

# Strategy

# Prescriber elements

- **CDS mission: French reference data centre serving the international astronomical community**
  - Continue to develop CDS leadership role on high added-value services, tools and interoperability*
- **The context of CDS activities**
  - Astronomy
    - Evolution of astronomy: new topics, new telescopes/instruments
    - National context: the strategic priorities of French astronomy
    - European and International contexts, including the VO
  - New technological possibilities
  - Beyond astronomy, the new perception of scientific data
    - *Data produced on public funds should in general be publicly available*
    - *Certification of data repositories*
- **Our own needs (content, functionalities, operations) and expertise**

# CDS core mission

# The CDS point of view

- The different aspects of our services
  - Content
  - Functionalities
  - Operations
- Our expertise
  - Reference data centre
  - Ability and necessity to perform R&D programmes with operational aims
  - Important role in the definition of international standards
  - One of the major operators in the network of astronomical on-line information services (with observatory archives, journals, other services)

# Core strategy for the services

*Continue the services at the highest level and face the increase in volume and complexity*

- Requirements on the work force : see **Challenges**
- Maintain and improve the quality of content: Continuation of the internal organisation efforts on the sharing of expertise and on the definition and update of procedures
- Progressive formalisation of continuity of service and preservation aspects

On the medium term « Data Repository » label if these labellisations develop and are do-able/affordable for a data centre such as CDS

CDS - Ressources - DocSimbad - Mozilla Firefox

Echier Édition Affichage Historique Marque-pages Outils ?

CDS - Ressources - DocSimbad

http://cds.u-strasbg.fr/wiki/bin/view/Ressources/DocSimbad

Mail :: Bienvenue sur L... CDS - Main - WebHome SF2A : annuaire WebHome < EuroVOD... WebHome < EuroVOA... WebHome < Main < T... WebHome < Main < P... WebHome < EuroVOI...

## Simbad

- **Contenu**
  - - [Statuts](#) : Les statuts commentaires sont les lettres qui apparaissent dans les ``commentaires de travail`` (% W ou CT) de la bibliographie de SIMBAD. L'état des différents statuts dans Simbad est disponible dans [http://simbad.u-strasbg.fr/cgi-bin/show\\_status](http://simbad.u-strasbg.fr/cgi-bin/show_status)
    - Types d'objets : <http://simbad.u-strasbg.fr/simbad/sim-display?data=otypes>
    - Journaux : <http://simbad.u-strasbg.fr/simbad/sim-display?data=journals> (&form=bibjnl lis en ASCII)
    - Températures/luminosités dans les types spectraux : <http://simbad.u-strasbg.fr/simbad/sim-display?data=sptypes>
    - Description des mesures : <http://simbad.u-strasbg.fr/guide/chG.htm>
- **Mise à jour**
  - **Manuelle**
    - [Manuel](#) : Manuel détaillé de Aline Eisele (anciennement Suzanne Laloe)
    - L'entrée des données (DF(données fondamentales)+data) : [Commandes](#)
    - ANCIEN AMENE A DISPARAITRE : [majsimbad.doc](#) : L'entrée des données par Pascal et Emmanuelle
    - ANCIEN AMENE A DISPARAITRE : [Commandes](#) : Commandes de mise à jour par Anaïs
  - **Tables/Scripts**
    - Trucs et astuces Raccord : [notes](#)
    - Scripts : [commandes](#)
  - **Suivi des journaux (\_1fait)**
    - L'ajout automatique des références dans SIMBAD : <http://cdsbib.u-strasbg.fr/bib/maj.htm>
    - L'ajout manuel des références dans SIMBAD : [http://cdsbib.u-strasbg.fr/bib/maj\\_jnl.htm](http://cdsbib.u-strasbg.fr/bib/maj_jnl.htm)

## Qui fait Quoi ?

- [Qui indexe les journaux](#)
- [Les domaines de compétence des astronomes de l'équipe](#)
- [Organigramme de l'équipe biblio du CDS](#)
- [Liste des intervenants](#)

## Reunions

- [Types de données à entrer](#) : Lors des réunions "de procédures" certains choix sur l'entrée des données a été explicité
- [Réunions Bibliographie](#) : Compte rendu des réunions de biblio
- [Réunions "Djinistes"](#) : Ensemble d'acronymes et problèmes rencontrés

## Astronomie

- [Etoiles Doubles?](#)
- [Lentilles](#)

(+ voir aussi un petit [schéma](#))

# Astronomy aspects

# Astronomy

- Among hot topics
  - Very large surveys, in particular their catalogues  
*RAVE, Pan-STARRS, PandAS, WISE, VISTA, LOFAR, SKA Pathfinders, ... LSST*
  - Gaia*
  - Multi-wavelength astronomy: construction of Spectral Energy Distribution (one of the IVOA scientific priorities)
  - Data cubes, spectro-polarimetry (MUSE, ALMA, Espadons/NARVAL/Spirou, ...)



# The CDS response

- Very large catalogues
  - Facilitate their inclusion in Vizier (improve the specific procedures)
  - Facilitate their scientific usage: distribution and improvement of the *CDS cross-match service*
    - Beta version available on line very soon
    - If possible include more criteria on the physical characteristics of sources
- SED building
  - Update of Vizier for providing photometry data
    - Additional metadata have been defined and implemented (a huge work!)
    - Distribution of information to our users and to other services
  - VO aspects: definition of interoperability standards for photometry
  - Eventual usage of the information in the CDS services: cross-match?
- Data cubes and polarimetry
  - Already available in Aladin

## Transmission curves of the BATC filters

VizieR Correlated Data - Mozilla Firefox  
<http://cdsarc.u-strasbg.fr/local/vbin/VizieR?-6N&-plus=-+&-source=METAphot,METAfltr&-out.form=+>

VizieR Correlated Data [\[Back\]](#)

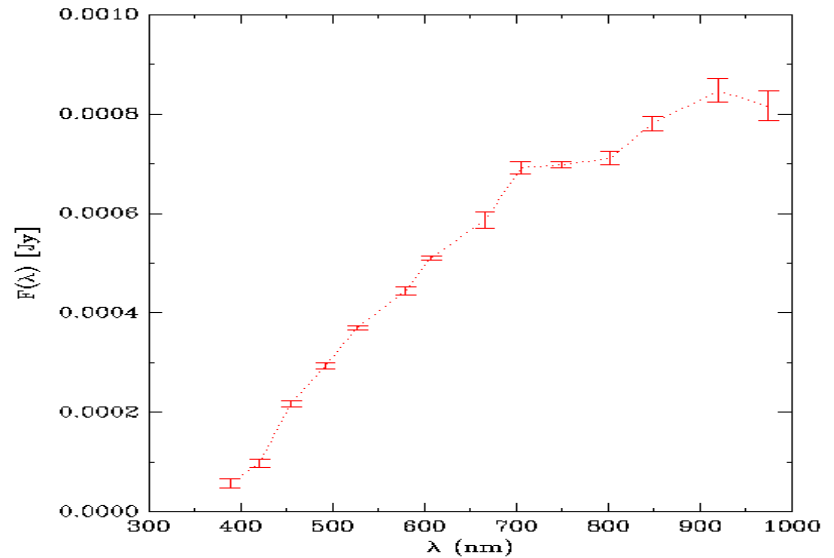
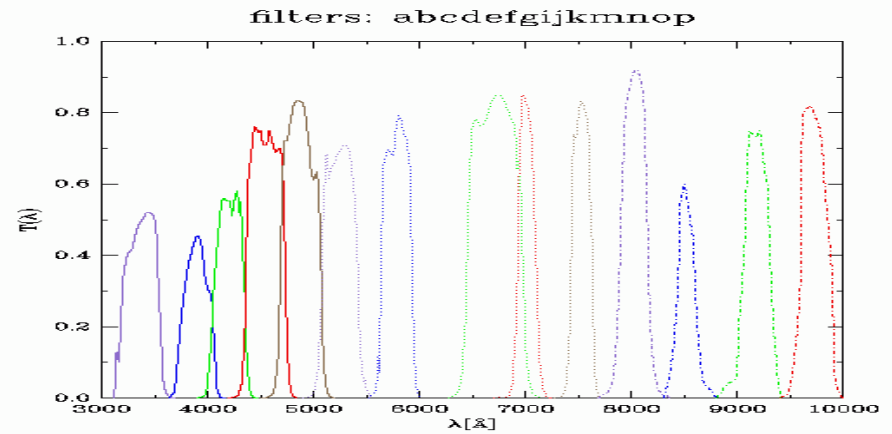
**METAphot** Table of Photometric Systems, in connection with METAfltr (131 rows) [\[METAcola\]](#)

photid	name	GCPD	comment
84	BATC	0	Beijing-Arizona-Taiwan-Connecticut 15-filter system (Cat. <a href="#">II/262</a> ) <a href="#">[ADPS, AC transmission curves]</a>

**METAfltr** Details on filters in a photometry, used in connection with METAphot (600 rows) [\[METAcola\]](#) [\[stats\]](#)

photid	fltrid	famid	ucdid	filter	lambda0 um	dlambda um	freq0 GHz	dfreq GHz	Fmag0 Jy	Ncat
	1	0	935	a	0.3353	0.032	8.941e+05	8.533e+04	1.810e+03	1
	2	0	935	b	0.3899	0.0248	7.689e+05	4.891e+04	4.260e+03	1
	3	0	934	c	0.4195	0.0299	7.146e+05	5.094e+04	3.640e+03	1
	4	0	933	d	0.4537	0.0278	6.608e+05	4.049e+04	3.080e+03	1
	5	0	933	e	0.4923	0.0338	6.09e+05	4.181e+04	2.550e+03	1
	6	0	932	f	0.5264	0.0315	5.695e+05	3.408e+04	4.260e+03	1
	7	0	932	g	0.5784	0.0254	5.183e+05	2.276e+04	3.640e+03	1
	8	0	932	h	0.6074	0.0267	4.936e+05	2.17e+04	3.080e+03	1
	9	0	932	i	0.6649	0.044	4.509e+05	2.984e+04	2.550e+03	1
	10	0	932	j	0.7053	0.0215	4.251e+05	1.296e+04	1.810e+03	1
	11	0	931	k	0.7536	0.0191	3.978e+05	1.008e+04	1.810e+03	1
	12	0	931	m	0.8007	0.0246	3.744e+05	1.15e+04	4.260e+03	1
	13	0	931	n	0.8467	0.0156	3.541e+05	6524	3.640e+03	1
	14	0	929	o	0.9162	0.0224	3.272e+05	8000	3.080e+03	1
	15	0	929	p	0.9714	0.025	3.086e+05	7943	2.550e+03	1

<http://cdsarc.u-strasbg.fr/local/vbin/vizExec/vgraph?2262/filters&>



## Choose tables to cross-match

X

**Cross-match criteria**

By position  
 Radius:

By position including error  
 Sigma:  (completeness: 99.73 %)  
 Max. distance:

**Cross-match area**

All sky  
 Cone  
 Center:   
 Radius:

Healpix cell  
 Nside:   
 Index:

## Visualize and manage your cross-match jobs

List of X-match jobs

Table 1	Table 2	Options	Begin	Status	Actions
VII_236_catalog-noVV	SIMBAD	fixed radius +	09/06/2011 at 18:50	completed ⓘ	<input type="button" value="Get result"/>
TYCHO2	SDSS7	fixed radius +	09/06/2011 at 18:51	executing ●●●	<input type="button" value="Abort"/>

Computation progress: 100%  
 Result generation progress: 1.6%

For the selected job(s):



# Which strategy with respect to Gaia?

- The French astronomy community has been participating heavily in the preparation of Gaia. The scientific exploitation of the mission is a national priority.
- How can CDS help?
  - Very relevant expertise in the distribution of very large catalogues in very visible and highly used services
  - Mastering of Healpix
- In practice
  - Participation in the preparatory activities for the Gaia archive access (Gaia Archive Preparation Group)
  - Development of the usage of Healpix in the management of catalogue data
- A win-win strategy but some support will be needed

# Technology aspects

# The new Web2.0/Web3.0 paradigm

- Very significant, fast technological evolution
  - Web 2.0 « user-centric »
  - Web 3.0
    - Semantic web
    - Mobility, Universality > new user interfaces
- Strong user expectations who want to find the functionalities they use in the everyday life when they do their science job

# The CDS response

- First successful implementation of Web 2.0 functionalities (annotations, mashup, user space) and of mobile/multitouch interfaces
- Goals
  - Improve the convergence of the portal and of the services
  - CDS Web2.0/3.0 – a deep evolution of the services
    - Modular, flexible, sharable interface (collab. ADS)
    - Use of semantics technologies and of the Semantics information in CDS services and in IVOA standards
      - « clever » queries
      - New links between contents
    - More intuitive human/machine interaction
    - Customized user profile

# CDS and the VO



# The VO context (1)

- European context: Astronet Infrastructure Roadmap for Astronomy 2008

The Virtual Observatory  
is recognized as one of  
the infrastructures of  
astronomy

## Theory, Computing and Data Archiving

The development of theory and computing capacity must go hand-in-hand with that of observational facilities. Systematic archiving of properly calibrated observational data in standardised, internationally recognised formats will preserve this precious information obtained with public funds for future use by other researchers, creating a Virtual Observatory (VO).

The Virtual Observatory will enable new kinds of multi-wavelength science and presents new challenges to the way that results of theoretical models are presented and compared with real data. Along with other initiatives, the Roadmap proposes that a European Astrophysical Software Laboratory (ASL), a centre without walls, be created to accelerate developments in this entire area on a broad front.

10 | The ASTRONET Infrastructure Roadmap - 2008

- Start of the US VAO project
- *Validates the CDS strategic choice to participate fully in the VO development*
- *But implementation of the recommendations is not straightforward*

# The VO context (2)

- The VO is one of the infrastructures of astronomy
- Operational phase
- Several aspects
  - Implementation of the VO framework in the data centers
  - Continuous update of the standards
  - Support to users
  - Outreach towards education and the general public
- National, European and international aspects

# The CDS response

- CDS services are major VO building blocks and implementation in the services is a priority
- Continuous update of the framework
  - We will continue to participate very actively in the IVOA in its expertise domains
- Dissemination in the community
  - We will continue to disseminate the knowledge of the VO in the national community
    - Not so easy to find the best method
    - European level gives a template
- Outreach towards education and the public
  - Not easy to find an appropriate framework at the local/national level
  - European level gives a template

# Difficulties at Euro-VO level

- No sustainability of European framework
- Major partners concentrate on their core tasks
- How to organise concertation/cooperation on technological activities, dissemination and outreach?
- Who will maintain the Euro-VO Registry of resources (currently ESA)?

# Dissemination, education and outreach

- CDS expertise, CDS services and VO
- Which level?
  - Courses at the University and trainings
  - On-line services – tutorials
  - Local schools – conferences
  - Customization of services for a wider usage (EuroVO-AIDA), multi-lingual product, but how to disseminate at the European level without a European framework?
- Outreach beyond the science community requires resources
- Is there a chance to involve the University or other relevant institutions at the local or national level?

# The new importance of scientific data

# Astronomy and CDS at the forefront

- Astronomy has been at the forefront for the sharing and widespread usage of data
- CDS has been one of the very early precursors and is one of the important actors
- The global landscape evolves very quickly and Agencies more and more enforce that *Data produced on public funds should in general be publicly available*
- Projects for huge and generic data repositories but the physical storage of data is by far not the only question to address – data must be properly described and easily retrievable



# CDS possible response

- Our relevant expertise
  - Management of tables linked to publications (formal agreement for data publication with A&A)
  - More and more « additional data »
- A new dimension of the CDS service to the astronomical community?
- Many open questions but the landscape is moving very fast
- How is it financed? How is the task shared (geographical sharing)? What has to be kept? etc