

# **Vers le Big Data ?**

**Exemple de la gestion  
des données astronomiques  
au Centre de Données astronomiques  
de Strasbourg**



- Les données astronomiques
- L'exemple du CDS
- Et plus particulièrement le travail des documentalistes au sein du CDS





1852-1903 : le catalogue  
Bonner Durchmusterung  
(324.188 objets)

— 43 —

| 1901—1950 |      |      | 1951—2000 |      |      | 2001—2050 |      |      | 2051—2100 |      |      | 2101—2200 |      |      |      |      |      |
|-----------|------|------|-----------|------|------|-----------|------|------|-----------|------|------|-----------|------|------|------|------|------|
| m         | μ    | +22° | m         | μ    | +22° | m         | μ    | +22° | m         | μ    | +22° | m         | μ    | +22° |      |      |      |
| 9.2       | 14.0 | 2.6  | 9.2       | 18.3 | 18.2 | 8.4       | 47   | 37.7 | 14.5      | 9.5  | 13   | 40.5      | 37.2 | 9.1  | 46   | 20.1 | 8.9  |
| 9.4       | 18.8 | 15.5 | 7.7       | 12.2 | 40.9 | 9.1       | 44.4 | 8.3  | 8.2       | 44.8 | 6.4  | 8.2       | 44.8 | 6.4  | 8.2  | 44.8 | 6.4  |
| 9.5       | 20.7 | 47.5 | 9.2       | 18.7 | 13.7 | 9.5       | 45.4 | 58.9 | 9.2       | 46.9 | 58.3 | 9.4       | 46.9 | 58.3 | 9.4  | 46.9 | 58.3 |
| 9.5       | 29.2 | 9.0  | 8.3       | 48.4 | 49.0 | 9.5       | 45.8 | 47.1 | 9.2       | 47.2 | 1.8  | 9.5       | 48   | 6.6  | 20.0 |      |      |
| 9.5       | 51.1 | 55.4 | 8.6       | 54.3 | 29.0 | 8.9       | 48   | 0.7  | 24.8      | 9.5  | 14   | 8.5       | 8.6  | 9.4  | 39.3 | 11.3 |      |
| 9.2       | 53.2 | 47.1 | 9.5       | 29   | 18.1 | 31.2      | 9.5  | 11.5 | 59.6      | 9.0  | 52.0 | 56.8      | 9.5  | 49   | 40.4 | 34.2 |      |
| 9.5       | 56.4 | 1.3  | 9.5       | 39.9 | 44.5 | 9.2       | 26.3 | 26.5 | 9.1       | 15   | 1.5  | 49.2      | 8.2  | 50   | 23.4 | 59.3 |      |
| 9.4       | 11   | 3.4  | 8.8       | 9.5  | 47.6 | 54.2      | 9.5  | 40.1 | 33.7      | 9.5  | 16   | 13.1      | 43.1 | 6.7  | 51   | 24.3 | 1.6  |
| 9.5       | 21.0 | 22.2 | 9.5       | 30   | 29.2 | 40.3      | 6.7  | 42.7 | 24.8      | 9.2  | 39.2 | 20.3      | 9.5  | 30.8 | 24.0 |      |      |
| 9.4       | 29.0 | 17.8 | 9.5       | 33.5 | 18.3 | 9.5       | 49   | 7.0  | 18.9      | 9.5  | 17   | 32.3      | 11.3 | 9.5  | 41.6 | 7.0  |      |

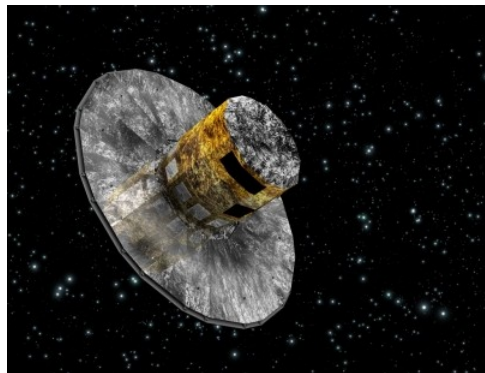
## • De gros Volumes

- Notion déjà ancienne
- Inhérent aux grands instruments
- Stockage en temps réel (pipeline de données brutes issues de capteurs CCD)



**Hubble** (HST)  
Crédit: NASA, 2002

Hubble, le télescope spatial  
Opérationnel depuis 1990  
Images et spectres (IR et UV)



Vue d'artiste de **Gaia**  
Crédit: ESA

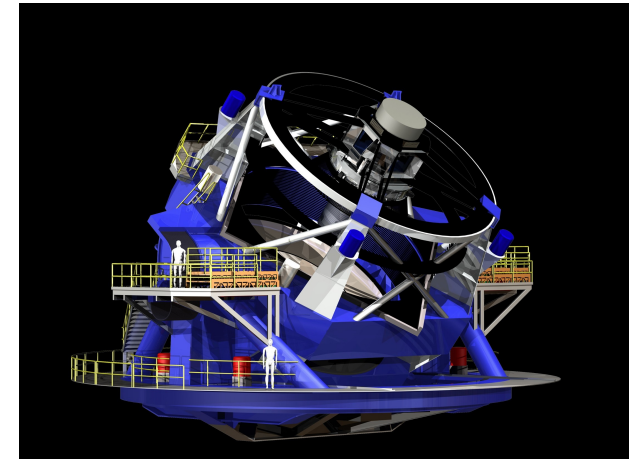
Gaia est un satellite d'astrométrie.  
Position de plus d'un milliard d'étoiles.  
Lancé en décembre 2013



Vue d'oiseau du **Very Large Telescope**  
Crédit: J.L. Dauvergne & G. Hüdepohl ESO

Le VLT est l'équipement phare de l'astronomie européenne, 4 télescopes qui observent dans le visible (début : 1999)

- **Des projets à venir encore plus prolifiques**
  - **LSST** : Large Synoptic Survey Telescope
    - Des milliards d'objets observés « sous toutes les coutures »
    - Télescope terrestre de 8,4 mètres équipé d'une caméra de 3200 Mégapixels
    - 30 Téraoctets de données par nuit



- Un changement d'échelle même pour l'astronomie

- **Des sources multiples : données brutes ou structurées**
  - Observations des télescopes sol et spatiaux
  - Très grands relevés du ciel (informations homogènes sur un grand nombre d'objets : catalogues )
  - Bases de données à valeur ajoutée (CDS, NED)
  - Données bibliographiques (journaux de la discipline, ADS (NASA))
  - Données de modélisation
- **Des données Variées**
  - Mesures physiques, images, spectres, simulations, publications, etc.
  - Une approche multi-longueur d'onde pour une vision globale d'un objet astronomique complexe



**Centaurus A**  
en X, optique,  
infrarouge et radio

- **La révolution numérique**

- **Moyen Stockage** : distribution/répartition dans différents 'Datacenters'
- **Accès aux données** : représentation, indexation, sémantique, ...
- **Moyens de traitement et de calcul massif pour des applications multiples** : data mining, extraction de données, croisements, ...

→ Un cycle de plus en plus court entre la génération des données et leur exploitation/partage (**V**élocité)

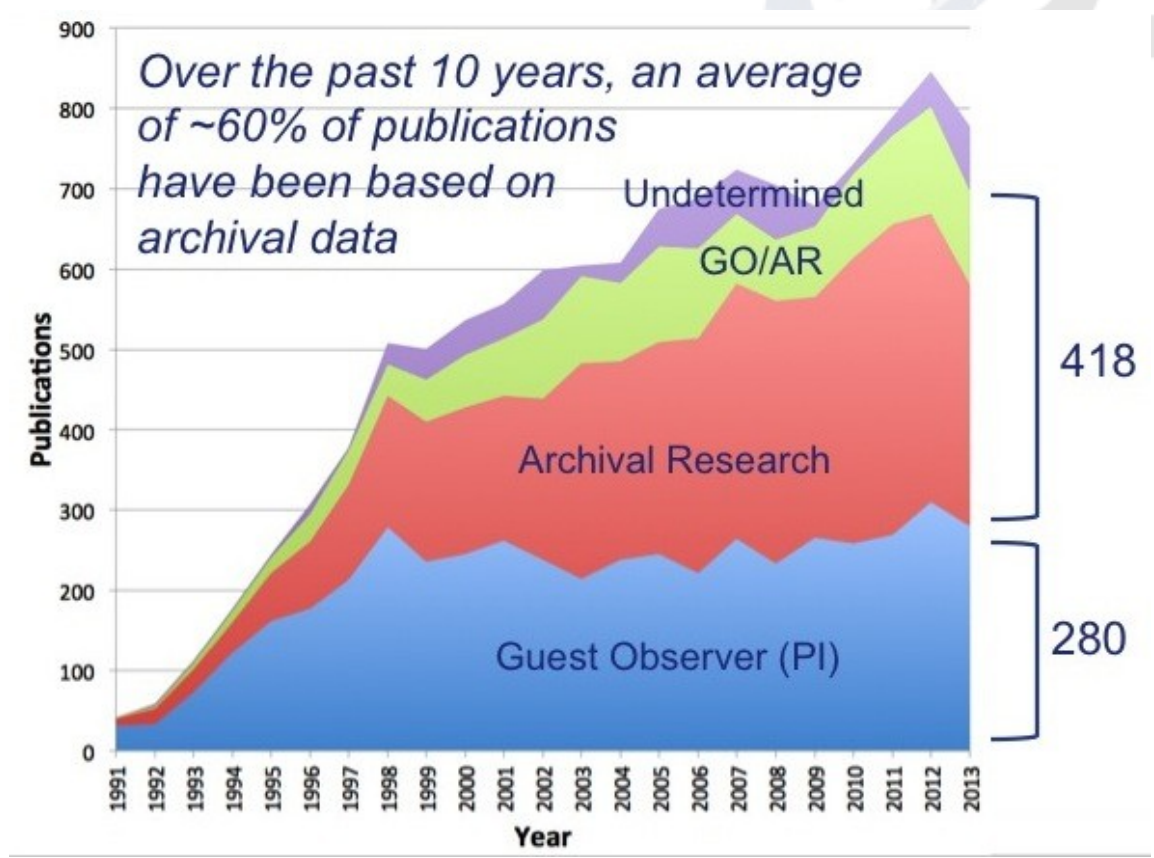
→ Un changement de méthodes de travail (partage des données distantes, re-utilisation des données )

→ Une augmentation du retour scientifique des projets avec une augmentation du nombre de publication

- Utilisation/Re-utilisation :
  - Objectif primaire ..... puis réutilisées pour des objectifs différents
  - Observations sur le long terme de phénomènes variables
  - Combinaison de différentes observations permet de comprendre des phénomènes
- Les données, mises à disposition de tous, doivent devenir une des infrastructures de la recherche

# Illustration avec un instrument bien connu...

## L'exemple du HST (Hubble Space Telescope)



Remerciements:  
Robert J. Hanisch  
Space Telescope Science Institute



- **Exploitation et accès aux données**

- L'habitude de travailler dans des collaborations internationales
- L'utilisation de standards d'échange :
  - Un format de données commun depuis les années 70, FITS (Flexible Image Transport System), toujours maintenu sous l'égide de l'Union Astronomique Internationale
  - Le bibcode (1988) : 2015A&A...573A..20K
  - Les nombreux standards du VO (VOTables, .....)
- Les données des observatoires sont « ouvertes », en général après une période « propriétaire ». Concept accepté par la communauté, qui en profite pour ses propres recherches
- Excellente collaboration avec les journaux de la discipline

L' Observatoire Virtuel (VO) est un projet international dont le but est le développement d'un nouvel outil de recherche qui permet de :

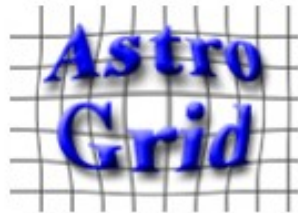
- Bénéficier de l'explosion de la quantité de données astronomiques réparties à travers le monde
- Permettre aux astronomes d'interroger des centres de données multiples, de manière transparente et homogène, et d'utiliser au mieux les données astronomiques
- Définir des standards (sur les formats et les protocoles) et des métadonnées
- Proposer des outils pour permettre un accès unifié aux données,

Le développement de l'OV est piloté par l'International Virtual Observatory Alliance (IVOA), union des différents projets OV.

L'IVOA est né en 2002



<http://www.ivoa.net/>



## Quelques mots à propos d'une autre « Alliance » : RDA Research Data Alliance



- Mise en place en mars 2013 par la CE, l'Australie et la NSF pour faciliter le partage des données par delà les frontières des états et les frontières disciplinaires
- Travail sur les « blocs de base » nécessaires au partage des données
- Un forum de discussions technologiques et disciplinaires

~ 2000 participants de 70 pays



Research Data Sharing  
without barriers



Share your news with RDA, write to [news@rd-alliance.org](mailto:news@rd-alliance.org)

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## Working and Interest Groups

|   | Group Type    | Status                | Group Email | Chair(s)  | Secretariat Liaison | TAB Liaison    |
|---|---------------|-----------------------|-------------|---|---------------------|----------------|
| Brokering Governance                              | Working Group | Recognised & Endorsed |             | Stefano Nativi, Max Craglia, Jay Pearlman       | Kathy Fontaine      | Bridget        |
| Data Citation WG                                  | Working Group | Recognised & Endorsed |             | Andreas Rauber, Ari Asmi, Dieter van Uytvanck   | Herman              | Beth           |
| Data Description Registry Interoperability (DDRI) | Working Group | Recognised & Endorsed |             | Amir Aryani, Adrian Burton                      | Stefanie            | Simon          |
| Data Foundation and Terminology WG                | Working Group | Recognised & Endorsed |             | Peter Wittenburg, Gary Berg-Cross, Raphael Ritz | Herman              | Peter F.       |
| Data Type Registries WG                           | Working Group | Recognised & Endorsed |             | Larry Lannom, Daan Broeder                      | Herman              | Peter W.       |
| Metadata Standards Catalog Working Group          | Working Group |                       |             |   | Kathy Fontaine      | Rainer Stotzka |



Research Data Sharing without barriers



Share your news with RDA, write to news@rd-alliance.org

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**6TH PLENARY PARIS** •••• CNAM **23/25 SEPTEMBER 2015**

**Enterprise engagement**  
Special Focus Research Data for climate change

Build the social and technical bridges that enable data sharing!

Logos: RDA, PARIS REGION, cap-digital

Home » Working and Interest Groups

## Working and Interest Groups

|   |
|---|
| Brokering Governance                              |
| Data Citation WG                                  |
| Data Description Registry Interoperability (DDRI) |
| Data Foundation and Terminology WG                |
| Data Type Registries WG                           |
| Metadata Standards Catalog Working Group          |

### RDA Outputs

RDA group outputs are focused on tangibly accelerate progress for global data sharing and increase data-driven innovation.

[VIEW ALL](#)

[DOWNLOAD the RDA Outputs booklet](#)

| Secretariat Liaison | TAB Liaison    |
|---------------------|----------------|
| Kathy Fontaine      | Bridget        |
| Herman              | Beth           |
| Stefanie            | Simon          |
| Herman              | Peter F.       |
| Herman              | Peter W.       |
| Kathy Fontaine      | Rainer Stotzka |

- Les 3 V du Big Data (Volume, Variété, Vitesse)
- Exploitation, accès aux données, techniques, ...
- Oui, mais il ne faut pas oublier :
  - La qualité des données
  - La pérennité des données
  - Les droits concernant les données
- L'exemple du CDS



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

Depuis 1972, les missions du CDS sont de :



- Collecter l'information "utile" sur les objets astronomiques
- Améliorer cette information par évaluations critiques et comparaisons
- Distribuer cette information à la communauté internationale
- Conduire des recherches en utilisant ces données



- Le CDS est une infrastructure de recherche du CNRS. Il dépend de l'observatoire astronomique de Strasbourg (UMR 7550 CNRS/UdS)



- Le CDS est une équipe d'environ 30 personnes (astronomes, documentalistes et informaticiens)

- Le CDS participe à des projets dans son domaine de connaissances : CoRoT, Gaia, .. et aux projets de l'Observatoire Virtuel (VO)



- Le CDS développe des outils et mène des actions de R&D
- Le CDS n'est pas à l'origine un centre d'archivage, mais le devient par état de fait.. Il a obtenu le label DSA en août 2014



## Les service principaux du CDS :



La base de données de référence mondiale pour l'identification, la nomenclature et la bibliographie des objets astronomiques (créée en 1972 : CSI)

7.7 millions d'objets, 22 millions d'identifiants,  
~11 millions de citations dans 300.000 références bibliographiques.

- <http://simbad.u-strasbg.fr>.



# Etoile polaire

### Basic data :

\* **alf UMi** -- Classical Cepheid (delta Cep type)

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, 2MASS) , 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 90 ] A [2007A&A...474..653V](#)

FK4 coord. (ep=B1950 eq=1950) : [01 48 47.78 +89 01 43.6](#) ( Optical ) [ 6.60 5.58 90 ] A [2007A&A...474..653V](#)

Gal coord. (ep=J2000) : [123.2805 +26.4614](#) ( Optical ) [ 1.14 0.97 90 ] A [2007A&A...474..653V](#)

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

Radial velocity / Redshift / cz : [V\(km/s\) -16.42 \[0.03\]](#) / [z\(-\) -0.000055 \[0.000000\]](#) / [cz -16.42 \[0.03\]](#) ( - ) A [2004A&A...424..727P](#)

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

Spectral type : [F8Ib C 1993ASPC...45...59L](#)

Fluxes (8) :

U 3.00 [-] C [2002yCat.2237....0D](#)

B 2.62 [-] C [2002yCat.2237....0D](#)

V 2.02 [-] C [2002yCat.2237....0D](#)

R 1.53 [-] C [2002yCat.2237....0D](#)

I 1.22 [-] C [2002yCat.2237....0D](#)

J 0.795 [0.238] D [2003yCat.2246....0C](#)

H 0.46 [0.194] C [2003yCat.2246....0C](#)

K 0.52 [-] C [2002yCat.2237....0D](#)

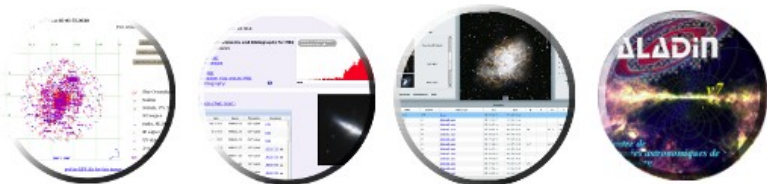
essential notes:

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

### Identifiers (44) :

|                                   |                                   |   |                                       |
|-----------------------------------|-----------------------------------|---|---------------------------------------|
| <a href="#">V*</a> alf Umi        | <a href="#">FKS</a> 907           | <a href="#">JP11</a> 498                | <a href="#">SAO</a> 308               |
| <a href="#">*</a> l Umi           | <a href="#">GC</a> 2243           | <a href="#">2MASS</a> J02314822+8915503 | <a href="#">SBC7</a> 51               |
| <a href="#">*</a> alf UMi         | <a href="#">GCRV</a> 1037         | <a href="#">N30</a> 381                 | <a href="#">SBC9</a> 76               |
| <a href="#">**</a> STF 93A        | <a href="#">GEN#</a> +1.00008890A | <a href="#">NAME</a> Lodestar           | <a href="#">SKY#</a> 3738             |
| <a href="#">**</a> WRH 39         | <a href="#">GSC</a> 04628-00237   | <a href="#">NAME</a> NORTH STAR         | <a href="#">TD1</a> 835               |
| <a href="#">ADS</a> 1477 AP       | <a href="#">HD</a> 8890           | <a href="#">NAME</a> POLARIS            | <a href="#">TYC</a> 4628-237-1        |
| <a href="#">ADS</a> 1477 A        | <a href="#">HIC</a> 11767         | <a href="#">PLX</a> 299                 | <a href="#">UBV</a> 21589             |
| <a href="#">AG+89</a> 4           | <a href="#">HIP</a> 11767         | <a href="#">PLX</a> 299.00              | <a href="#">UBV</a> H 8201            |
| <a href="#">BD+88</a> 8           | <a href="#">HR</a> 424            | <a href="#">PMC</a> 90-93 640           | <a href="#">WDS</a> J02318+8916A      |
| <a href="#">CCDM</a> J02319+8915A | <a href="#">IDS</a> 01226+8846 A  | <a href="#">PPH</a> 431                 | <a href="#">WDS</a> J02318+8916Aa, Ab |
| <a href="#">CSI+88</a> 8 1        | <a href="#">IRAS</a> 01490+8901   | <a href="#">ROT</a> 3491                | <a href="#">AAVSO</a> 0122+88         |

### Plots and Images



plot

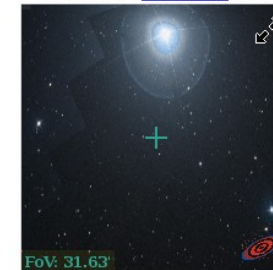
CDS portal

CDS Simplay

Aladin applet

query around with radius

Interactive [AladinLite](#) view



FoV: 31.63'

2MASS  DSS  SDSS

VizieR [photometry viewer](#)

Search within radius  arcsec

### References (522 between 1850 and 2015)

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

reference summary

from:  to:

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

[2015A&A...574A...2N](#) [ X .2]

Astron. Astrophys., 574A, 2-2 (2015)

**The occurrence of classical Cepheids in binary systems.**

NEILSON H.R., SCHNEIDER F.R.N., IZZARD R.G., EVANS N.R. and LANGER N.

Comments & notes:

flags: (abstract)

[2015A&A...574A.119T](#) [ X C .3]

Astron. Astrophys., 574A, 119-119 (2015)

**Hyper: Hybrid photometry and extraction routine.**

TRAFICANTE A., FULLER G.A., PINEDA J.E. and PEZZUTO S.

Comments & notes:

flags: (abstract)

**CDS comment:**

(q)Cecile : Fig.3, Tables 2,7,8 on prend ces 7 sources dans SIMBAD ? AlineE 24/02/2015 => Non exemple pour leur programme AlineE 13/03/2015

[2015A&A...575A..79S](#) [ X .2]

Astron. Astrophys., 575A, 79-79 (2015)

**Understanding star formation in molecular clouds. I. Effects of line-of-sight contamination on the column density structure.**

SCHNEIDER N., OSSENKOPF V., CSENGERI T., KLESSEN R.S., FEDERRATH C., TREMBLIN P., GIRICHIDIS P., BONTEMPS S. and ANDRE Ph.

Comments & notes:

flags: (abstract)

## Les service principaux du CDS :



La collection des catalogues astronomiques et des tables publiées dans les journaux de la discipline, des logs d' observation et de grands relevés (existe depuis 1996).

Principalement des données tabulaires, mais aussi des spectres, des images, de séries temporelles, ....

~ 13.600 catalogues, 26.000 tables

- <http://cdsarc.u-strasbg.fr/index.gml>



# VizieR

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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:    Go!

Radius  Box size

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Find Catalogs

20 catalogs found

ALL   or

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

Summary **ReadMe** **VizieR** Browse FTP Tar

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., Hawk 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 ~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/ApJ/140/143).

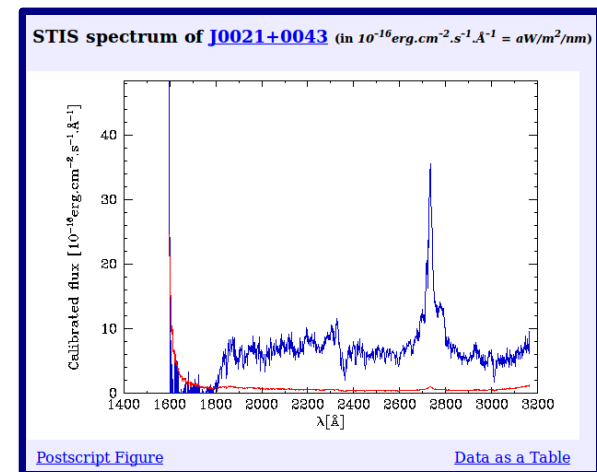
File Summary:

| FileName                   | Len | 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) ( and from FOS (Pre-Costar) (*c.dat) |

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



## Les service principaux du CDS :



L' Atlas interactif du ciel  
→ découverte, visualisation et manipulation des  
images astronomiques

Images stockées à Strasbourg ou dans des  
archives distantes

Créé en 1999

30 To d'images en ligne

- <http://aladin.u-strasbg.fr/aladin.gml>



# Aladin

The screenshot displays the Aladin v7.0 web interface. The main window shows a star field with various colored markers (red triangles, purple diamonds) overlaid on a grayscale image. The interface includes a menu bar (File, Edit, Image, Catalog, Overlay, Tool, View, Interop, Help), a location input field (12:39:48.88 - 11:37:53.9), and a toolbar with various navigation and manipulation tools. A 'Server selector' dialog box is open in the foreground, showing a list of image servers and their associated data.

**Server selector**

Step 1: Specify a target/radius and press SUBMIT

Target (ICRS coord., obj.i...): M104 [Grab coord]

Search cone.....: 0 arcmin

>>> Step 2: load one or several images  by list or  tree

| <input type="checkbox"/>            | Survey    | Filter           | Size          | Resolution        | RA  | Dec | Mag |
|-------------------------------------|-----------|------------------|---------------|-------------------|-----|-----|-----|
| <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' | S717              | 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 | 25MU (25.0um)    | 12.5" x 12.5" | I181B2H0          | 1.5 |     |     |

Default image format:  JPEG  FITS

Buttons: Reset, Clear, Help, SUBMIT, Close

**Table in the bottom right of the Aladin window:**

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

## Les service principaux du CDS :



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



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



L' Atlas interactif du ciel  
→ découverte, visualisation et manipulation de données

Aujourd'hui, c'est environ 1,000,000 requêtes/jour sur les services du CDS.




## Les service principaux du CDS :



- Dictionnaire de nomenclature des objets célestes
- > 22.000 acronymes
- <http://cds.u-strasbg.fr/cgi-bin/Dic-Simbad>




[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* ([Biblio](#)). 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.

Type in your words: 
 Choose one of Object clas:


Select the output layout:  Default  SIMBAD Usage
 Select the number of answers: 
 ...and as


[How to refer to a source or designate a new one](#) is a short document from the Task 4 Designations of IAU Commission 5 which provides basic advices in this topic. A more [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](#)

# 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)

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

| Obj. Type                          | Acronym    | (Explanation)                               | Format   |
|------------------------------------|------------|---|--|
| ? (NAME Ass Cep OB 3b)             | [AGK2012]  | (Allen+Gutermuth+Kryukova+ 2012)            | [AGK2012] JHHMMSS.ss+DDMMSS.s<br>[AGK2012] Cep OB3b East<br>[AGK2012] Cep OB3b West  |
| E+ YSO (NAME RHO OPH CLOUD)        | [AMD2002]  | (Allen+Myers+Di Francesco+ 2002)            | [AMD2002] JHHMMSS+DDMMSSA  |
| + Candidate_YSO (Barnard 59)       | [BHE2007]  | (Brooke+Huard+Bourke+ 2007)                 | [BHE2007] NN   |
| E YSO (NAME RHO OPH CLOUD)         | [BHM2012b] | (Barsony+Haisch+Marsh+ 2012)                | (not yet in Simbad)  |
| + YSO (NAME ORION NEBULA)          | [BSD98]    | (Bally+Sutherland+Devine+ 1998)             | [BSD98] NN   |
| E Candidate_YSO (SMC = SMC)        | [BSS2007]  | (Bolatto+Simon+Stanimirovoc+ 2007)          | [BSS2007] NNN  |
| E ? in...                          | [CAH2008]  | (Chavarria+Allen+Hora+ 2008)                | [CAH2008] DD.ddddd+DD.ddddd<br>[CAH2008] JHHMMSS.s+DDMMSS.s<br>[CAH2008] GLLL.ll+B.bb                                      |
| Radio (LDN 723)                    | [CAR2008]  | (Carrasco-Gonzalez+Anglada+Rodriguez+ 2008) | [CAR2008] VLA 2Aa<br>[CAR2008] wN  |
| + YSO (NAME CHA I)                 | [CCE98]    | (Cambresy+Copet+Epchtein+ 1998)             | [CCE98] 1-NNN<br>[CCE98] 2-NN  |
| E IR (LHA 120-N 44 = LHA 120-N 44) | [CCG2009]  | (Chen+Chu+Gruendl+ 2009)                    | [CCG2009] JHHMMSS.s+DDMMSS.s   |
| Star (Cl Terzan 5)                 | [CDJ2011]  | (Clapson+Domainko+Jamrozny+ 2011)           | (not yet in Simbad)  |
| E+ YSO                             | [CG2010]   | (Connelley+Greene 2010)                     | [CG2010] IRAS HHHMM+DDMM(W)<br>[CG2010] IRAS 04181+2655 (M)<br>[CG2010] IRAS HHHMM+DDMM(WN)<br>[CG2010] IRAS HHHMM+DDMM(N) |

> 22. 000 acronymes  
+ 1 000 nouveaux 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 HHHMMm+DDMM(W)>>  
 <<[CG2010] IRAS 04181+2655(M)>>  
 <<[CG2010] IRAS HHHMMm+DDMM(WN)>>  
 <<[CG2010] IRAS HHHMMm+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 HHHMMm+DDMM(W)>, <[CG2010] IRAS HHHMMm+DDMM(WN)>, <[CG2010] IRAS HHHMMm+DDMM(N)> N=50.

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

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

## Et des efforts de labellisation

Le CDS a obtenu le « **Data Seal of Approval** » (DSA) en août 2014.

Il s'agit d'une labellisation internationale qui certifie la qualité des procédures mises en place pour la préservation des données scientifiques garantissant leur accessibilité sur le long terme (réévaluation tous les 2 ans). 16 critères sont évalués, ils peuvent être résumés par :

- Les données sont accessibles sur internet
  - Les données sont réutilisables, fiables et identifiées de manière unique selon une nomenclature permettant un référencement externe
  - Les licences/droits d'utilisations des données sont clairement exprimés
- 
- Contenu des données labellisées :
    - VizieR et Aladin
    - Simbad ne fait pas partie des données, car c'est une base de données vivante construite au jour le jour à partir d'informations venant de la littérature et pouvant évoluer avec l'amélioration des instruments.



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 compte de l'augmentation continue du volume de données à traiter → évolution des outils et des méthodes de travail

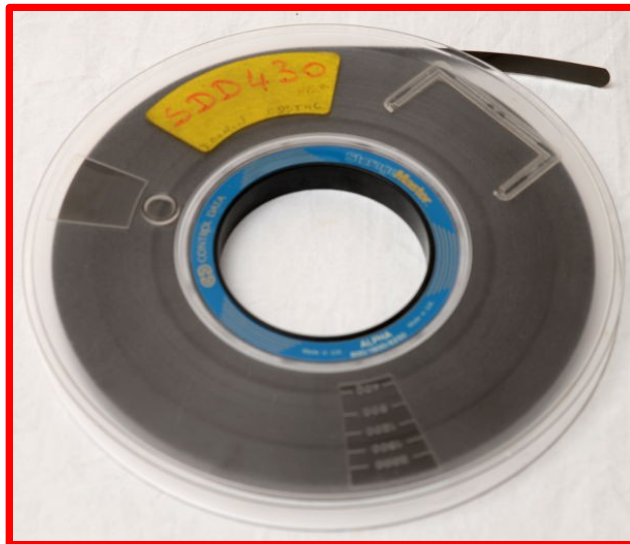
- Le catalogue Bonner Durchmusterung (Argelander 1852-1903)



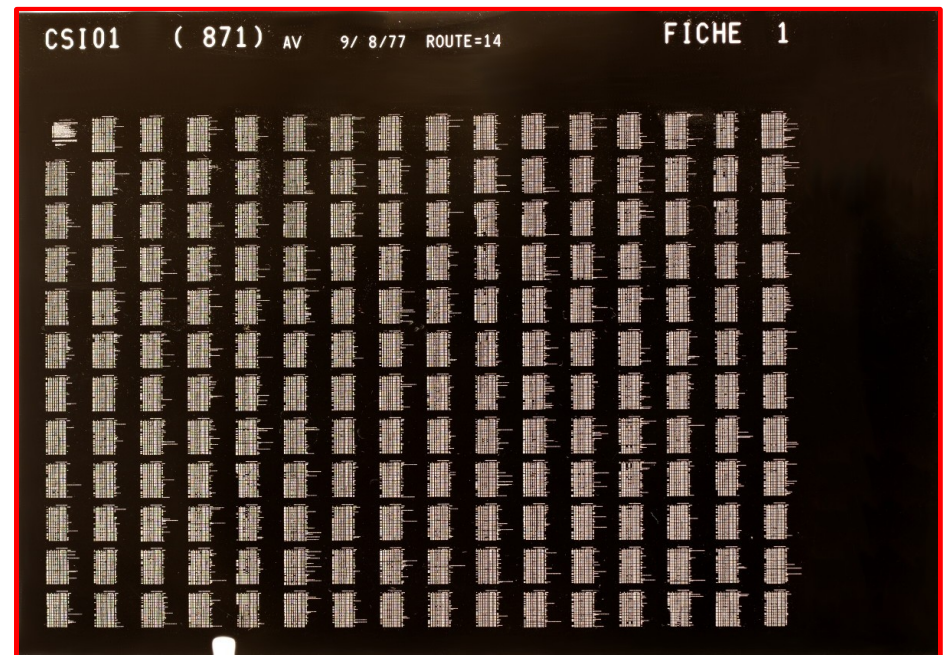
— 43 —

$S^u-10^u$   $+22^0$

| 1901—1960 |    |         |      | 1961—2020 |     |         |      | 2021—2080 |     |         |      | 2081—2140 |   |         |     | 2141—2200 |      |         |     |      |      |      |      |  |
|-----------|----|---------|------|-----------|-----|---------|------|-----------|-----|---------|------|-----------|---|---------|-----|-----------|------|---------|-----|------|------|------|------|--|
| 8u        |    | $+22^0$ |      | 8u        |     | $+22^0$ |      | 8u—9u     |     | $+22^0$ |      | 9u        |   | $+22^0$ |     | 9u—10u    |      | $+22^0$ |     |      |      |      |      |  |
| m         | '  | "       | '''  | m         | '   | "       | '''  | m         | '   | "       | '''  | m         | ' | "       | ''' | m         | '    | "       | ''' |      |      |      |      |  |
| 9.2       | 10 | 14.0    | 2.6  | 9.2       | 28  | 8.3     | 18.2 | K         | 8.1 | 47      | 37.7 | 14.5      | K | 9.5     | 13  | 40.5      | 27.2 | 9.1     | 46  | 20.1 | 8.9  | K    |      |  |
| 9.4       |    | 18.8    | 15.5 | 7.7       |     | 12.2    | 40.9 | K         | 9.1 |         | 44.2 | 8.3       | K | 8.2     |     | 44.8      | 6.4  | R       | 9.2 |      | 39.8 | 5.9  | K    |  |
| 9.5       |    | 20.7    | 47.5 | 9.2       |     | 18.7    | 13.7 | K         | 9.5 |         | 45.4 | 58.9      |   | 9.2     |     | 46.9      | 58.3 | B       | 9.4 |      | 44.9 | 28.3 |      |  |
| 9.5       |    | 29.2    | 9.0  | 9.3       |     | 48.4    | 49.0 |           | 9.5 |         | 45.8 | 42.1      |   | 9.2     |     | 47.2      | 1.8  | B       | 9.5 |      | 48   | 6.6  | 20.0 |  |
| 9.5       |    | 51.1    | 55.4 | 8.6       |     | 54.3    | 29.0 | K         | 8.9 | 48      | 0.7  | 24.8      | K | 9.5     | 14  | 8.5       | 8.6  |         | 9.4 |      | 39.3 | 11.3 |      |  |
| 9.2       |    | 53.2    | 47.1 | 9.5       | 29  | 18.1    | 31.2 |           | 9.5 |         | 11.5 | 59.6      | B | 9.0     |     | 52.0      | 56.8 |         | 9.5 | 49   | 40.4 | 34.2 |      |  |
| 9.5       |    | 56.4    | 1.3  | 9.5       |     | 32.9    | 44.5 |           | 9.2 |         | 26.3 | 26.5      | k | 9.1     | 15  | 1.5       | 49.2 | K       | 8.2 | 50   | 23.4 | 59.3 | K    |  |
| 9.4       | 11 | 3.4     | 8.8  | B         | 9.5 |         | 47.6 | 54.2      | 9.5 |         | 40.1 | 33.7      |   | 9.5     | 16  | 13.1      | 43.1 |         | 6.7 | 51   | 24.3 | 1.6  | K    |  |
| 9.5       |    | 21.0    | 22.2 | 9.5       | 30  | 29.2    | 40.3 |           | 6.7 |         | 42.7 | 24.8      | L | 9.2     |     | 39.2      | 20.3 |         | 9.5 |      | 30.8 | 24.2 |      |  |
| 9.4       |    | 29.0    | 17.8 | 9.5       |     | 33.5    | 18.3 |           | 9.5 | 49      | 7.0  | 18.9      |   | 9.5     | 17  | 32.3      | 11.3 |         | 9.5 |      | 41.6 | 7.0  |      |  |



1972



1977



- Le catalogue Bonner Durchmusterung (Argelander 1852-1903)



— 43 —

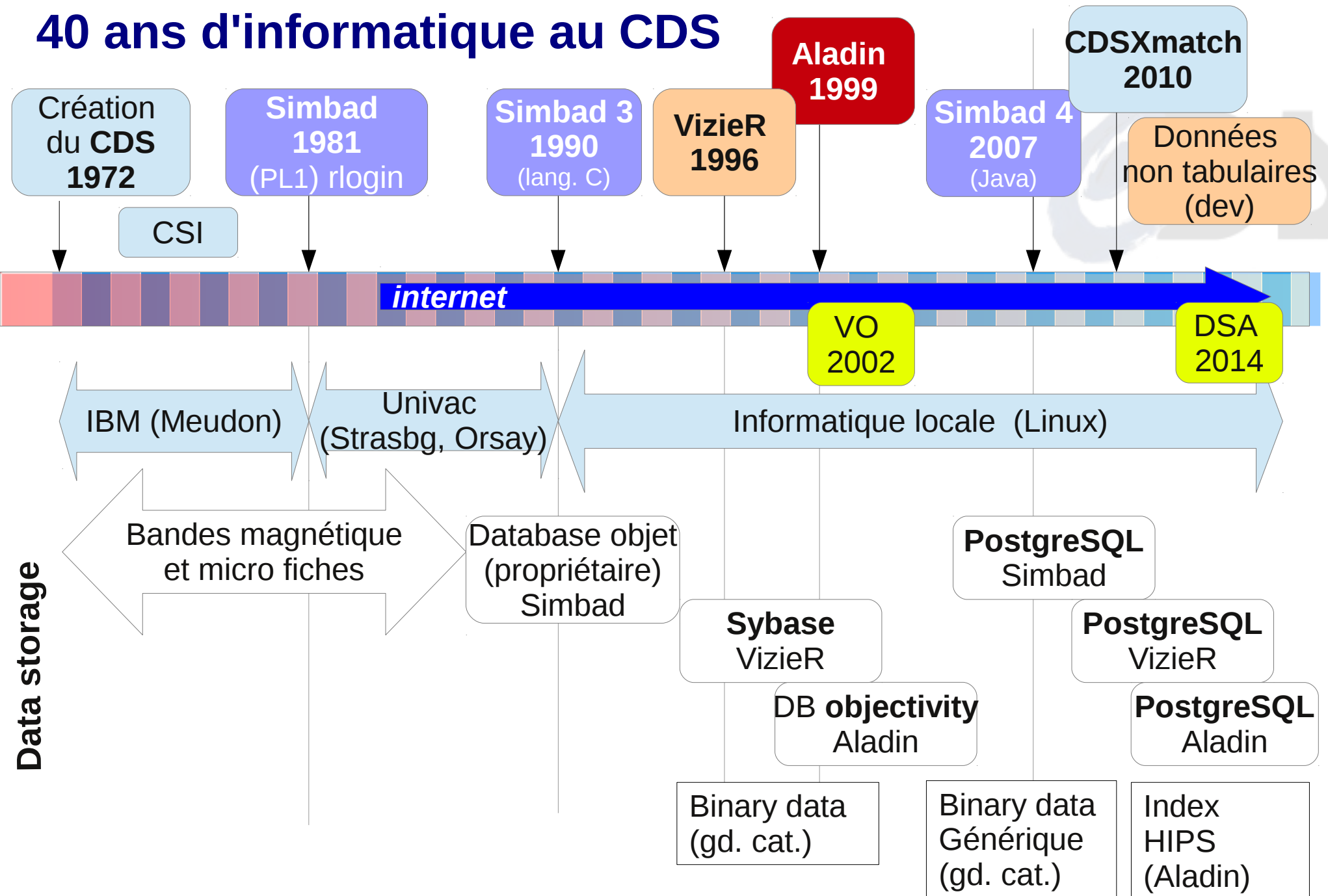
$S^u - 10^u$   $+22^0$

| 1901—1960 |          |         | 1961—2020 |          |          | 2021—2080 |             |          | 2081—2140 |       |         | 2141—2200 |              |         |          |          |      |   |
|-----------|----------|---------|-----------|----------|----------|-----------|-------------|----------|-----------|-------|---------|-----------|--------------|---------|----------|----------|------|---|
| m         | $8^u$    | $+22^0$ | m         | $8^u$    | $+22^0$  | m         | $8^u - 9^u$ | $+22^0$  | m         | $9^u$ | $+22^0$ | m         | $9^u - 10^u$ | $+22^0$ |          |          |      |   |
| 9.2       | 10' 14.0 | 2.6     | 9.2       | 28' 8.3  | 18.2     | K         | 8.1         | 47' 37.7 | 14.5      | K     | 9.5     | 13' 40.5  | 27.2         | 9.1     | 46' 20.1 | 8.9      | K    |   |
| 9.4       | 18.8     | 15.5    | 7.7       | 12.2     | 40.9     | K         | 9.1         | 44.2     | 8.3       | K     | 8.2     | 44.8      | 6.4          | R       | 9.2      | 39.8     | 5.9  | K |
| 9.5       | 20.7     | 47.5    | 9.2       | 18.7     | 13.7     | K         | 9.5         | 45.4     | 58.9      |       | 9.2     | 46.9      | 58.3         | B       | 9.4      | 44.9     | 28.3 |   |
| 9.5       | 29.2     | 9.0     | 9.3       | 48.4     | 49.0     |           | 9.5         | 45.8     | 42.1      |       | 9.2     | 47.2      | 1.8          | B       | 9.5      | 48' 6.6  | 20.0 |   |
| 9.5       | 51.1     | 55.4    | 8.6       | 54.3     | 29.0     | K         | 8.9         | 48' 0.7  | 24.8      | K     | 9.5     | 14' 8.5   | 8.6          | 9.4     | 39.3     | 11.3     |      |   |
| 9.2       | 53.2     | 47.1    | 9.5       | 29' 18.1 | 31.2     |           | 9.5         | 11.5     | 59.6      | B     | 9.0     | 52.0      | 56.8         | 9.5     | 49' 40.4 | 34.2     |      |   |
| 9.5       | 56.4     | 1.3     | 9.5       | 32.9     | 44.5     |           | 9.2         | 26.3     | 26.5      | K     | 9.1     | 15' 1.5   | 49.2         | K       | 8.2      | 50' 23.4 | 59.3 | K |
| 9.4       | 11' 3.4  | 8.8     | B         | 9.5      | 47.6     | 54.2      |             | 9.5      | 40.1      | 33.7  |         | 9.5       | 16' 13.1     | 43.1    | 6.7      | 51' 24.3 | 1.6  | K |
| 9.5       | 21.0     | 22.2    |           | 9.5      | 30' 29.2 | 40.3      |             | 6.7      | 42.7      | 24.8  | L       | 9.2       | 39.2         | 20.3    | 9.5      | 30.8     | 24.2 |   |
| 9.4       | 29.0     | 17.8    |           | 9.5      | 33.5     | 18.3      |             | 9.5      | 49' 7.0   | 18.9  |         | 9.5       | 17' 32.3     | 11.3    | 9.5      | 41.6     | 7.0  |   |

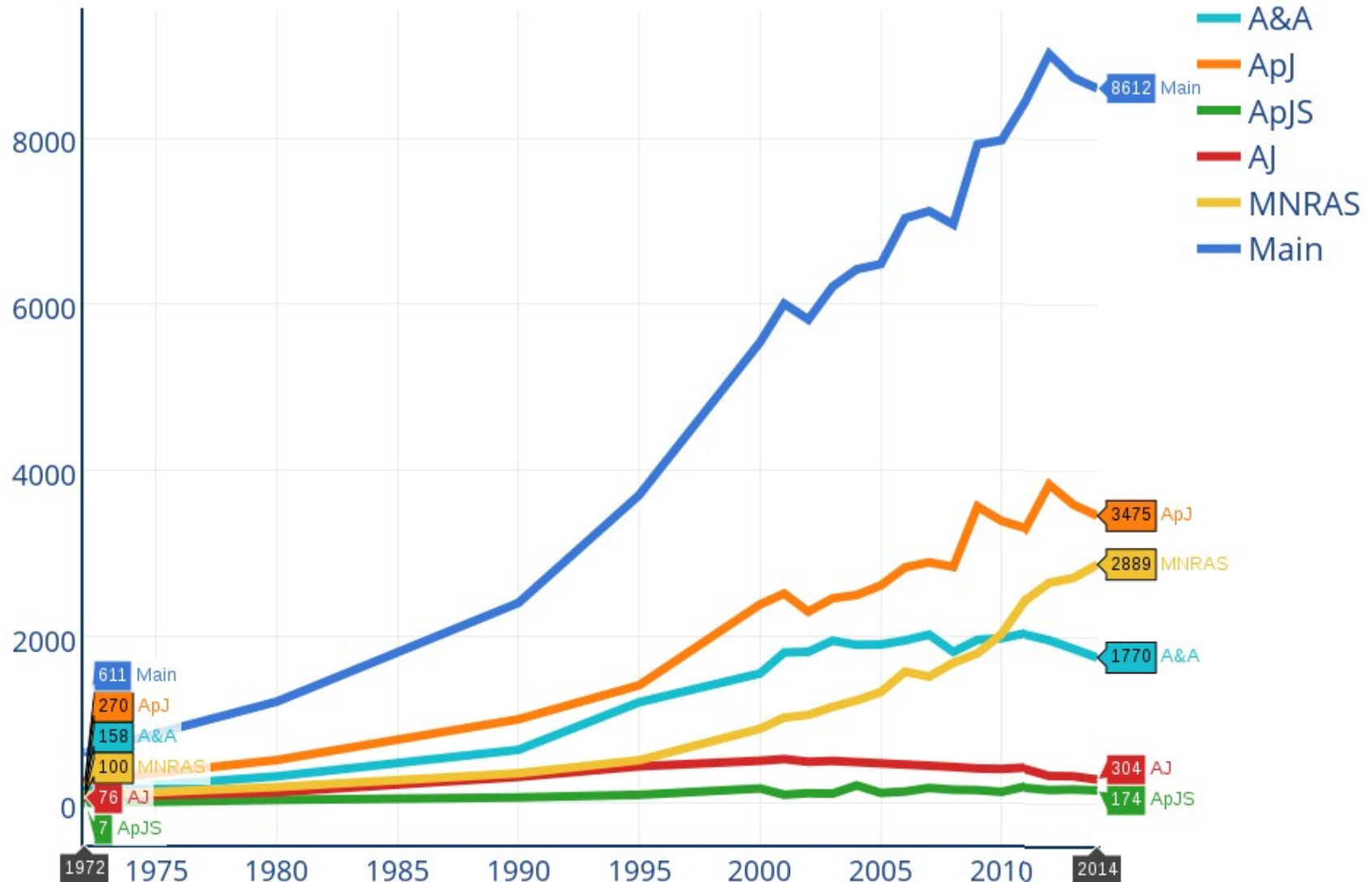


| Full     | RAJ2000    | DEJ2000   | zonesign | zone | num  | suppl | mag | RA1855     | DE1855   | RA.icrs    | DE.icrs   |
|----------|------------|-----------|----------|------|------|-------|-----|------------|----------|------------|-----------|
|          | "h:m:s"    | "d:m:s"   |          | deg  |      |       | mag | "h:m:s"    | "d:m:s"  | "h:m:s"    | "d:m:s"   |
| <u>1</u> | 08 18 44.2 | +21 35 46 | +        | 22   | 1901 |       | 9.2 | 08 10 14.0 | +22 02.6 | 08 18 44.2 | +21 35 46 |
| <u>2</u> | 08 18 49.7 | +21 48 40 | +        | 22   | 1902 |       | 9.4 | 08 10 18.8 | +22 15.5 | 08 18 49.7 | +21 48 40 |
| <u>3</u> | 08 18 53.4 | +22 20 39 | +        | 22   | 1903 |       | 9.5 | 08 10 20.7 | +22 47.5 | 08 18 53.4 | +22 20 39 |
| <u>4</u> | 08 18 59.7 | +21 42 08 | +        | 22   | 1904 |       | 9.5 | 08 10 29.2 | +22 09.0 | 08 18 59.7 | +21 42 08 |
| <u>5</u> | 08 19 24.1 | +22 28 28 | +        | 22   | 1905 |       | 9.5 | 08 10 51.1 | +22 55.4 | 08 19 24.1 | +22 28 28 |
| <u>6</u> | 08 19 25.7 | +22 20 09 | +        | 22   | 1906 |       | 9.2 | 08 10 53.2 | +22 47.1 | 08 19 25.7 | +22 20 09 |

## 40 ans d'informatique au CDS

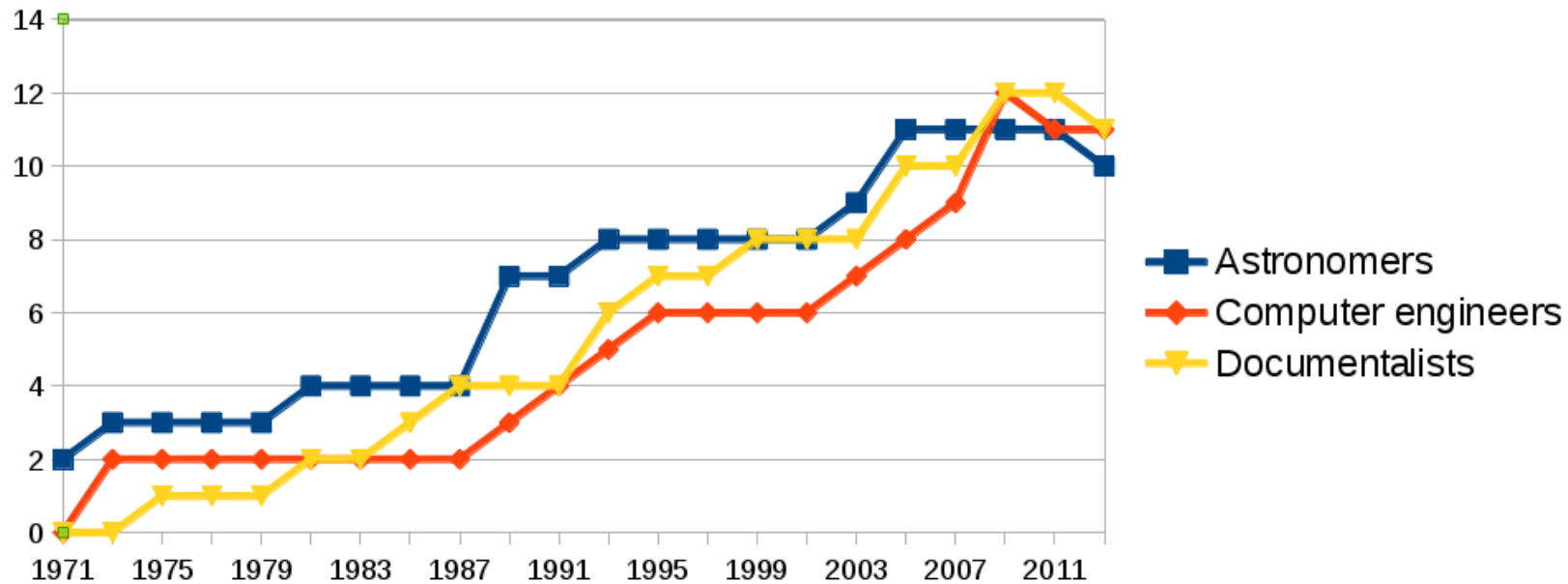


Nombre de références par année et par journal

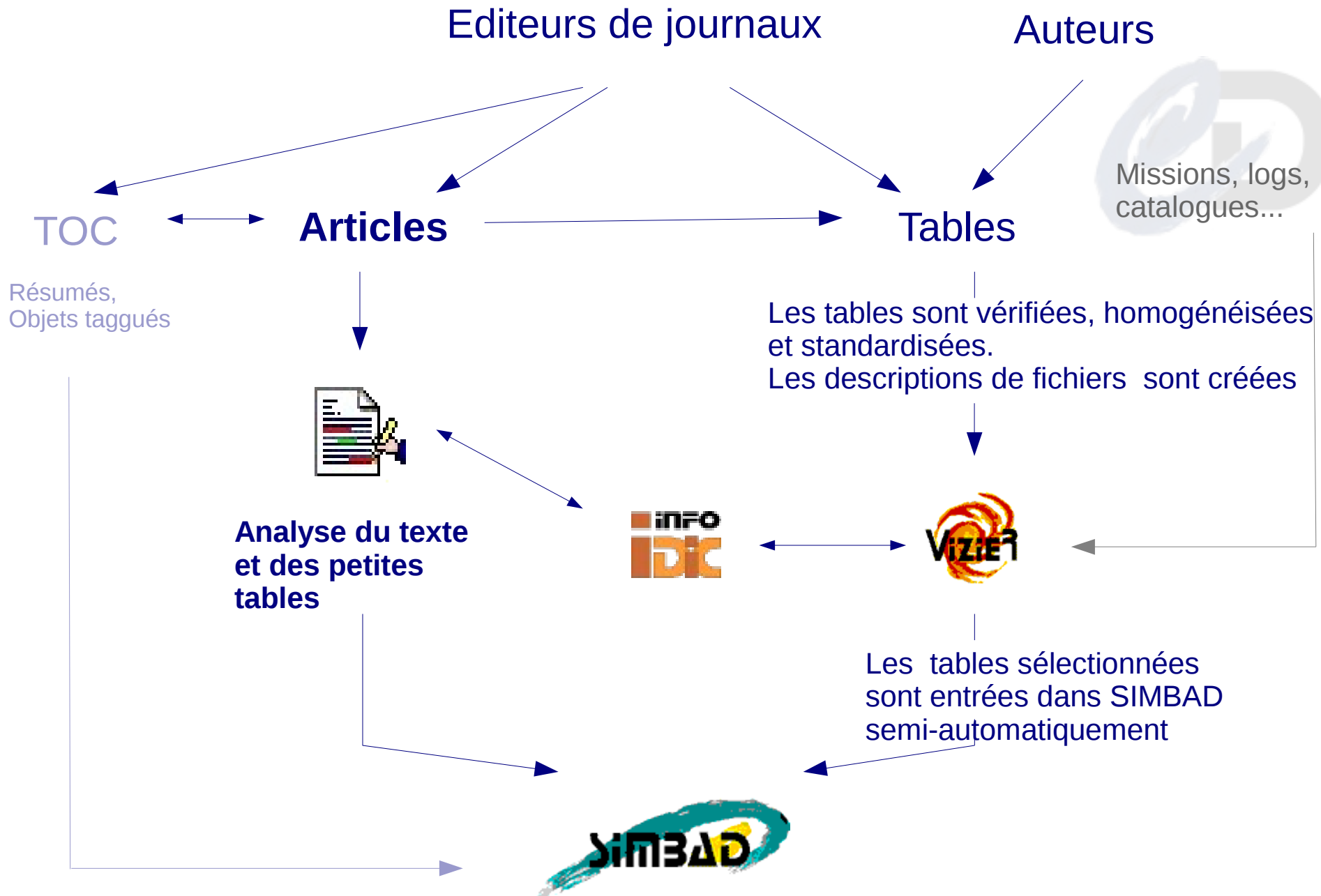




- Un personnel également en évolution



Un équilibre entre les 3 métiers...



## Extensive optical and near-infrared observations of the nearby, narrow-lined type Ic SN 2007gr: days 5 to 415<sup>★</sup>

D. J. Hunter<sup>1</sup>, S. Valenti<sup>1</sup>, R. Kotak<sup>1</sup>, W. P. S. Meikle<sup>2</sup>, S. Taubenberger<sup>3</sup>, A. Pastorello<sup>1</sup>, S. Benetti<sup>4</sup>, V. Stanishev<sup>5</sup>, S. J. Smartt<sup>1</sup>, C. Trundle<sup>1</sup>, A. A. Arkharov<sup>6,7</sup>, F. Bufano<sup>4</sup>, E. Cappellaro<sup>4</sup>, E. Di Carlo<sup>8</sup>, M. Dolci<sup>8</sup>, N. Elias-Rosa<sup>9</sup>, S. Frandsen<sup>10</sup>, J. U. Fynbo<sup>11</sup>, U. Hopp<sup>12,13</sup>, V. M. Larionov<sup>6,7</sup>, P. Laursen<sup>11</sup>, P. Mazzali<sup>3,4,14</sup>, H. Navasardyan<sup>4</sup>, C. Rieš<sup>12</sup>, A. Riffeser<sup>12</sup>, L. Rizzi<sup>15</sup>, D. Y. Tsvetkov<sup>16</sup>, M. Turatto<sup>4</sup>, and S. Wilke<sup>12</sup>

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Received 15 July 2009 / Accepted 17 September 2009

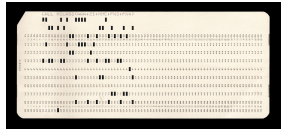
### ABSTRACT

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.





1972



Cartes perforées



CSI

1980



alpha 20



SIMBAD2

1990



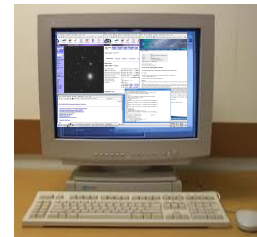
vt100



SIMBAD3

TOC

1993



terminal X

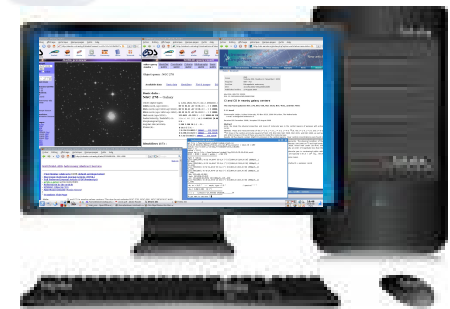


SIMBAD4

Articles en ligne

1998

2006



station de travail

DJIN

2008



## DJIN (Detection in Journals of Identifiers and Names)

Ce programme développé au CDS et opérationnel depuis 2008 permet de reconnaître semi-automatique des noms d'objets astronomiques à partir du texte complet accessible en ligne. Ce logiciel est basé sur le dictionnaire de nomenclature des objets célestes.

Une validation par des documentalistes est nécessaire pour :

- Valider ou non ces objets
- Rechercher les objets non détectés automatiquement
- Rechercher toute information complémentaire attachée à ces objets

Échanges avec un astronome référent en cas d'objets complexes.

Valeurs ajoutées : occurrence, positions

Faciliter le travail des documentalistes et mettre en avant leur expertise scientifique.

The screenshot shows the DJIN software interface. The main window displays a list of 62 object names (e.g., 6-10 (1), C I (1), DD-3 (1), etc.) on the left. The central panel shows a list of scientific figures (Fig. 7, Fig. 8, Fig. 9, etc.) with their corresponding text. Two dialog boxes are open: 'Verification in Simbad' and 'Visualization'.

**Verification in Simbad:**

- existing names : 33
- not existing names : 29
- rejected occurrences : 20

**Visualization:**

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b 2009A&A..508..371H
o NGC 1058, +xG, +NGC 1058, = 7
v
o NGC 925, +x, +NGC 925, = 2
v
o SN 1961V, +x, +SN 1961V, = 1
v
o SN 1969L, +x, +SN 1969L, = 1
v
o SN 1983N, +x, +SN 1983N, = 2
v
o SN 1985F, +x, +SN 1985F, = 2
v
o SN 1987A, +xG, +SN 1987A;SNe 1987A, = 16
v
o SN 1990I, +x, +SN 1990I, = 1
v
o SN 1993J, +c, +SN 1993J, = 1
v
o SN 1994D, +x, +SN 1994D, = 1
v
o SN 1994i, +xcd, +SN 1994i, = 28
v
o SN 1995ad, +x, +SN 1995ad, = 1
v
    
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- 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,  $\lambda$  5896) and O I ( $\lambda$  8446) emission lines are indicated in the right panel.

Fig. 9. Comparison of spectra of SNe about one month (left) and at maximum light (right) for [SN 2007qr](#). The profiles of the permitted lines of O I ( $\lambda$  7774 Å and Mg I ( $\lambda$  15025 Å) are shown in the right panel. The profiles are described in Sect. 5.2, with the exception of type Ib and Ic SNe. The profiles are from references listed in Table 2 with the exception of [SN 2008sa](#) (Mazzali et al. 2007; Taubenberger et al. 2009) and [SN 1999ex](#) (Valenti et al., in prep.). The spectra of the type Ib [SNe 2007Y](#) and [SN 1999ex](#) (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. 10. 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 ( $\lambda$  7774 Å and Mg I ( $\lambda$  15025 Å). The vertical lines in the panels correspond to zero velocity i.e. the rest wavelengths of the line profiles.

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 ( $\lambda$  7774 Å and Mg I ( $\lambda$  15025 Å). The vertical lines 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. Rypko acknowledges the Dark Cosmology Centre which is supported by the DNRF. R.K. and S.J.S. acknowledge financial support from STFC.

**Result**

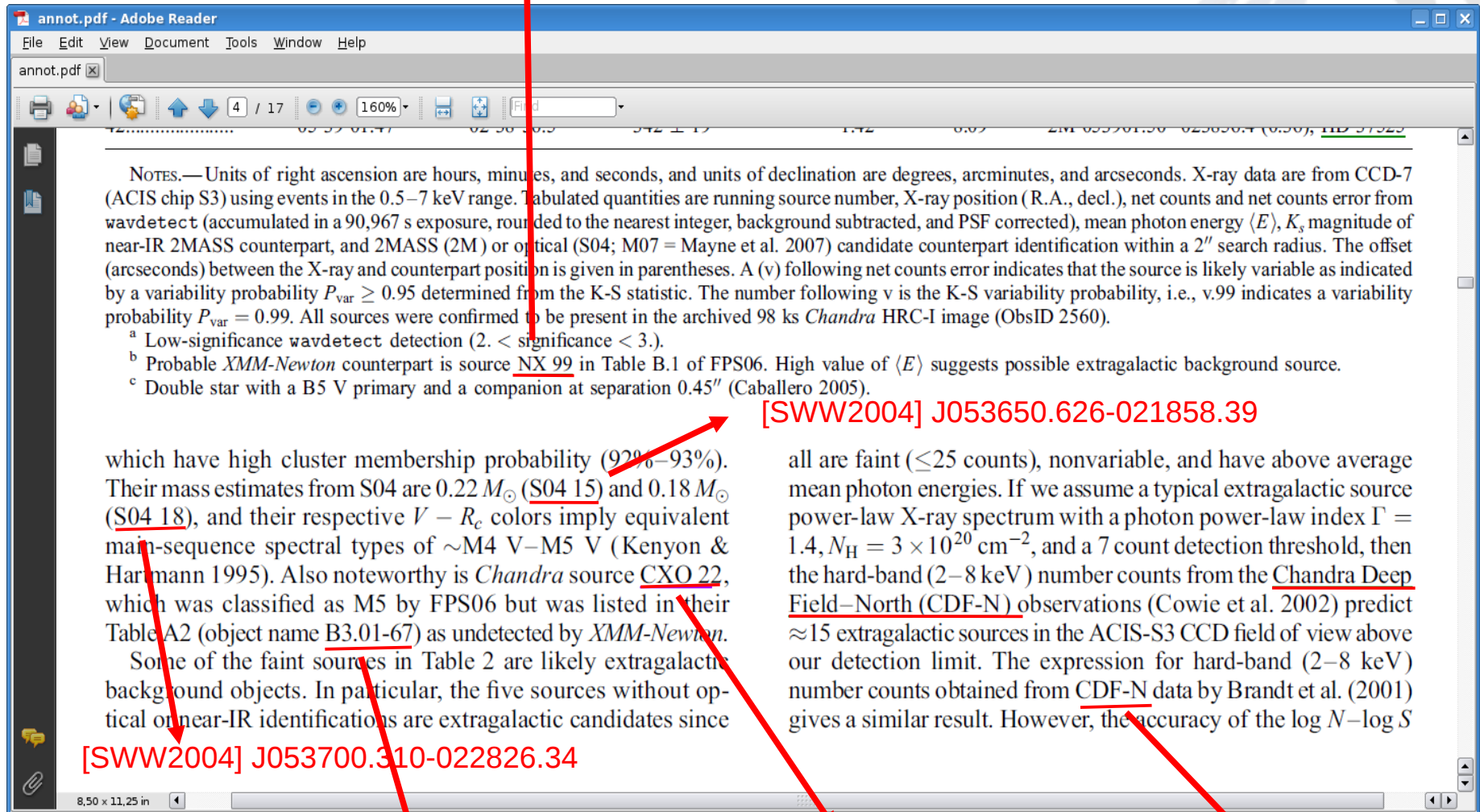
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[SWW2004] J053700.310-022826.34

[SWW2004] J053650.626-021858.39

[KJN2005] 3,01-67

[SSC2008] 22

NAME CDF-N

## 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)
- 
- Valeur ajoutée : occurrence, position → tri
  - Outil adapté





## 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 [tkasoxc,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.; FRANSEN 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](#)



## References (111 between 1850 and 2015)

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

SN 2007gr ,

sort references

display

reference summary

from: 1850 to: 2015

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

Date

Title|Abstract|Keyword

In table

Score

send the bibcodes to ADS

[2014A&A...572A..75K](#) ( in **abstract**, **keyword**, *caption*, *table*, *text* ) [ K A X C D ,52]

Astron. Astrophys., 572A, 75-75 (2014)

**SN 2005at - A neglected Type Ic supernova at 10 Mpc.**

KANKARE E., FRASER M., RYDER S., ROMERO-CANIZALES C., MATTILA S., KOTAK R., LAURSEN P., MONARD L.A.G., SALVO M. and VAEISAENEN

### Comments & notes:

**flags:** (abstract)

[2014ApJ...790..120C](#) ( in **title**, **abstract**, **keyword**, *subtitle*, *caption*, *text* ) [T K A S X C ,104]

Astrophys. J., 790, 120 (2014)

**Optical observations of the Type IC supernova 2007gr in NGC 1058.**

CHEN J., WANG X., GANESHALINGAM M., SILVERMAN J.M., FILIPPENKO A.V., LI W., CHORNOCK R., LI J. and STEELE T.

### Comments & notes:

**notes:** Table 2: standard stars are not in SIMBAD.

**flags:** (abstract)

[2014MNRAS.438.2924C](#) ( in **abstract**, *subtitle*, *caption*, *table*, *figure*, *text* ) [ A S X C D F ,24]

Mon. Not. R. Astron. Soc., 438, 2924-2937 (2014)

**Type Ib SN 1999dn as an example of the thoroughly mixed ejecta of Ib supernovae.**

CANO Z., MAEDA K. and SCHULZE S.

### Comments & notes:

**notes:** In Chap. 1 : SN 2000we is a misprint for SN 2000ew.

**flags:** (abstract)

[2013ApJ...762...14M](#) ( in **keyword**, *caption*, *text* ) [ K X C ,36]

Astrophys. J., 762, 14 (2013)


**Probing shock breakout and progenitors of stripped-envelope supernovae through their early radio emissions.**

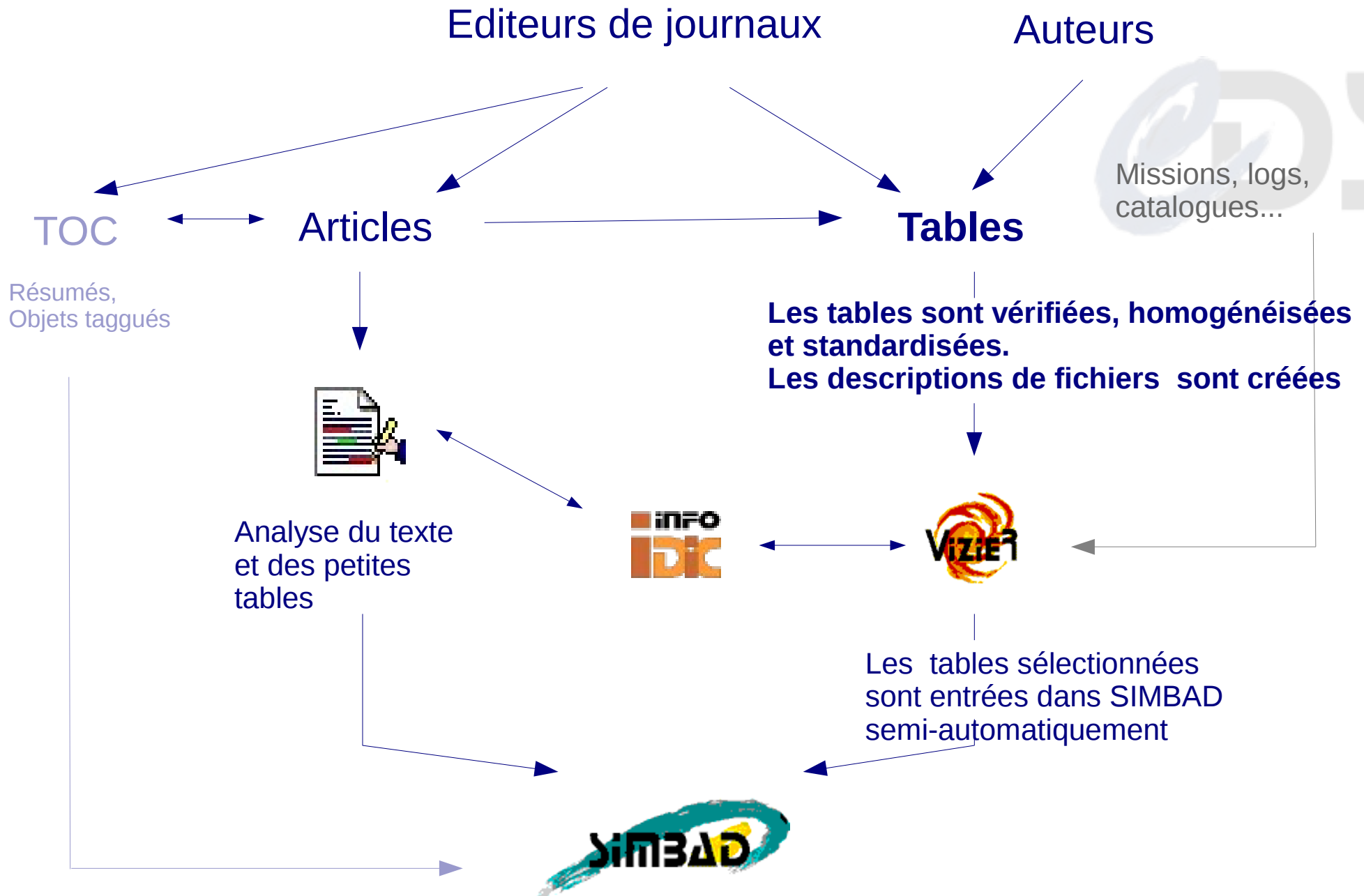
MAEDA K.



Sort references on where and how often the object is cited  
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|--|-------------|---|---------------------|-----------------------------------|------------------------|-------------------------------|----------------------------------|--|--|
| <a href="#">2009A&amp;A...508...371H</a><br> | 7187        | T K A                                   |                     | S O X C                           | 172                    | 32                            | 38                               | Extensive optical and near-infrared observations of the nearby, narrow-lined type IC <b>SN 2007gr</b> : days 5 to 415. | HUNTER D.J., VALENTI S., KOTAK R., et al.          |
| <a href="#">2014ApJ...790...120C</a>   | 4973        | T K A                                   |                     | S X C                             | 104                    | 16                            | ~                                | Optical observations of the Type IC supernova 2007gr in NGC 1058.  | CHEN J., WANG X., GANESHALINGAM M., et al.         |
| <a href="#">2014A&amp;A...572A...75K</a>   | 2426        | K A                                     | D                   | X C                               | 52                     | 1                             | ~                                | SN 2005at - A neglected Type Ic supernova at 10 Mpc.   | KANKARE E., FRASER M., RYDER S., et al.            |
| <a href="#">2010ApJ...725...922S</a>   | 2200        | T K A                                   |                     | X C                               | 51                     | 18                            | 24                               | Radio and X-ray observations of the type IC <b>SN 2007gr</b> reveal an ordinary, non-relativistic explosion.           | SODERBERG A.M., BRUNTHALER A., NAKAR E., et al.    |
| <a href="#">2010MNRAS.408...87M</a>  | 1828        | T K A                                   |                     | X C F                             | 41                     | 3                             | 19                               | The type IC <b>SN 2007gr</b> : a census of the ejecta from late-time optical-infrared spectra.                         | MAZZALI P.A., MAURER I., VALENTI S., et al.        |
| <a href="#">2008ApJ...673L.155V</a>  | 1790        | T K A                                   | D                   | X C                               | 43                     | 11                            | 36                               | The carbon-rich type Ic <b>SN 2007gr</b> : the photospheric phase.   | VALENTI S., ELIAS-ROSA N., TAUBENBERGER S., et al. |
| <a href="#">2008ApJ...689.1191T</a>  | 1682        | T K                                     | D                   | S X C                             | 39                     | 14                            | 17                               | Optical spectropolarimetry and asphericity of the type IC <b>SN 2007gr</b> .   | TANAKA M., KAWABATA K.S., MAEDA K., et al.         |
| <a href="#">2013ApJ...762...14M</a>  | 1659        | K                                       |                     | X C                               | 36                     | 5                             | 6                                | Probing shock breakout and progenitors of stripped-envelope supernovae through their early radio emissions.            | MAEDA K.   |



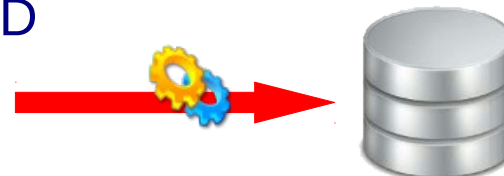
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|---|--------|---------------------|--|--|-----|
| <b>J/ApJ/736/42</b> HST QSO Catalog (Ribado+, 2011)   |        |                     |  |  |     |
| A Hubble space telescope study of Lyman limit systems: census and evolution.<br>Ribado J., Lehner N., Howk J.C.<br><Astrophys. J., 736, 42 (2011)><br>= <a href="#">2011ApJ...736...42R</a>   |        |                     |  |  |     |
| <b>ADC_Keywords:</b> QSOs ; Spectra, ultraviolet  |        |                     |  |  |     |
| <b>Keywords:</b> intergalactic medium; quasars: absorption lines  |        |                     |  |  |     |
| <b>Abstract:</b><br>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 $\sim 10$ .  |        |                     |  |  |     |
| <b>Description:</b><br>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 Ribado et al. Included in our sample, but not reproduced here, are the QSO observations from Bechtold et al. (2002, Cat. <a href="#">J/ApJS/140/143</a> ). |        |                     |  |  |     |
| <b>File Summary:</b>  |        |                     |  |  |     |
| 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) (*.dat) and from FOS (Pre-Costar) (*.dat) |  |     |
| <b>See also:</b><br><a href="#">J/ApJS/140/143</a> : HST FOS spectral atlas (Bechtold+, 2002)   |        |                     |  |  |     |
| <b>Byte-by-byte Description of file:</b> <a href="#">tables.dat</a>   |        |                     |  |  |     |
| 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                         |     |

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Vérification de la cohérence par un astronome

Les données/méta-données tabulaires sont stockés sous forme de tables dans le SGBD



- Description des tables :
  - Standardisation
  - Vérification – corrections (retour vers les auteurs)
- Integration dans VizieR
  - 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, série temporelles .... issues des articles)
- Réunion hebdomadaire entre astronomes, documentalistes et informaticiens



# La construction du contenu

[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 | <u>RAJ2000</u><br>"h:m:s" | <u>DEJ2000</u><br>"d:m:s" | QSO        | sp | <u>RAJ2000</u><br>deg | <u>DEJ2000</u><br>deg | z     | <u>GLON</u><br>deg | <u>GLAT</u><br>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               |            |    |                       |                       |       |                    |                    |                      |      |       |
| 9    | 01 32 33.88               | +01 16 07.1               |            |    |                       |                       |       |                    |                    |                      |      |       |
| 10   | 01 34 05.74               | +00 51 09.6               |            |    |                       |                       |       |                    |                    |                      |      |       |

- UCDs information standardisée qui définit le contenu : position, éclat, vitesse, etc permet de retrouver toutes les tables contenant une même quantité

VizieR Detailed Page

start AladinLite

[J/ApJ/736/42/tables](#) [HST QSO Catalog \(Ribaud+, 2011\)](#) [ReadMe+ftp](#) recno=1  
 QSOs observed with STIS and FOS and a few observation details (312 rows)

Find more around this position in : [Aladin Image](#) [VizieR](#) [Simbad](#) [CDS Portal](#) [table view](#)

| Column   | Value                | Explain (UCD)  |
|----------|----------------------|--|
| _RAJ2000 | 00 21 33.26 "h:m:s"  | Right ascension (FK5, Equinox=J2000.0) (computed by VizieR, not part of the original data) ( <a href="#">pos.eq.ra</a> ) |
| _DEJ2000 | +00 43 00.7 "d:m:s"  | Declination (FK5, Equinox=J2000.0) (computed by VizieR, not part of the original data) ( <a href="#">pos.eq.dec</a> )    |
| _RAJ1950 | 00 18 59.43 "h:m:s"  | Right ascension (FK4, Equinox=B1950.0) (computed by VizieR, not part of the original data) ( <a href="#">pos.eq.ra</a> ) |
| _DEB1950 | +00 26 22.6 "d:m:s"  | Declination (FK4, Equinox=B1950.0) (computed by VizieR, not part of the original data) ( <a href="#">pos.eq.dec</a> )    |
| _Glon    | 107.2538 deg         | Galactic longitude (computed by VizieR, not part of the original data) ( <a href="#">pos.galactic.lon</a> )              |
| _Glat    | -61.2419 deg         | Galactic latitude (computed by VizieR, not part of the original data) ( <a href="#">pos.galactic.lat</a> )               |
| recno    | 1                    | Record number assigned by the VizieR team. Should Not be used for identification. ( <a href="#">meta.record</a> )        |
| QSO      | J0021+0043           | QSO name ( <a href="#">meta.id.meta.main</a> )   |
| sp       | sp                   | Plot of the spectrum ( <a href="#">meta.ref.url</a> )  |
| RAJ2000  | 005.38860 deg        | Right Ascension in decimal degrees (J2000) ( <a href="#">pos.eq.ra.meta.main</a> )                                       |
| DEJ2000  | +00.71687 deg        | Declination in decimal degrees (J2000) ( <a href="#">pos.eq.dec.meta.main</a> )  |
| z        | 1.243                | QSO Redshift ( <a href="#">src.redshift</a> )  |
| GLON     | 107.25376 deg        | Galactic Longitude of QSO ( <a href="#">pos.galactic.lon</a> )   |
| GLAT     | -61.24186 deg        | Galactic Latitude of QSO ( <a href="#">pos.galactic.lat</a> )  |
| FileName | stis/J0021+0043a.dat | Spectrum file name ( <a href="#">meta.id.meta.file</a> )   |
| Inst     | STIS                 | Instrument used for observation (STIS or FOS) ( <a href="#">instr.setup</a> )  |
| Grat     | G230L                | Grating used for observation (G140L, G160L or G230L) ( <a href="#">instr.setup</a> )                                     |
| Note     |                      | Observational note (COSTAR, PRECOSTAR, etc) ( <a href="#">meta.note</a> )  |

Thanks for acknowledging the VizieR Service © UDS/CNRS  
 Rules of usage of VizieR data [Contact](#)

THE ASTROPHYSICAL JOURNAL

The Astrophysical Journal • Volume 736 • Number 1  
 Joseph Ribaud, Nicolas Lehner, and J. Christopher Hovik  
 Joseph Ribaud, Nicolas Lehner, and J. Christopher Hovik  
 Show affiliations

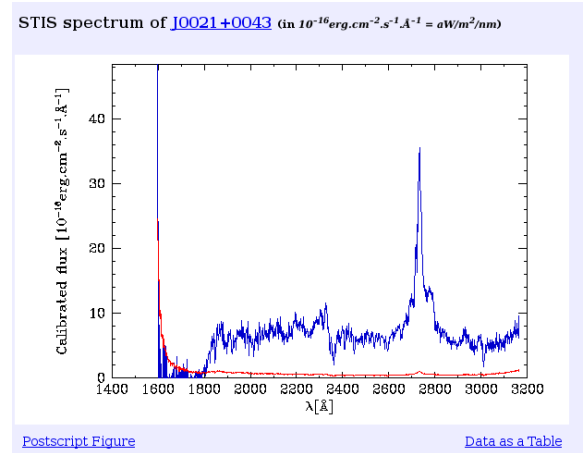
**A HUBBLE SPACE TELESCOPE STUDY OF LYMAN LIMIT SYSTEMS: CENSUS AND EVOLUTION\***

FREE ISSUE

Tag this article PDF (964 KB) View article

Abstract References Cited By Metrics

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 catalogued LLSs at  $z < 2.6$  by a factor of  $\sim 30$ . We compile a statistical sample of 50 LLSs drawn from 249 QSO sight lines that avoid known targeting biases. The incidence of such LLSs per unit redshift,  $\xi(z) = dN/dz$ , at these redshifts is well described by a single power law,  $\xi(z) \propto (1+z)^{\gamma}$ , with  $\gamma = 1.33 \pm 0.61$  at  $z = 2.6$ , or with  $\gamma = 1.83 \pm 0.21$  over the redshift range  $0.2 \leq z \leq 4.9$ . The incidence of LLSs per absorption distance,  $\langle X \rangle$ , decreases by a factor of  $\sim 1.5$  over the  $-0.6$  Gyr from  $z = 4.9$  to  $3.6$ .  $\langle X \rangle$  evolves much more slowly at low redshifts, decreasing by a similar factor over the  $-8$  Gyr from  $z = 2.6$  to  $0.25$ . We show that the column density distribution function,  $f(N_{\text{H I}})$ , at low redshift is not well fitted by a single power-law index ( $f(N_{\text{H I}}) \propto N_{\text{H I}}^{-\beta}$ ) over the column density range  $13 \leq \log N_{\text{H I}} \leq 22$  or  $\log N_{\text{H I}} \geq 17.2$ . While low- and high-redshift  $f(N_{\text{H I}})$  distributions are consistent for  $\log N_{\text{H I}} > 19.0$ , there is some evidence that  $f(N_{\text{H I}})$  evolves with  $z$  for  $\log N_{\text{H I}} < 17.7$ , possibly due to the evolution of the UV background and galactic feedback. Assuming LLSs are associated with individual galaxies, we show that the physical cross section of the optically thick envelopes of galaxies decreased by a factor of  $\sim 9$  from  $z = 5$  to 2 and has remained relatively constant since that time. We argue that a significant fraction of the observed population of LLSs arises in the circumgalactic gas of sub- $L^*$  galaxies.



≠ Liens

coord 00 21 33.26 +00 43 00.7 (ICRS, J2000, 2000.0), radius: 2 arcmin

other query Identifier Coordinate Criteria Reference Basic Script TAP Output Help modes : query query query query query submission options

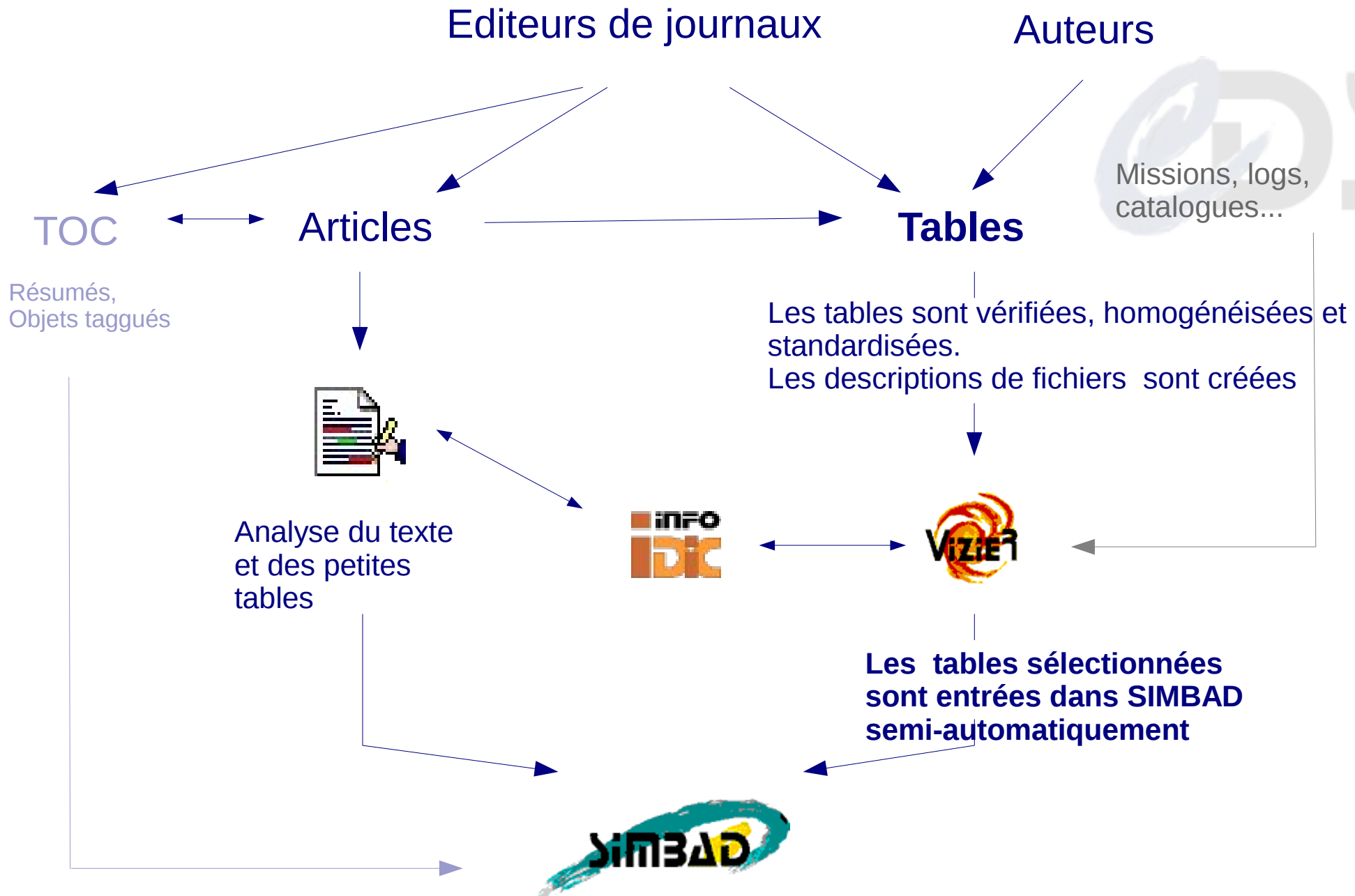
Query : coord 00 21 33.26 +00 43 00.7 (ICRS, J2000, 2000.0), radius: 2 arcmin

Number of rows : 5 [Plot](#)

| N | Identifer                         | dist(asec) | ObjType | ICRS (J2000) RA | ICRS (J2000) DEC |
|---|-----------------------------------|------------|---------|-----------------|------------------|
| 1 | [WH2005] QSO J0021+0043 abs 0.842 | 0.34       | DLA     | 00 21 33.27     | +00 43 01.0      |
| 2 | LBQS 0018+002e                    | 0.39       | QSO     | 00 21 33.2778   | +00 43 00.991    |
| 3 | 2MASS J0021312e+0042550           | 29.93      | LM*     | 00 21 31.30     | +00 42 55.1      |
| 4 | 2MASS J002134e1+004417e           | 80.78      | LM*     | 00 21 34.51     | +00 44 17.6      |
| 5 | SDSS J002138.43+004215.7          | 102.94     | *       | 00 21 38.434    | +00 42 15.74     |

plot this list of objects  Equat.  Gal  Sgal  Ecl







- 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
- COSIM : outil qui permet d'intégrer les objets des tables de façon semi-automatique en fonction de nombreux critères.
  - Nécessite l'écriture de scripts
  - Validation des résultats



## COSIM (Comparison of Objects for SIMbad)

```
1| 1H | 0.09|145.1|16.93| BEGIN {
2| 2IC | 11.11|161.6| | #table Vizier ajouter le FS="|"
3| 3B | 11.06|160.9| | #table Vizier ajouter le FS="|"
4| 4I | 9.30|135.2|16.87| #table Vizier ajouter le FS="|"
5| 5H | 0.25|134.4|16.25| #table Vizier ajouter le FS="|"
6| 6IG | 9.15|133.2|16.72| #table search_2mass out
7| 7H | 9.15|133.2|16.74| while ((getline < "mass
8| 8IG | 8.99|130.7|16.92| if ($0 ~ (/n/))
9| 9IG | 9.18|133.5|16.79|
10| 10I | 8.75|127.3|16.25|
11| 11IG | 9.19|133.6|15.83|
12| 12I |
```

exécution du script AWK

```
.B 2011A&A...530A.108E
.scsearch_5"
%I.0
%I.R VFTS 122; IRSF 05374226-6909415
%I IRSF J05365338-6908183
%J 05 36 53.390 -69 08 18.29 (Opt)
%M V 16.93 D 2011A&A...530A.108E
%M B 16.98 D 2011A&A...530A.108E
```

COSIM (Comparison of Objects for SIMbad)

|   |  |
|---|--|
| <pre>statistiques ##### * Identifier incorrect . Sesame rewrote : 190 NAME not found in Simbad . ##### Conflicting 3 Possible Merge (mult. good) 3 Possible Merge (id+coo) . Already Connected 4 ##### * id not found in Simbad 2135 ##### * UPDATE from id 352 * UPDATE from coo 0 NEW 396 DISPLAY 182 ##### total : Entree : 930 / Sortie : 930 ##### * see REJECTED  ##### DETAILS #####  ##### Identifier incorrect ##### #### FIN Identifier incorrect #####  #### NAME not found in Simbad ##### ##### FIN NAME #####</pre> | <pre>fichier de sortie !### Identifier not found in the database !### Identifier not found in the database %I.0 VFTS 122 %I.R VFTS 122; IRSF 05374226-6909415 %I IRSF J05374226-6909415 %J 05 37 42.280 -69 09 41.59 (Opt) C 201 %M V 16.53 D 2011A&amp;A...530A.108E %M B 16.77 D 2011A&amp;A...530A.108E %B 2011A&amp;A...530A.108E ! !.. 1/2: Y*0/ ( 0) 2.7"C ( 0.2) ! !@ = @5422731 ~ !C.0 Y*0 !CL IR !CL Y*0 !J 084.42762500000 -69.16211111111 (6) !J.E (IR ) [300 300 90] C 2009ApJS..184 !I.0 [GC2009] J053742.63-690943.6 !#B 2 ! !.. 2/2: Y*?/ ( 0) 2.8"D ( 1.1) ! !@ = @4054367 ~ !C.0 Y*? !CL Y*? !J 084.42791666667 -69.16200000000 (7) !J.E (~) [~ ~ ~] D 2007ApJ...659.1003K !I.0 [KKB2007] 30 Dor-01 !#B 1</pre> |
|---|--|

fichier d'entrée pour la mise à jour SIMBAD

Ce programme développé au CDS compare les données astronomiques tabulaires provenant des publications avec les données de Simbad.

Il génère des statistiques et un fichier de sortie détaillé montrant les compatibilités possibles entre les 2 lots de données.

Cette procédure semi-automatique est utilisée par l'équipe pour intégrer les tables et les catalogues dans SIMBAD en cherchant les cross-identifications possibles systématiquement.

# 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* ([Biblio](#)). 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.

Type in your words:

Choose one of Object class:

Select the output layout:  Default  SIMBAD Usage

Select the number of answers: Maximum of 100 entries

Submit

How to refer to a source or designate a new one is a short document from the Task 5 Designations of IAU Commission 5 which provides basic advices in this topic. A more complete 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 so that new objects become referenced (even informally).

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

Portal Simbad Vizier Aladin X-Match Other Help

## Dictionary of Nomenclature of Celestial Objects

(Last update: 24-Sep-2013)

Result of query: info cato (1\*(1\*(1)\*YSO)

| Obj. Type   | Acronym    | (Explanation)                               | Format   |
|---|------------|---|--|
| ? (NAME Ass Cep OB 3b)                                | [AGK2012]  | (Allen+Gutermuth+Kryukova+2012)             | [AGK2012] JHHMSS.ss+DDMMSS.s<br>[AGK2012] Cep OB3b East<br>[AGK2012] Cep OB3b West                                     |
| E+ YSO (NAME RHO OPH CLOUD)                           | [AMD2002]  | (Allen+Myers+Di Francesco+2002)             | [AMD2002] JHHMSS+DDMMSSA   |
| + Candidate_YSO (Barnard 59)                          | [BHB2007]  | (Brooke+Huard+Bourke+ 2007)                 | [BHB2007] NN   |
| E YSO (NAME RHO OPH CLOUD)                            | [BHM2012b] | (Barsony+Haisch+Marsh+ 2012)                | (not yet in Simbad)  |
| + YSO (NAME ORION NEBULA)                             | [BSD98]    | (Bally+Sutherland+Devine+ 1998)             | [BSD98] NN   |
| E Candidate_YSO (SMC = SMC)                           | [BSS2007]  | (Bolatto+Simon+Stanimirov+ 2007)            | [BSS2007] NNN  |
| E ? in...   | [CAH2008]  | (Chavarría+Allen+Hora+ 2008)                | [CAH2008] 00.dddddd+DD.dddd<br>[CAH2008] JHHMSS.ss+DDMMSS.s<br>[CAH2008] GLLL.L1+B.bb                                  |
| Radio (LDN 723)                                       | [CAR2008]  | (Carrasco-Gonzalez+Anglada+Rodriguez+ 2008) | [CAR2008] VLA 2Aa<br>[CAR2008] vN  |
| + YSO (NAME CHA 1)                                    | [CCE98]    | (Cambresy+Copet+Epchtein+ 1998)             | [CCE98] 1-NN<br>[CCE98] 2-NN   |
| E IR (LHA 120-N 44 = LHA 120-N 44) Star (Cl Terzan 5) | [CCG2009]  | (Chen+Chu+Gruendl+ 2009)                    | [CCG2009] JHHMSS.ss+DDMMSS.s   |
| E+ YSO  | [CDJ2011]  | (Clapson+Domainko+Jamrozny+ 2011)           | (not yet in Simbad)  |
| YSO (LHA 120-N 51D = LHA 120-N 51D)                   | [CG2010]   | (Connelley+Greene 2010)                     | [CG2010] IRAS HHMM+DDMM(W)<br>[CG2010] IRAS 04181+2655(M)<br>[CG2010] IRAS HHMM+DDMM(WN)<br>[CG2010] IRAS HHMM+DDMM(N) |

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 HHMMm+DDMM(W)>>  
<<[CG2010] IRAS 04181+2655(M)>>  
<<[CG2010] IRAS HHMMm+DDMM(WN)>>  
<<[CG2010] IRAS HHMMm+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 HHMMm+DDMM(W)>, <[CG2010] IRAS HHMMm+DDMM(WN)>, <[CG2010] IRAS HHMMm+DDMM(N)> N=50.

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

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

> 22. 000 acronymes  
+ 1 000 nouveaux acronymes / an

- Travail d'une documentaliste (avec une très bonne connaissance de l'astronomie)
- En réponse aux demandes des documentalistes et des astronomes de l'équipe
- Réunion hebdomadaire avec un astronome



## Equipe Biblio ->

### Sommaire :

- [Statuts](#) et [suivis](#) des MAJ (SIMBAD/VizieR/Dic)
- Qui fait quoi ?
  - [Organigramme](#) (Nov. 2013) et organisation (qui indexe quoi, domaines de compétences)
- Réunions biblio => points importants
- Présentations CDS

## SIMBAD (mise à jour) ->

### Sommaire :

- Manuel des [commandes de mise à jour](#)
- Manuel détaillé du [bibliographe](#)
- [Réunions =g=](#) (qui abordent le contenu pour la MAJ SIMBAD en plus des priorités de traitement pour COSIM)
- Autres points abordés dans cette section : les problèmes d'identification, etc.

## RACCORD ->

### Sommaire :

- Manuel de [COSIM](#)
- Manuel de [Raccord](#)
- Trucs/bon à savoir sur les commandes et options
- Projet du nouveau Raccord : [Projet Nouveau Intégrateur de Données](#)

## DJIN ->

### Sommaire :

- [Manuel](#) de DJIN
- [Réunions](#)
- ...

## VizieR ->

### Sommaire :

- Standards et Documentation
  - Le [ReadMe](#) pour les utilisateurs
  - [Les unités dans VizieR](#)
- Procédures de MAJ FTP/VizieR
  - Explication de la [procédure](#)
  - Commandes de création, vérifications et entrées des données : [exemples](#)
  - [Documentation d'ingestion par Francois](#)

## Dictionnaire ->

- Procédures
- Quelques points sur l'identification des objets

## Astrophysique ->

### Sommaire:

- Eclaircissements Types d'objets [V\\* \\*\\* Em\\*](#) [BD\\* WD\\* lentilles](#) [SFR](#) [SBG](#) [QSO](#) [SyG](#) [rG](#)
- Eclaircissements DF/data
  - Sp Type [1](#), [2](#) dans SIMBAD
  - [zRV/cz](#) - qualités dans SIMBAD
  - Missions/télescopes
    - [toutes les missions](#)
    - [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [M](#) [N](#) [O](#) [P](#) [R](#)
    - [S](#) [T](#) [U](#) [V](#) [W](#) [X](#)

## Informatique ->

### Sommaire :

- Les programmes/outils maison
  - Outils du [cdspack](#) ([findsdss](#), [gsc4sim...](#))
  - Aladin ([tutoriels](#))
  - Exemples de requêtes SQL dans SIMBAD : [SQL](#)
- Autres outils
  - [TOPCAT](#)
- L'environnement de travail

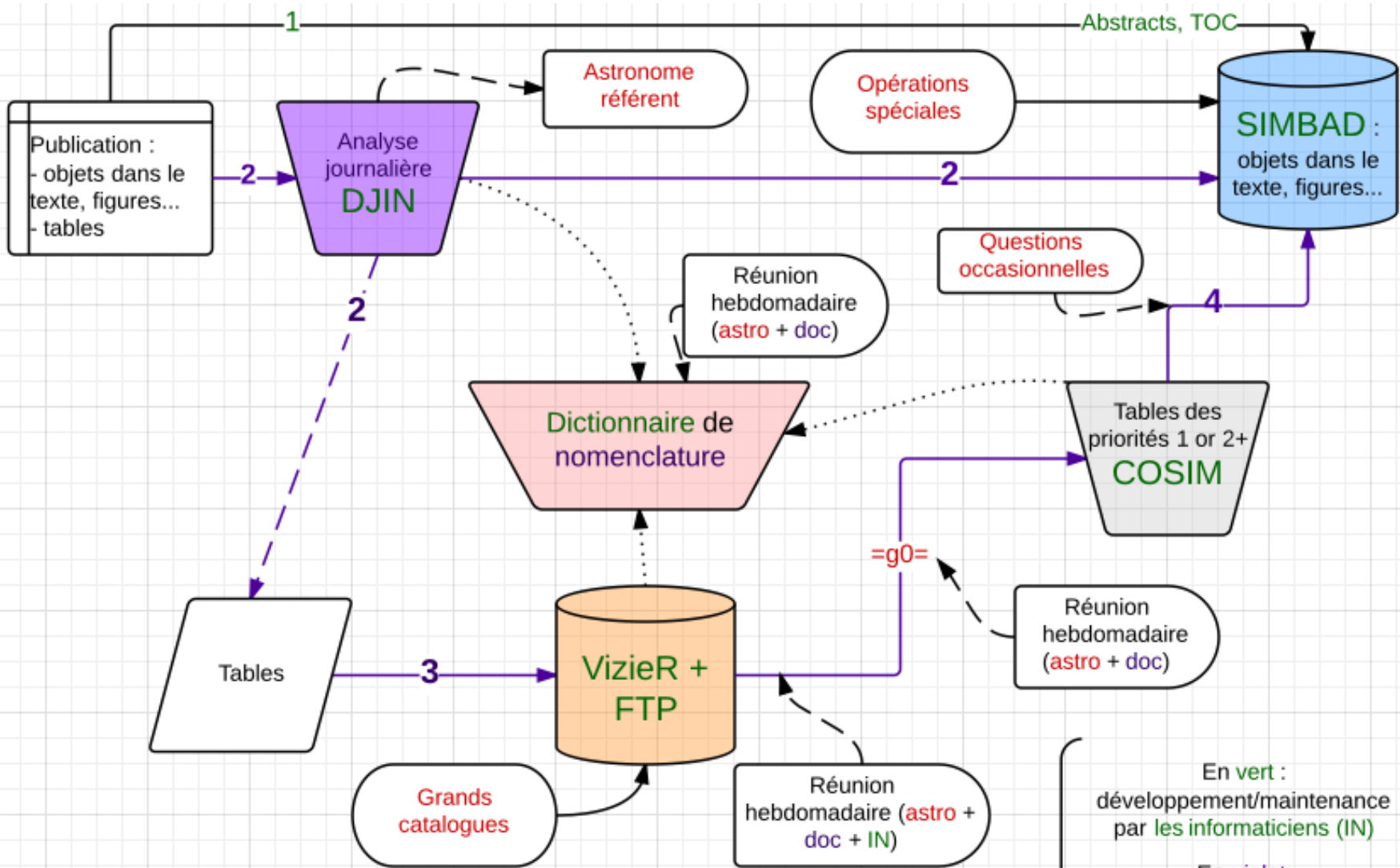
## Liens utiles ->

### Sommaire :

- Par type d'objet :
  - Etoiles
    - Variable stars
    - SNe
  - GRBs
  - etc.
- Archives de missions
- Convertisseurs
- Astronomie vulgarisée



~ 2.000 requêtes / mois  
~ 200 ajouts / mois



Interactions entre les astronomes, documentalistes et les informaticiens pour enrichir SIMBAD & VizieR

En vert :  
 développement/maintenance par les informaticiens (IN)  
 En violet :  
 SIMBAD/VizieR enrichies par les documentalistes  
 En rouge :  
 sélection SIMBAD/VizieR ou contrôle qualité par les astronomes

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.

Le succès du CDS repose aussi sur :

- Projet visionnaire
- Travail qui s'est construit au fil du temps en fonction des besoins de la science
- Anticipation sur les besoins et les techniques à chaque étape

## Le travail des documentalistes :

- Interactions permanentes avec les informaticiens pour améliorer et/ou développer des outils spécifiques
- Interactions permanentes avec les astronomes
- Apprentissage permanent  
Nouvelles données (liens hiérarchiques, nouvelles longueurs d'ondes, ...)  
Nouveaux outils → nouvelles valeurs ajoutées
- Cercles de compétences : docs, formations, séminaires, ...



## Le travail des 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



- 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.



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

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

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