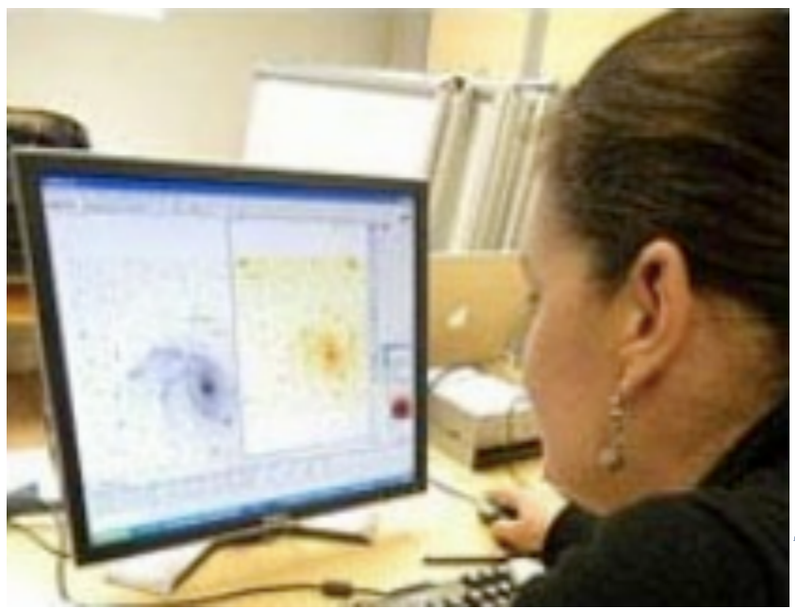
Spreading the word

dissemination and outreach at CDS



Toward astronomers

- Heavy use of CDS tools/services in Euro-VO Science tutorials
- Strong involvment of CDS in numerous VO schools, hands-on, demos, VO days, ...
- Most effective way to interact with community
  - Quotes from the last VO school feedback forms:
    - "*tutorials help you spending less time reading manuals*"
    - "*Loss of time using new tools has been reduced by a factor of 10*"
- Important for feedback on tools, but also ideas and requirements of new functionalities, ...

Schools, hands-on and VO days

more "technical"

2007

Virtual Observatory Masters Level Lecture Course, Groningen, Jan 9-11,2007

"EURO-VO Workshop on how to publish data in the VO", ESAC, Villafranca del Castillo, 25-29 Juin 2007.

Workshop on Astronomy with Virtual Observatories, IUCAA India, October 15-19, 2007

"Virtual Observatories", Moletai, Lituanie, october 17-18 , 2007

2008

EuroVO-DCA Workshop 2008 on how to publish data in the VO, 23-27 Juin 2008 à ESO (Garching bei München, Allemagne)

2009

EuroVO-AIDA School 2009 30 Mars - 2 Avril 2009 à ESO (Garching bei München, Allemagne)

Euro-VO AIDA Workshop on how to publish data in the VO, ESAC, Madrid, Espagne, 22 - 26 Juin 2009

Black Hole Universe: 1ST School on Multiwavelength Astronomy. Paris, July 9, 2009

ESO VO Day, Garching bei München, Allemagne, September 15, 2009

Journée OV, Observatoire de Bordeaux, September 24, 2009

2010

EuroVO-AIDA School 2010, 25-28 Janvier 2010, Strasbourg

Ecole Observatoire Virtuel, 2-4 juin 2010, Strasbourg

Swedish VO Day, Stockholm, June 8-9, 2010

2011

EuroVO-ICE School 21-24 Mars 2011, Strasbourg

VO sessions, SF2A, Paris, June 21-22, 2011

VO maturation

more "science"

Euro-VO Scientific Tutorials

Fully developed example Science Cases

- NEW CDS Tutorial, (step-by-step) **[Mar 2011]** *Uses the CDS Portal and Aladin*
- NEW Study of the Coma Cluster, with a ster-by-step description and a more expanded presentation; **[Mar 2011]** *Uses Aladin and TOPCAT*
- NEW A TOPCAT tutorial, with a section on multi SSA queries (step-by-step) **[Mar 2011]** *Uses TOPCAT, SPLAT-VO*
- H-alpha emitters in X-ray surveys (ster-by-step) **[June 2010]** *Uses Aladin and TOPCAT*
- Proper motion of unstudied open clusters (ster-by-step) **[June 2010]** *Uses Aladin and TOPCAT*
- A study of NGC1068 using TOPCAT for data retrieval (step-by-step) **[Apr 2010; UPDATED Mar 2011]** *Uses Aladin, TOPCAT and SPLAT-VO*
- Quasar candidates in selected fields (step-by-step) **[Mar 2009; UPDATED Mar 2010]** *Uses VODesktop, TOPCAT, VO services, VOSED and VOSpec*
- Classifying the SEDs of Herbig Ae/Be stars (step-by-step) **[Jan 2010]** *Uses TOPCAT, VOSpec and VOSED*
- The nature of a cluster of X-ray sources near the Chamaeleon star-forming region(step-by-step) **[Jan 2010]** *Uses VODesktop, TOPCAT and Aladin*
- Confirmation of a Supernova candidate (step-by-step) **[2009, UPDATED Jan 2010]** *Uses Aladin, TOPCAT, SPLAT-VO or VOSpec*
    - And a lighter version for undergraduate students **[Apr 2010]**
- Search for ULX sources(step-by-step) **[Mar 2009; UPDATED Mar 2011]** *Uses Aladin and TOPCAT*
- Study of Exoplanets(step-by-step) **[Oct 2009]** *Uses the VizieR and Simbad services and TOPCAT*
- Searching for Data available for the bright galaxy M51 (step-by-step) **[Mar 2009, UPDATED Sep 2009]** *Uses Aladin, Simbad, VizieR, TOPCAT and VOSpec*
- Discovery of Brown Dwarfs mining the 2MASS and SDSS databases (step-by-step) **[Mar 2009]** *Uses Aladin, VizieR and TOPCAT*
- The Pleiades open cluster (step-by-step) **[Mar 2009]** *Uses Aladin and TOPCAT*
- Using VOSpec: a VOSpec typical session (movie) **[2009]**
- From SED fitting to Age estimation: The case of Collinder 69 (step-by-step, includes illustrations) **[2008]** *Uses VOSA*
- Individual objects: 3C295 (step-by-step, includes illustrations) **[2007, OUT OF DATE]**
- IMF of massive stars (step-by-step, includes illustrations) **[2007, OUT OF DATE]**

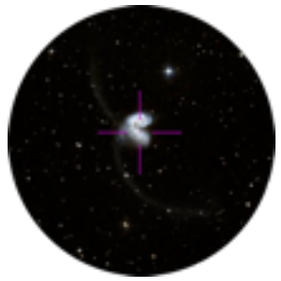
Euro-VO Scientific Tutorials

Fully developed example Science Cases

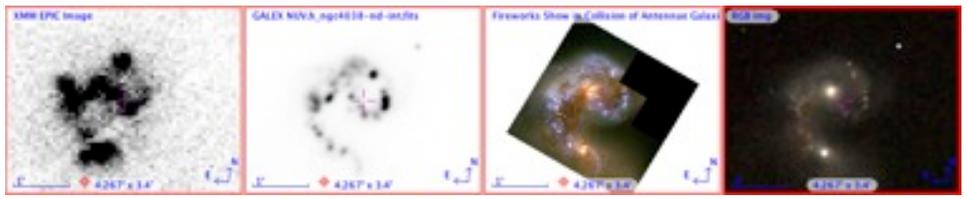
- NEW CDS Tutorial, (step-by-step) **[Mar 2011]** *Uses the CDS Portal and Aladin*
- NEW Study of the Coma Cluster, with a ster-by-step description and a more expanded presentation; **[Mar 2011]** *Uses Aladin and TOPCAT* **VizieR**
- NEW A TOPCAT tutorial, with a section on multi SSA queries (step-by-step) **[Mar 2011]** *Uses TOPCAT, SPLAT-VO*
- H-alpha emitters in X-ray surveys (ster-by-step) **[June 2010]** *Uses Aladin and TOPCAT*
- Proper motion of unstudied open clusters (ster-by-step) **[June 2010]** *Uses Aladin and TOPCAT*
- A study of NGC1068 using TOPCAT for data retrieval (step-by-step) **[Apr 2010; UPDATED Mar 2011]** *Uses Aladin, TOPCAT and SPLAT-VO*
- Quasar candidates in selected fields (step-by-step) **[Mar 2009; UPDATED Mar 2010]** *Uses VODesktop, TOPCAT, VO services, VOSED and VOSpec*
- Classifying the SEDs of Herbig Ae/Be stars (step-by-step) **[Jan 2010]** *Uses TOPCAT, VOSpec and VOSED* **VizieR**
- The nature of a cluster of X-ray sources near the Chamaeleon star-forming region(step-by-step) **[Jan 2010]** *Uses VODesktop, TOPCAT and Aladin* **VizieR**
- Confirmation of a Supernova candidate (step-by-step) **[2009, UPDATED Jan 2010]** *Uses Aladin, TOPCAT, SPLAT-VO or VOSpec* **VizieR**
  - And a lighter version for undergraduate students **[Apr 2010]**
- Search for ULX sources(step-by-step) **[Mar 2009; UPDATED Mar 2011]** *Uses Aladin and TOPCAT* **VizieR**
- Study of Exoplanets(step-by-step) **[Oct 2009]** *Uses the VizieR and Simbad services and TOPCAT*
- Searching for Data available for the bright galaxy M51 (step-by-step) **[Mar 2009, UPDATED Sep 2009]** *Uses Aladin, Simbad, VizieR, TOPCAT and VOSpec*
- Discovery of Brown Dwarfs mining the 2MASS and SDSS databases (step-by-step) **[Mar 2009]** *Uses Aladin, VizieR and TOPCAT*
- The Pleiades open cluster (step-by-step) **[Mar 2009]** *Uses Aladin and TOPCAT*
- Using VOSpec: a VOSpec typical session (movie) **[2009]**
- From SED fitting to Age estimation: The case of Collinder 69 (step-by-step, includes illustrations) **[2008]** *Uses VOSA*
- Individual objects: 3C295 (step-by-step, includes illustrations) **[2007, OUT OF DATE]**
- IMF of massive stars (step-by-step, includes illustrations) **[2007, OUT OF DATE]**

CDS VO Tutorial

Single object search



Find Multi-λ data

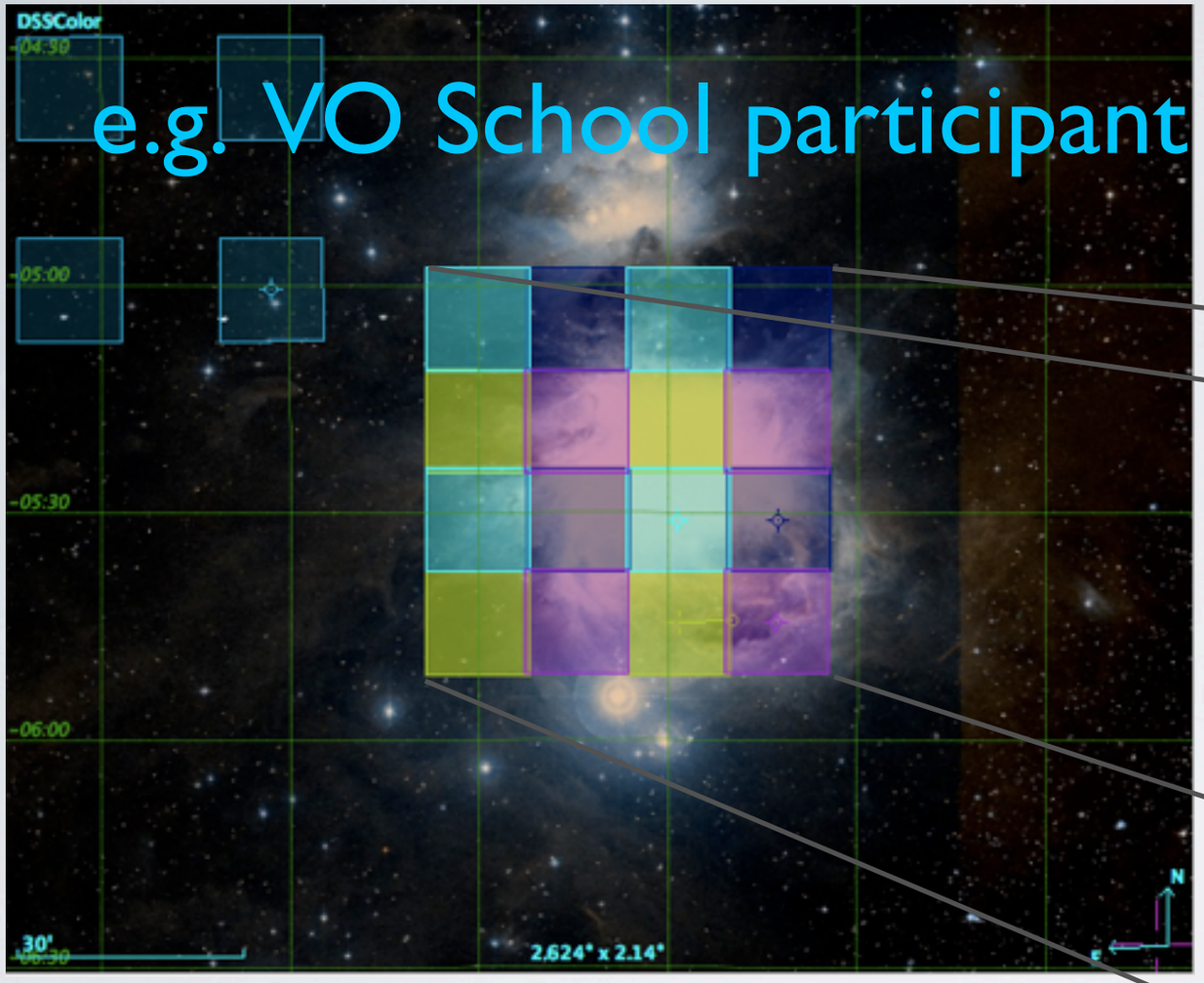


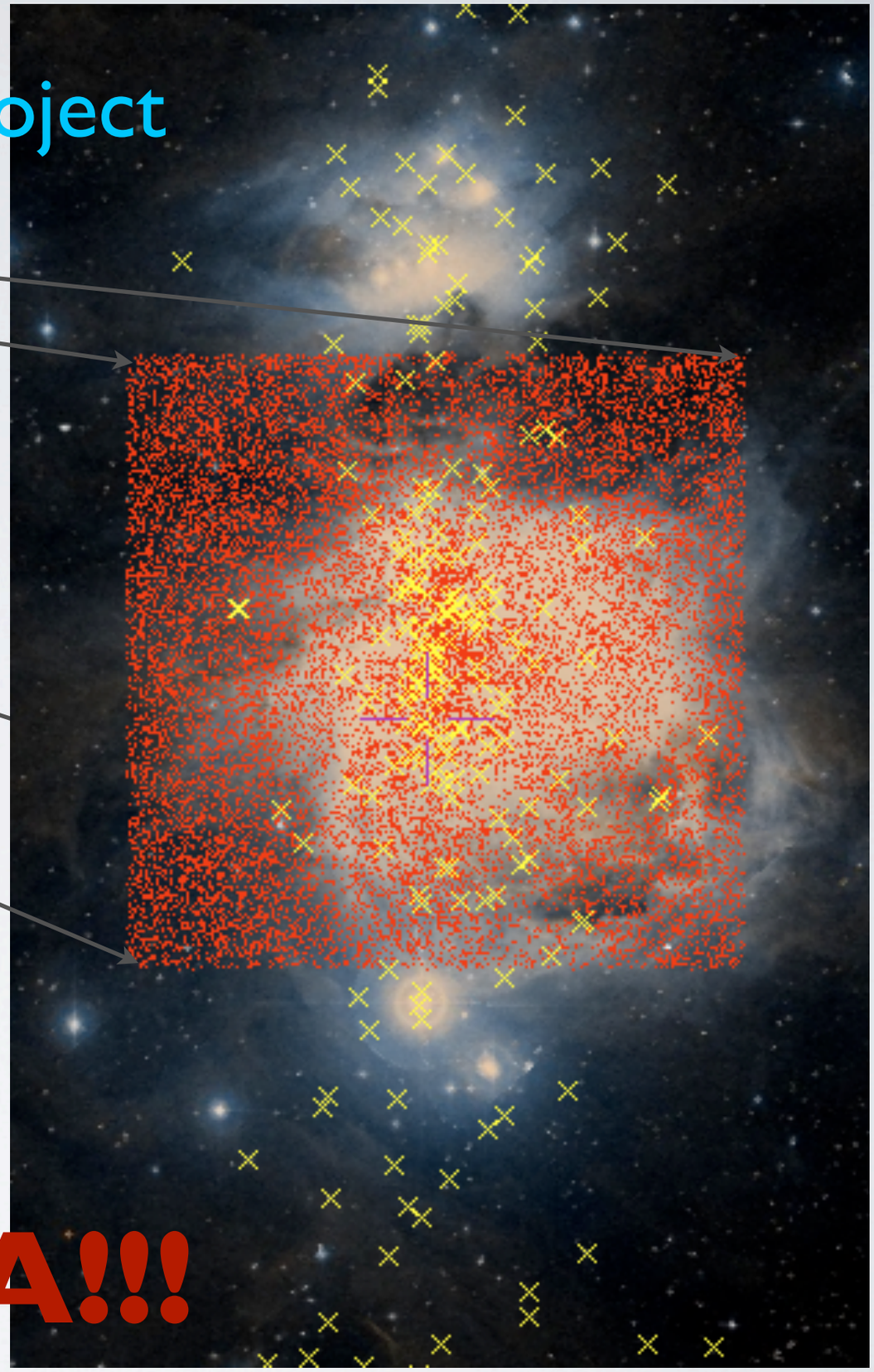
Use catalogues to select a sample

Full	RAJ2000	DEJ2000	Arp	Name	RA2000	DE2000	Size	O
	deg	deg			"h:m:s"	"d:m:s"	arcmin	
1	141.158	+49.357	1	NGC 2857	09 24 38	+49 21 4	5.2	E
2	244.075	+47.047	2	UGC 10310	16 16 18	+47 02 8	3.5	E
3	339.143	-2.905	3	MCG-01-57-016	22 36 34	-02 54 3	5.2	N
4	027.108	-12.382	4	MCG-02-05-50+A	01 48 26	-12 22 9	3.5	E
5	171.103	+3.327	5	NGC 3664	11 24 25	+03 19 6	2.6	N
6	123.310	+45.992	6	NGC 2537	08 13 14	+45 59 5	2.6	E
7	132.573	-16.577	7	MCG-03-23-009	08 50 17	-16 34 6	2.6	N
8	020.598	-0.875	8	NGC 0497	01 22 23	-00 52 5	3.5	S
9	123.748	+73.580	9	NGC 2523	08 14 59	+73 34 8	3.5	E
10	034.610	+5.653	10	UGC 01775	02 18 26	+05 39 2	2.6	E

Script data and information retrieval for whole sample

e.g. VO School participant project





1 fits file with 4 extensions x 4 points

on sky x 2 filters x 13 epochs

= 416 tables

= **A LOT OF DATA!!!**

which sat on my laptop for more than 1 year... until... the VO School 2010!

Local training

2008

Aladin V5 tutorial for the Observatory of Strasbourg

2010

VO half-a-day, Observatoire de Strasbourg, february 1st, 2010

TOPCAT training, december 14, 2010

2011

Aladin V7 training for documentalists, april 11, 2011

CDS is integrated in the observatory and scientists at the observatory benefit from the new tools & expertise

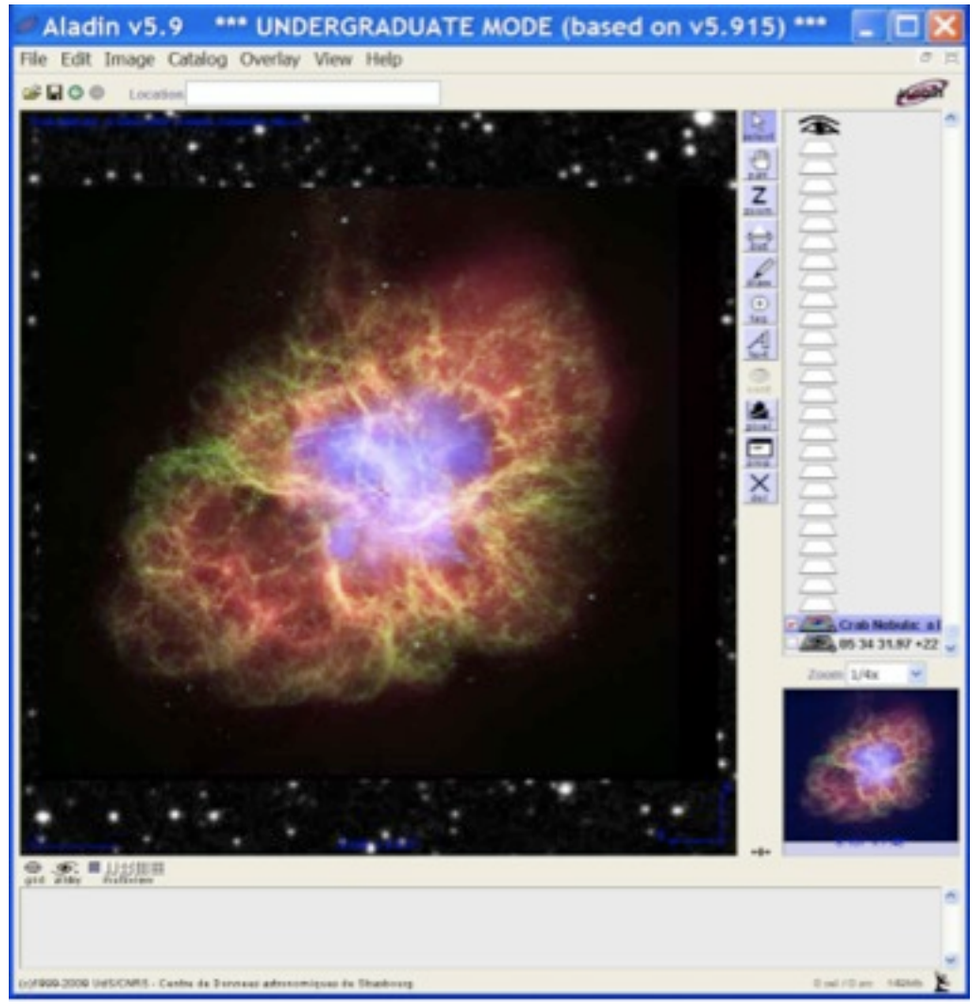
Tools are used internally at CDS as well as externally (e.g. Aladin check when including new objects in Simbad)

Outreach

- Euro-AIDA WP5: use cases for general public

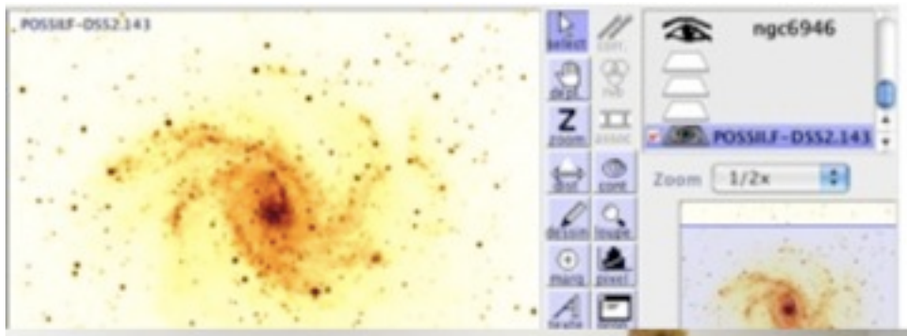
Download usage examples

1. The sky (apparent motion, coordinates, constellations, light pollution)
2. The stars (color and luminosity: the Hertzsprung-Russell diagram)
3. The shape of galaxies (the Hubble morphological sequence)
   * download a galaxy set: hubble_1.zip, hubble_2.zip, hubble_3.zip, hubble_4.zip
4. The Pleiades open cluster (parallax, HR-diagram)
5. Proper motion of the Barnard's star
6. Confirmation of an apparent supernova
   * download the image ngc6946.fits
7. Distance of the Andromeda galaxy (variable stars: cepheids)
8. Distance of the Crab Nebula
   (linear and angular size, expansion velocity of the nebula)
9. Asteroids in the Solar System
   (asteroids distribution, orbital elements, risonances)
10. Planetary conjunctions
    (conjunctions, the Star of Bethlehem and the end of the world in 2012)
11. Introduction to Stellarium for prescholars
    (Celestial sphere, light pollution, constellations)



- Outreach version of Aladin
- French translation at CDS of the use cases (O. Bienaymé, F. Bonnarel, C. Bot, S. Derrière, A. Siebert)

- "Distance of the crab nebula" use case used in high schools (F. Bonnarel, P. Fernique)
- "Graines de sciences" school, october 2010 (C. Bot)
  - 30 french teachers from primary school & preschool
  - Half-a-day tutorial "finding a supernovae in NGC6946" with Aladin



But also...

- Journées du patrimoine
- Kid's university
- Conferences (Jardin des sciences, SAFGA,...)
- International year of astronomy 2009
  - S. Derrière, coordinator of all activities at the Strasbourg Observatory
- Fête de la science
  - Talks in schools in coordination with the "rectorat" (regional education administration)

Conclusion

- CDS tools from astronomers to the large public
- “Hands-on” rather than talks
- Efficient way to communicate
- Important for feedback on tools
- Takes a lot of effort and time
  - Need to target the public
  - Need additional ressources