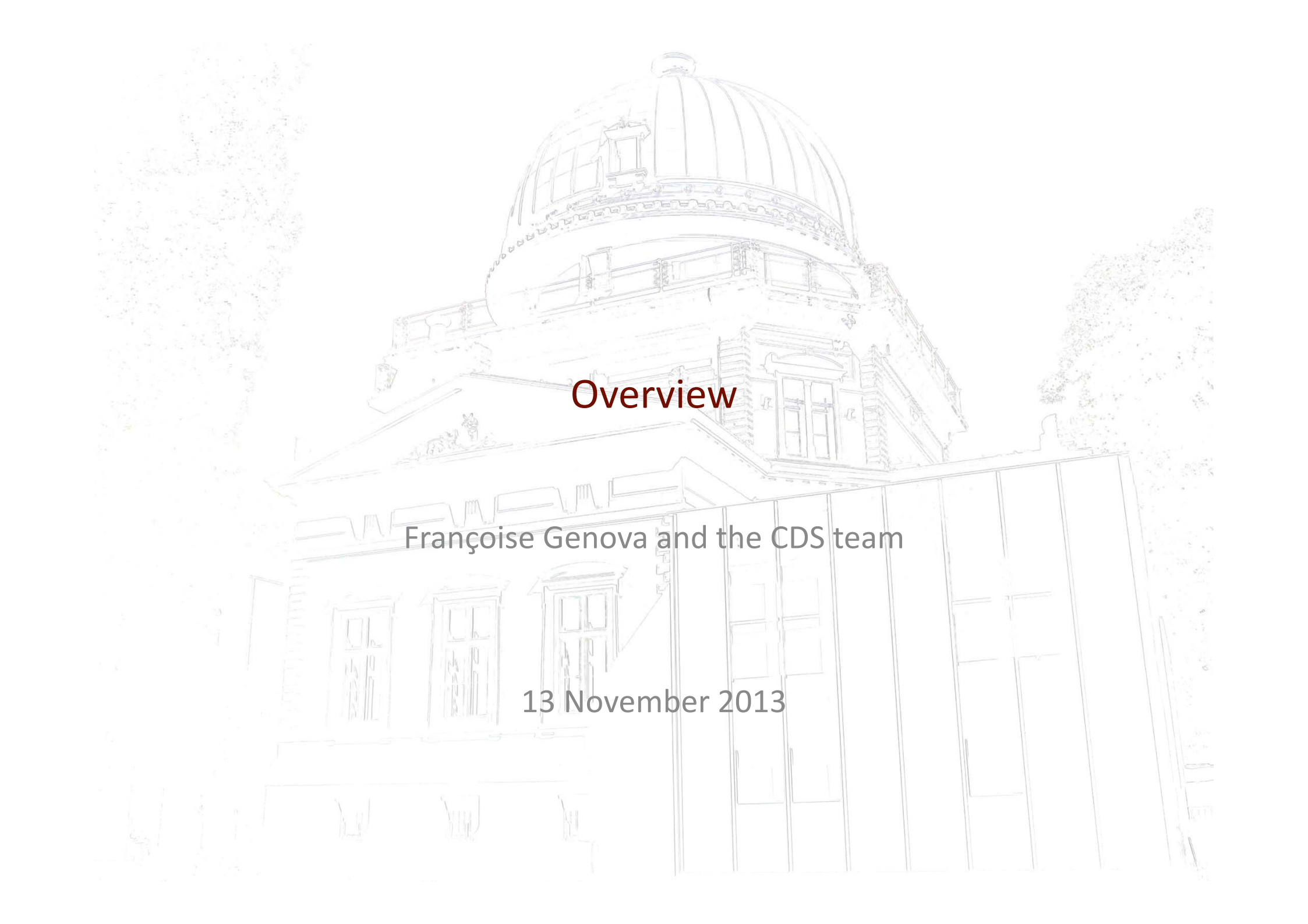


Overview

Françoise Genova and the CDS team

13 November 2013

CDS high level strategic drivers

- Presented at the 2011 Scientific Council meeting and endorsed by the 2012 Evaluation Committee
- Three axes
  - Maintain the services at the highest possible level in terms of content and functionalities
  - Add functions to the core services in line with our expertise, the users' needs and R&D results
  - Take into account the change in scale of CDS activities due to the increase of publication volume and the advent of many large surveys
- Proposed addition: CDS is an actor of the evolution towards Open Data/Open Science

"Open data" talk tomorrow

Strategic axes identified in 2011

- Linked to the evolution of astronomy
  - Accompany the very large survey era
  - Put our expertise at the service of Gaia usage by the community
  - Construction of Spectral Energy Distribution; data cubes and polarimetry
- Linked to technological evolution
  - Web 2.0/3.0 paradigm (user-centric; usage of semantic web, mobility and universality)
- VO aspects
  - Implementation in the CDS services, which are major building blocks of the VO
  - Continue to update the VO framework (standards and tools)
  - Disseminate VO knowledge in the astronomical community
  - Look for a framework to pursue outreach towards education
- Assess the role of CDS in the fast evolving landscape of scientific data curation

Highlights : The CDS in the national landscape

- The CDS has been confirmed as “Research Infrastructure” in the 2012-2020 MESR Roadmap (Oct. 2012)

Sciences du système Terre et de l'Univers - Sciences de l'Univers

catégorie	nom de groupe	nom	nom complet
OI	ESO	ESO	European Southern Observatory
		ALMA	Atacama Large Millimeter/submillimeter Array; Observatoire mondial interférométrique millimétrique/submillimétrique
		ELT (Projet)	ESO/ Extremely Large Telescope - Plus grand télescope mondial en visible et infrarouge proche.
		VLT	Very Large Telescope (Interferometer) : Réseau de 4 téléscopes optiques avec un mode interférométrique
TGIR		CFHT	Canada-France-Hawaï Telescope ; télescope optique et proche infrarouge à large champ de vue
TGIR		IRAM	Institut de RadioAstronomie Millimétrique /Extension du plateau de Bure (NOEMA, Northern Extended Millimeter Array)
IR		CDS	Centre de données astronomiques de Strasbourg
IR		HESS	High Energy Stereoscopic System ; réseau de télescopes Cherenkov en rayons gamma de très haute énergie
IR		LOFAR	LOw Frequency ARray; Radiotélescope métrique/décamétrique composé de 41 stations en réseau réparties en Europe
PROJET		CTA	Astronomie des très hautes énergies. Projet de télescope suite des instruments HESS et HESS2

Highlights: Participation in projects

- CDS is officially involved in Gaia Data Processing Archive Access Co-ordination Unit (CU9), selected in March 2013
- Five European projects
  - Collaborative and Sustainable Astronomical Data Infrastructure for Europe (CoSADIE), the current Euro-VO project, led by CDS
  - Three projects selected in SPACE Calls
    - Astronomical Resource cross-matching for High Energy Studies (ARCHES), led by the High Energy Astrophysics team of the Observatory
    - Unveiling the power of the deepest images of the Universe (AstroDeep)
    - The Milky Way as a star formation engine (VIALACTEA)
  - International Collaboration on Research Data Infrastructure (iCORDI), which is now RDA Europe

"Projects" talk this afternoon

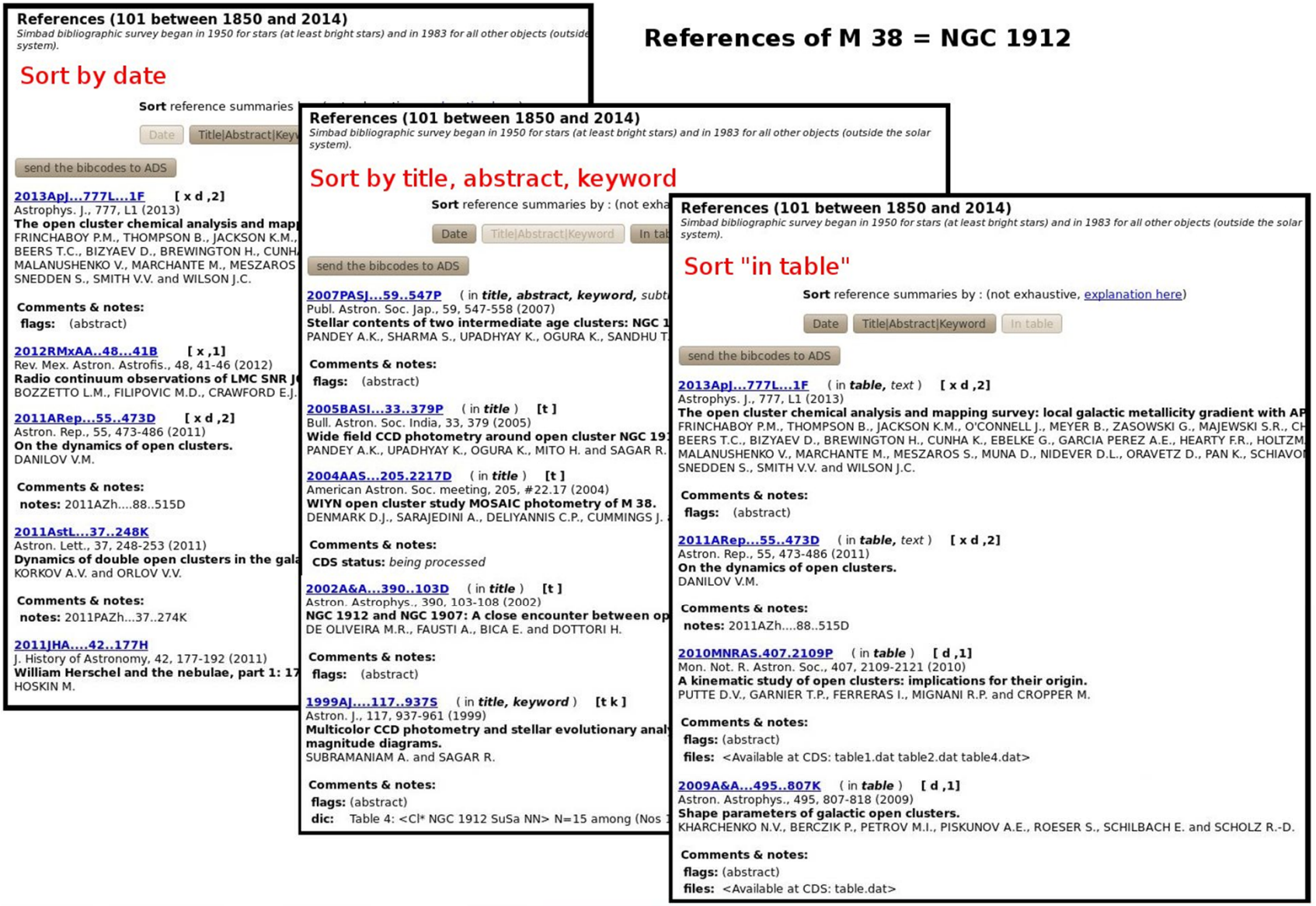
Highlights: Services

- SIMBAD can sort references attached to objects by “relevance” (where the object is cited in the text) – Release September 2013
- *Aladin lite*, Aladin running in your web browser – Release May 2013
- Implementation of the CDS services in the VO framework: *TAPVizieR* released January 2013 (TAP: Table Access Protocol)

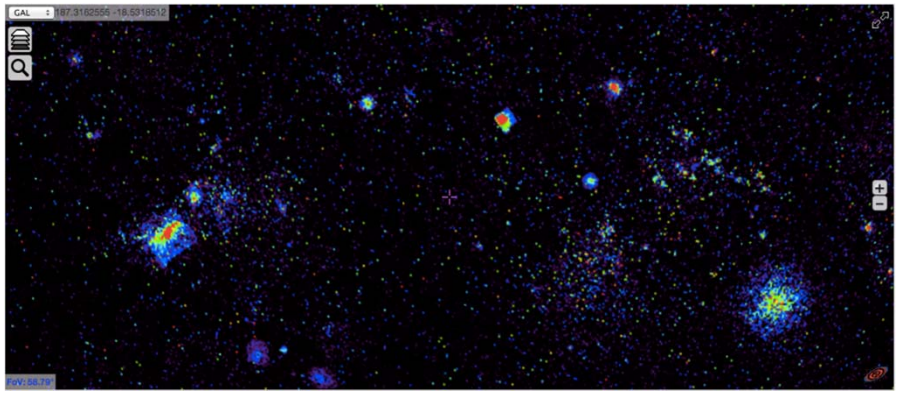
  370 000 columns, huge data heterogeneity
- *VizieR Photometry Viewer* – release October 2013

  A first step, with Aladin lite, towards customizable web pages
- Efficient pipeline for survey catalogues and images
  - Planck maps in Aladin - March 2013
  - Participation in the data release of the final version of the CFHT Legacy Survey – October 2012

SIMBAD sorts references by relevance

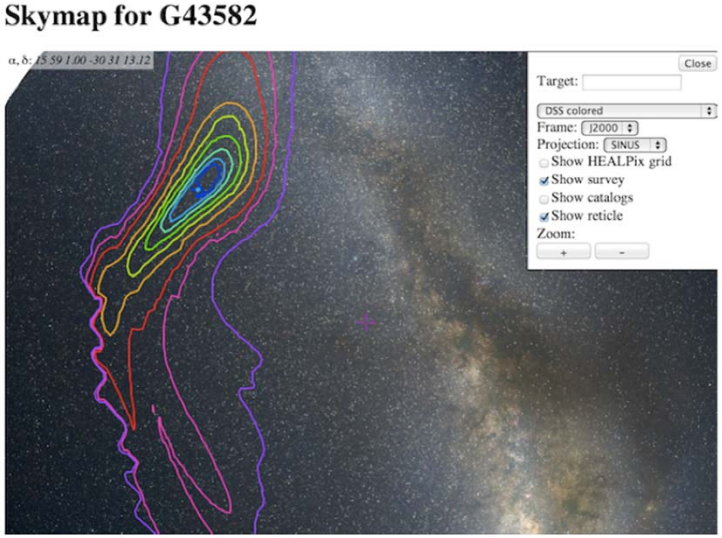


Aladin Lite

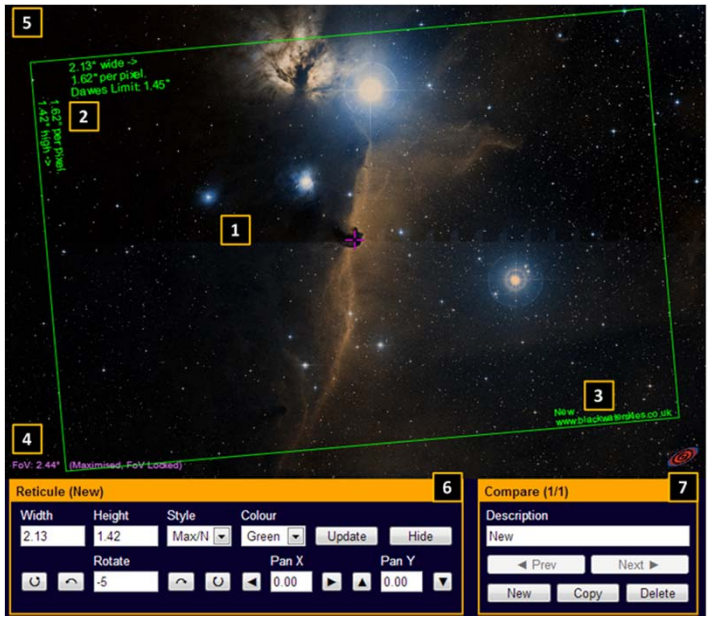


ADS All Sky Survey

LIGO



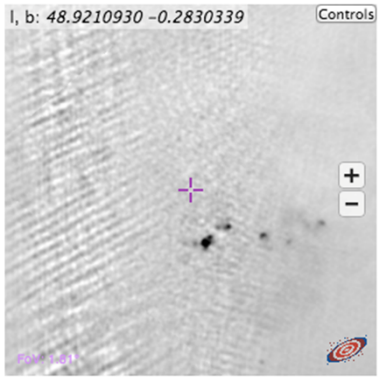
Imaging Toolbox (amateur astronomer)



Atomic Hydrogen

Map:
http://cade.irap.omp.eu/documents/Ancillary/VGPS/VGPS_1_8192.fits

Weight:
http://cade.irap.omp.eu/documents/Ancillary/VGPS/VGPS_1_8192_weight.fits



VGPS/CADE (IRAP)

Aladin Lite in SIMBAD (in test)

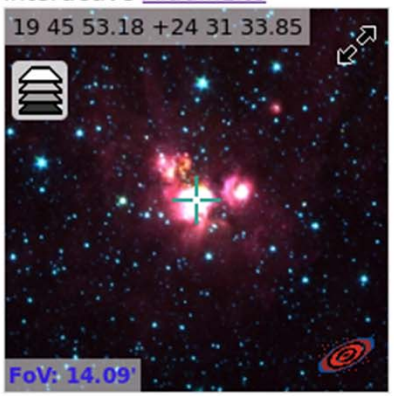
Basic data :

SH 2-87 -- HII (ionized) region

query around | with radius 2 | arcmin

Other object types:	**Rad** (B2,BWE,F3R,GB6,87GB,GRS,MITG,NVSS,WSRTGP,[CPA2002],[TGC96]) , **HII** (LBN,SH) , **IR** (IRAS,RAFGL) , **ISM** ([TP72])
ICRS coord. (ep=J2000) :	**19 46 20.90 +24 35 14.0 (~) [600 600 175] D** 1998AJ....115.1693C
Gal coord. (ep=J2000) :	**060.8820 -00.1332 (~) [600 600 0] D** 1998AJ....115.1693C
Radial velocity / Redshift / cz :	**V(km/s) 21.7 [~]** / z(~) 0.000072 [~] / cz 21.70 [~] **(~) D** 1996A&AS..115...81B

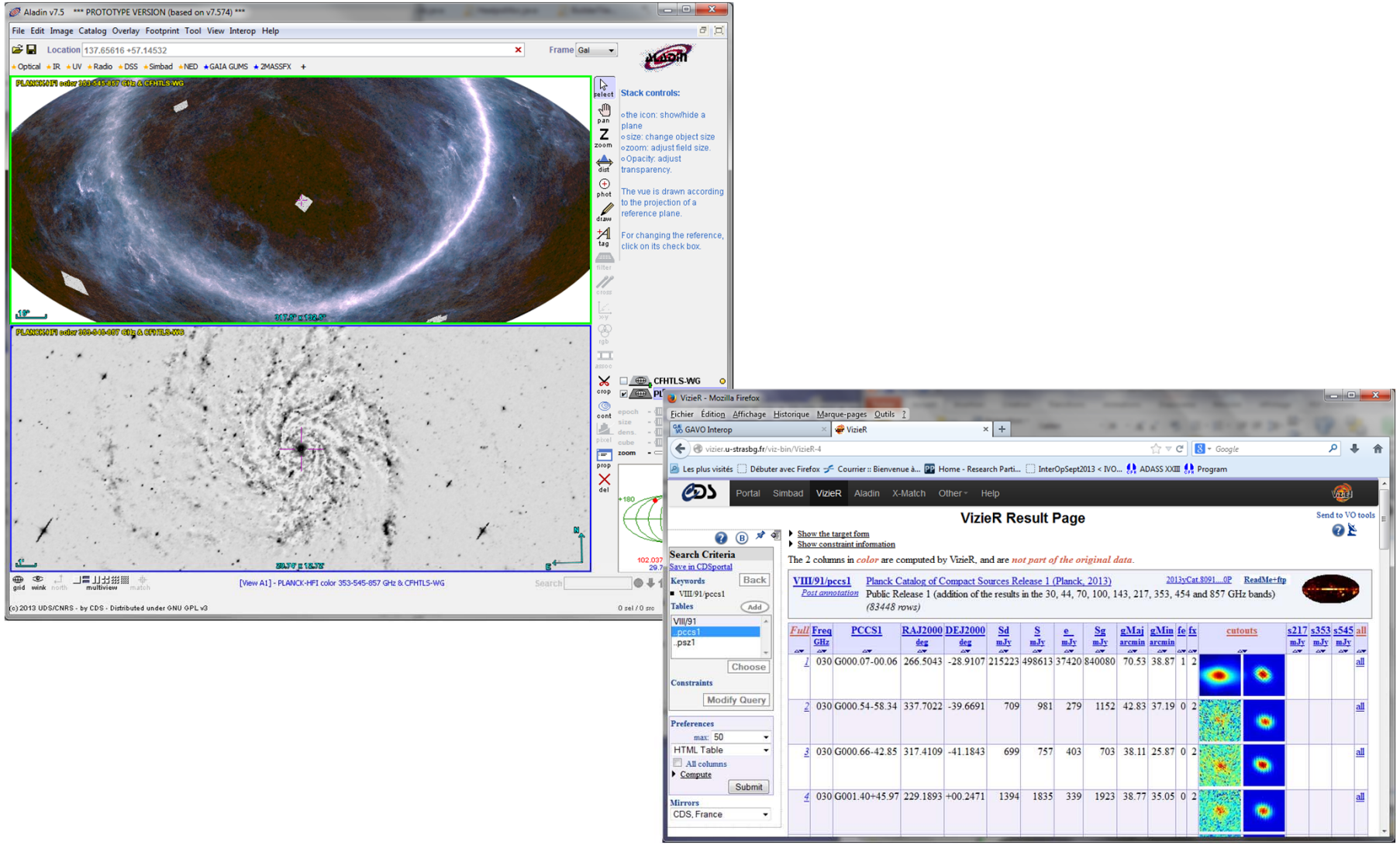
Interactive AladinLite



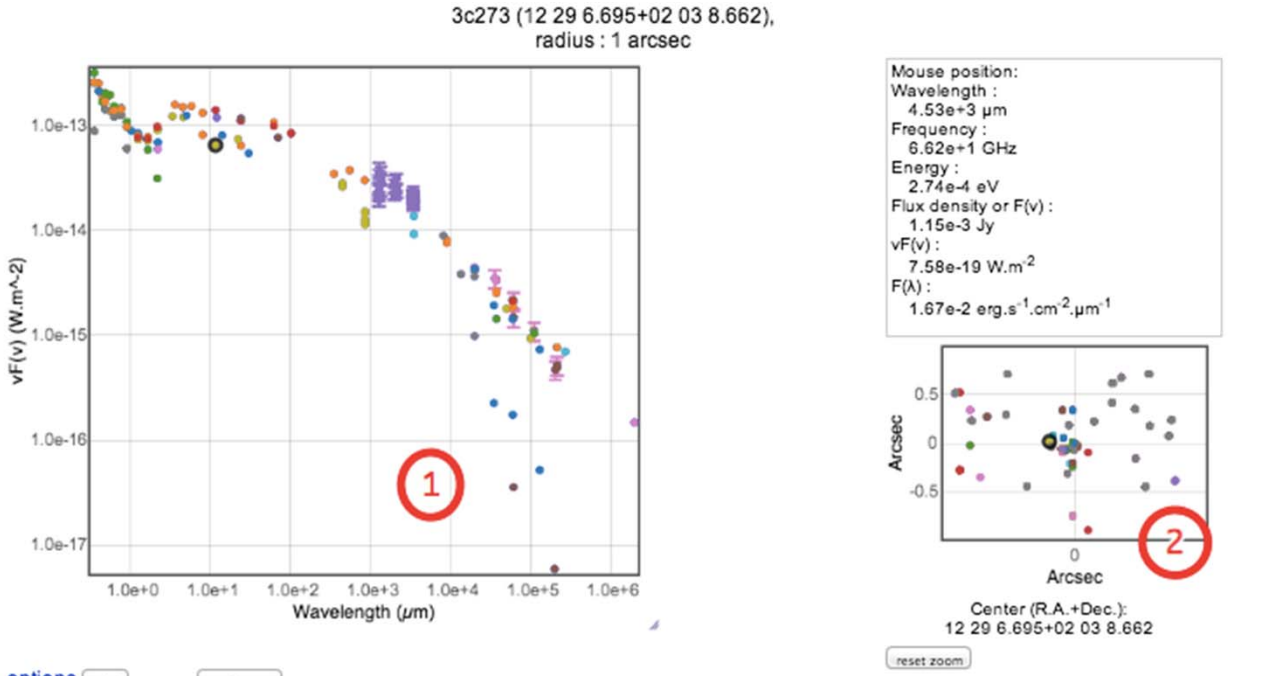
Identifiers (18) :

LBN 060.95-00.03	87GB 194413.6+242748	MITG J194621+2435	[CPA2002] 6
B2.2 1944+24	GRS G060.90 -00.10	NVSS J194620+243514	[TGC96] 1944+2427
BWE 1944+2427	IRAS 19442+2427	RAFGL 2454	[TP72] 65
F3R 2108	LBN 136	SH 2-87	
GB6 B1944+2427	MITG J194623+2435	WSRTGP 1944+2427	

Planck and CFHTLS at CDS



VizieR Photometry Viewer



options print reset zoom

Search:

show all	source	_RAJ2000 (deg)	_DEJ2000 (deg)	_tabname	_sed_freq (GHz)	wavelength (μm)	_sed_flux (Jy)	_sed_eflux (Jy)	_sed_filter
	WISE===J122906.70+020308.6	187.277945	+02.052411	II/311/wise	138.55e+3	2.16e+0	68.0e-3	1.4e-3	2MASS:Ks
	WISE===J122906.70+020308.6	187.277945	+02.052411	II/311/wise	181.75e+3	1.65e+0	40.0e-3	1.0e-3	2MASS:H
	WISE===J122906.70+020308.6	187.277945	+02.052411	II/311/wise	241.96e+3	1.24e+0	31.0e-3	0.8e-3	2MASS:J
	WISE===J122906.70+020308.6	187.277945	+02.052411	II/311/wise	25.934e+3	1.16e+1	0.253	0.003	WISE:W3
	WISE===J122906.70+020308.6	187.277945	+02.052411	II/311/wise	65.172e+3	4.60e+0	0.186	0.003	WISE:W2
	WISE===J122906.70+020308.6	187.277945	+02.052411	II/311/wise	89.490e+3	3.35e+0	0.138	0.003	WISE:W1
	II/314/las8								
	-c=\htarg{187.277938+02.052428,eq=J2000}\&-c.rs=0.004	187.277938	+02.052428	II/314/las8	136.21e+3	2.20e+0	51.1e-3	0.0e-3	UKIDSS:K
	-c=\htarg{187.277938+02.052428,eq=J2000}\&-c.rs=0.004	187.277938	+02.052428	II/314/las8	183.78e+3	1.63e+0	41.7e-3	0.0e-3	UKIDSS:H
	II/319/las9								
	recno=53344062	187.277918	+02.052421	II/319/las9	136.21e+3	2.20e+0	51.1e-3	0.0e-3	UKIDSS:K
	recno=53344062	187.277918	+02.052421	II/319/las9	183.78e+3	1.63e+0	41.7e-3	0.0e-3	UKIDSS:H

3

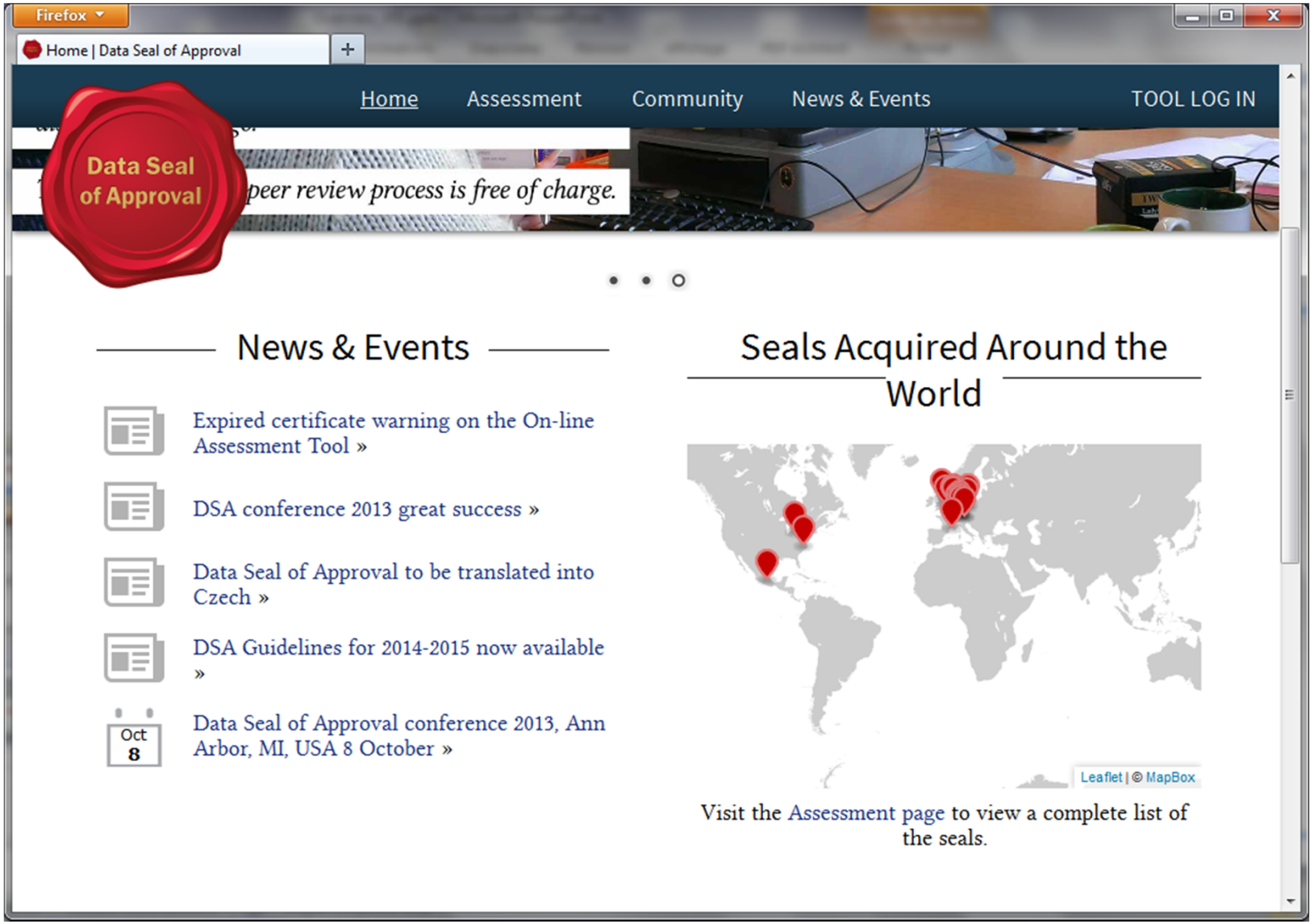
Highlights: CDS

- Action to improve reliability
  - Systematic analysis of all relevant elements
  - Assessment of the Data Seal of Approval label – our main aim is to provide data which can be reused, rather than data preservation, and we have to change the point of view to work on DSA criteria. DSA is recognized by EC.
  - CDS is a member of the World Data System, which means that it has been evaluated as trustable ("light" technical evaluation and evaluation of the scientific relevance, well adapted to "data services", not only to "data repositories")
- Actions to improve our tools, our procedures, and our expertise
  - Upgrade of the collaborative spaces
  - Re-organisation of the "documentalistes" shared documentation
  - Continuation of the "Infusion" meetings – knowledge exchange between computer engineers, astronomers, trainees (CDS and the other Observatory engineers)
  - Many intern trainings, most of them on research or R&D topics

R&D talk this afternoon

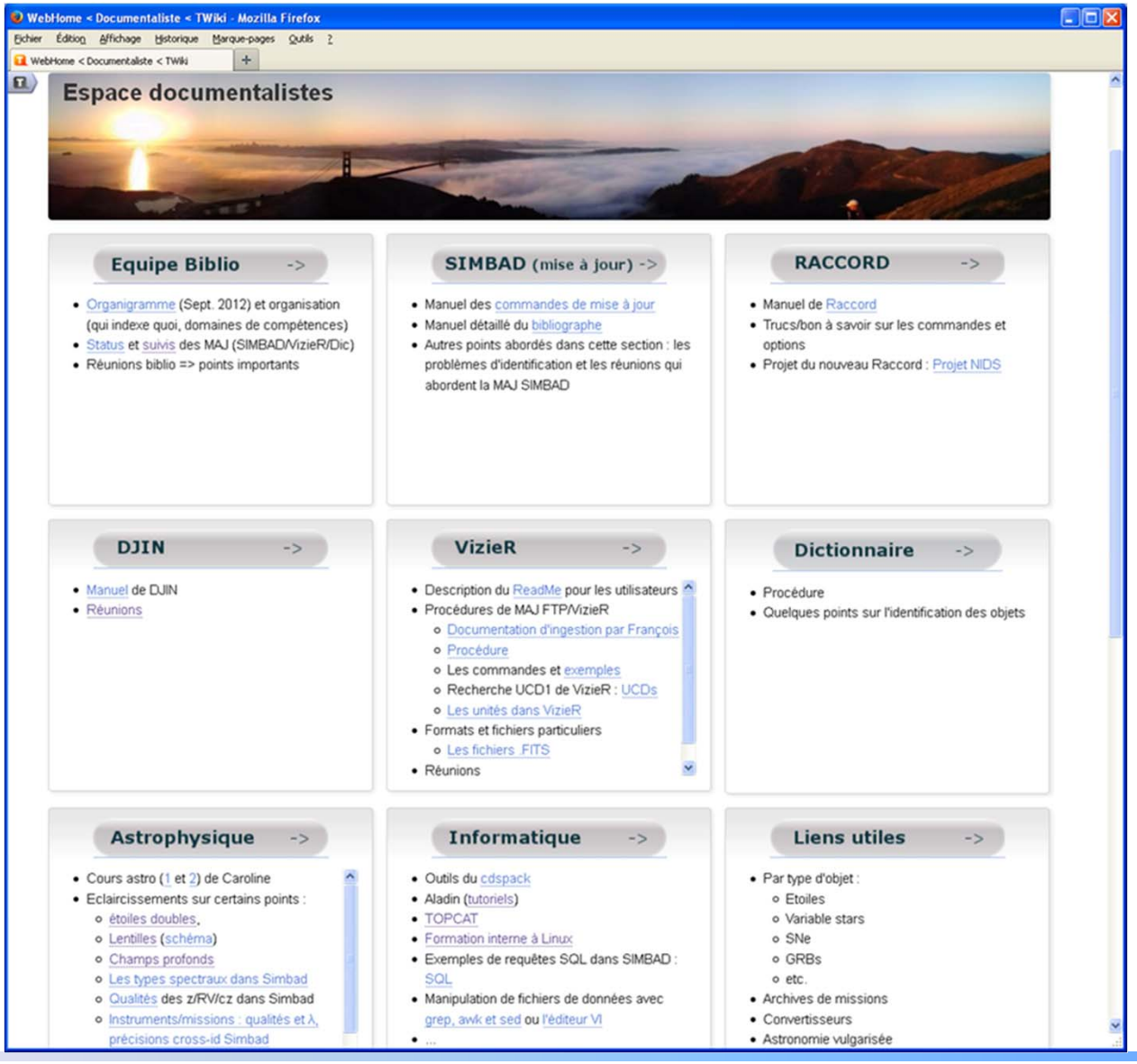
Service supervision

Data Seal of approval : trusted repositories

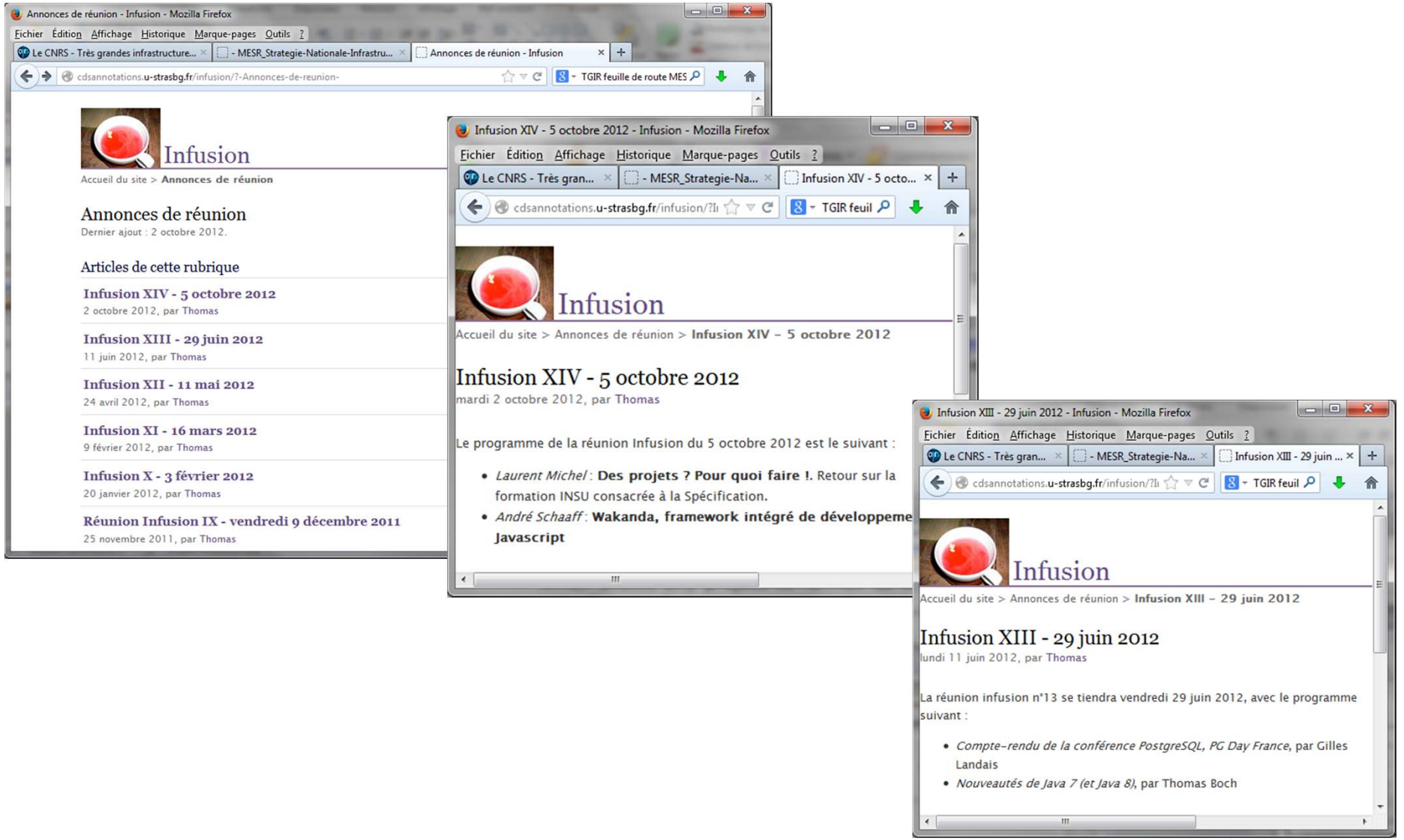


ICSU World Data System: trusted data centres and data services

The “documentalistes” collaborative space



The “Infusion” meetings



STATUS OF SC 2012 RECOMMENDATIONS

- A very rich, deep analysis of all the aspects of our activities
- The recommendations are kept in mind and used as guidelines, even if they are not all implemented yet
- A detailed assessment is given in the yearly report. A selection of topics is presented here but all are of course open for questions.

High level recommendations (1)

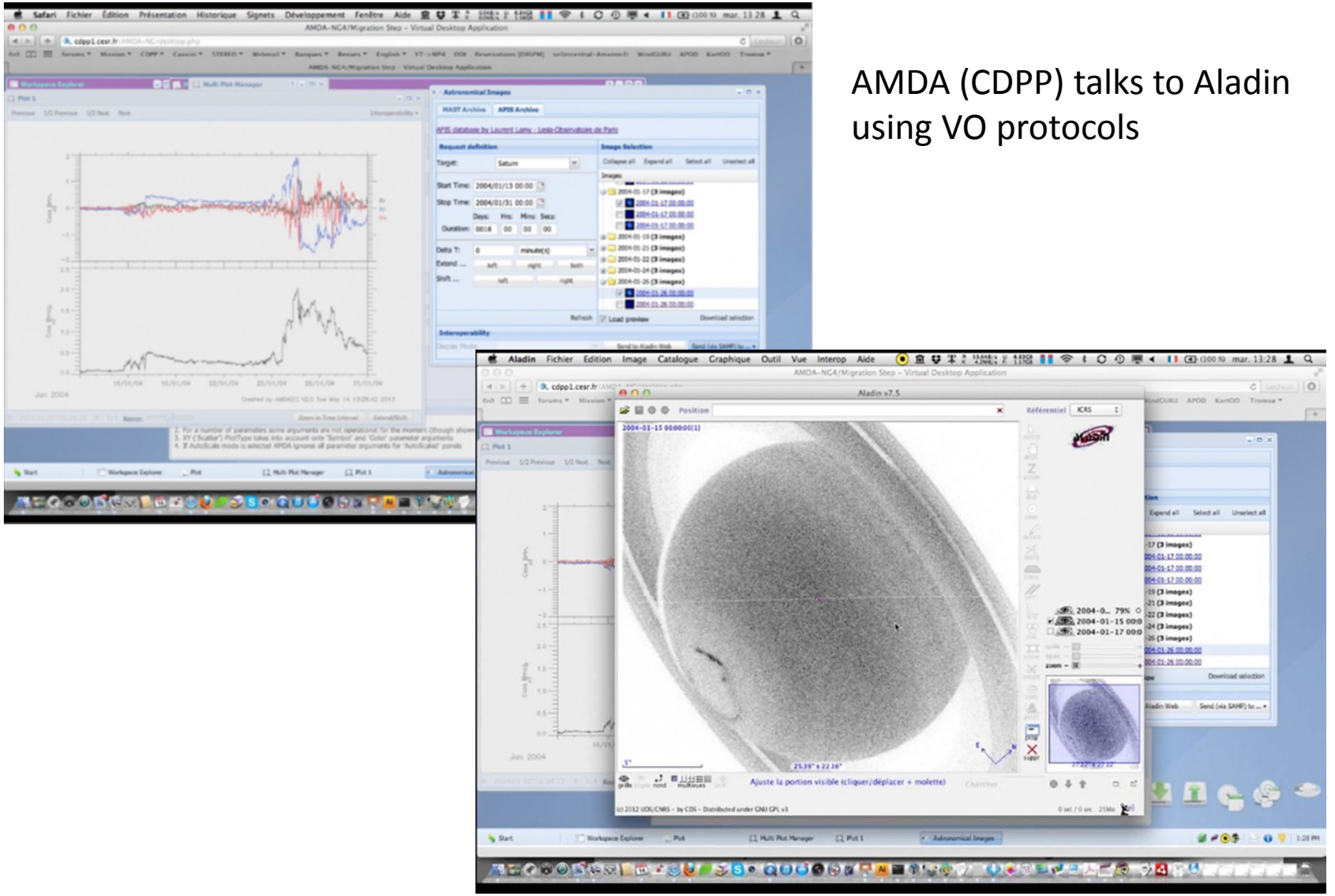
- "Services should be maintained at the highest level and upgraded periodically through research and development"

  Service and R&D talk

- "It would be beneficial to collaborate with organisations which generate large volumes of data"
  - Collaboration with ESA, including participation in Gaia and usage of Aladin
  - Discussions with ESO on dissemination of the Public Surveys
  - Collaboration with ADS (ADS All Sky Survey) *Demo*
  - Positive discussions with LOFAR and the Australians involved in preparation of SKA
  - Usage of Aladin by the planetary/space science community
- Role in the VO
  - Documents sent
  - Euro-VO: CoSADIE School and Data Centre Forum, close collaboration with Astronet
  - M. Allen organised Heidelberg Focus Sessions
  - Dissemination towards the national high energy astrophysics community (IN2P3)

  Services, R&D and "Open data" talk

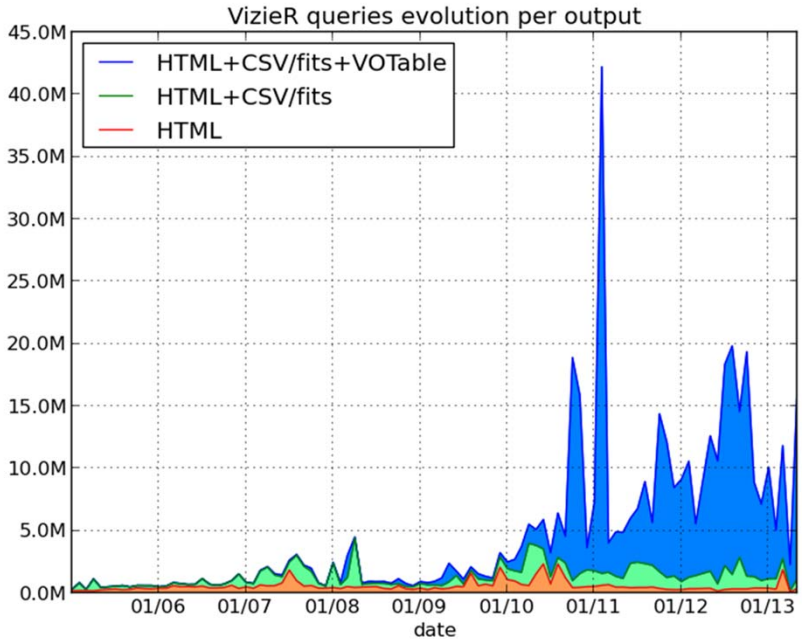
Saturn auroras in Aladin



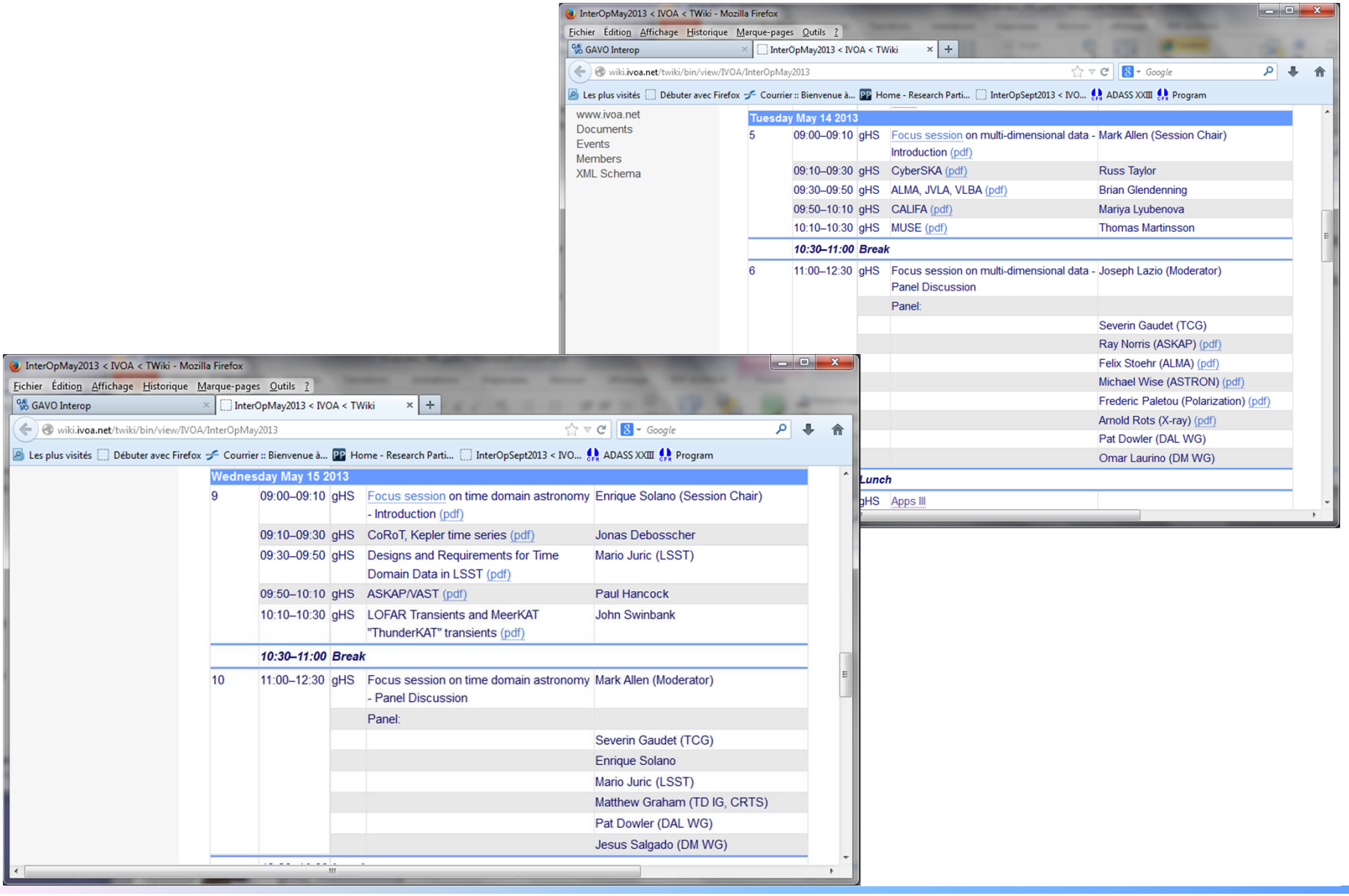
AMDA (CDPP) talks to Aladin using VO protocols

VO status

- The VO is fully operational but since it works it is hidden from the users, even when they use it routinely
- Advanced functionalities (multi-D data, time series) are being developed
- Future projects such as SKA or LSST planning to be VO compliant



Heidelberg IVOA Focus sessions



VO tutorial for the high energy community

Multi-instrument, multi-wavelength study of high energy sources with the Virtual Observatory

Caroline Bot[1,2], François Bonnarel[1,2], René Goosmann[2] and Françoise Genova[1,2]

1: Centre de Données astronomiques de Strasbourg, France
2: Observatoire astronomique de Strasbourg, France

Load the VOTable file containing the HESS sources from Simbad (go back to the server selector and use the File tab - 

). These sources get overlaid on the FERMI allsky survey.

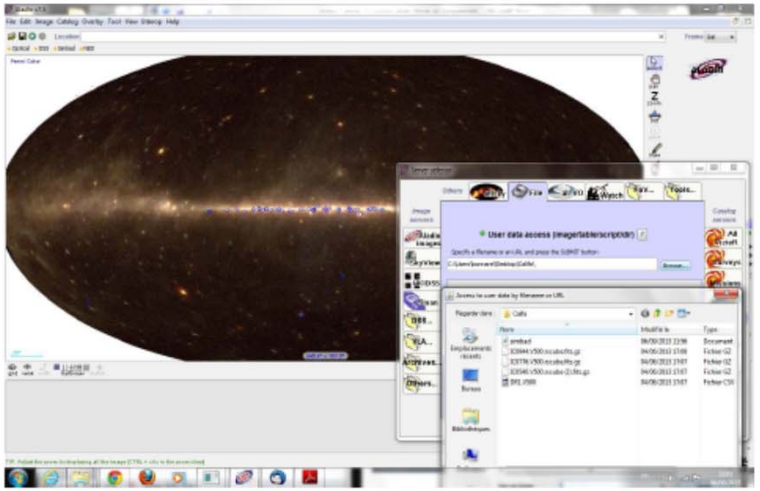


Figure 6: overlay of the HESS sources from Simbad on the FERMI color allsky image

Goal of this tutorial

This tutorial demonstrates how to
data mining and multiple waveban
towards applications in the gamm
data from other wavebands. The us

- query astronomical catalo
  OV tools
- cross-correlate catalogues t
- apply selection criteria whe
- use the observational meas
- visualize astronomical ima
- display spectral energy dist

Figure 21: left: how to load the SCUBA 850um image from the Allsky menu
right: SCUBA 850um image of PKS 2155-304

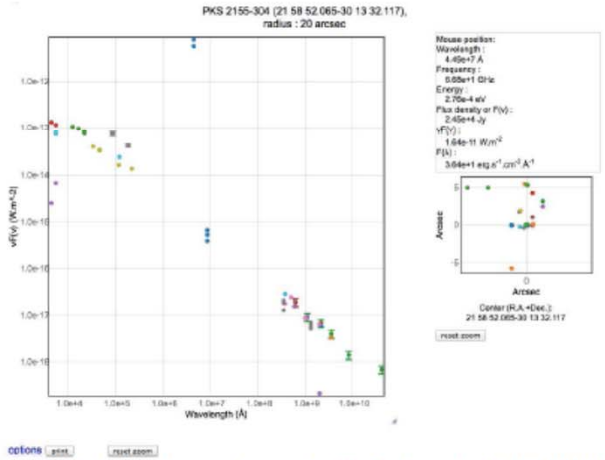


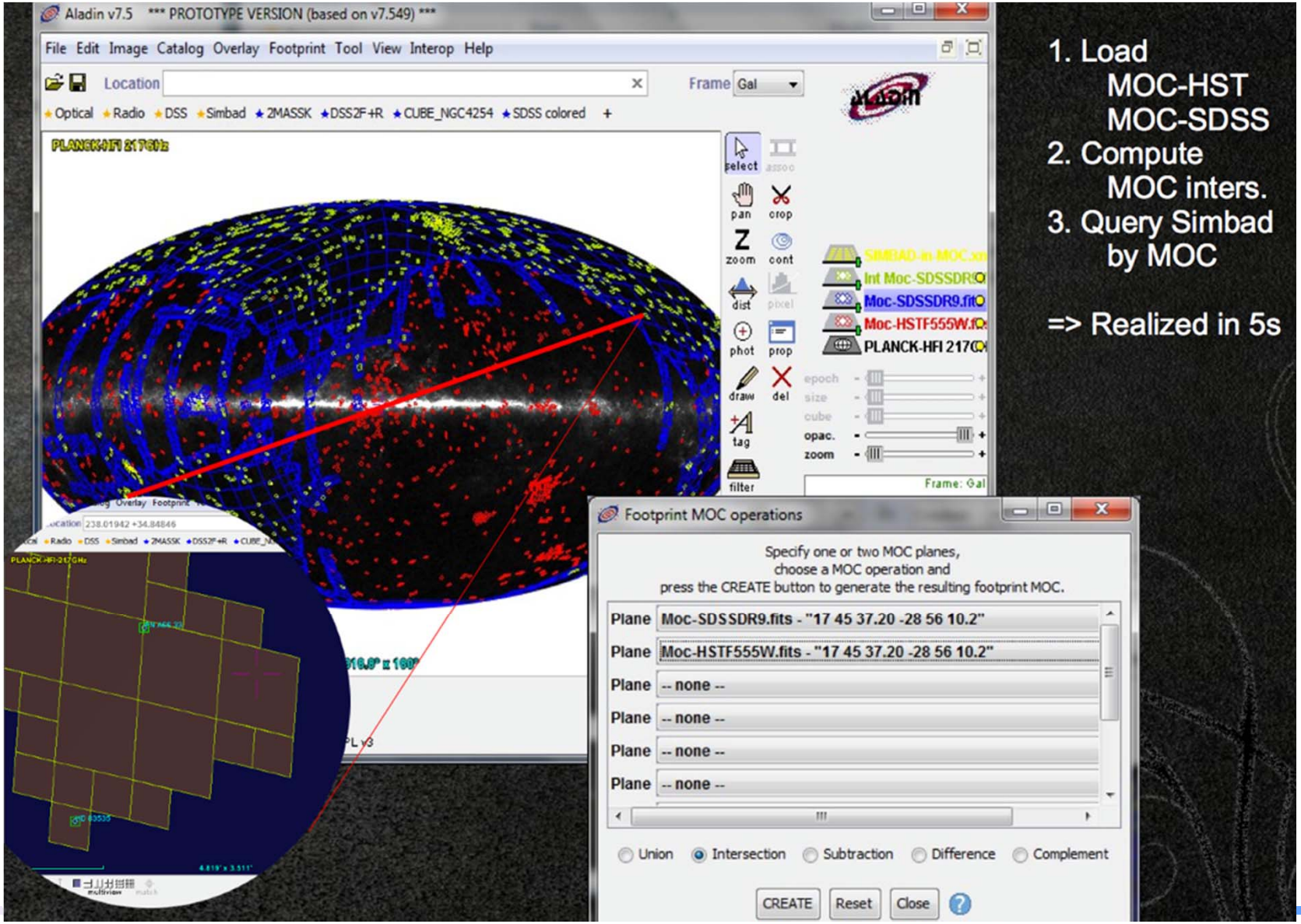
Figure 25: display of the photometric data points from VizieR catalogues found for PKS 2155-304

PKS 2155-304 – BL Lac object observed by HESS and FERMI

Coming soon...

« Please give me all SIMBAD objects observed by HST F555W and SDSS DR9 »

Coming soon: Multi-Order Coverage



High level recommendations (2)

- Scientific activities
  - Two PhDs
  - Participation in projects

    Science & Projects talks
  - Visiting Scientist programme

  The recommendation is taken very seriously and was part of the profile for a new "astronomers" position. No recruitment in 2013 but the profile will remain.
- Staffing

  The situation is critical: F. Ochsenbein on Emeritus status, retirement of G. Chassagnard (IAP), and no recruitment. Two more critical retirements in 2014: M. Wenger, Ch. Bruneau
- Outreach
  - Local activity towards secondary school teachers
  - European/international aspects: led by INAF in IVOA and CoSADIE
- Future directions *Will be discussed throughout the meeting*

CDS impact

- Routinely used by astronomers in their daily work
- Collaboration with journals, observatory archives, VO teams
- CDS long term expertise recognized beyond astronomy and the national borders
  - Participation in EC High Level Expert Group on Scientific Data (2010-2012), the Research Data Alliance, RDA-Europe
  - Chargée de mission INSU, VP Huma-Num Scientific Council, invited participation in INRA Open Access to data meeting, invited participation in FREDOC 2013, etc.

"CDS/Open data" talk

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