S.; FYNBO J.U.; HOPP U.; LARIONOV V.M.; LAURSEN P.; MAZZALI P.; NAVASARDYAN H.; RIES C.; RIFFESER A.; RIZZI L.; TSVETKOV D.Y.; TURATTO M.; WILKE S.

**Abstract (from CDS):** We present photometric and spectroscopic observations at optical and near-infrared wavelengths of the nearby type Ic supernova 2007gr. These represent the most extensive data-set to date of any supernova of this sub-type, with frequent coverage from shortly after discovery to more than one year post-explosion. We deduce a rise time to B-band maximum of  $11.5 \pm 2.7$  d. We find a peak B-band magnitude of  $M_B = -16.8$ , and light curves which are remarkably similar to the so-called "hypernova" SN 2002ap. In contrast, the spectra of SNe 2007gr and 2002ap show marked differences, not least in their respective expansion velocities. We attribute these differences primarily to the density profiles of their progenitor stars at the time of explosion i.e. a more compact star for SN 2007gr compared to SN 2002ap. From the quasi-bolometric light curve of SN 2007gr, we estimate that  $0.076 \pm 0.010 M_{\odot}$  of  $^{56}\text{Ni}$  was produced in the explosion. Our near-infrared (IR) spectra clearly show the onset and disappearance of the first overtone of carbon monoxide (CO) between  $\sim 70$  to 175 d relative to B-band maximum. The detection of the CO molecule implies that ionised He was not microscopically mixed within the carbon/oxygen layers. From the optical spectra, near-IR light curves, and colour evolution, we find no evidence for dust condensation in the ejecta out to about +400 d. Given the combination of unprecedented temporal coverage, and high signal-to-noise data, we suggest that SN 2007gr could be used as a template object for supernovae of this sub-class.

**Abstract Copyright:** European Southern Observatory (ESO) 2009

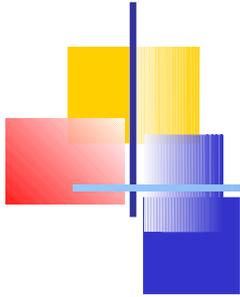
**Journal keyword(s):** supernovae: individual: [SN 2007gr](#) - techniques: miscellaneous - supernovae: individual: [SN 2002ap](#) - supernovae: general

**Nomenclature Note:** Fig. 1, Table a.1: [\[HVK2009\] NN](#) (Nos 1-10).

**VizieR on-line data:** <Available at CDS ([J/A+A/508/371](#)): [tablea1.dat](#) [tablea2.dat](#) [tablea3.dat](#) [tablea4.dat](#) [tablea5.dat](#)>

**Simbad objects** ([32](#))

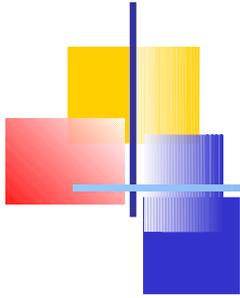
**Link(s):** [Full paper](#) · [ADS services](#)



# Résultats

---

- Taux de reconnaissance exacte : 75%
- Taux de reconnaissance partielle : 12%  
→ nouveaux acronymes
- Taux d'objets non reconnus : 10 %  
→ principalement dans les figures, les tables
- Taux d'erreur : 3%
- Bruit : 40% (choix pour cette application)



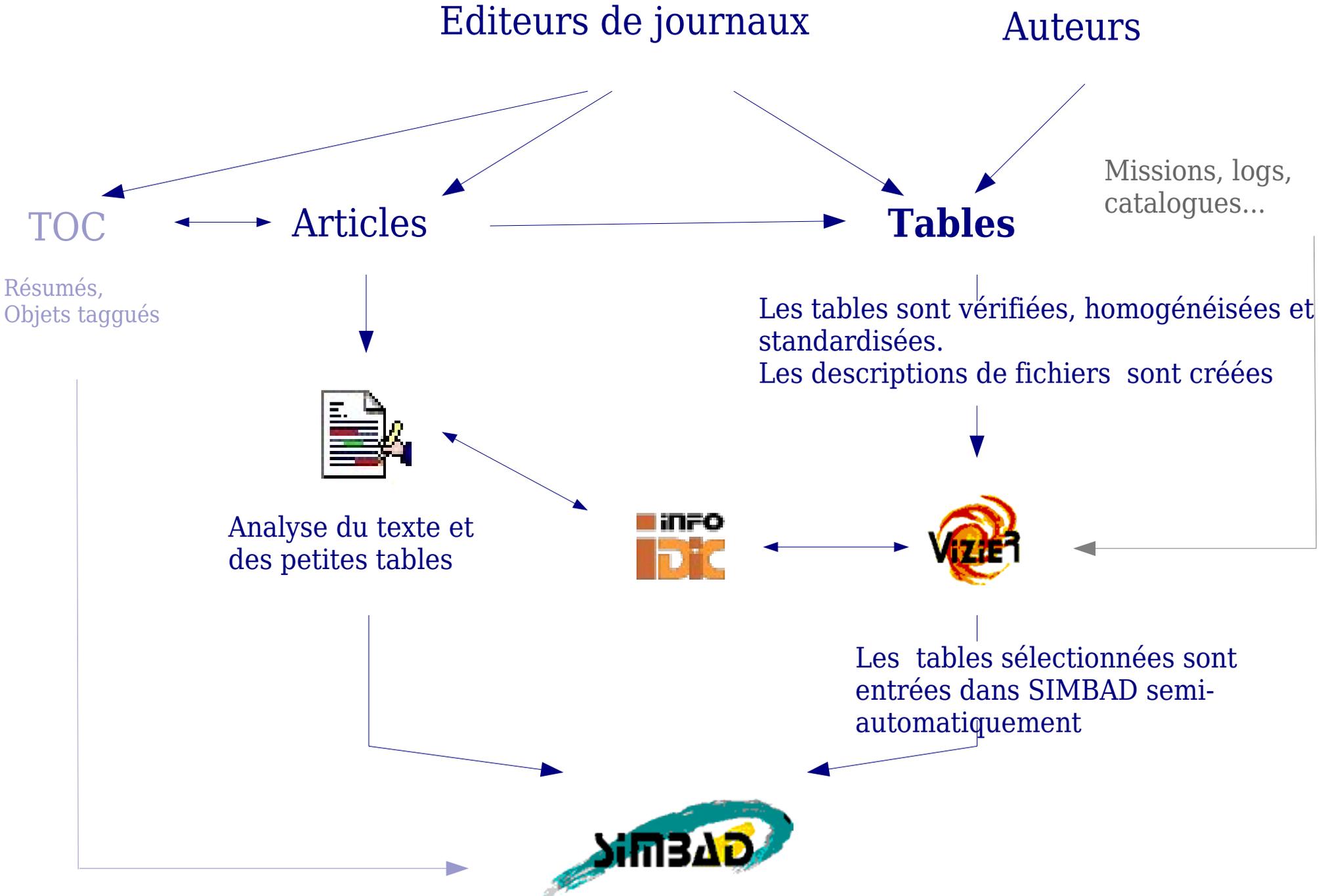
# Résultats

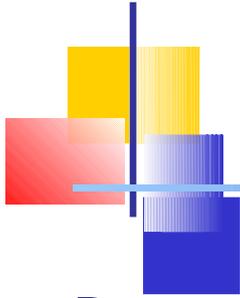
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- Interactions permanentes avec informaticiens
- Interactions permanentes astronomes référents
- Cercles de compétences (docs, formations, ...)
- Valeurs ajoutées :
  - occurrence, positions → tri
  - nouvelles données (liens hiérarchiques, nouvelles longueurs d'ondes, ...)
- Augmentation constante du volume des données à traiter

<http://cdsweb.u-strasbg.fr/~boch/mining-simbad/simbad-evolution.flv>

# La construction du contenu





# Les Tables

---

- Description des tables :
  - Standardisation
  - Vérifications - Corrections (retour vers les auteurs) → illustration
- Disponibilité sur FTP
- Intégration dans VizierR
  - Choix des UCDs (Unified Content Descriptors), information standardisée qui définit le contenu (position, éclat, vitesse, etc) et permet de retrouver toutes les tables contenant une certaine quantité.  
3.342 UCDs, 363.725 colonnes
  - Liens vers SIMBAD et es bases de données externes
  - Liens entre les tables, les autres catalogues
  - Données complémentaires (courbes de lumière, spectres, etc)

<http://vizier.u-strasbg.fr/vizier/VizieR/vizmine/vizMine.htx>



J/ApJ/736/42      HST QSO Catalog      (Ribaud+, 2011)

A Hubble space telescope study of Lyman limit systems: census and evolution.  
 Ribaud J., Lehner N., Howk J.C.  
 <Astrophys. J., 736, 42 (2011)>  
[=2011ApJ...736...42R](#)

**ADC\_Keywords:** QSOs ; Spectra, ultraviolet

**Keywords:** intergalactic medium; quasars: absorption lines

**Abstract:**

We present a survey for optically thick Lyman limit absorbers at  $z < 2.6$  using archival Hubble Space Telescope observations with the Faint Object Spectrograph and Space Telescope Imaging Spectrograph. We identify 206 Lyman limit systems (LLSs), increasing the number of cataloged LLSs at  $z < 2.6$  by a factor of  $\sim 10$ .

**Description:**

The HST QSO Catalog combines archival observations of QSOs to provide the largest source of HST observed QSOs in the literature. This catalog was an essential component of the large survey for low redshift Lyman limit systems produced by Ribaud et al. Included in our sample, but not reproduced here, are the QSO observations from Bechtold et al. (2002, Cat. [J/ApJS/140/143](#)).

**File Summary:**

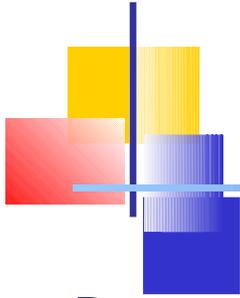
FileName	Lrecl	Records	Explanations
ReadMe	80	.	This file
<a href="#">tables.dat</a>	98	312	QSOs observed with STIS and FOS and a few observation details
<a href="#">stis/*</a>	48	230	Individual spectra from STIS
<a href="#">fos/*</a>	45	79	Individual spectra from FOS (Costar) (*b.dat) and from FOS (Pre-Costar) (*c.dat)

**See also:**

[J/ApJS/140/143](#) : HST FOS spectral atlas (Bechtold+, 2002)

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

Bytes	Format	Units	Label	Explanations
1- 10	A10	---	QSO	QSO name
12- 20	F9.5	<a href="#">deg</a>	RAdeg	Right Ascension in decimal degrees (J2000)
22- 30	F9.5	<a href="#">deg</a>	DEdeg	Declination in decimal degrees (J2000)
32- 36	F5.3	---	z	QSO Redshift
38- 46	F9.5	<a href="#">deg</a>	GLON	Galactic Longitude of QSO
48- 56	F9.5	<a href="#">deg</a>	GLAT	Galactic Latitude of QSO
58- 77	A20	---	FileName	Spectrum file name

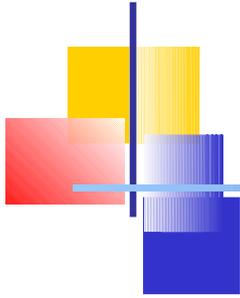


# Les Tables

---

- Description des tables :
  - Standardisation
  - Vérifications - Corrections (retour vers les auteurs)
- Disponibilité sur FTP
- Intégration dans VizierR
  - Choix des UCDs (Unified Content Descriptors), information standardisée qui définit le contenu (position, éclat, vitesse, etc) et permet de retrouver toutes les tables contenant une certaine quantité.  
3.342 UCDs, 363.725 colonnes
  - Liens vers SIMBAD et es bases de données externes
  - Liens entre les tables, les autres catalogues
  - Données complémentaires (courbes de lumière, spectres, etc)

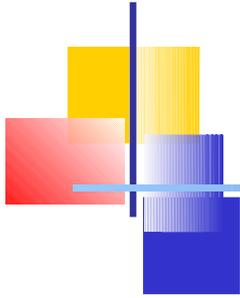
<http://vizier.u-strasbg.fr/vizier/VizieR/vizmine/vizMine.htx>



# Les Tables dans SIMBAD

---

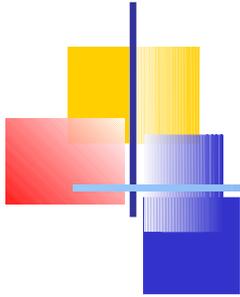
- Sélection des tables à intégrer dans Simbad
  - En fonction des objets : nature, propriétés
  - Rigueur des cross-identifications
  - Liens hiérarchiques
  - Mesures associées (redshift, parallaxes, magnitudes, ...)
  - Nombre de citations
- Réunion hebdomadaire entre astronomes et documentalistes
- Raccord : outil qui permet d'intégrer les objets des tables de façon semi-automatique en fonction de nombreux critères.



# Les documentalistes

---

- **Travaillent dans un environnement scientifique**
  - identifier, sélectionner, décrire, vérifier, homogénéiser
  - forte valeur ajoutée aux données et métadonnées
  - Compétence disciplinaire pointue et proximité avec la recherche.
- **Fort impact sur la recherche**
  - données bien décrites, réutilisables facilement
  - services très utilisés et interopérables avec les autres données et les outils de l'Observatoire Virtuel astronomique
- **Qualité des données publiées**
  - correction de tables, vérification du contenu
- **Les méthodes de travail et les procédures sont en perpétuelle évolution**

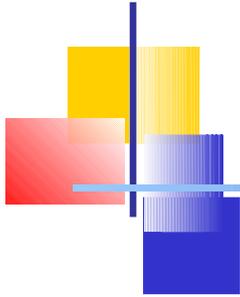


# Conclusions

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Le succès du CDS repose sur une « équipe intégrée »

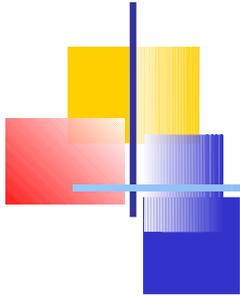
- Des chercheurs, qui connaissent l'astronomie et son évolution et les besoins des utilisateurs.
- Des documentalistes qui ont en charge de la création du contenu des bases de données (métier en émergence).
- Des informaticiens qui créent les systèmes et les interfaces utilisateurs et suivent l'évolution des techniques.
- ~ 30 personnes : 1/3 - 1/3 - 1/3



# Conclusions

---

- La mise à disposition des données révolutionne les méthodes de travail scientifiques
  - Archives d'observatoires : les données d'observations sont réutilisables
  - Bases de données à valeur ajoutée (CDS) : informations essentielles extraites des résultats (articles, catalogues, ...)
- Un nouveau métier pour les documentalistes dans un contexte où le partage des données de recherche obtenues sur financement public tend à devenir la règle.



# L'utilisation des services du CDS

---

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