

Exploiting Virtual Observatory and Information Technology: Techniques for Astronomy

Lecture #5 Goal:
VO Applications
Science Usage

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Summary: Lecture #5

- Review of VO Client Side Tools
- Examples of Usage
 - Creating the H-R diagram
 - Discovery of Brown Dwarfs
 - Stars in Open Clusters
 - Discovery of Type 2 QSO's
 - P-AGB (OH masers, PN) stars

VO Client Side Applications

- Applications are now available which conform to VO standards
- Powerful tools exploiting the uniform data access methods
- Lecture #6 will cover server side applications

Aladin



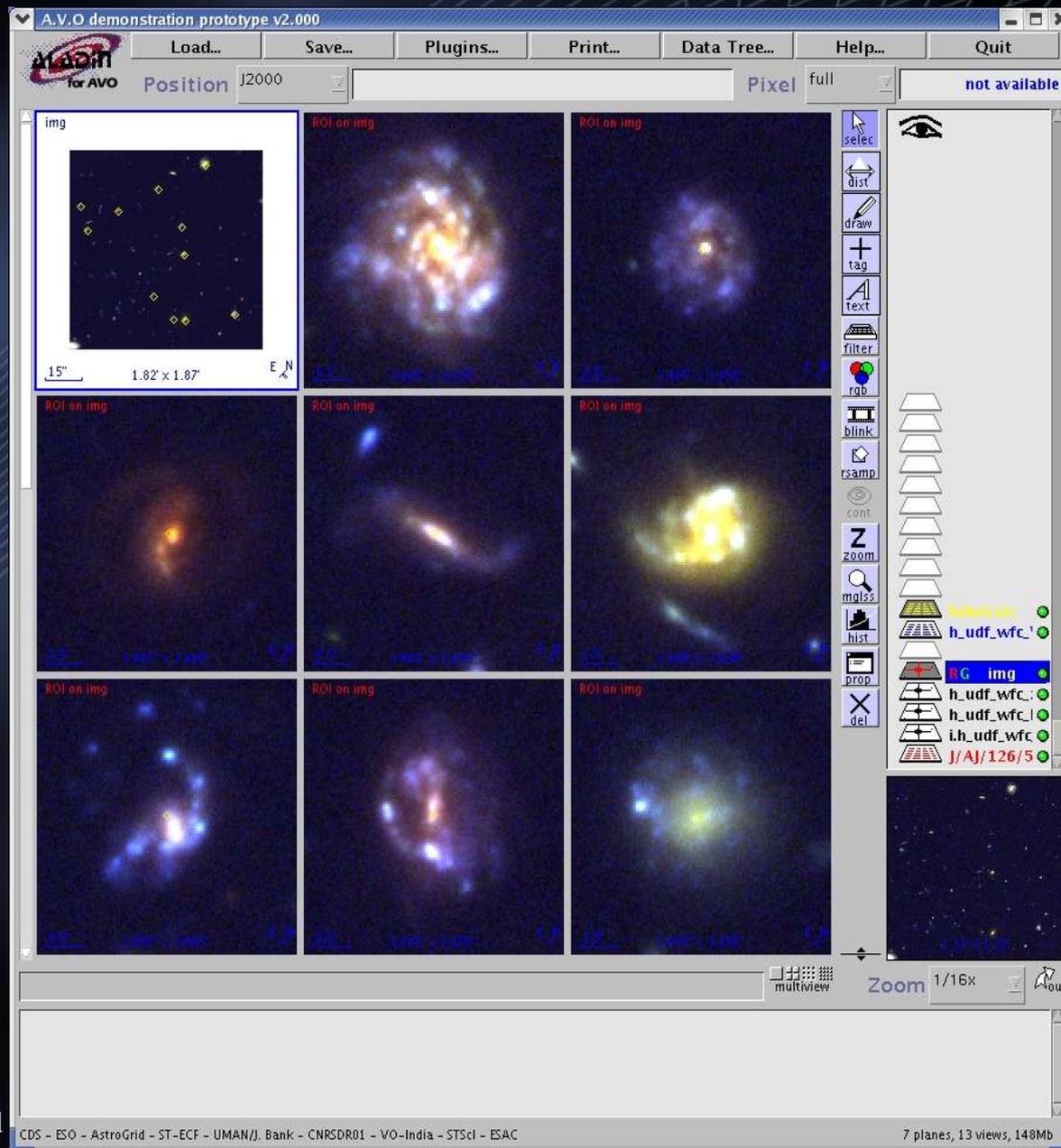
- A sophisticated data visualiser and workbench
- Developed at CDS - Strasbourg
- Two versions available:
 - Mainstream Aladin v2.503:
<http://aladin.u-strasbg.fr/AladinJava?frame=downloading>
 - VO enabled: AVO-Aladin v2.000:
<http://www.euro-vo.org/twiki/bin/view/Avo/SwgDownload>
- Many new features in latest AVO-Aladin v2.0 version

Aladin: Multi-view



HST ACS
Ultra Deep Field

variable size
cutouts generated
from loaded
images



Aladin: Image Cutout Services



Cutouts generated remotely

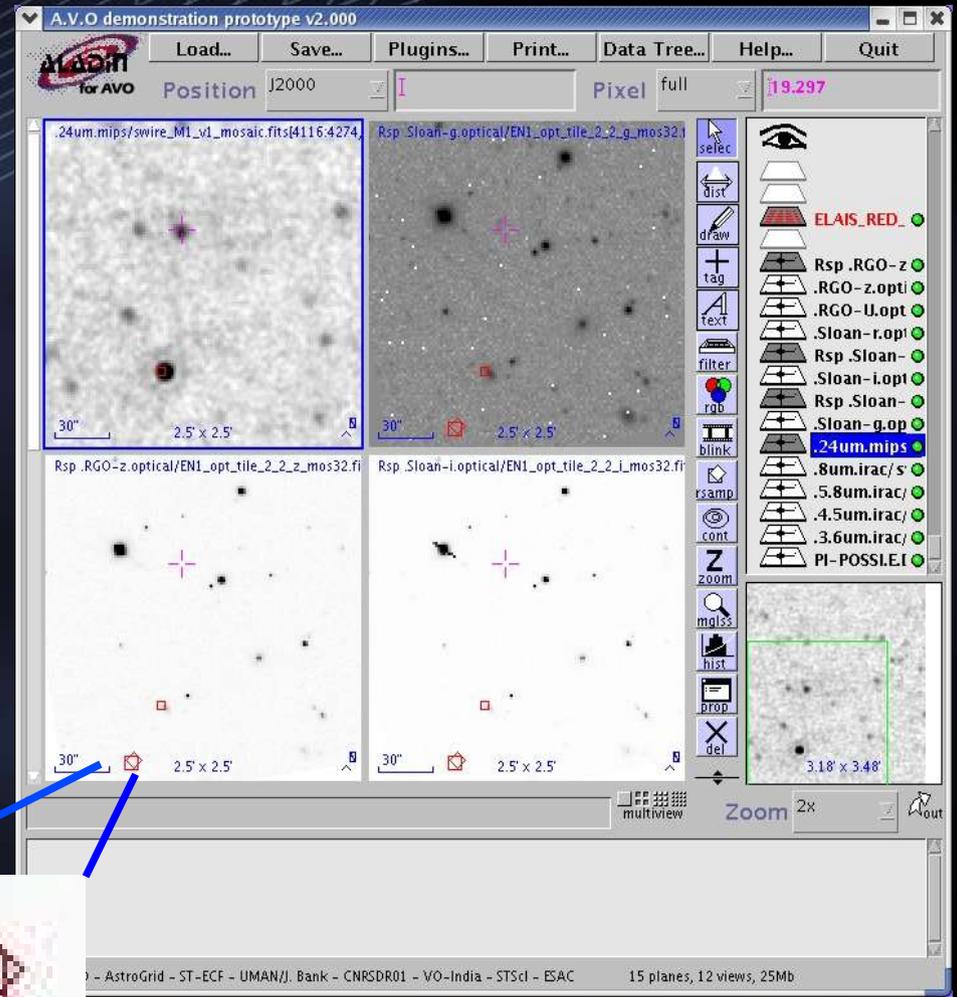
The screenshot shows the Aladin software interface with a grid of astronomical images. A dialog box titled "SWIRE cutout" is open, allowing the user to specify a target and cutout parameters. The dialog includes a "Server selector" with "Aladin" and "VOdemo" selected. The "Target" field contains the coordinates "16 08 57.65 +54 10 35.7" and the equatorial coordinates "05 47 17.0 -51 04 03". The "Width (deg)" and "Height (deg)" fields are both set to 0.1. A list of available cutout sizes is shown, including 3.6um, 4.5um, 5.8um, 8um, 24um, 70um, 160um, Sloan-g, Sloan-i, and Sloan-r. The "SUBMIT" button is highlighted.

SWIRE cutout service



Aladin: image browsing for distributed data

- IDHA data model for describing FOV: Data Tree
- Re-sampling to pixel grids
- Matched zoom and pan
- Simple image registration



Pixel re-sampling



Aladin: Query by List



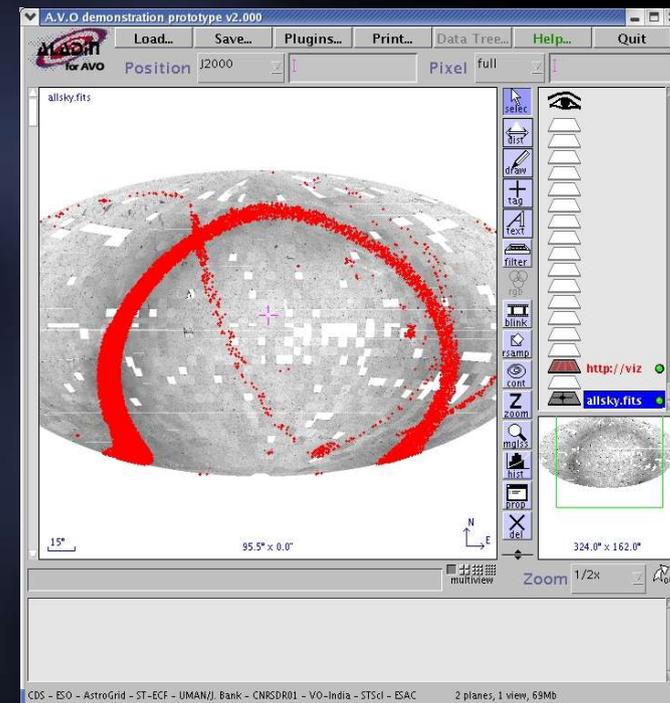
Remote Cross-Matching:

'bringing the computation to the data'

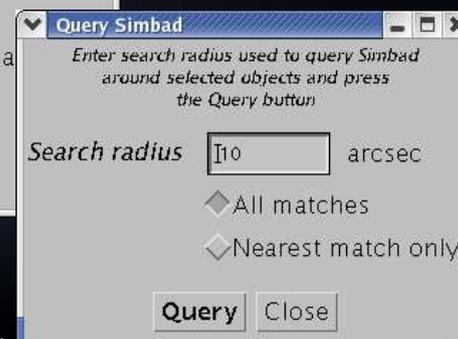
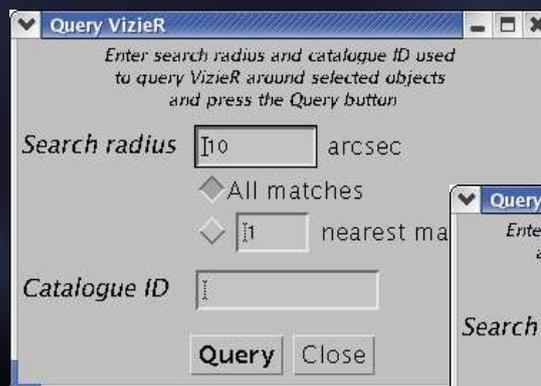
Multiple Cone Searching:

'stream-lining batch requests'

Supports X-Match for sparse or complex distributions of sources



>10⁵ sources
e.g. entire IRAS

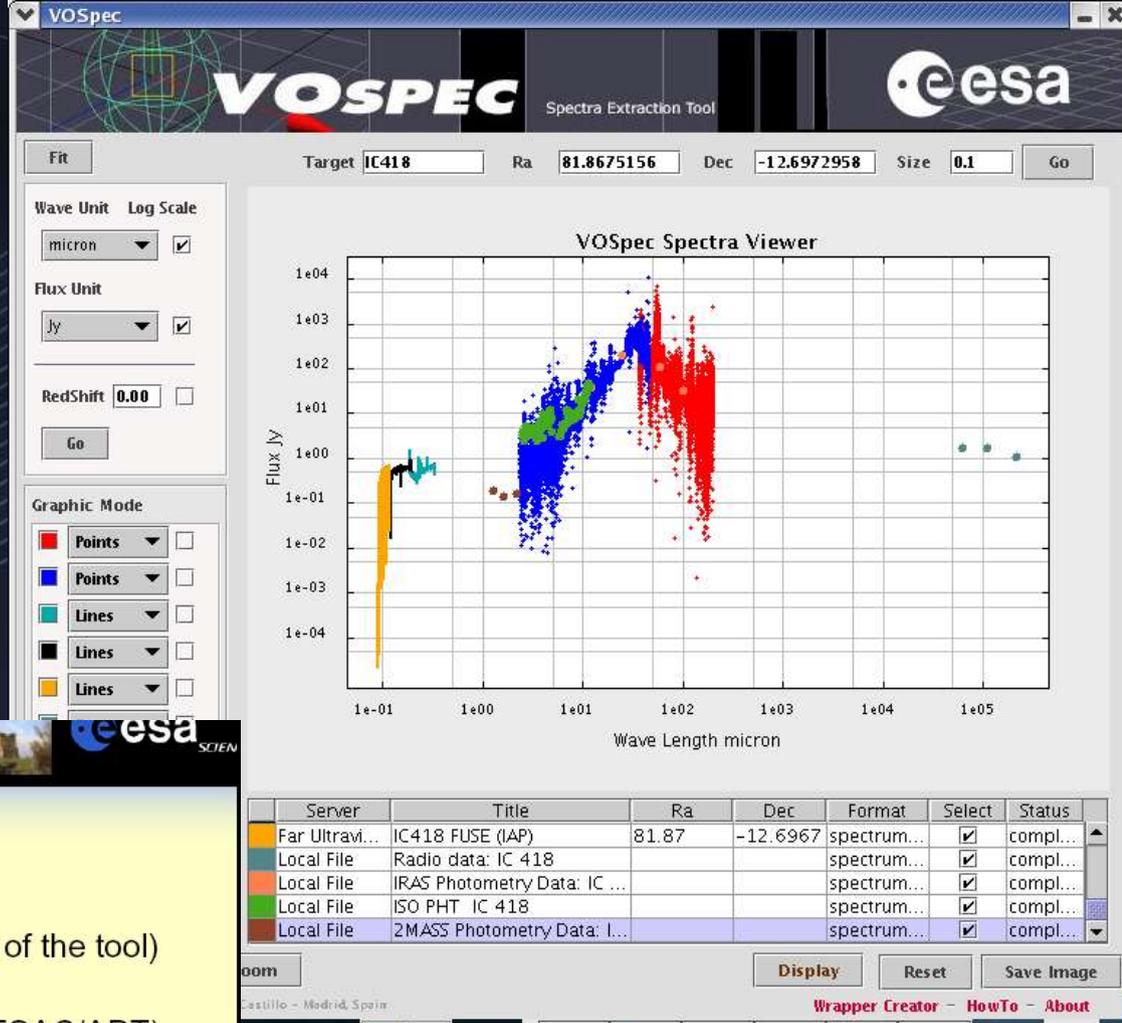


VizieR & SIMBAD



VOSpec

- VO spectral access tool
- Developed at ESAC
- Startup from:
 - <http://esavo.esa.int/vospec/>

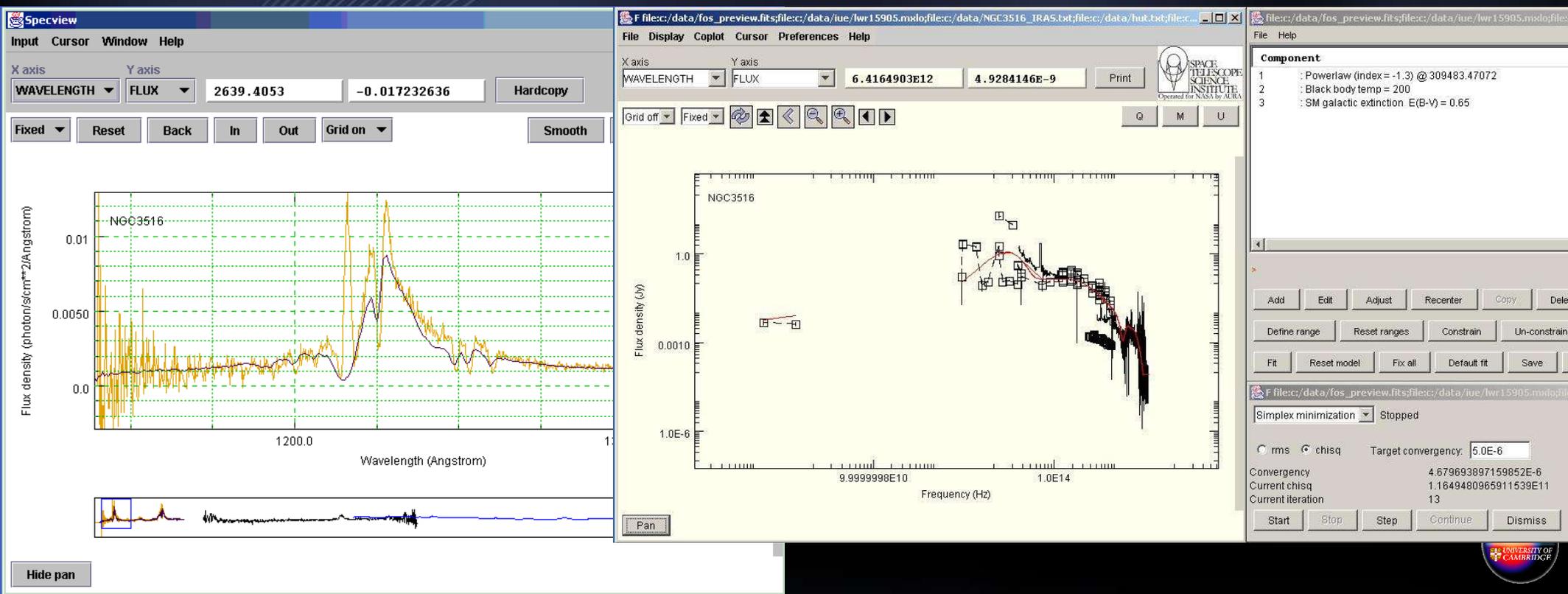


VOSpec fact sheet

- ❑ Using VO Standards:
 - Access to Registry to get SSA servers information
 - Use SIMBAD Web Service (easily integrated with rest of the tool)
 - Display VOTable information from SSA
 - Already working with available SSAP services: ISO (ESAC/ADT), IUE (INES archive), ST-ECF HST and SLOAN.
 - Handles VOTable 1.0 and 1.1
 - Handles SED Data Model (0.9.2)
- ❑ Handling spectra
 - Get spectra from SSA servers
 - Display and superimpose spectra
 - Accept spectra in FITs and VOTable formats
 - Automatic unit conversion through dimensional analysis
 - Multi-wavelength analysis
 - Polynomial/Black body/Gaussian fitting

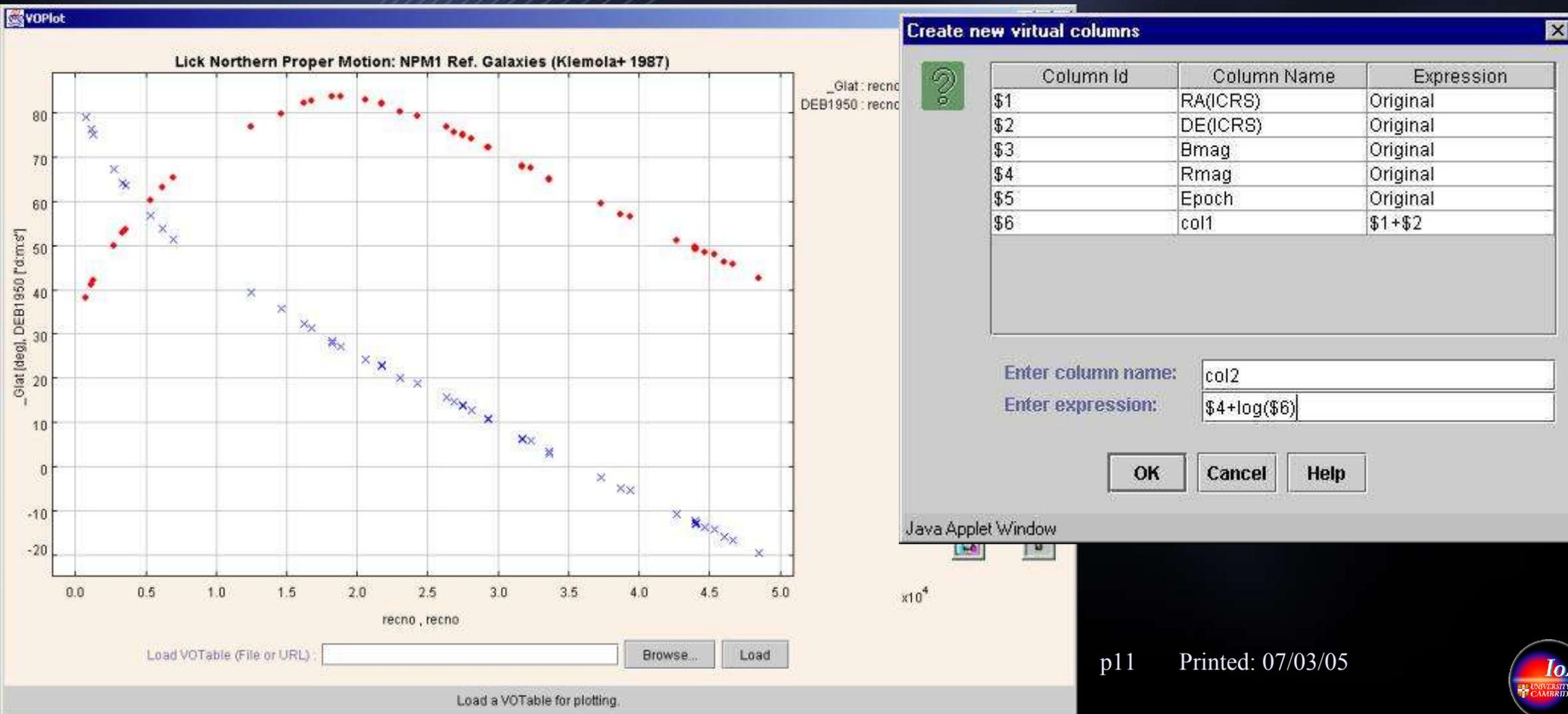
Specview

- A java application for analysis and visualisation of 1-D spectra
- Developed at STScI
- Download from
 - http://www.stsci.edu/resources/software_hardware/specview
 - Also available as a helper app to e.g. Aladin



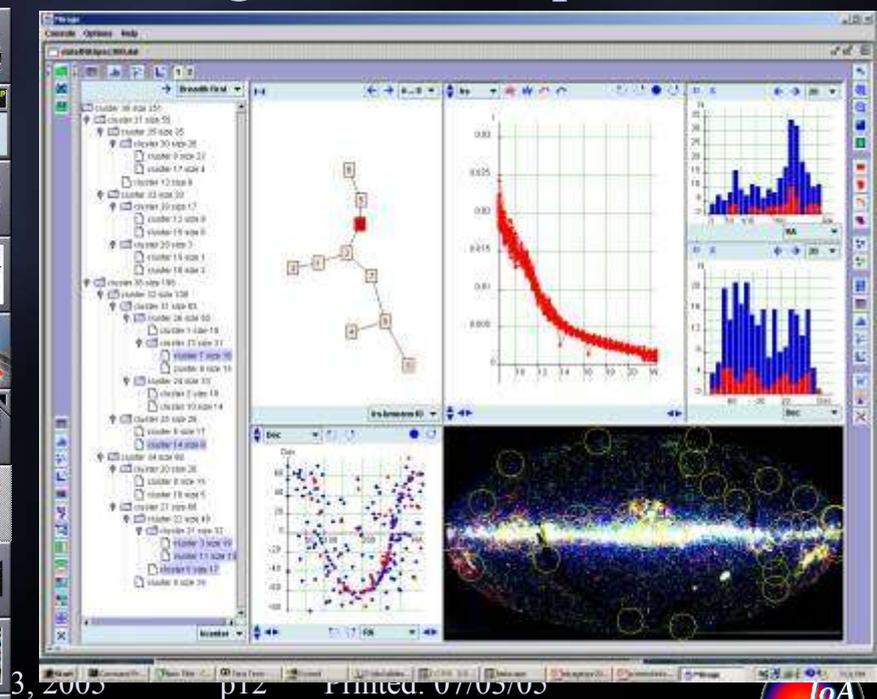
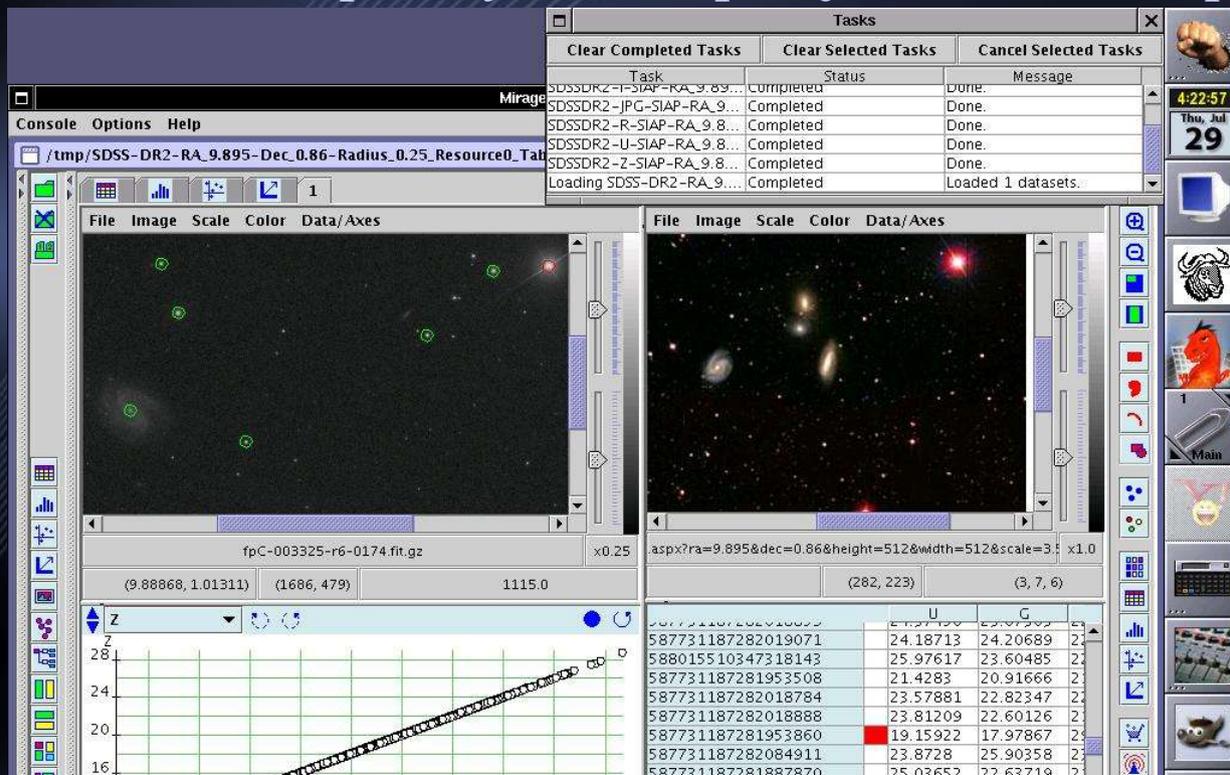
VOPlot/ VOPlot3D

- Java tools for the visualisation of tabular data in 2-D and 3-D
- Developed for VO-India by Persistent Systems and IUCAA
- Available in standalone or plugin formats
 - <http://vo.iucaa.ernet.in/~voi/voplot.htm>



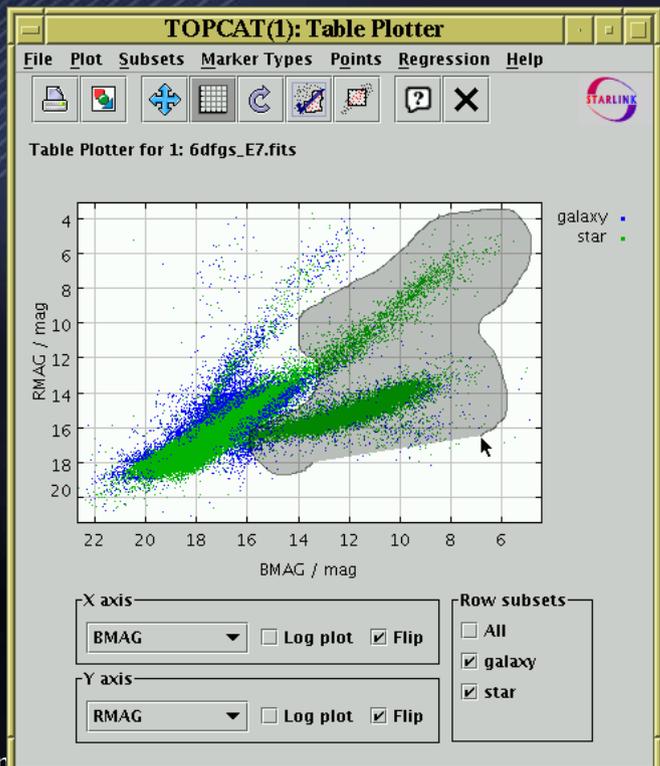
Mirage

- 'Mirage is a Java-based software tool for exploratory analysis and visualization of images and multi-dimensional numerical data from an arbitrary domain of study.'
- Developed by Tin Kam Ho at Lucent Technologies
- Available at:
 - <http://cm.bell-labs.com/who/tkh/mirage/index.html>
 - <http://skyservice.pha.jhu.edu/develop/vo/mirage/default.aspx>



TopCat

- TOPCAT is an interactive graphical viewer and editor for tabular data
- A Starlink developed Java app
- Available from:
 - <http://www.star.bris.ac.uk/~mbt/topcat/>



Starlink TOPCAT

Table List:

- 1: MGC.xml.gz
- 2: SuperCOSMOS.FIT
- 3: 2mass_xsc.fits
- 4: 2QZ_6QZ_pubcat.fits

Current Table Properties:

Label: SuperCOSMOS.FIT
 Location: SuperCOSMOS.FIT
 Name:
 Rows: 1210711 (102749 apparent)
 Columns: 32 Q4 apparent
 Sort Order: AREA
 Row Subset: qual_high
 Activation Action: (no action)

TOPCAT Cone Search Parameters

Object Name: ngc1357

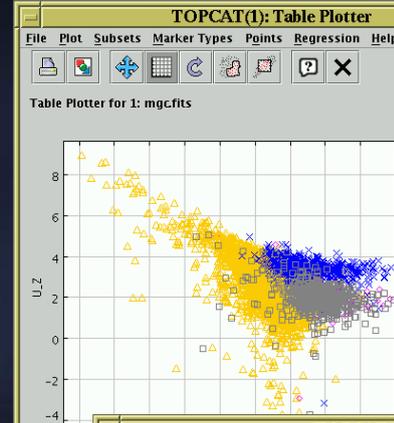
RA: 53.3207917 degrees (J2000)
 Dec: -13.6633611 degrees (J2000)
 Radius: 15 arcmin

TOPCAT Help

A.3 Table View Window

Many of the windows you will see with information about a single table. These display a different aspect of the table statistics, column metadata, plotted values for each type for the tables currently displayed. These windows will say something like TOPCAT which indicates that it is displaying information about the table labelled "3...".

To open any of these windows, select the appropriate item in the Control Window and click the appropriate equivalent item in the Table Views menu.



Available Functions

Function atan2(y, x)

Description: Converts rectangular coordinates (r, theta) to Cartesian coordinates (x, y) by calculating the arctangent of the ratio of the y-coordinate to the x-coordinate. The angle theta is measured counter-clockwise from the positive x-axis.

Parameters: y (floating point), x (floating point)

TOPCAT(6): Table columns

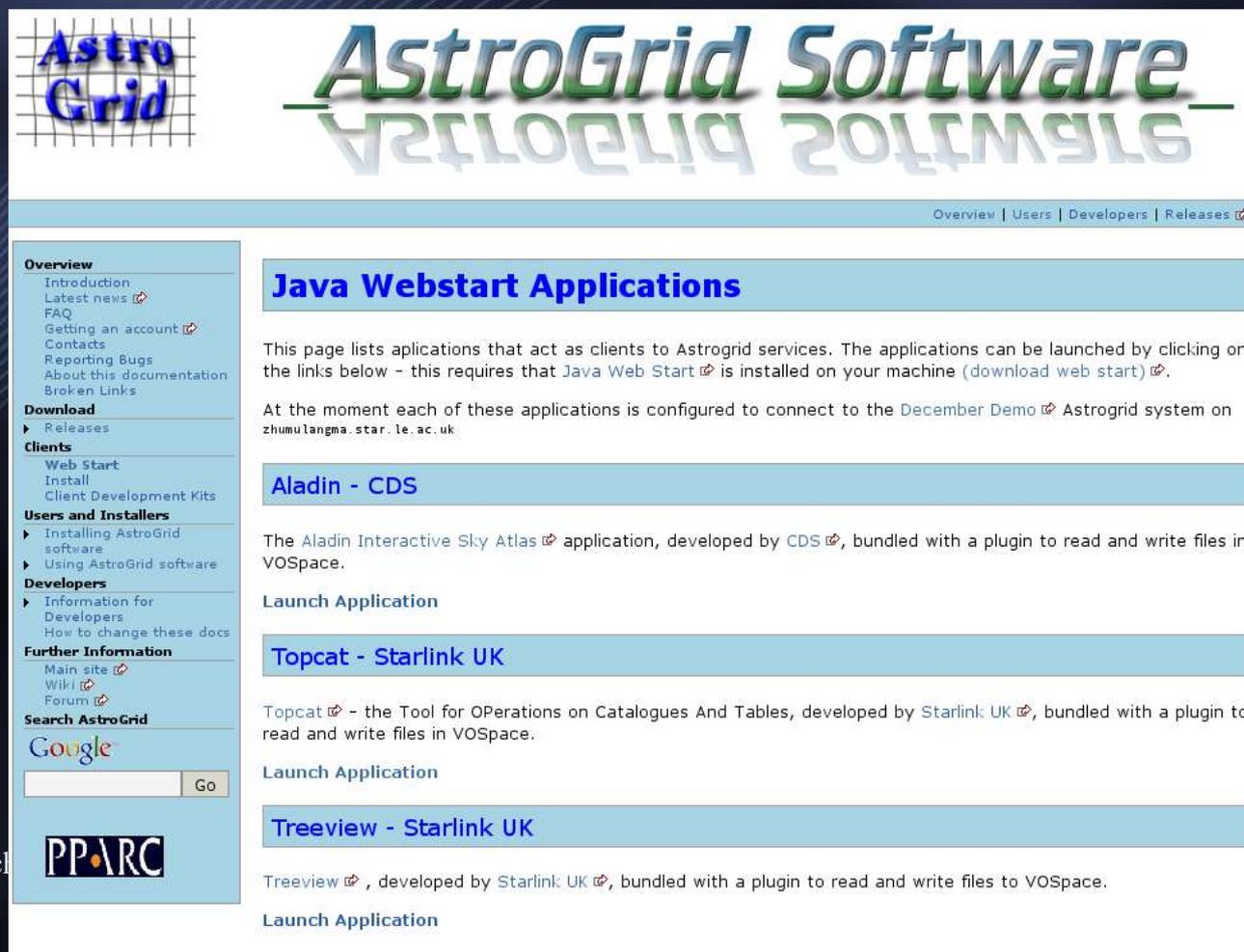
Visible	Name	Units	UCD	Description
<input checked="" type="checkbox"/>	MGC_DC_B			B_MGC corrected for extinction [Vega mag]
<input checked="" type="checkbox"/>	MGC_DC_SB			B_MGC apparent effective surface brightness [Vega mag]
<input checked="" type="checkbox"/>	MGC_ALPHA_J2000	degrees	POS_EQ_RA_MAIN	MGC RA (J2000)
<input checked="" type="checkbox"/>	MGC_DELTA_J2000	degrees	POS_EQ_DEC_MAIN	MGC DEC (J2000)
<input checked="" type="checkbox"/>	RA2000	radians		RA (J2000) (toRadians(MGC_ALPHA_J2000))
<input checked="" type="checkbox"/>	DEC2000	radians		DEC (J2000) (toRadians(MGC_DELTA_J2000))
<input checked="" type="checkbox"/>	MGC_CLASS			Classification parameter 1=galaxy, 8=star
<input checked="" type="checkbox"/>	MGC_HLR_TRUE	arcsec		Seeing corrected Half light radius
<input checked="" type="checkbox"/>	MGC_SEEING			Seeing of MGC field
<input checked="" type="checkbox"/>	MGC_SPEC_TYPE			Seeing of MGC field
<input checked="" type="checkbox"/>	MGC_B_KCORR			Seeing of MGC field
<input checked="" type="checkbox"/>	MGC_BEST_Z			Seeing of MGC field
<input checked="" type="checkbox"/>	MGC_BEST_ZQUAL			Seeing of MGC field
<input checked="" type="checkbox"/>	SDSS_PETMAG_u			Seeing of MGC field
<input checked="" type="checkbox"/>	SDSS_PETMAG_g			Seeing of MGC field
<input checked="" type="checkbox"/>	SDSS_PETMAG_r			Seeing of MGC field
<input checked="" type="checkbox"/>	SDSS_PETMAG_i			Seeing of MGC field
<input checked="" type="checkbox"/>	SDSS_PETMAG_z			Seeing of MGC field
<input checked="" type="checkbox"/>	ID			Seeing of MGC field
<input checked="" type="checkbox"/>	ABS_MAG_u			Seeing of MGC field
<input checked="" type="checkbox"/>	ABS_MAG_g			Seeing of MGC field
<input checked="" type="checkbox"/>	ABS_MAG_r			Seeing of MGC field
<input checked="" type="checkbox"/>	ABS_MAG_i			Seeing of MGC field
<input checked="" type="checkbox"/>	ABS_MAG_z			Seeing of MGC field

TOPCAT(1): Row Subsets

ID	Name	Size	Expression	Column #ID
1	All	179262		
2	galaxy	142369		\$12
3	star	26634		\$13
4	B_bright	11614	BMAG < 12.5	
5	R_bright	6583	RMAG < 13.5	
6	blue_gal		galaxy && B_bright && ! R_bright	

AstroGrid: Applications via Java WS

- AstroGrid is making available many of the preceeding applications via Java Web Start
 - <http://java.sun.com/products/javawebstart/download.jsp>
- Applications are listed at <http://software.astrogrid.org/jnlp/>



The screenshot shows the AstroGrid Software website. The header features the AstroGrid logo and the text "AstroGrid Software". A navigation bar includes links for Overview, Users, Developers, and Releases. The main content area is titled "Java Webstart Applications" and contains the following text:

This page lists applications that act as clients to Astrogrid services. The applications can be launched by clicking on the links below - this requires that Java Web Start is installed on your machine (download web start).

At the moment each of these applications is configured to connect to the December Demo Astrogrid system on zhumulangma.star.le.ac.uk.

Aladin - CDS

The Aladin Interactive Sky Atlas application, developed by CDS, bundled with a plugin to read and write files in VOSpace.

[Launch Application](#)

Topcat - Starlink UK

Topcat - the Tool for OPERations on Catalogues And Tables, developed by Starlink UK, bundled with a plugin to read and write files in VOSpace.

[Launch Application](#)

Treeview - Starlink UK

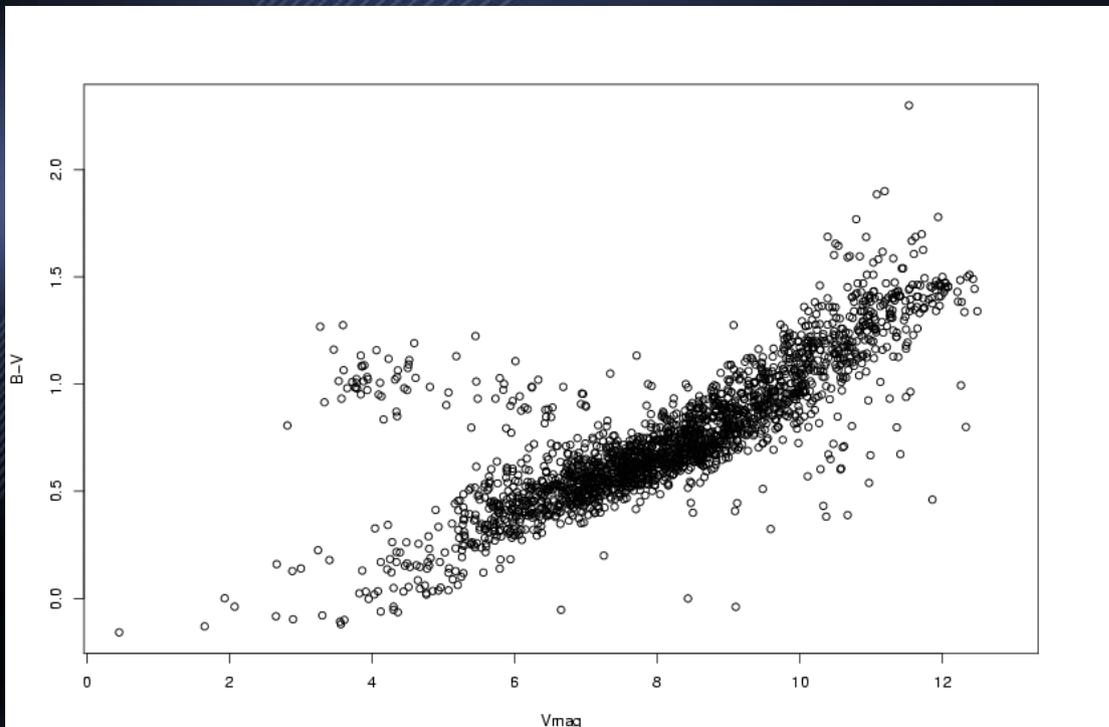
Treeview, developed by Starlink UK, bundled with a plugin to read and write files to VOSpace.

[Launch Application](#)

The left sidebar contains a navigation menu with sections: Overview (Introduction, Latest news, FAQ, Getting an account, Contacts, Reporting Bugs, About this documentation, Broken Links), Download (Releases), Clients (Web Start, Install, Client Development Kits), Users and Installers (Installing AstroGrid software, Using AstroGrid software), Developers (Information for Developers, How to change these docs), Further Information (Main site, Wiki, Forum), and Search AstroGrid (Google search bar).

VOSTat: Statistics via the VO

- Provides a quite of statistical tools
 - <http://vostat.org>
 - Includes (partial) access to the 'R' statistics package:
<http://www.r-project.org/>
- Example usage given at:
 - <http://vostat.org/demos/index.html>



Science Examples

Putting the applications to use ...

The H-R Diagram

- Using VO Tools to construct a H-R diagram
- The flow of this case is as follows
 - Search registry for a stellar catalogue with absolute magnitudes or objects at a set distance (e.g. Members of a cluster)
 - Get relevant catalogue – in this case the Gliese catalogue
 - Vizier: <http://vizier.u-strasbg.fr/viz-bin/VizieR>
 - HEASARC:
<http://heasarc.gsfc.nasa.gov/cgi-bin/tam/conetest.pl?table=cns3&RA=0.0&DEC=0.0&SR=180.0&VERB=2>
 - Use VOPlot of TopCat to display catalogue
 - Create an absolute magnitude table column
 - $V_{abs} = V_{mag} + 5 + 5 \log p$ (p is parallax in arcsec)
 - V_{abs} vs B-V to show the H-R diagramme
 - Select the objects bottom left
 - As expected – identified as White Dwarfs
- Case developed for the US-VO 2004 Summer School
 - <http://www.us-vo.org/summer-school/proceedings/exercises/HRDiagram.htm>

Brown Dwarfs

- Searching for Brown dwarfs based on a $z-J > 3$ mag
- Make use of 2MASS and SDSS IR and Optical photometry
- Search using Open Sky Query
 - <http://openskyquery.net/Sky/skysite/browse/Browse.aspx>

```
SELECT o.objId, o.ra,o.dec, o.type,  
t.objId, t.j_m, o.z  
FROM SDSS:PhotoPrimary o,  
TWO MASS:PhotoPrimary t  
WHERE XMATCH(o,t)<2.5  
AND Region('Circle J2000 16.031 -0.891 .10')  
AND( o.z- t.j_m)>1
```

- Results can be saved as VOTable for further analysis
- Example developed for the NVO 2004 Summer School
 - <http://www.us-vo.org/summer-school/proceedings/exercises/BrownDwarf.htm>

US-VO Website - Mozilla

File Edit View Go Bookmarks Tools Window Help

http://www.us-vo.org/news/story.cfm?ID=9

Home Bookmarks OfS MyNews my Ag MyAthens CDS NED Goo B-Txt ADS a-ph Weer Rail

US-VO Website

NVO
NATIONAL VIRTUAL OBSERVATORY

US National Virtual Observatory

Home Registry Tools Data Access Publish Education NVO in Use Grid Computing Architecture Contact Us

News

NVO Summer School
[Data Inventory Service](#)
[Discovery by VO Demo](#)
[VO Alliance Formed](#)
[NVO News Archive](#)

About

[What is the NVO?](#)
[Who is Involved?](#)
[Science Objectives](#)

Community

[NVO Meetings](#)
[International VO Alliance](#)

Documents

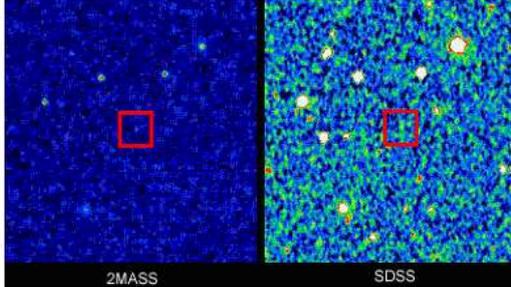
Recent NVO Documents:
[Quarterly Report Q104](#)
[Management Plan](#)
[VO Resource Registry](#)
[Advisory Committee Report](#)
[All NVO Documents](#)
[IVOA Documents](#)



Supported by the [National Science Foundation](#)

Discovery by VO Demo

Date Posted: February 28, 2003



Early demo project identifies new brown dwarf

A new approach to finding undiscovered objects buried in immense astronomical databases has produced an early and unexpected payoff: a new instance of a hard-to-find type of star known as a brown dwarf.

Scientists working to create the National Virtual Observatory (NVO), an online portal for astronomical research unifying dozens of large astronomical databases, confirmed discovery of the new brown dwarf recently. The star emerged from a computerized search of information on millions of astronomical objects in two separate astronomical databases. Thanks to an NVO prototype, that search, formerly an endeavor requiring weeks or months of human attention, took approximately two minutes. The image above shows the 2MASS (left) and SDSS (right) of the newly found L-type brown dwarf, 2MASSI J0104075-005328.

NVO researchers emphasized that a single new brown dwarf added to a list of approximately 200 known brown dwarfs isn't as scientifically exciting as the timing of the new discovery and the tantalizing hint it offers to the potential of NVO. The discovery came at a stage when organizers were simply hoping to use NVO to confirm existing science, not make new findings.

"This was just supposed to be a feasibility demo. We just wanted it to find all the brown dwarfs that others could find, to show that this was a valid approach," said Alex Szalay, director of the NVO project and Alumni

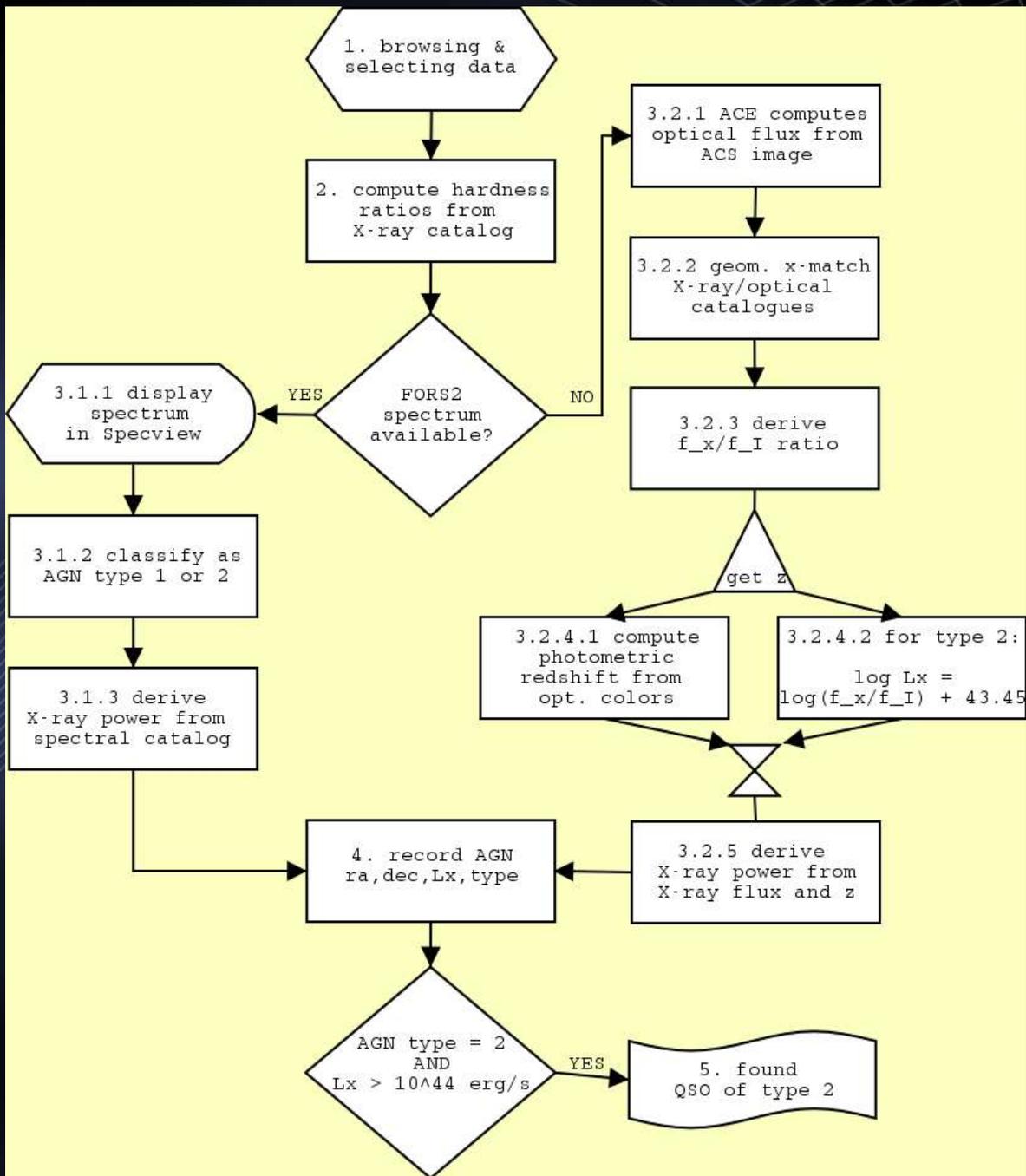
Science from the US-VO

Stars in Open Clusters

- Locate stellar data for the Pleiades cluster
 - Use the Hipparcos and Tycho catalogue
 - Find the parallaxes for stars in the cluster: ~ 9 mas in this case
 - Deredden the B-V colour
 - $(B-V)_o = (B-V) - E(B-V) = (B-V) - 0.04$
 - Plot Vmag vs $(B-V)_o$ to see the HR diagramme for the stars
 - Those of the ZAMS have parallaxes ~ 9 mas : cluster members
 - Those outliers : field stars
 - Use of Aladin to quickly select objects and view on the image plane
- This scenario showing use of Aladin given by Padovani at the ESO NEON Archive School (2004)
 - <http://www.eso.org/~ppadovan/neon.demo>

AstroGrid/AVO Demo 2004

discovering distant quasars from multi- λ data



1st Science from the AVO

NEWS RELEASE

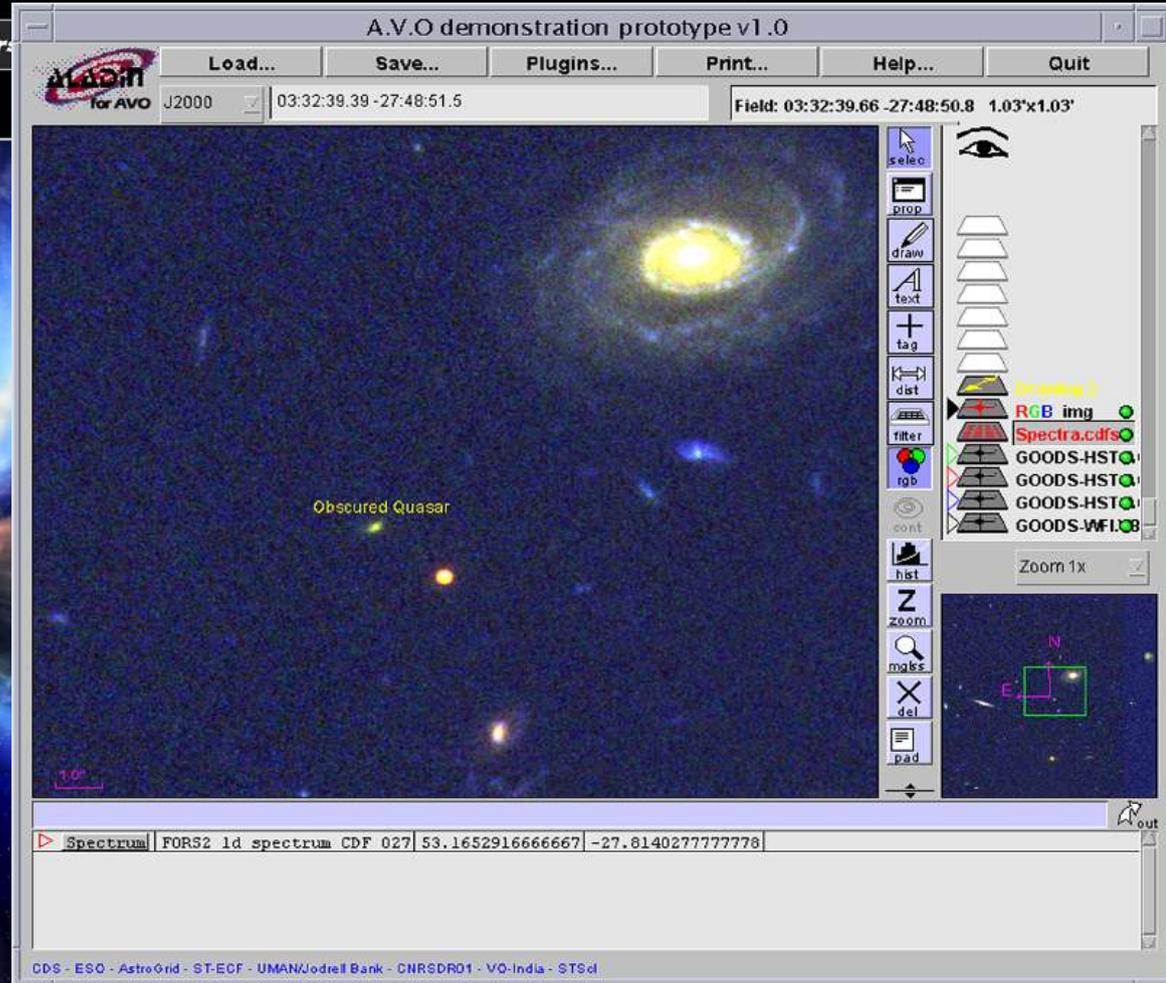
Virtual observatory discover

HEIC 0409



HUBBLE SPACE TELESCOPE

ESA/NASA, the AVO project and Paolo Padua ESO PR Photo 17/04 (28 May 2004)



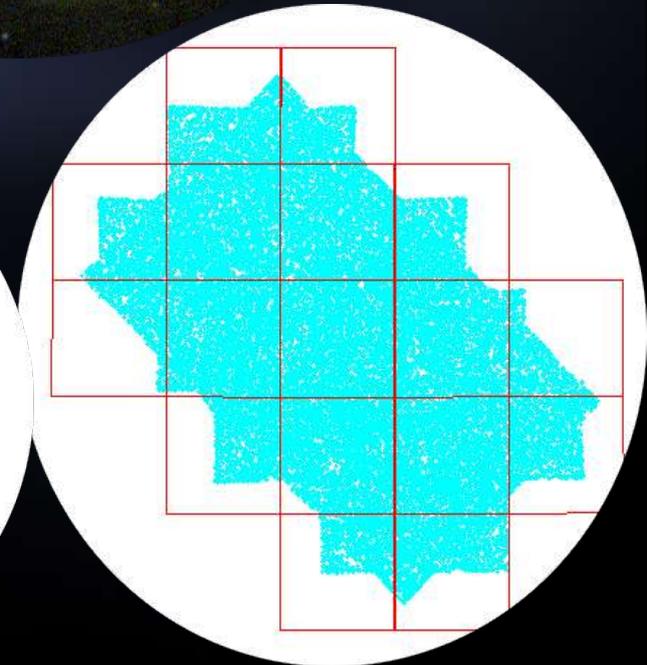
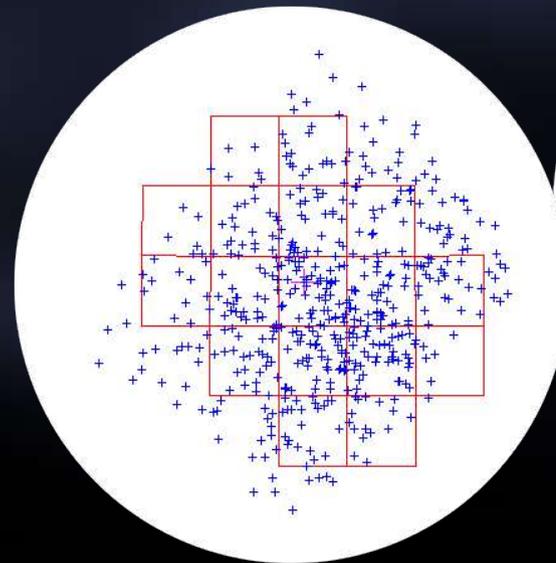
AVO Windows with Obscured Quasar Image

© European Southern Observatory



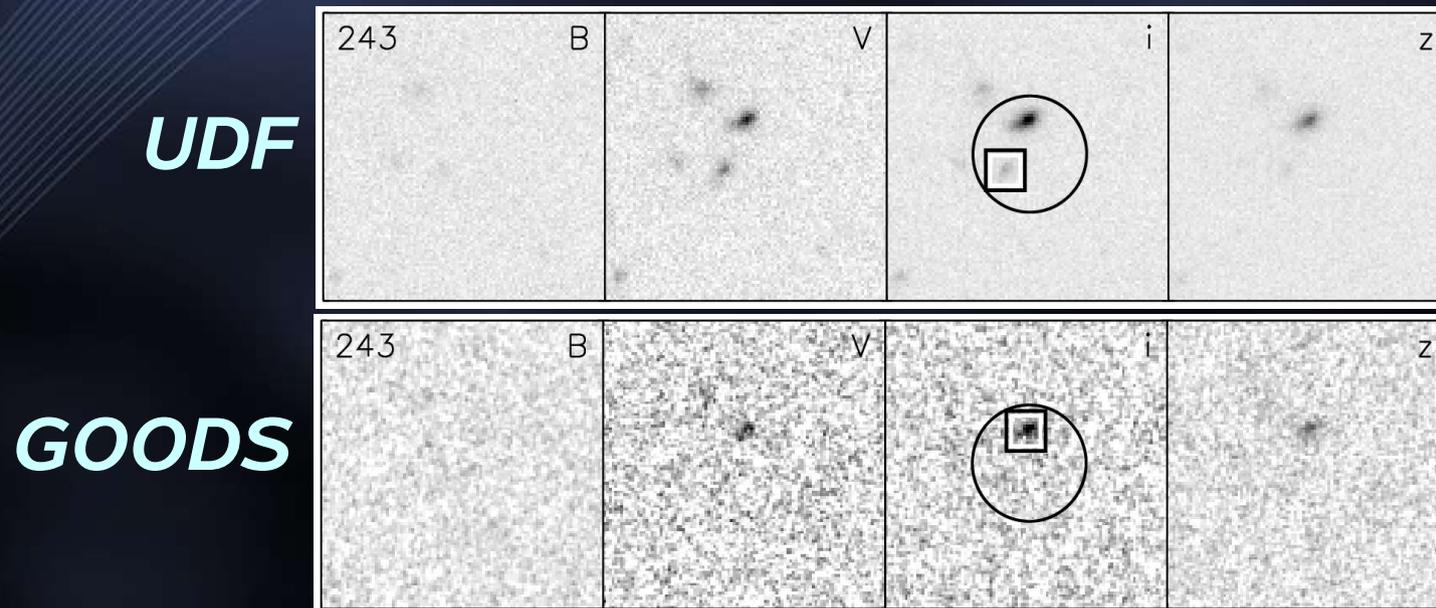
Data

- GOODS: *Bviz* Images & Catalogues
 - CDF-S (+UDF), HDF-N : 61647 sources
- Deep X-ray Chandra Catalogues
 - Alexander et al. 2003
 - HDF-N 2Ms (503)
 - CDF-S 1Ms (326)



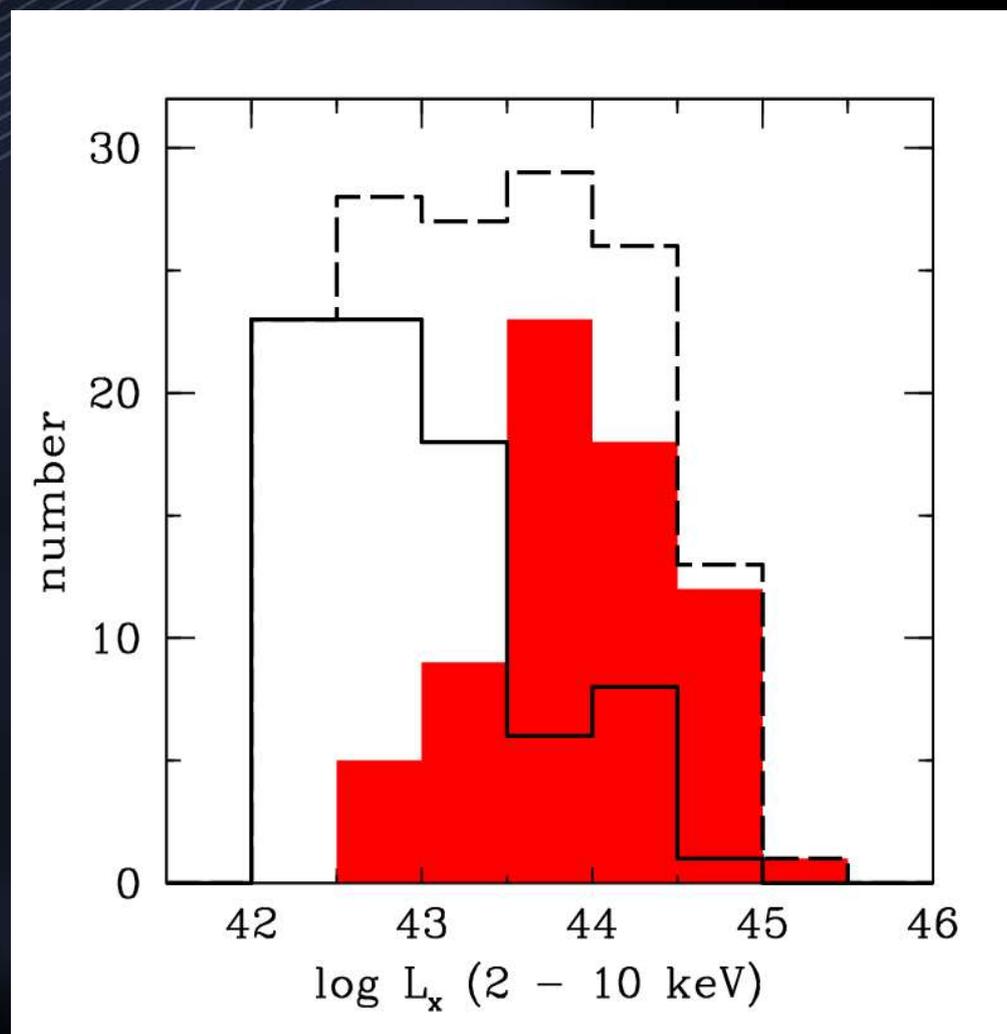
Results : NEW Type 2 AGN

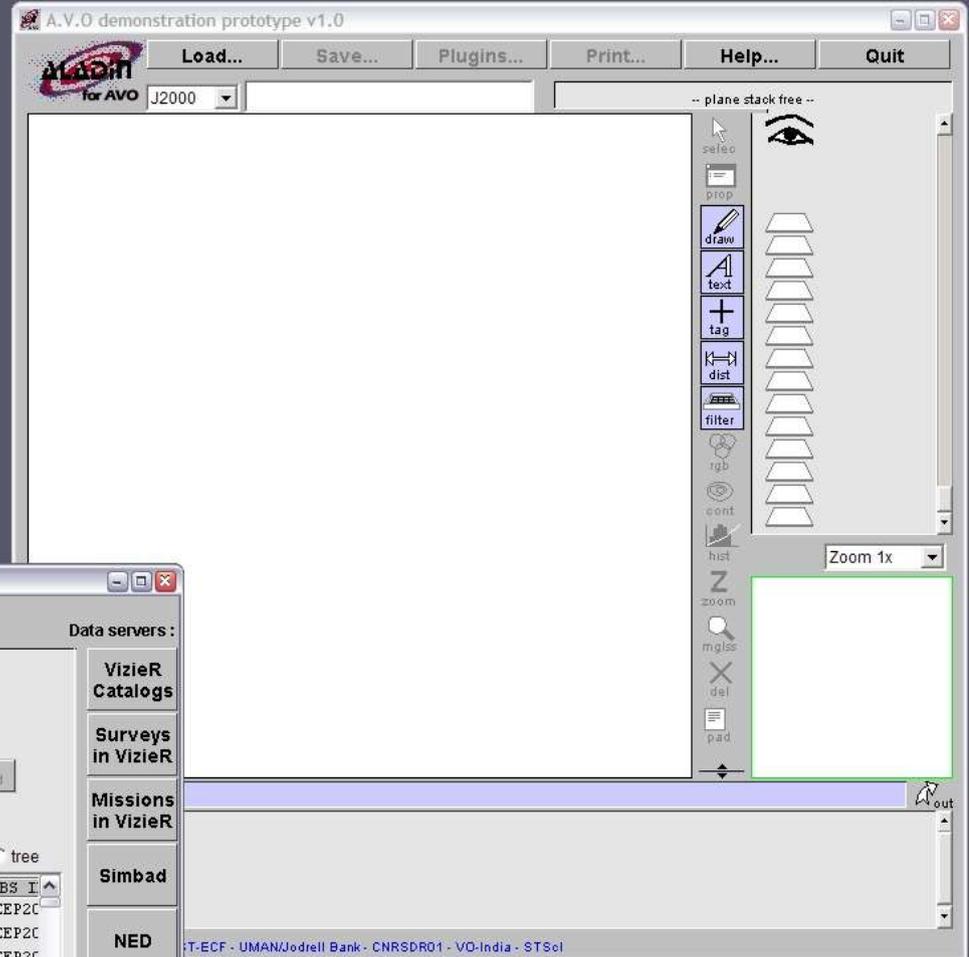
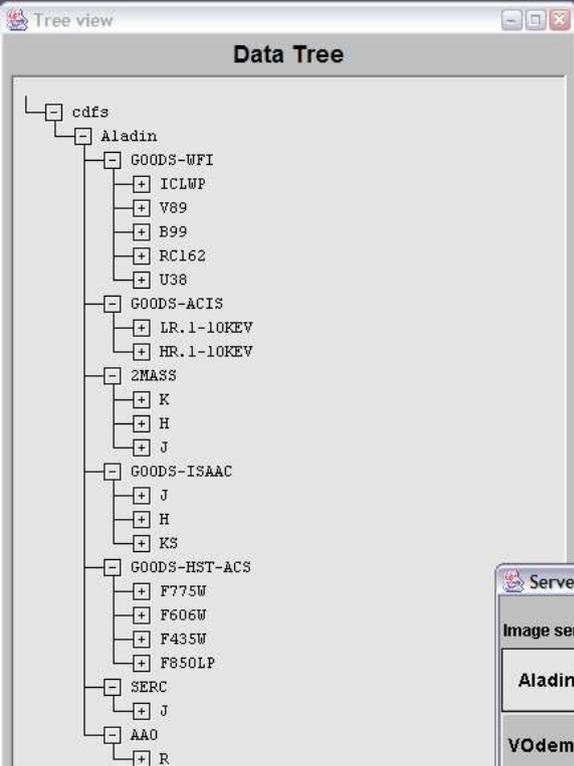
- 68 new type 2 AGN candidates
- 31 have QSO luminosities of $L_x > 10^{44}$ erg s⁻²
 - Only 9 previously known in GOODS fields
 - Now 40 QSO 2s: Quadrupled the QSO 2s in the GOODS fields
- QSO 2 numbers higher than predictions



Luminosity distribution

- New type 2 AGN
- Fills a gap luminosity distrib.
- AGN 2 $\langle z_{est} \rangle \sim 2.9$
- QSO 2 $\langle z_{est} \rangle \sim 3.7$





Server selector

Choose an image server or a data server and fill in the associated form drawn below

Image servers:

- Aladin
- VOdemo
- SSS...
- SkyView
- VLA...
- Others...
- Own data:
- MyData

Aladin image database

Step 1: Specify a target/radius and press SUBMIT

Target:

Radius:

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

SURVEY	COLOR	SIZE	OBS I
<input type="checkbox"/>	GOODS-WFI	ICLWP (optical I)	8.2 'x8.2 ' DEEP2C
<input type="checkbox"/>	GOODS-WFI	ICLWP (optical I)	39.4 'x41.3 ' DEEP2C
<input type="checkbox"/>	GOODS-WFI	V89 (optical V)	38.1 'x37.3 ' DEEP2C
<input type="checkbox"/>	GOODS-WFI	V89 (optical V)	8.2 'x8.2 ' DEEP2C
<input type="checkbox"/>	GOODS-WFI	B99 (optical B)	36.2 'x33.3 ' DEEP2C
<input type="checkbox"/>	GOODS-WFI	B99 (optical B)	8.2 'x8.2 ' DEEP2C
<input type="checkbox"/>	GOODS-WFI	RC162 (optical R)	37.9 'x38.5 ' DEEP2C
<input type="checkbox"/>	GOODS-WFI	RC162 (optical R)	8.2 'x8.2 ' DEEP2C
<input type="checkbox"/>	GOODS-WFI	U38 (optical U)	37.6 'x38.4 ' DEEP2C
<input type="checkbox"/>	GOODS-WFI	U38 (optical U)	8.2 'x8.2 ' DEEP2C

Data servers:

- VizieR Catalogs
- Surveys in VizieR
- Missions in VizieR
- Simbad
- NED
- Others..
- FoV

A request for data in the 30' radius centred on the CDFS results in a hierarchical Data Tree for the available data

Submit Reset Clear Close



Tree view

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
 - V89
 - DEEP2C-FV-PREVIEW 38.1 'x37.3 ' 2000-10-26
 - DEEP2C-FV 8.2 'x8.2 ' 2000-10-26
 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR. 1-10KEV
 - HR. 1-10KEV
 - 2MASS
 - K
 - H
 - J
 - GOODS-ISAAC
 - J
 - H
 - KS
 - GOODS-HST-ACS
 - F775W
 - F606W
 - F435W
 - F850LP
 - SERC
 - J
 - AAO
 - R

Submit Reset Clear Close

Info Frame

DEEP2C-FV-PREVIEW

Observation_Name	DEEP2C-FV-PREVIEW
ObservingProgram_Name	GOODS-WFI
FilterName	V89
Size_alpha	38.1'
Size_delta	37.3'
Angular Pixel Size	0.238"
Origin	ESO
OriginalCoding	FITS
CentralPoint_RA	03:32:26.31
CentralPoint_DEC	-27:48:09.3

Stick FoV in stack LOAD Close

A.V.0 demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

J2000 Field: 03:32:25.77 -27:48:07.4 38.08'x37.2'

cdfs

GOODS-WFI

Zoom 1x

1.0"

CDS - ESO - AstroGrid - ST-ECF - UMAN/Jodrell Bank - CNRS/DR01 - VO-India - STScI

Data can be loaded directly from the data tree.
Here we load a V-band WFI preview image of the whole CDFS

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
 - V89
 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR. 1-10KEV
 - HR. 1-10KEV
 - 2MASS
 - K
 - H
 - J
 - GOODS-ISAAC
 - J
 - H
 - KS
 - GOODS-HST-ACS
 - F775W
 - F606W
 - F435W
 - F850LP
 - SERC
 - J
 - AAO
 - R

Submit Reset Clear Close

A.V.0 demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

for AVO J2000 Field: 03:32:25.77 -27:48:07.4 38.08"x37.2"

cdfs

GOODS-WFI

Zoom 1x

N

E

CDS - ESO - AstroGrid - ST-ECF - UMAN/Jodrell Bank - CNRS/DR01 - VO-India - STScI

Access to images/data/script/dir by filename/URL

Look in: extragalactic

abs.ajs	h_goods_sb_r1.0z_cat_sct32_1.xml	lxcalc.ajs
ACS-sct23.ajs	h_goods_si_r1.0z_cat_sct32_1.xml	szokoly_cat.xml
alexander.xml	h_goods_sv_r1.0z_cat_sct32_1.xml	type2.ajs
F435W-v1-config.ace	h_goods_sz_r1.0z_cat_sct32_1.xml	z.ajs
F606W-v1-config.ace	hdfn-bviz_z_phot.xml	zivb.xml
F775W-v1-config.ace	hr.ajs	zphot-out-cdfs.xml
F850LP-v1-config.ace	#flux.ajs	zphot-out-cdfs-sct23.vot
fields.xml	lx.ajs	

File name: fields.xml Open

Files of type: All Files (*.*) Cancel

Server selector

Choose an image server and fill in the associated information

Aladin

VOdemo

SSS...

SkyView

VLA...

Others...

Own data:

MyData

User own data (image/data/script/dir)

Specify a filename or an URL and press the SUBMIT button

File name:

Files of type:

Submit Data Tree Reset Clear Close

NED

Others..

FoV

Local files, scripts and data can be loaded via the MyData panel. Here we load a VOTable file of field centres in the CDFS.

Tree view

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
 - V89
 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR. 1-10KEV
 - HR. 1-10KEV
 - 2MASS
 - K
 - H
 - J
 - GOODS-ISAAC
 - J
 - H
 - KS
 - GOODS-HST-ACS
 - F775W
 - F606W
 - F435W
 - F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0**
 - SERC
 - J
 - AAO
 - R

Submit Reset Clear Close

Info Frame

version1.0

epoch version1.0

Stick FoV in stack Close

A.V.0 demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

J2000 03:32:35.86 -27:40:59.6 Field: 03:32:25.77 -27:48:07.4 38.08'x37.2'

cdfs

select prop draw text tag dist filter rgb cont hist zoom magles del pad

FoV for version fields.xml GOODS-WFI.V3

Zoom 1x

53.24904166666667	-27.773999999999997	10
53.185249999999996	-27.827861111111112	20a
53.16529166666667	-27.814027777777778	27
53.115125	-27.695833333333333	41
53.14941666666667	-27.683222222222224	190

CDS - ESO - AstroGrid - ST-ECF - UMAN/Jodrell Bank - CNRS/DR01 - VO-India - STScI

Field of view outlines are interactively drawn while browsing the data tree.

Here we have loaded the GOODS ACS version 1.0 field of view into the stack.

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
 - V89
 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR. 1-10KEV
 - HR. 1-10KEV
 - 2MASS
 - K
 - H
 - J
 - GOODS-ISAAC
 - J
 - H
 - KS
 - GOODS-HST-ACS
 - F775W
 - F606W
 - F435W
 - F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - CDF-SOUTH-SECT21-VERSION1.0 59.0 "x59.0 " 2002-08-01
 - CDF-SOUTH-SECT44-VERSION1.0 59.0 "x59.0 " 2002-07-31
 - CDF-SOUTH-SECT14-VERSION1.0 59.0 "x59.0 " 2002-08-01
 - CDF-SOUTH-SECT42-VERSION1.0 59.0 "x59.0 " 2002-08-04
 - CDF-SOUTH-SECT12-VERSION1.0 59.0 "x59.0 " 2002-08-01
 - CDF-SOUTH-SECT35-VERSION1.0 59.0 "x59.0 " 2002-08-02
 - CDF-SOUTH-SECT33-VERSION1.0 59.0 "x59.0 " 2002-08-02
 - CDF-SOUTH-SECT31-VERSION1.0 59.0 "x59.0 " 2002-08-03
 - CDF-SOUTH-SECT24-VERSION1.0 59.0 "x59.0 " 2002-08-01
 - CDF-SOUTH-SECT22-VERSION1.0 59.0 "x59.0 " 2002-08-01
 - CDF-SOUTH-SECT45-VERSION1.0 59.0 "x59.0 " 2002-08-04
 - CDF-SOUTH-SECT43-VERSION1.0 59.0 "x59.0 " 2002-08-04
 - CDF-SOUTH-SECT13-VERSION1.0 59.0 "x59.0 " 2002-08-01
 - CDF-SOUTH-SECT11-VERSION1.0 59.0 "x59.0 " 2002-08-01
 - CDF-SOUTH-SECT34-VERSION1.0 59.0 "x59.0 " 2002-08-02
 - CDF-SOUTH-SECT32-VERSION1.0 59.0 "x59.0 " 2002-08-02
 - CDF-SOUTH-SECT25-VERSION1.0 59.0 "x59.0 " 2002-08-01
 - CDF-SOUTH-SECT23-VERSION1.0 59.0 "x59.0 " 2002-08-01
 - SERC
 - J
 - AAO
 - R

Submit Reset Clear Close

A.V.O demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

J2000 Field: 03:32:25.77 -27:48:07.4 38.08'x37.2'

cdfs

select, prop, draw, text, tag, dist, filter, rgb, cont, hist, zoom, magles, del, pad

FoV for version fields.xml GOODS-WFI.VOB

Zoom 1x

1.0"

CDS - ESD - AstroGrid - ST-ECF - UMAN/Jodrell Bank - CNRS/DR01 - VO-India - STScI

Clicking on the image selects all the relevant data in the tree.

The small blue box represents the outline of the image cutout that will be generated on the fly when the request is submitted.

Tree view

Data Tree

- version1.0
 - CDF-SOUTH-SECT32-VERSION1.0 59.0 "x59.0" 2002-08-02
 - CDF-SOUTH-SECT25-VERSION1.0 59.0 "x59.0" 2002-08-01
 - CDF-SOUTH-SECT23-VERSION1.0 59.0 "x59.0" 2002-08-01
 - CDF-SOUTH-SECT21-VERSION1.0 59.0 "x59.0" 2002-08-01
 - CDF-SOUTH-SECT44-VERSION1.0 59.0 "x59.0" 2002-07-31
 - CDF-SOUTH-SECT14-VERSION1.0 59.0 "x59.0" 2002-08-01
 - CDF-SOUTH-SECT42-VERSION1.0 59.0 "x59.0" 2002-08-04
 - CDF-SOUTH-SECT12-VERSION1.0 59.0 "x59.0" 2002-08-01
 - CDF-SOUTH-SECT35-VERSION1.0 59.0 "x59.0" 2002-08-02
 - CDF-SOUTH-SECT33-VERSION1.0 59.0 "x59.0" 2002-08-02
 - CDF-SOUTH-SECT31-VERSION1.0 59.0 "x59.0" 2002-08-03
 - CDF-SOUTH-SECT24-VERSION1.0 59.0 "x59.0" 2002-08-01
 - CDF-SOUTH-SECT22-VERSION1.0 59.0 "x59.0" 2002-08-01
 - CDF-SOUTH-SECT45-VERSION1.0 59.0 "x59.0" 2002-08-04
 - CDF-SOUTH-SECT43-VERSION1.0 59.0 "x59.0" 2002-08-04
 - CDF-SOUTH-SECT13-VERSION1.0 59.0 "x59.0" 2002-08-01
 - CDF-SOUTH-SECT11-VERSION1.0 59.0 "x59.0" 2002-08-01
 - CDF-SOUTH-SECT34-VERSION1.0 59.0 "x59.0" 2002-08-02
- F606W
- F435W
 - epoch1
 - version1.0
 - CDF-SOUTH-SECT44-VERSION1.0 59.0 "x59.0" 2002-08-24
 - CDF-SOUTH-SECT14-VERSION1.0 59.0 "x59.0" 2002-07-30
 - CDF-SOUTH-SECT42-VERSION1.0 59.0 "x59.0" 2002-08-24
 - CDF-SOUTH-SECT12-VERSION1.0 59.0 "x59.0" 2002-07-29
 - CDF-SOUTH-SECT35-VERSION1.0 59.0 "x59.0" 2002-08-04
 - CDF-SOUTH-SECT33-VERSION1.0 59.0 "x59.0" 2002-08-08
 - CDF-SOUTH-SECT31-VERSION1.0 59.0 "x59.0" 2002-08-09
 - CDF-SOUTH-SECT24-VERSION1.0 59.0 "x59.0" 2002-07-30
 - CDF-SOUTH-SECT22-VERSION1.0 59.0 "x59.0" 2002-07-29
 - CDF-SOUTH-SECT45-VERSION1.0 59.0 "x59.0" 2002-08-24
 - CDF-SOUTH-SECT43-VERSION1.0 59.0 "x59.0" 2002-08-24
 - CDF-SOUTH-SECT13-VERSION1.0 59.0 "x59.0" 2002-08-05
 - CDF-SOUTH-SECT11-VERSION1.0 59.0 "x59.0" 2002-07-29
 - CDF-SOUTH-SECT34-VERSION1.0 59.0 "x59.0" 2002-08-04
 - CDF-SOUTH-SECT32-VERSION1.0 59.0 "x59.0" 2002-08-08
 - CDF-SOUTH-SECT25-VERSION1.0 59.0 "x59.0" 2002-08-06
 - CDF-SOUTH-SECT23-VERSION1.0 59.0 "x59.0" 2002-08-05
 - CDF-SOUTH-SECT21-VERSION1.0 59.0 "x59.0" 2002-07-29
 - epoch2
 - epoch3
 - epoch4
 - epoch5
- F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - CDF-SOUTH-SECT21-VERSION1.0 59.0 "x59.0" 2002-08-01
 - CDF-SOUTH-SECT44-VERSION1.0 59.0 "x59.0" 2002-07-31
 - CDF-SOUTH-SECT14-VERSION1.0 59.0 "x59.0" 2002-08-01
 - CDF-SOUTH-SECT42-VERSION1.0 59.0 "x59.0" 2002-08-04
 - CDF-SOUTH-SECT12-VERSION1.0 59.0 "x59.0" 2002-08-01
 - CDF-SOUTH-SECT35-VERSION1.0 59.0 "x59.0" 2002-08-02
 - CDF-SOUTH-SECT33-VERSION1.0 59.0 "x59.0" 2002-08-02
 - CDF-SOUTH-SECT31-VERSION1.0 59.0 "x59.0" 2002-08-03
 - CDF-SOUTH-SECT24-VERSION1.0 59.0 "x59.0" 2002-08-01
 - CDF-SOUTH-SECT22-VERSION1.0 59.0 "x59.0" 2002-08-01
 - CDF-SOUTH-SECT45-VERSION1.0 59.0 "x59.0" 2002-08-04
 - CDF-SOUTH-SECT43-VERSION1.0 59.0 "x59.0" 2002-08-04
 - CDF-SOUTH-SECT13-VERSION1.0 59.0 "x59.0" 2002-08-01

Submit Reset Clear Close

A.V.0 demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

for AVO J2000 03:32:40.67 -27:48:45.4 Field: 03:32:25.77 -27:48:07.4 38.08'x37.2'

cdfs

1.0°

53.16529166666667 -27.81402777777778 27

CDS - ESD - AstroGrid - ST-ECF - UMAN/Jodrell Bank - CNRSR01 - VO-India - STScI

Multiple images can be loaded simultaneously.

Here we open the F850LP, F775W and F435W (z, i, b) nodes of the tree in order to obtain image cutouts from these 3 bands.

Tree view

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
 - V89
 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR. 1-10KEV
 - HR. 1-10KEV
 - 2MASS
 - K
 - H
 - J
 - GOODS-ISAAC
 - J
 - H
 - KS
 - GOODS-HST-ACS
 - F775W
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - F606W
 - epoch1
 - version1.0
 - F435W
 - epoch1
 - version1.0
 - F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - SERC
 - J
 - AA0
 - R

Submit Reset Clear Close

1 catalog(s) found around 03 32 43.70 -27 45 20.0

Catalogs

J/AJ/126/539	X-ray	9 The Chandra Deep Fields North and South (Ale
--------------	-------	--

Get info. **SUBMIT** Reset Close

Server selector

Choose an image server or a data server and fill in the associated form drawn below

Image servers: Aladin, VOdemo, SSS..., SkyView, VLA..., Others..., Own data: MyData

Data servers: VizieR Catalogs, Surveys in VizieR, Missions in VizieR, Simbad, NED, Others..., FoV

VizieR catalog service

Specify a target, and a catalog name or identification...

Target: 03 32 43.70 -27 45 20.0 Grab coord

Catalog: J/AJ/126/539/cdfs Radius: 0.7

... don't know which catalog ? Select the potentially interesting ones with words/keywords !

Author, free text...: alexander

Wavelength	Mission	Astronomy
Radio	ANS	AGN
IR	ASCA	Abundances
optical	BeppoSAX	Ages
UV	CGRO	Associations
EUV	COBE	Atomic_Data
X-ray	Chandra	BL_Lac_objects
Gamma-ray	Copernicus	Binaries:cataclysm
	EUVE	Binaries:eclipsing
	EXOSAT	Binaries:spectrosc
	Einstein	Blue_objects
	FAUST	Clusters of galaxi
	FIREF	

SUBMIT Data Tree Reset Clear Close

A.V.O demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

Aladin for AVO

J2000 Field: 03:32:40.38 -27:48:49.2 1.03"x1.03'

6666667 -27.81402777777778 | 27

mid - ST-ECF - UMAN/Jodrell Bank - CNRS/DR01 - VO-India - STSci

The VizieR catalogs panel provides an interface to catalog information.

Here we request a catalog of X-ray sources from Alexander et al



Tree view

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
 - V89
 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR.1-10KEV
 - HR.1-10KEV
 - 2MASS
 - K
 - H
 - J
 - GOODS-ISAAC
 - J
 - H
 - KS
 - GOODS-HST-ACS
 - F775W
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - F606W
 - F435W
 - epoch1
 - version1.0
 - F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - SERC
 - J
 - AA0
 - R

Submit Reset Clear Close

A.V.0 demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

J2000 03:33:05.85 -27:46:50.2 Field: 03:32:25.77 -27:48:07.4 38.08'x37.2'

cdfs

Zoom 1x

C0.5-8 : The 0.5-8.0 keV band counts (UCD: PHOT_COUNTS_X / unit: ct)

▶ 319	03 33 04.83	-27 47 31.9	56.1	a	13.5	18.0	18.9	24.2			
▶ 321	03 33 05.85	-27 46 50.2	207.6	C0.5-8 / PHOT_COUNTS_X / ct				28.1		0.10	0.11
▶ 323	03 33 08.75	-27 42 54.1	188.9		39.8	107.6	20.2	20.9			
▶ 324	03 33 09.19	-27 44 48.8	110.1		11.8	59.5	25.3	20.1		0.13	0.16
▶ 325	03 33 09.48	-27 46 03.4	231.7		22.8	116.6	65.7	30.0		0.10	0.11

Catalog points are overlaid on the image.

Column metadata such as UCDs and units are displayed

Tree view

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
 - V89
 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR.1-10KEV
 - HR.1-10KEV
 - 2MASS
 - K
 - H
 - J
 - GOODS-ISAAC
 - J
 - H
 - KS
 - GOODS-HST-ACS
 - F775W
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - F606W
 - epoch1
 - version1.0
 - F435W
 - epoch1
 - version1.0
 - F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - SERC
 - J
 - AA0
 - R

Submit Reset Clear Close

Column calculator

Add a new column to plane J/AJ/126/539/cdfs

Name:

UCD:

Unit:

Predefined expressions:

Expression	[ABB2003]	RAJ2000	DEJ2000	I_C0.5-8	C0.5-8
f_C0.5-8		C0.5-1	C1-2	C2-4	C4-8
Notes	e_Ratio4	E_Ratio4	E_Ratio3	E_Ratio3	E_Ratio3
e_Ratio2	E_Ratio2	E_C0.5-2	e_C0.5-2	E_C2-8	
e_C2-8	E_C0.5-1	e_C0.5-1	E_C1-2	e_C1-2	
E_C2-4	e_C2-4	E_C4-8	e_C4-8	E_Ratio1	
e_Ratio1	E_Sp+Index	e_Sp+Index	PosErr	E_C0.5-8	
e_C0.5-8	I_C0.5-2	C0.5-2	f_C0.5-2	I_C2-8	
C2-8	f_C2-8	I_F0.5-8	F0.5-8	I_F0.5-2	
F0.5-2	I_F2-8	F2-8			

Add new column Close

A.V.0 demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

Aladin for AVO

J2000: 03:32:31.50 -27:49:23.4 Field: 03:32:25.77 -27:48:07.4 38.08'x37.2'

cdfs

- Hide the selected planes
- Select all objects of the selected planes
- Take as the projection reference
- Add new column
- Export as VOTable
- Delete
- Delete all planes...
- Create a new filter
- Create a new folder
- Insert in a new folder
- Collapse the selected folders
- Properties of the selected plane

"/J/AJ/126/539/cdfs" - around 03 32 43.70 -27 45 20.0 - 326 element(s)

319	03 33 04.83	-27 47 31.9	56.1	a	13.5	18.0	18.9	24.2			
321	03 33 05.85	-27 46 50.2	207.6		16.6	106.2	51.7	28.1		0.10	0.11
323	03 33 08.75	-27 42 54.1	188.9		39.8	107.6	20.2	20.9			
324	03 33 09.19	-27 44 48.8	110.1		11.8	59.5	25.3	20.1		0.13	0.16
325	03 33 09.48	-27 46 03.4	231.7		22.8	116.6	65.7	30.0		0.10	0.11

CDS - ESO - AstroGrid - ST-ECF - UMAN/Jodrell Bank - CNRS/DR01 - VO-India - STScI

The Column calculator allows generation of new catalog columns

Here we calculate the Hardness Ratio using the hard and soft X-ray count rates from the Alexander catalog



Tree view

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
 - V89
 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR.1-10KEV
 - HR.1-10KEV
 - 2MASS
 - K
 - H
 - J
 - GOODS-ISAAC
 - J
 - H
 - KS
 - GOODS-HST-ACS
 - F775W
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - F606W
 - F435W
 - epoch1
 - version1.0
 - F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - SERC
 - J
 - AA0
 - R

A.V.0 demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

J2000 Field: 03:32:25.77 -27:48:07.4 38.08'x37.2'

cdfs

HR_filter

J/AJ/126/5390

RGB img

GOODS-HST

GOODS-HST

fields.xml

GOODS-WFI

Zoom 1x

7	31.9	56.1	a	13.5	18.0	18.9	24.2			
6	50.2	207.6		16.6	106.2	51.7	28.1		0.10	0.11
2	54.1	188.9		39.8	107.6	20.2	20.9			
4	48.8	110.1		11.8	59.5	25.3	20.1		0.13	0.16
6	03.4	231.7		22.8	116.6	65.7	30.0		0.10	0.11

MAN/Jodrell Bank - CNRS/DR01 - VO-India - STScI

Properties

Properties of the filter "HR_filter"

Label: HR_filter

Choose a predefined filter

Predefined filters: ---

Or enter your own filter definition

```
# Sources with upper limits in Hard and Soft bands
${l_C2-8}!="<" || ${l_C0.5-2}!="<"
(draw blue rhomb)
```

Help on syntax

Get Manual

Save filter Load filter

Export Create a new plane with all filtered sources

Apply Close

The filters function allows selection of catalog subsets. Here we filter out sources with upper limits in both hard and soft bands

Tree view

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
 - V89
 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR.1-10KEV
 - HR.1-10KEV
 - 2MASS
 - K
 - H
 - J
 - GOODS-ISAAC
 - J
 - H
 - KS
 - GOODS-HST-ACS
 - F775W
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - F606W
 - F435W
 - epoch1
 - version1.0
 - F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - SERC
 - J
 - AA0
 - R

Submit Reset Clear Close

A.V.0 demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

J2000 Field: 03:32:25.77 -27:48:07.4 38.08"x37.2'

cdfs

Selected sources: HR fl. 100%
J/AJ/126/539
FoV for version
GOODS-HST
GOODS-HST
fields.xml
GOODS-WFI

Zoom 1x

MANJodrell Bank - CNRS DR01 - VO-India - STScI

Properties

Properties of the filter "HR_filter"

Label:

Choose a predefined filter

Predefined filters:

Or enter your own filter definition

```
# Sources with upper limits in Hard and Soft bands
${1_C2-8}!="<" || ${1_C0.5-2}!="<"
{draw blue rhomb}
```

Help on syntax Get Manual

Save filter Load filter

Export Create a new plane with all filtered sources

Apply Close

Filters act as a “process” in the stack, applying to all catalog planes below the filter.

The result of a filter may be saved by exporting a plane of the filtered sources



Tree view

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
 - V89
 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR.1-10KEV
 - HR.1-10KEV
 - 2MASS
 - K
 - H
 - J
 - GOODS-ISAAC
 - J
 - H
 - KS
 - GOODS-HST-ACS
 - F775W
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - F606W
 - F435W
 - epoch1
 - version1.0
 - F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - SERC
 - J
 - AAO
 - R

Properties

Properties of the filter "Absorbed_Sources_Filter"

Label: Absorbed_Sources_Filter

Choose a predefined filter

Predefined filters: ---

Or enter your own filter definition

```
# Sources with HR >= -0.2
{HR}>=-0.2
{draw blue rhomb}
```

Help on syntax

Get Manual

Save filter Load filter

Export Create a new plane with all filtered sources

Apply Close

A.V.O demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

J2000 03:32:51.57 -27:52:06.8 Field: 03:32:25.77 -27:48:07.4 38.08'x37.2'

cdfs

2 superimposed objects - click on them to get details

CDS - ESO - AstroGrid - ST-ECF - UMAN/Jodrell Bank - CNRS/DR01 - VO-India - STScI

Aladin Java measurements frame

20.6	19.4	139.4	94.9	7.04	1.45	5.62	-0.1899	-0.1899	-0.1899
20.0	18.9	116.1	86.9	4.02	0.73	3.18	-0.1438	-0.1438	-0.1438
14.0	12.9	22.5	42.2	1.70	0.14	1.91	0.3044	0.3044	1.0
12.4	11.2	18.4	33.0	1.39	0.14	1.76	0.2840	0.284	1.0
16.3	15.2	74.6	74.3	10.90	1.53	9.40	-0.0020	-0.0020	-0.0020
12.7	11.4	21.9	42.7	1.84	0.14	1.96	0.3219	0.3219	0.3219
23.6	22.4	161.7	224.7	9.85	1.00	9.23	0.1630	0.163	0.163
19.7	18.6	61.0	195.8	9.67	0.39	9.89	0.5249	0.5249	0.5249
10.9	9.8	18.1	20.4	0.82	0.11	0.79	0.0597	0.0597	1.0
15.4	14.3	67.5	55.6	2.34	0.41	1.97	-0.0966	-0.0966	-0.0966
17.3	15.7	69.5	73.9	3.11	0.42	2.80	0.0306	0.0306	0.0306
10.6	9.3	19.3	26.2	1.29	0.14	1.20	0.1516	0.1516	0.1516
10.7	9.4	13.7	40.0	7.06	0.37	8.34	0.4897	0.4897	1.0
11.8	10.7	23.0	42.4	2.08	0.15	1.98	0.2966	0.2966	0.2966
50.2	49.2	1256.5	842.8	37.94	7.92	29.60	-0.1970	-0.197	-0.197
15.8	14.6	78.0	72.8	3.02	0.46	2.55	-0.0344	-0.0344	-0.0344
13.1	11.9	19.7	62.1	2.92	0.12	2.90	0.5183	0.5183	0.5183
13.3	12.1	37.8	38.8	1.69	0.22	1.39	0.0130	0.013	0.013
15.4	14.2	30.6	139.2	7.03	0.19	7.26	0.6395	0.6395	0.6395
17.7	16.4	96.3	139.1	5.75	0.56	5.34	0.1818	0.1818	0.1818

Absorbed sources are selected by a filter that selects sources with hardness ratio > -0.2



Tree view

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
 - V89
 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR.1-10KEV
 - HR.1-10KEV
 - 2MASS
 - K
 - H
 - J
 - GOODS-ISAAC
 - J
 - H
 - KS
 - GOODS-HST-ACS
 - F775W
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - F606W
 - F435W
 - epoch1
 - version1.0
 - F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - SERC
 - J
 - AA0
 - R

Submit Reset Clear Close

A.V.0 demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

Aladin for AVO J2000 Field: 03:32:25.77 -27:48:07.4 38.08'x37.2'

cdfs

- szokoly_cat
- Selected sources
- Absor. 100%
- Selected sources
- HR_fl. 100%
- J/AJ/126/539
- FoV for version
- RGB img
- GOODS-HST
- GOODS-HST
- fields.xml
- GOODS-WFI

Zoom 1x

1.0'

z : z

▶ 586	53.164458333333	-27.842194444444	22.23	4.23	18.0	-24.65	0.58	8.48E-
▶ 599	53.124208333333	-27.891694444444	25.16	99	99.0	99.0	-1.0	
▶ 609	53.150833333333	-27.843638888889	24.98	5.52	19.46	99.0	-1.0	
▶ 620a	53.125625	-27.884972222222	21.43	2.71	18.72	-24.22	0.648	8.24E-17

The Szokoly et al catalog of redshifts of CDFS sources derived from VLT-FORS spectra is loaded.

Tree view

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
 - V89
 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR. 1-10KEV
 - HR. 1-10KEV
 - 2MASS
 - K
 - H
 - J
 - GOODS-ISAAC
 - J
 - H
 - KS
 - GOODS-HST-ACS
 - F775W
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - F606W
 - epoch1
 - version1.0
 - F435W
 - epoch1
 - version1.0
 - F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - SERC
 - J
 - AA0
 - R

A.V.O demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

J2000 Field: 03:32:25.77 -27:48:07.4 38.08'x37.2'

cdfs

szokoly_cat. Selected sa. Absor.. 100%. Selected sou. HR_fl.. 100%. J/AJ/126/539. FoV for version. RGB img. GOODS-HST. GOODS-HST. fields.xml. GOODS-WFI.

Zoom 1x

53.164458333333	-27.842194444444	22.23	4.23	18.0	-24.65	0.58	8.48E-17
53.124208333333	-27.891694444444	25.16	99	99.0	99.0	-1.0	
53.150833333333	-27.843638888889	24.98	5.52	19.46	99.0	-1.0	
53.125625	-27.884972222222	21.43	2.71	18.72	-24.22	0.648	8.24E-17

mid - ST-ECF - UMAN/Jodrell Bank - CNRSR01 - VO-India - STSci

Server selector

Choose an image server or a data server and fill in the associated form drawn below

Image servers:

- Aladin
- VOdemo
 - SSA server for VLT/FORS spectra
 - SIA server for XMM-Newton archive
 - SIA server for ISO images
 - SSA server for ISO spectra
 - IDHA tree MERLIN NGC1333
 - IDHA tree VLA CDFS
 - IDHA tree HDFN
 - IDHA tree CGPS MF2
 - IDHA server for HST/WFPC2 Associations
 - SIA atlas server for Aladin
 - SIA server for SkyView
 - SIA server for NOAO
- SSS...
- SkyView
- VLA...
- Others...
- Own data:
- MyData

Data servers:

- VizieR Catalogs
- Surveys in VizieR
- Missions in VizieR
- Simbad
- NED
- Others..
- FoV

SUBMIT Data Tree Reset Clear Close

The spectra from which the Szokoly catalog was generated are available via a Simple Spectral Access server.

The SSA server is accessed from the VO demo panel

Tree view

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
 - V89
 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR.1-10KEV
 - HR.1-10KEV
 - 2MASS
 - K
 - H
 - J
 - GOODS-ISAAC
 - J
 - H
 - KS
 - GOODS-HST-ACS
 - F775W
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - F606W
 - epoch1
 - version1.0
 - F435W
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - SERC
 - J
 - AA0
 - R
 - 03 32 27.26 -27 47 44.8
 - SSA server for VLT/FORS spectra

A.V.0 demonstration prototype v1.0

Aladin for AVO

J2000 [dropdown] Field: 03:32:25.77 -27:48:07.4 38.08'x37.2'

cdfs

szokoly_cat

Selected sou

Absor.. 100%

Selected sou

HR_fl.. 100%

J/AJ/126/539

FoV for version

RGB img

GOODS-HST

GOODS-HST

fields.xml

GOODS-WFI

Zoom 1x

53.164458333333	-27.842194444444	22.23	4.23	18.0	-24.65	0.58	8.48E-17
53.124208333333	-27.891694444444	25.16	99	99.0	99.0	-1.0	
53.150833333333	-27.843638888889	24.98	5.52	19.46	99.0	-1.0	
53.125625	-27.884972222222	21.43	2.71	18.72	-24.22	0.648	8.24E-17

id - ST-ECF - UMAN/Jodrell Bank - CNRS/DR01 - VO-India - STSci

Server selector

Choose an image server or a data server and fill in the associated form drawn below

Image servers: Aladin, VOdemo, SSS..., SkyView, VLA..., Others..., Own data, MyData

Data servers: VizieR Catalogs, Surveys in VizieR, Missions in VizieR, Simbad, NED, Others.., FoV

SSA server for VLT/FORS spectra

Fill in all these fields and press the SUBMIT button

Target: 03 32 27.26 -27 47 44.8

(*05 47 17.0 -51 04 03" or "M99")

Radius in deg: 0.4466666666666666

- FORS2 1d spectrum GOODS J033206-274728
- FORS2 1d spectrum GOODS J033210-274719
- FORS2 1d spectrum GOODS J033210-274722
- FORS2 1d spectrum GOODS J033210-274819
- FORS2 1d spectrum GOODS J033211-275104
- FORS2 1d spectrum GOODS J033212-274605
- FORS2 1d spectrum GOODS J033212-274621
- FORS2 1d spectrum GOODS J033212-274823
- FORS2 1d spectrum GOODS J033213-274916

A request for spectral data in the region of the CDFS results in a tree of the available data



Tree view

Data Tree

- [-] F435W
 - [+] epoch1
 - [+] version1.0
- [-] F850LP
 - [+] epoch1
 - [+] epoch2
 - [+] epoch3
 - [+] epoch4
 - [+] epoch5
 - [+] version1.0
- [-] SERC
 - [+] J
 - [-] AAO
 - [+] R
- [-] 03 32 27.26 -27 47 44.8
 - [-] SSA server for VLT/FORS spectra
 - [] FORS2 1d spectrum GOODS J033206-274728
 - [] FORS2 1d spectrum GOODS J033210-274719
 - [] FORS2 1d spectrum GOODS J033210-274722
 - [] FORS2 1d spectrum GOODS J033210-274819
 - [] FORS2 1d spectrum GOODS J033211-275104
 - [] FORS2 1d spectrum GOODS J033212-274605
 - [] FORS2 1d spectrum GOODS J033212-274621
 - [] FORS2 1d spectrum GOODS J033212-274823
 - [] FORS2 1d spectrum GOODS J033213-274916
 - [] FORS2 1d spectrum GOODS J033214-274559
 - [] FORS2 1d spectrum GOODS J033214-274659
 - [] FORS2 1d spectrum GOODS J033215-274723
 - [] FORS2 1d spectrum GOODS J033217-274709
 - [] FORS2 1d spectrum GOODS J033216-275201
 - [] FORS2 1d spectrum GOODS J033214-274825
 - [] FORS2 1d spectrum GOODS J033214-274825
 - [] FORS2 1d spectrum GOODS J033214-275124
 - [] FORS2 1d spectrum GOODS J033214-275257
 - [] FORS2 1d spectrum GOODS J033214-275258
 - [] FORS2 1d spectrum GOODS J033215-274633
 - [] FORS2 1d spectrum GOODS J033217-275113
 - [] FORS2 1d spectrum GOODS J033217-275228
 - [] FORS2 1d spectrum GOODS J033217-275234
 - [] FORS2 1d spectrum GOODS J033217-275247
 - [] FORS2 1d spectrum GOODS J033217-274721
 - [] FORS2 1d spectrum GOODS J033217-274807
 - [] FORS2 1d spectrum GOODS J033217-274810
 - [] FORS2 1d spectrum GOODS J033217-274811
 - [] FORS2 1d spectrum GOODS J033217-274823
 - [] FORS2 1d spectrum GOODS J033217-274838
 - [] FORS2 1d spectrum GOODS J033217-274844
 - [] FORS2 1d spectrum GOODS J033217-275024
 - [] FORS2 1d spectrum GOODS J033218-274743
 - [] FORS2 1d spectrum GOODS J033216-275238
 - [] FORS2 1d spectrum GOODS J033216-275241
 - [] FORS2 1d spectrum GOODS J033217-274122
 - [] FORS2 1d spectrum GOODS J033217-274602
 - [] FORS2 1d spectrum GOODS J033218-274619
 - [] FORS2 1d spectrum GOODS J033218-274619
 - [] FORS2 1d spectrum GOODS J033218-274705
 - [] FORS2 1d spectrum GOODS J033218-274705
 - [] FORS2 1d spectrum GOODS J033218-274705
 - [] FORS2 1d spectrum GOODS J033218-274718
 - [] FORS2 1d spectrum GOODS J033218-274743
 - [] FORS2 1d spectrum GOODS J033218-274850

Submit Reset Clear Close

A.V.O demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

for AVO J2000

Field: 03:32:25.77 -27:48:07.4 38.08'x37.2'

cdfs

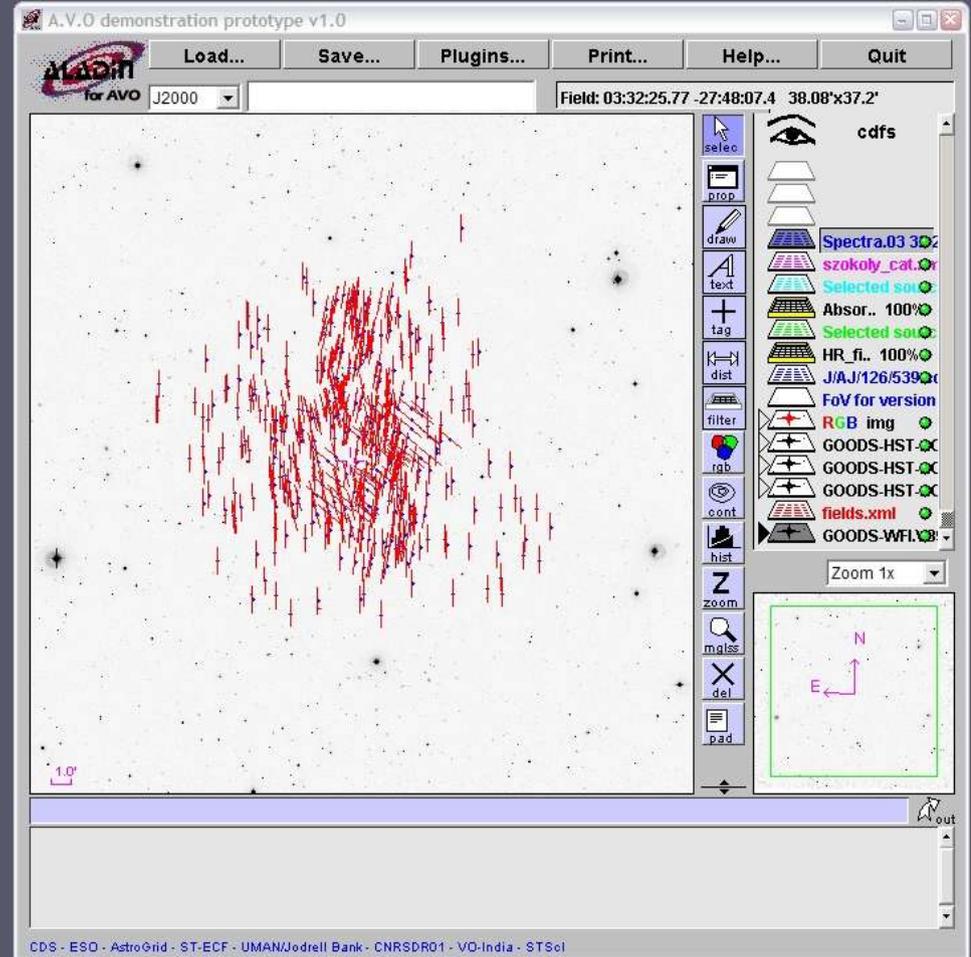
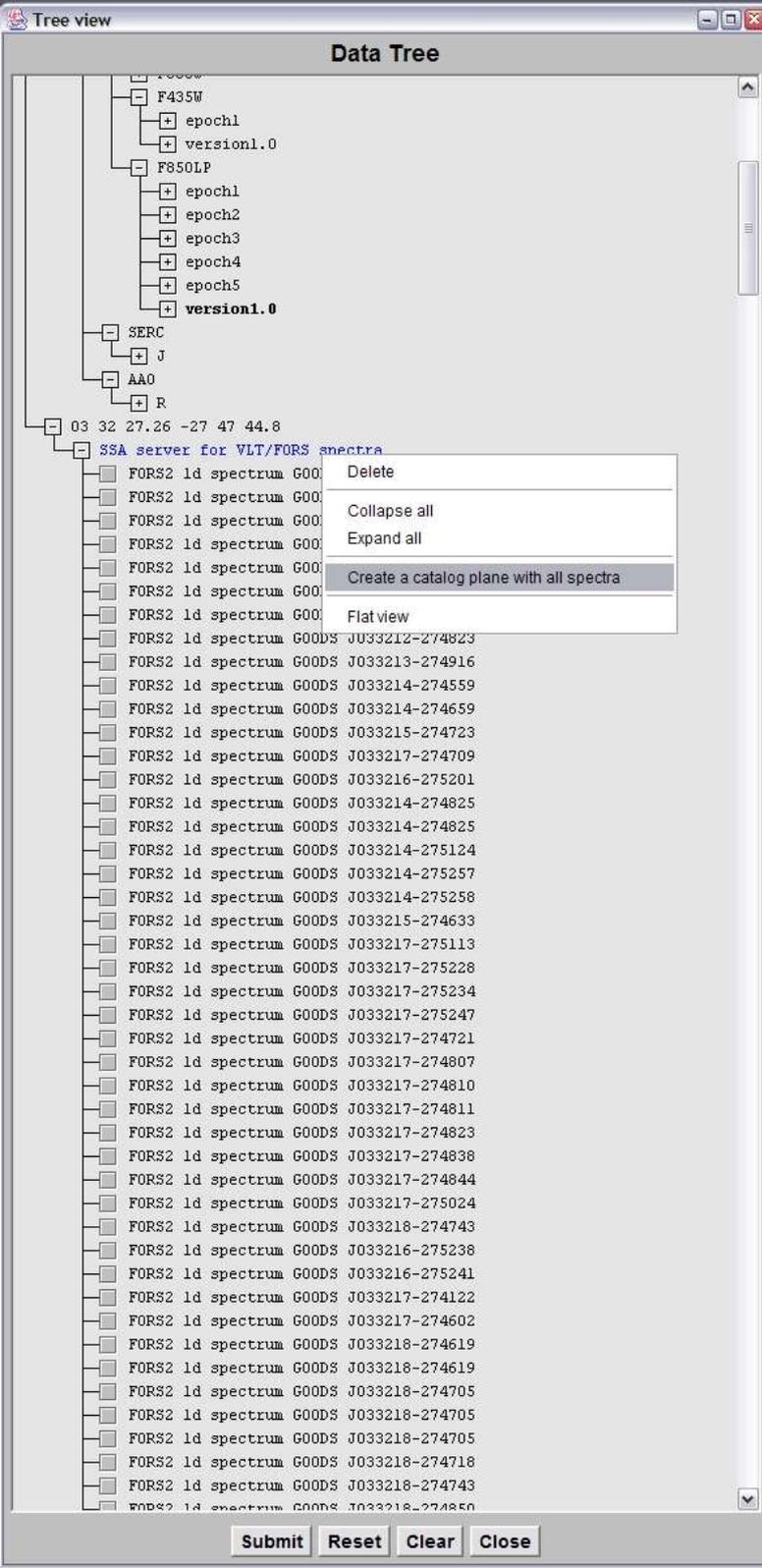
szokoly_cat Selected sou Absor. 100% Selected sou HR_fl. 100% J/AJ/126/539 FoV for version RGB img GOODS-HST GOODS-HST fields.xml GOODS-WFL

Zoom 1x

CDS - ESO - AstroGrid - ST-ECF - UMAN/Jodrell Bank - CNRS/DR01 - VO-India - STScI

The positions of the spectral data, and where possible the slit position angle is drawn on the image.





Spectra may be loaded directly from the data tree

It is also possible to make a catalog plane of the spectral data positions to more clearly link the spectra to the images



Tree view

Data Tree

- F435W
 - epoch1
 - version1.0
- F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
- SERC
 - J
 - AAO
 - R
- 03 32 27.26 -27 47 44.8
 - SSA server for VLT/FORS spectra
 - FORS2 1d spectrum GOODS J033206-274728
 - FORS2 1d spectrum GOODS J033210-274719
 - FORS2 1d spectrum GOODS J033210-274722
 - FORS2 1d spectrum GOODS J033210-274819
 - FORS2 1d spectrum GOODS J033211-275104
 - FORS2 1d spectrum GOODS J033212-274605
 - FORS2 1d spectrum GOODS J033212-274621
 - FORS2 1d spectrum GOODS J033212-274823
 - FORS2 1d spectrum GOODS J033213-274916
 - FORS2 1d spectrum GOODS J033214-274559
 - FORS2 1d spectrum GOODS J033214-274659
 - FORS2 1d spectrum GOODS J033215-274723
 - FORS2 1d spectrum GOODS J033217-274709
 - FORS2 1d spectrum GOODS J033216-275201
 - FORS2 1d spectrum GOODS J033214-274825
 - FORS2 1d spectrum GOODS J033214-274825
 - FORS2 1d spectrum GOODS J033214-275124
 - FORS2 1d spectrum GOODS J033214-275257
 - FORS2 1d spectrum GOODS J033214-275258
 - FORS2 1d spectrum GOODS J033215-274633
 - FORS2 1d spectrum GOODS J033217-275113
 - FORS2 1d spectrum GOODS J033217-275228
 - FORS2 1d spectrum GOODS J033217-275234
 - FORS2 1d spectrum GOODS J033217-275247
 - FORS2 1d spectrum GOODS J033217-274721
 - FORS2 1d spectrum GOODS J033217-274807
 - FORS2 1d spectrum GOODS J033217-274810
 - FORS2 1d spectrum GOODS J033217-274811
 - FORS2 1d spectrum GOODS J033217-274823
 - FORS2 1d spectrum GOODS J033217-274838
 - FORS2 1d spectrum GOODS J033217-274844
 - FORS2 1d spectrum GOODS J033217-275024
 - FORS2 1d spectrum GOODS J033218-274743
 - FORS2 1d spectrum GOODS J033216-275238
 - FORS2 1d spectrum GOODS J033216-275241
 - FORS2 1d spectrum GOODS J033217-274122
 - FORS2 1d spectrum GOODS J033217-274602
 - FORS2 1d spectrum GOODS J033218-274619
 - FORS2 1d spectrum GOODS J033218-274619
 - FORS2 1d spectrum GOODS J033218-274705
 - FORS2 1d spectrum GOODS J033218-274705
 - FORS2 1d spectrum GOODS J033218-274705
 - FORS2 1d spectrum GOODS J033218-274718
 - FORS2 1d spectrum GOODS J033218-274743
 - FORS2 1d spectrum GOODS J033218-274850

Submit Reset Clear Close

A.V.0 demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

for AVO J2000 Field: 03:32:40.38 -27:48:49.2 1.03"x1.03'

Specview 2.7 beta loading...

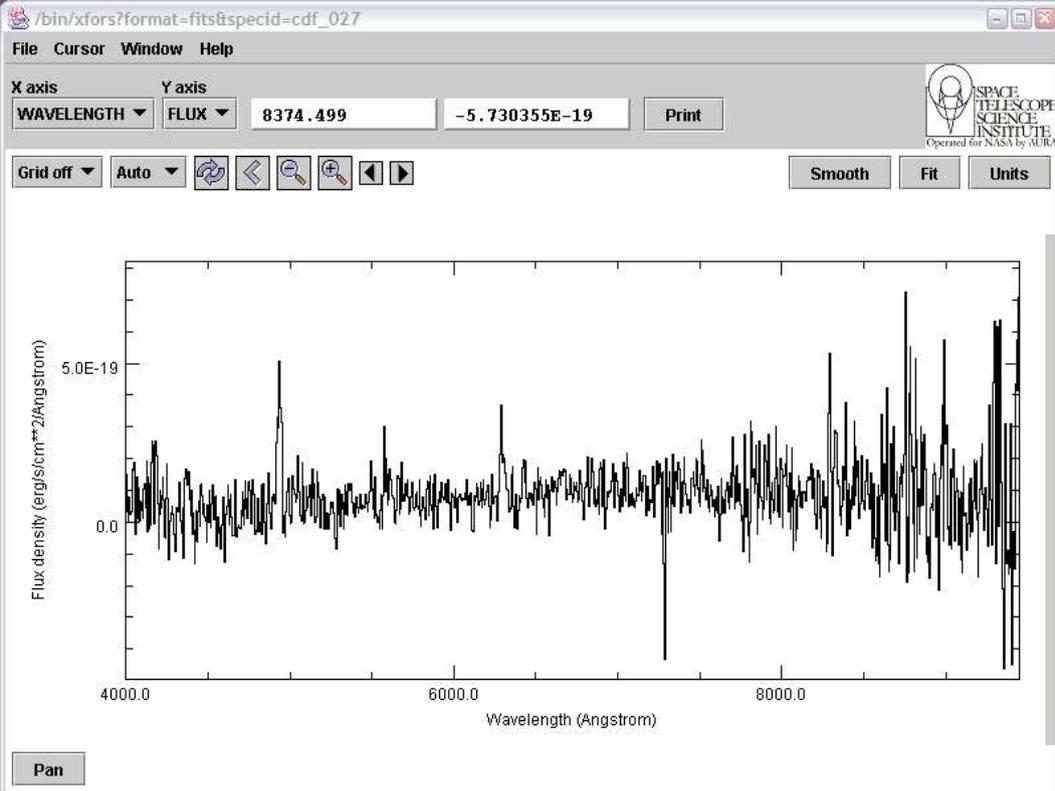
Spectrum	FORS2 1d spectrum	GOODS	J033239-274850	53.165297222222	-27.8140630555556
Spectrum	FORS2 1d spectrum	GOODS	J033239-274851	53.1648288888889	-27.8143688888889
Spectrum	FORS2 1d spectrum	GOODS	J033239-274851	53.1648288888889	-27.8143688888889
Spectrum	FORS2 1d spectrum	CFD 027	53.1652916666667	-27.8140277777778	

CDS - ESO - AstroGrid - ST-ECF - UMAN/Jodrell Bank - CNRS/DR01 - VO-India - STScI

Clicking on the spectrum link in the catalog fires up Specview

Here we load the spectrum for the CFD 027 source





- FORS2 1d spectrum GOODS J033214-274825
- FORS2 1d spectrum GOODS J033214-274825
- FORS2 1d spectrum GOODS J033214-275124
- FORS2 1d spectrum GOODS J033214-275257
- FORS2 1d spectrum GOODS J033214-275258
- FORS2 1d spectrum GOODS J033215-274633
- FORS2 1d spectrum GOODS J033217-275113
- FORS2 1d spectrum GOODS J033217-275228
- FORS2 1d spectrum GOODS J033217-275234
- FORS2 1d spectrum GOODS J033217-275247
- FORS2 1d spectrum GOODS J033217-274721
- FORS2 1d spectrum GOODS J033217-274807
- FORS2 1d spectrum GOODS J033217-274810
- FORS2 1d spectrum GOODS J033217-274811
- FORS2 1d spectrum GOODS J033217-274823
- FORS2 1d spectrum GOODS J033217-274838
- FORS2 1d spectrum GOODS J033217-274844
- FORS2 1d spectrum GOODS J033217-275024
- FORS2 1d spectrum GOODS J033218-274743
- FORS2 1d spectrum GOODS J033216-275238
- FORS2 1d spectrum GOODS J033216-275241
- FORS2 1d spectrum GOODS J033217-274122
- FORS2 1d spectrum GOODS J033217-274602
- FORS2 1d spectrum GOODS J033218-274619
- FORS2 1d spectrum GOODS J033218-274619
- FORS2 1d spectrum GOODS J033218-274705
- FORS2 1d spectrum GOODS J033218-274705
- FORS2 1d spectrum GOODS J033218-274705
- FORS2 1d spectrum GOODS J033218-274718
- FORS2 1d spectrum GOODS J033218-274743
- FORS2 1d spectrum GOODS J033218-274850

Submit Reset Clear Close

A.V.O demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

J2000 | 03:32:39.67 -27:48:50.5 | Field: 03:32:40.38 -27:48:49.2 1.03"x1.03"

Spectra.03 | szokoly_cat | Selected sou | Absor.. 100% | Selected sou | HR_fl.. 100% | J/AJ/126/539 | FoV for version | RGB img | GOODS-HST | GOODS-HST | GOODS-HST | fields.xml | GOODS-WFI

Zoom 1/4x

Spectrum	FORS2 1d spectrum GOODS J033239-274850	53.165297222222	-27.8140630555556
Spectrum	FORS2 1d spectrum GOODS J033239-274851	53.1648288888889	-27.8143688888889
Spectrum	Sp / / 1d spectrum GOODS J033239-274851	53.1648288888889	-27.8143688888889
Spectrum	FORS2 1d spectrum CDF 027	53.1652916666667	-27.8140277777778

CDS - ESO - AstroGrid - ST-ECF - UMAN/Jodrell Bank - CNRS/DR01 - VO-India - STScI

CDF 027 is a type 2 QSO ($z=3.046$) discovered by the CDFS team.

Zooming into the spectral display shows Ly-alpha and CIV emission lines



GIMP

Tree view

Data Tree

- FORS2 1d spectrum GOODS J033248-274504
- FORS2 1d spectrum GOODS J033249-274519
- FORS2 1d spectrum GOODS J033249-274524
- FORS2 1d spectrum GOODS J033239-274851
- FORS2 1d spectrum GOODS J033239-274909
- FORS2 1d spectrum GOODS J033239-274909
- FORS2 1d spectrum GOODS J033239-275016
- FORS2 1d spectrum GOODS J033240-274815
- FORS2 1d spectrum GOODS J033240-274823
- FORS2 1d spectrum GOODS J033252-275119
- FORS2 1d spectrum GOODS J033253-275000
- FORS2 1d spectrum GOODS J033253-275104
- FORS2 1d spectrum GOODS J033255-275051
- FORS2 1d spectrum GOODS J033241-274932
- FORS2 1d spectrum GOODS J033242-274950
- FORS2 1d spectrum GOODS J033242-274953
- FORS2 1d spectrum GOODS J033244-274632
- FORS2 1d spectrum GOODS J033244-274641
- FORS2 1d spectrum GOODS J033244-274729
- FORS2 1d spectrum GOODS J033244-274733
- FORS2 1d spectrum GOODS J033244-274920
- FORS1 1d spectrum CDF_001A
- FORS1 1d spectrum CDF_001B
- FORS1 1d spectrum CDF_006A
- FORS1 1d spectrum CDF_010
- FORS1 1d spectrum CDF_011
- FORS1 1d spectrum CDF_012
- FORS1 1d spectrum CDF_013
- FORS1 1d spectrum CDF_015
- FORS1 1d spectrum CDF_017C
- FORS1 1d spectrum CDF_018
- FORS1 1d spectrum CDF_019
- FORS1 1d spectrum CDF_020A
- FORS1 1d spectrum CDF_021
- FORS1 1d spectrum CDF_022
- FORS1 1d spectrum CDF_024
- FORS1 1d spectrum CDF_025
- FORS2 1d spectrum CDF_027
- FORS1 1d spectrum CDF_028
- FORS1 1d spectrum CDF_030A
- FORS1 1d spectrum CDF_031
- FORS1 1d spectrum CDF_032
- FORS1 1d spectrum CDF_034A
- FORS1 1d spectrum CDF_036A
- FORS1 1d spectrum CDF_036B
- FORS1 1d spectrum CDF_037
- FORS1 1d spectrum CDF_041
- FORS1 1d spectrum CDF_042A
- FORS1 1d spectrum CDF_043
- FORS1 1d spectrum CDF_044A
- FORS1 1d spectrum CDF_045
- FORS1 1d spectrum CDF_046
- FORS1 1d spectrum CDF_047
- FORS1 1d spectrum CDF_049
- FORS1 1d spectrum CDF_050
- FORS1 1d spectrum CDF_051A
- FORS1 1d spectrum CDF_052
- FORS1 1d spectrum CDF_053
- FORS1 1d spectrum CDF_054
- FORS1 1d spectrum CDF_055
- FORS1 1d spectrum CDF_056A

A.V.0 demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

J2000 Field: 03:32:40.38 -27:48:49.2 1.03"x1.03'

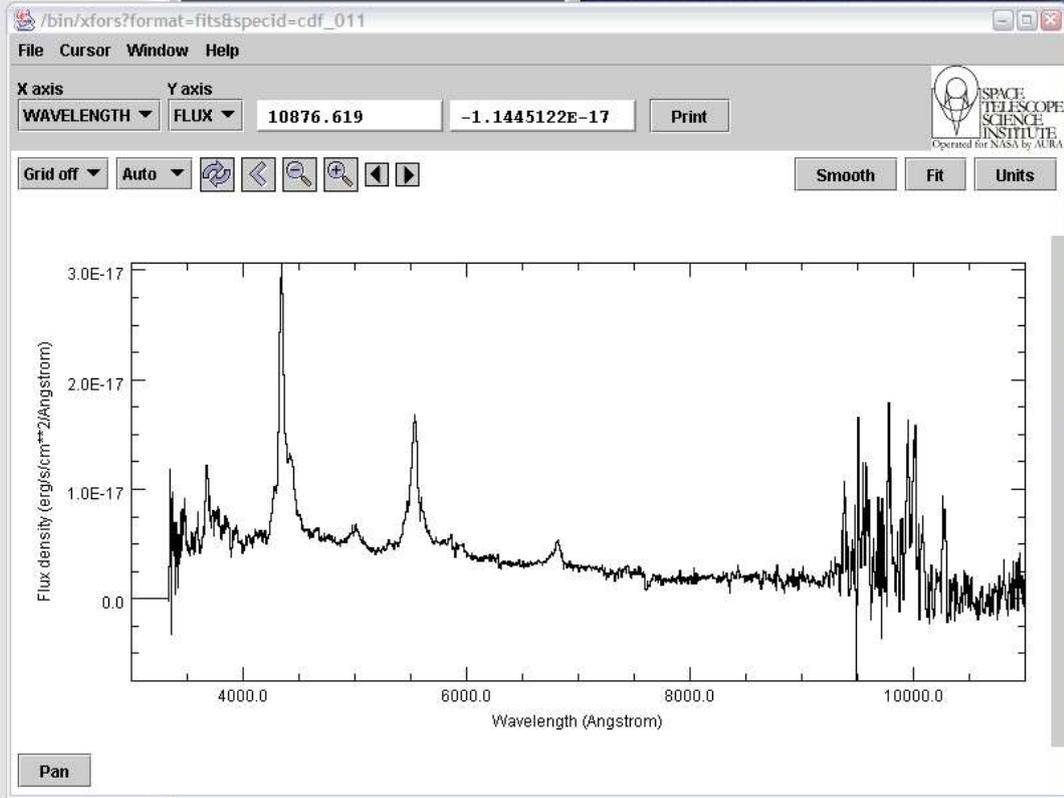
selec prop draw text tag dist filter rgb cont hist zoom magles del pad

Spectra 03 szokoly_cat Selected sou Absor.. 100% Selected sou HR_fl.. 100% J/AJ/126/539 FoV for version RGB img GOODS-HST GOODS-HST fields.xml GOODS-WFI

Zoom 1/4x

33.165297222222	-27.8140630555556
33.1648288888889	-27.8143688888889
33.1648288888889	-27.8143688888889
367	-27.8140277777778

STSci



CDF 011 is an example of a type 1 QSO

Submit Reset Clear Close



Tree view

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
 - V89
 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR.1-10KEV
 - HR.1-10KEV
 - 2MASS
 - K
 - H
 - J
 - GOODS-ISAAC
 - J
 - H
 - KS
 - GOODS-HST-ACS
 - F775W
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - F606W
 - F435W
 - epoch1
 - version1.0
 - F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - SERC
 - J
 - AAO
 - R
 - 03 32 27.26 -27 47 44.8
 - SSA server for VLT/FORS spectra

Submit Reset Clear Close

A.V.0 demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

Field: 03:32:40.38 -27:48:49.2 1.03"x1.03"

SED (ESO): Spectral Energy Distribution drawer for selected objects...
 ACE (AstroGrid): Remote object extraction on the current image...
 VOplot (VO-India): 2D plotter for selected objects...
Cross-Match service

Available plugins

Spectrum	FORS2 1d spectrum	GOODS J033239-274850	53.1652972222222	-27.8140630555556	
Spectrum	FORS2 1d spectrum	GOODS J033239-274851	53.1648288888889	-27.8143688888889	
Spectrum	FORS2 1d spectrum	GOODS J033239-274851	53.1648288888889	-27.8143688888889	
Spectrum	FORS2 1d spectrum	CDF 027	53.1652916666667	-27.8140277777778	

CDS - ESO - AstroGrid - ST-ECF - UMAN/Jodrell Bank - CNRS/DR01 - VO-India - STScI

A cross-match service for catalog planes is available from the Plugins menu



Tree view

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 - HR.1-10KEV
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 - J
 - H
 - KS
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 - F775W
 - epoch1
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 - epoch3
 - epoch4
 - epoch5
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 - epoch1
 - version1.0
 - F850LP
 - epoch1
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 - epoch4
 - epoch5
 - version1.0
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 - 03 32 27.26 -27 47 44.8
 - SSA server for VLT/FORS spectra

Submit Reset Clear Close

A.V.O demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

J2000 Field: 03:32:40.38 -27:48:49.2 1.03"x1.03'

selec, prop, draw, text, tag, dist, filter, rgb, cont, hist, zoom, magles, del, pad

Spectra.03, szokoly_cat, Selected sou, Absor., 100%, Selected sou, HR_fl., 100%, FoV for version, RGB img, GOODS-HST, GOODS-HST, fields.xml, GOODS-WFI

Zoom 1/4x

um	GOODS	J033239-274850	53.1652972222222	-27.8140630555556
um	GOODS	J033239-274851	53.1648288888889	-27.8143688888889
um	GOODS	J033239-274851	53.1648288888889	-27.8143688888889
um	CDF	027	53.1652916666667	-27.8140277777778

lodrell Bank - CNRS DR01 - VO-India - STScI

Cross-match service

Positional cross-match

Only positional offset is used to find the matches.

List A: Selected sources from filter Absorbed_Sources_Filter RA: RAJ20 DEC: DEJ20

List B: szokoly_cat.xml RA: ra200 DEC: dec20

Threshold is the distance in arcsec

0 <= threshold <= 1.5

Choose match method

Best matches

All matches

Sources not matching

Perform cross-match Close

Cross match of the selected absorbed sources and the Szokoly catalog using a threshold radius of 1.5"

Tree view

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 - epoch5
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 - F606W
 - F435W
 - epoch1
 - version1.0
 - F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - SERC
 - J
 - AAO
 - R
 - 03 32 27.26 -27 47 44.8
 - SSA server for VLT/FORS spectra

Submit Reset Clear Close

A.V.O demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

Aladin for AVO J2000 03:32:35.84 -27:41:00.0 Field: 03:32:25.77 -27:48:07.4 38.08'x37.2'

cdfs

Zoom 1x

C1-2_tab1 : The 1-2 keV band counts (UCD: PHOT_COUNTS_X / unit: ct)

▷ 0.2656	48	03 32 04.89	-27 41 27.6	59.4	11.8	13.6	33.2	23.8	M		
▷ 0.4459	161	03 32 25.00	-27 41 01.8	177.6	14.5	42.8	79.6	41.4	M	0.52	0.6
▷ 0.4802	220	03 32 35.84	-27 41 00.0	107.0	11.5	16.5	53.9	42.8			
▷ 0.8938	278	03 32 49.23	-27 40 49.8	45.9	7.6	12.2	18.6	18.2			

The cross match result consists of a new plane with the joined tables.

For our sources we now have a table with X-ray fluxes and redshifts

Tree view

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
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 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR.1-10KEV
 - HR.1-10KEV
 - 2MASS
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 - H
 - KS
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 - epoch2
 - epoch3
 - epoch4
 - epoch5
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 - F606W
 - F435W
 - epoch1
 - version1.0
 - F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - SERC
 - J
 - AAO
 - R
 - 03 32 27.26 -27 47 44.8
 - SSA server for VLT/FORS spectra

Submit Reset Clear Close

A.V.O demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

J2000 03:32:25.00 -27:41:01.8 Field: 03:32:25.77 -27:48:07.4 38.08'x37.2'

cdfs

- z_szoloky
- XMatch results
- szoloky_cat
- Selected sou
- Absor.. 100%
- Selected sou
- HR_fl.. 100%
- J/AJ/126/539
- FoV for version
- RGB img
- GOODS-HST
- GOODS-HST
- fields.xml
- GOODS-WFI

Zoom 1x

1.0"

Lx : (UCD: FLUX / unit: erg/s)

▶ 1.7	42.9	43.0	0.44	2	3.0	3	AGN-2	LEX	0.7649	1.3373E43	1.5243E43	1.1502E43
▶ 9.0	42.9	42.9	1.0	2	3.0	3	AGN-2	LEX	0.7376	1.3241E43	Lx/FLUX/erg/s	1.1425E43
▶ 43.6	43.6	1.0	2	3.0	2	AGN-2	HEX	1.7931	7.1694E43	8.7108E43	5.6279E43	
▶ -99.0	-99.0	0.04	9	0.0	9	none	none	0.8200	-1.0	-1.0	-1.0	

Using the cross-match result we now calculate the X-ray luminosity, and corresponding uncertainty

Tree view

Data Tree

- cdfs
 - Aladin
 - GOODS-WFI
 - ICLWP
 - V89
 - B99
 - RC162
 - U38
 - GOODS-ACIS
 - LR.1-10KEV
 - HR.1-10KEV
 - 2MASS
 - K
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 - J
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 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - F606W
 - epoch1
 - version1.0
 - F435W
 - epoch1
 - version1.0
 - F850LP
 - epoch1
 - epoch2
 - epoch3
 - epoch4
 - epoch5
 - version1.0
 - SERC
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 - AA0
 - R
 - 03 32 27.26 -27 47 44.8
 - SSA server for VLT/FORS spectra

A.V.0 demonstration prototype v1.0

Load... Save... Plugins... Print... Help... Quit

J2000 03:32:04.89 -27:41:27.6 Field: 03:32:25.77 -27:48:07.4 38.08'x37.2'

cdfs

- Selected sou...
- z_szoloky
- XMatch results
- szokoly_cat
- Selected sou...
- Absor.. 100%
- Selected sou...
- HR_fl. 100%
- J/AJ/126/539
- FoV for version
- RGB img
- GOODS-HST
- GOODS-HST
- GOODS-HST
- fields.xml
- GOODS-WFI

Zoom 1x

Lx_max : (UCD: FLUX / unit: erg/s)

0.52	2	3.0	2	AGN-2	HEX	0.8290	2.2555E43	2.4171E43	2.0938E43
2	1.0	3	AGN-2	LEX	1,2012	1.3246E43	1.6057E43	Lx_max / FLUX / erg/s	
0.44	2	3.0	3	AGN-2	LEX	0.7649	1.3373E43	1.5243E43	1.1502E43
1.0	2	3.0	3	AGN-2	LEX	0.7376	1.3241E43	1.5056E43	1.1425E43

Properties

Properties of the filter "z_szoloky"

Label: z_szoloky

Choose a predefined filter

Predefined filters: ---

Or enter your own filter definition

```
# sources with Szoloky redshifts
${z_tab2}!=-1
{draw blue rhomb}
```

Help on syntax

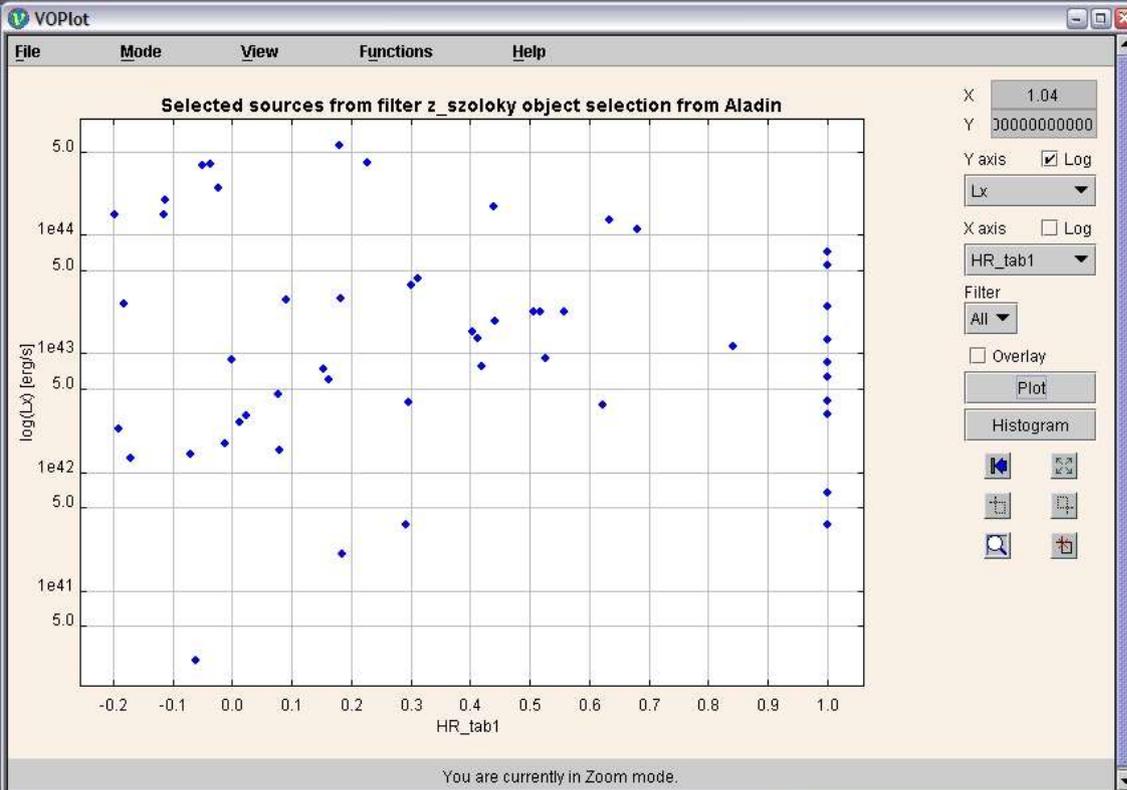
Get Manual

Save filter Load filter

Export Create a new plane with all filtered sources

Apply Close

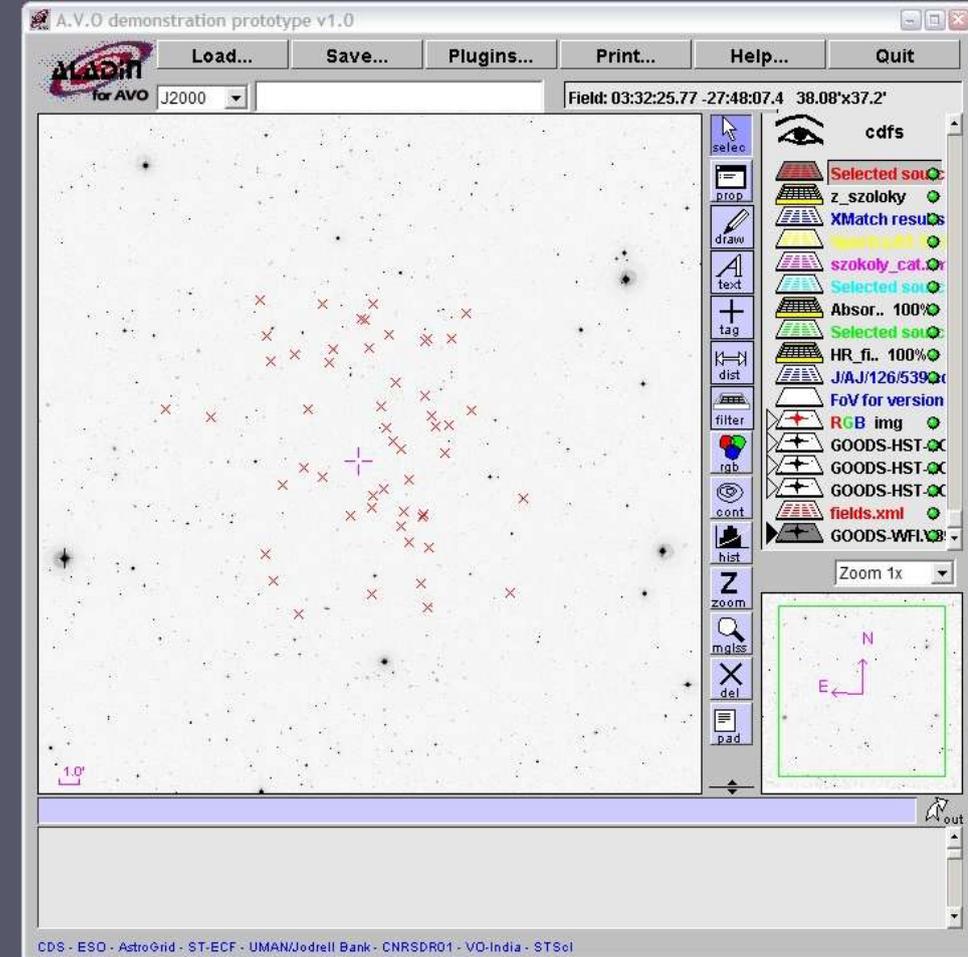
Filter out any sources without redshifts in the Szokoly catalog



```

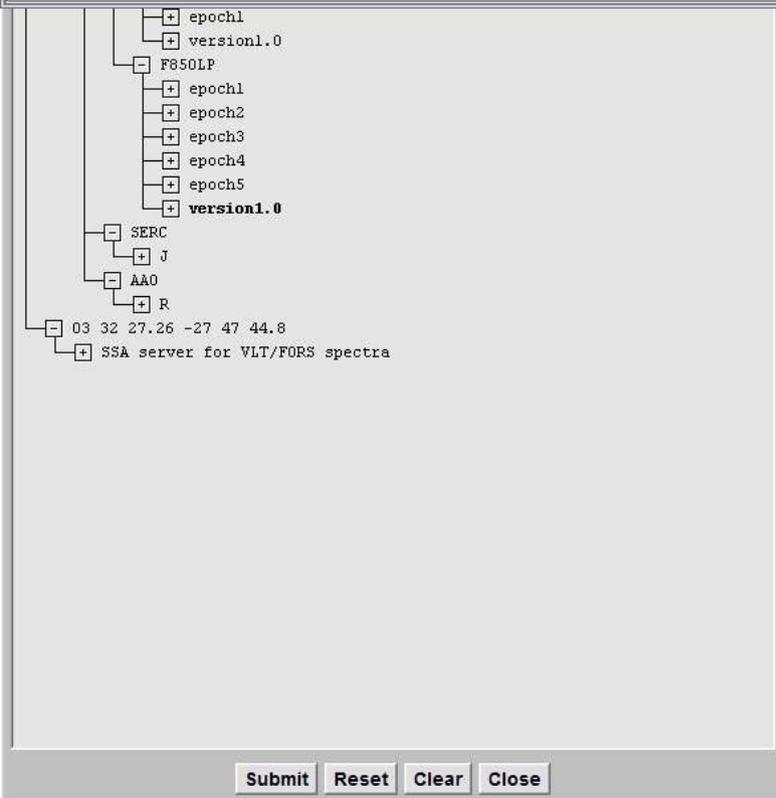
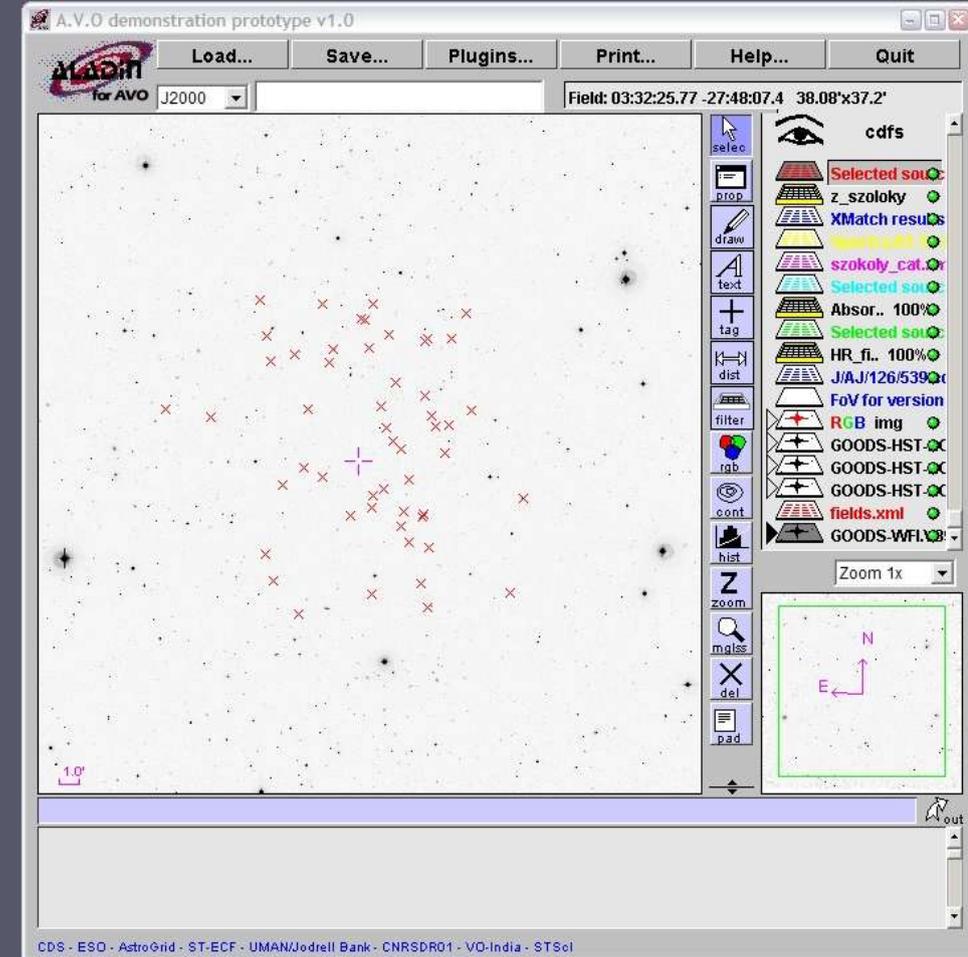
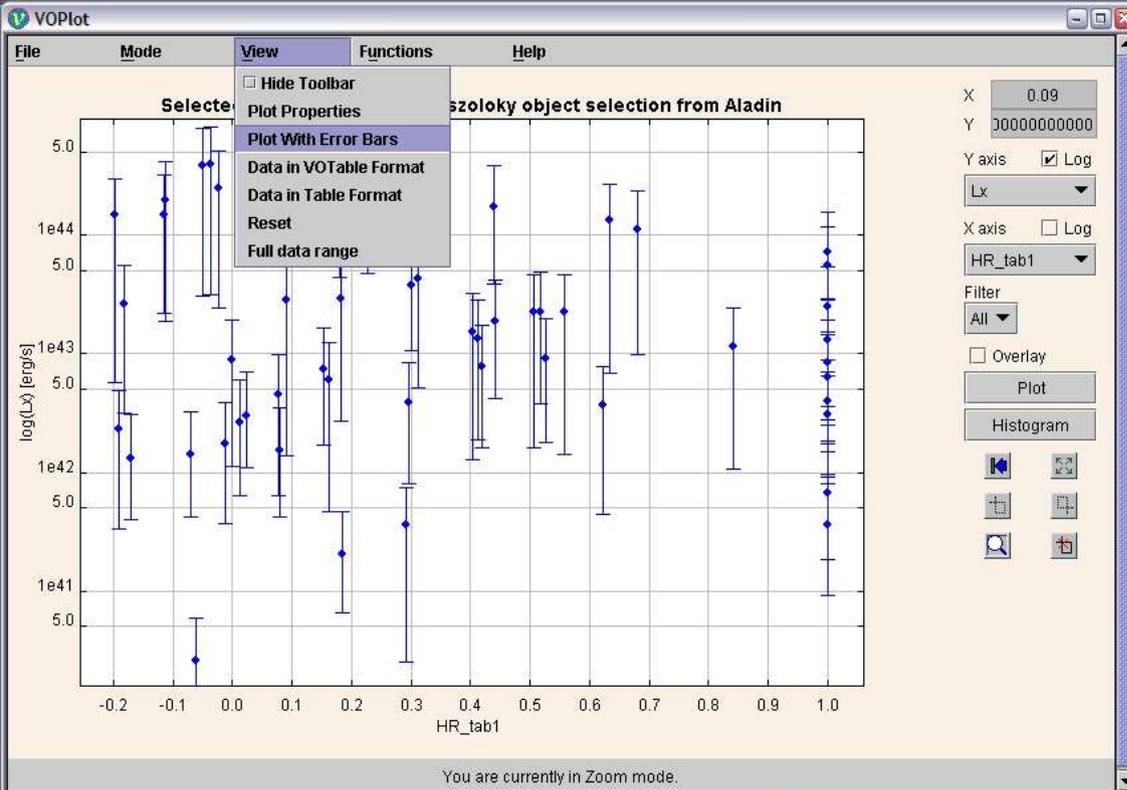
+ epoch1
+ version1.0
- F850LP
+ epoch1
+ epoch2
+ epoch3
+ epoch4
+ epoch5
+ version1.0
- SERC
+ J
- AA0
+ R
- 03 32 27.26 -27 47 44.8
+ SSA server for VLT/FORS spectra
  
```

Submit Reset Clear Close

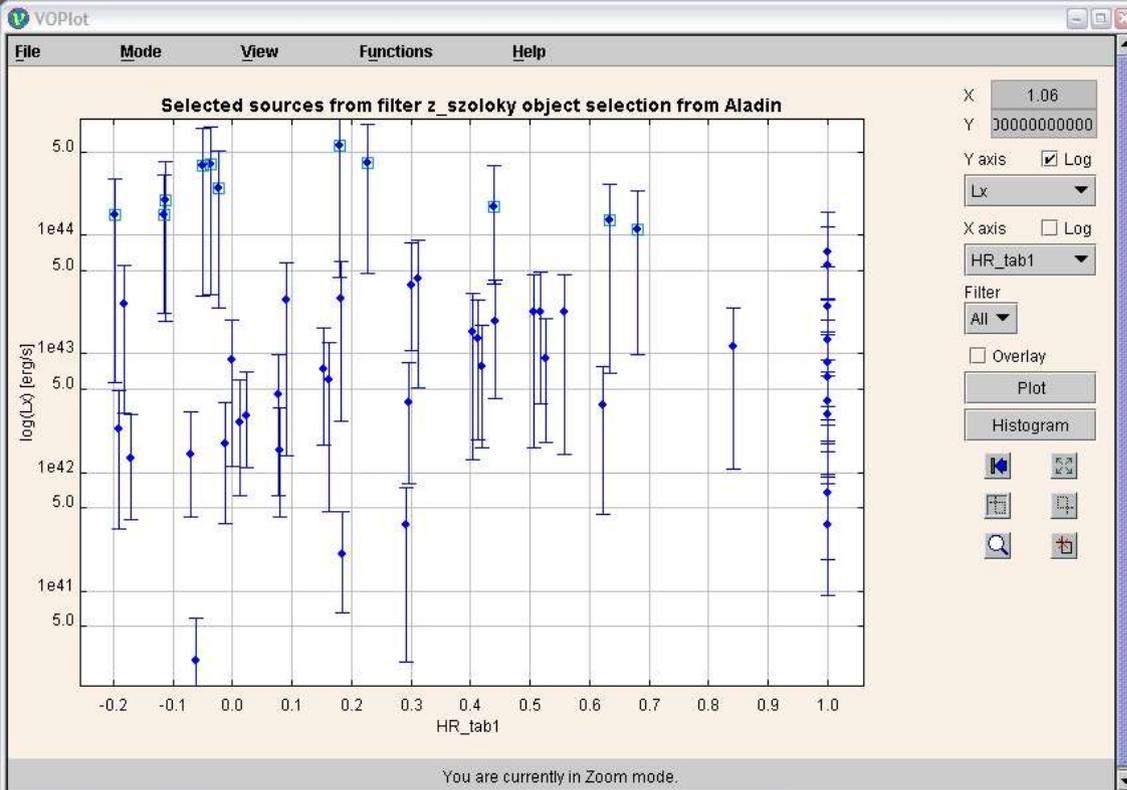


The VOPlot tool in the plugin menu allows plotting of columns from catalog planes

Here we plot the X-ray luminosity against the hardness ratio



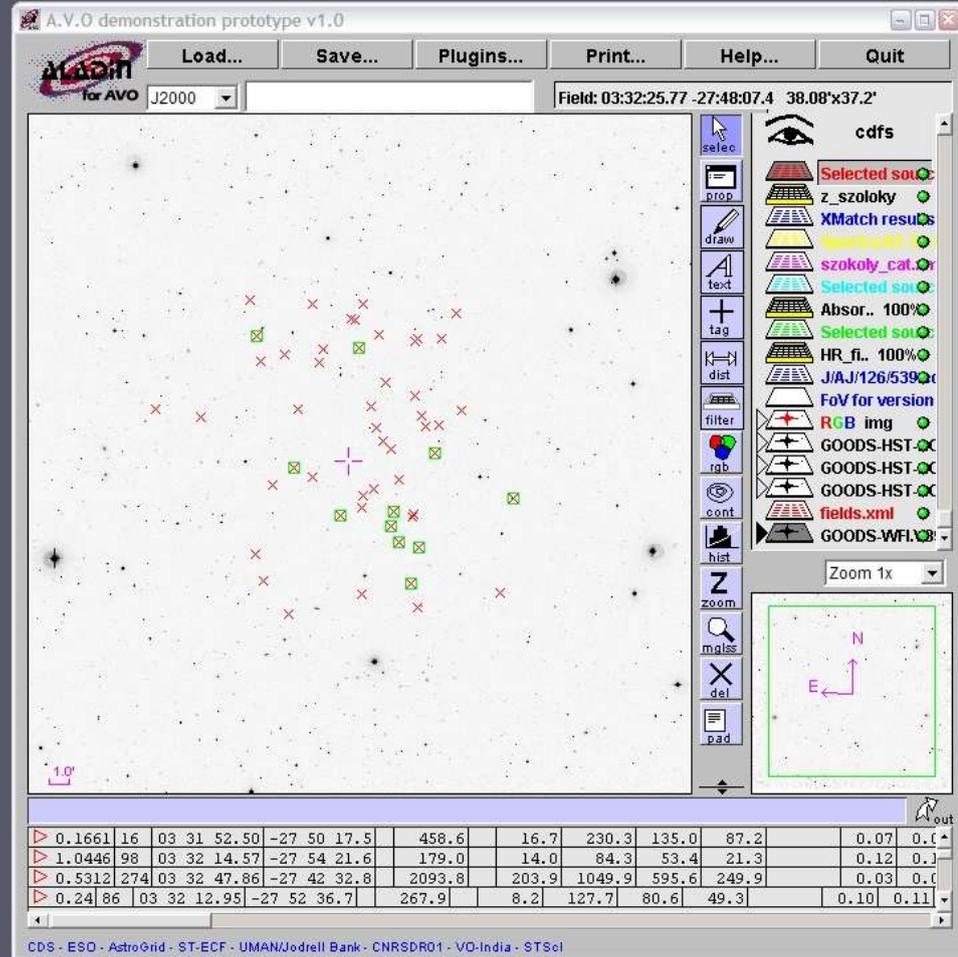
Error bars may be plotted using the interface in the View menu



```

+ epoch1
+ version1.0
- F850LP
+ epoch1
+ epoch2
+ epoch3
+ epoch4
+ epoch5
+ version1.0
- SERC
+ J
- AAO
+ R
- 03 32 27.26 -27 47 44.8
+ SSA server for VLT/FORS spectra
  
```

Submit Reset Clear Close



The VOPlot 'select points' mode shows the selected points highlighted on the image

Here we show the locations of all the sources with $L_x > 10^{44}$: our objects of interest: Type 2 QSO's.



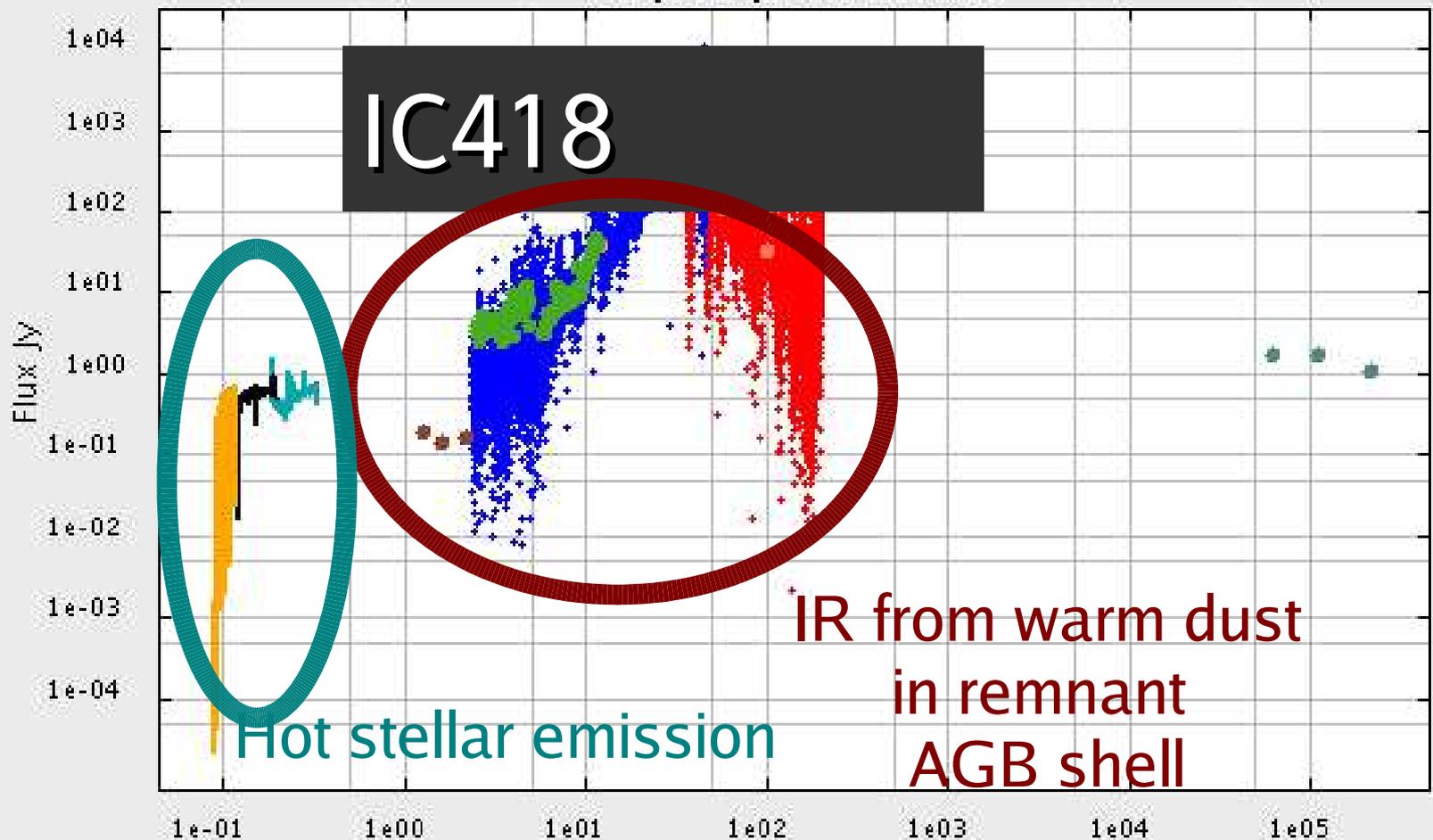
Using VOSpec

Flux Unit
 Jy

RedShift

Graphic Mode

- Points
- Points
- Lines
- Lines
- Lines
- Dots
- Dots
- Dots
- Dots



	Server	Title	Ra	Dec	Format	Select	Status
	Far Ultravi...	IC418 FUSE (IAP)	81.87	-12.6967	spectrum...	<input checked="" type="checkbox"/>	comp
	Local File	Radio data: IC 418			spectrum...	<input checked="" type="checkbox"/>	comp
	Local File	IRAS Photometry Data: IC ...			spectrum...	<input checked="" type="checkbox"/>	comp
	Local File	ISO PHT IC 418			spectrum...	<input checked="" type="checkbox"/>	comp
	Local File	2MASS Photometry Data: I...			spectrum...	<input checked="" type="checkbox"/>	comp

Target **IC418**

Ra **81.8675156**

Dec **-12.6972958**

Size **0.1**

Go

IC418 - hot uv stellar emission

Target **HD161796**

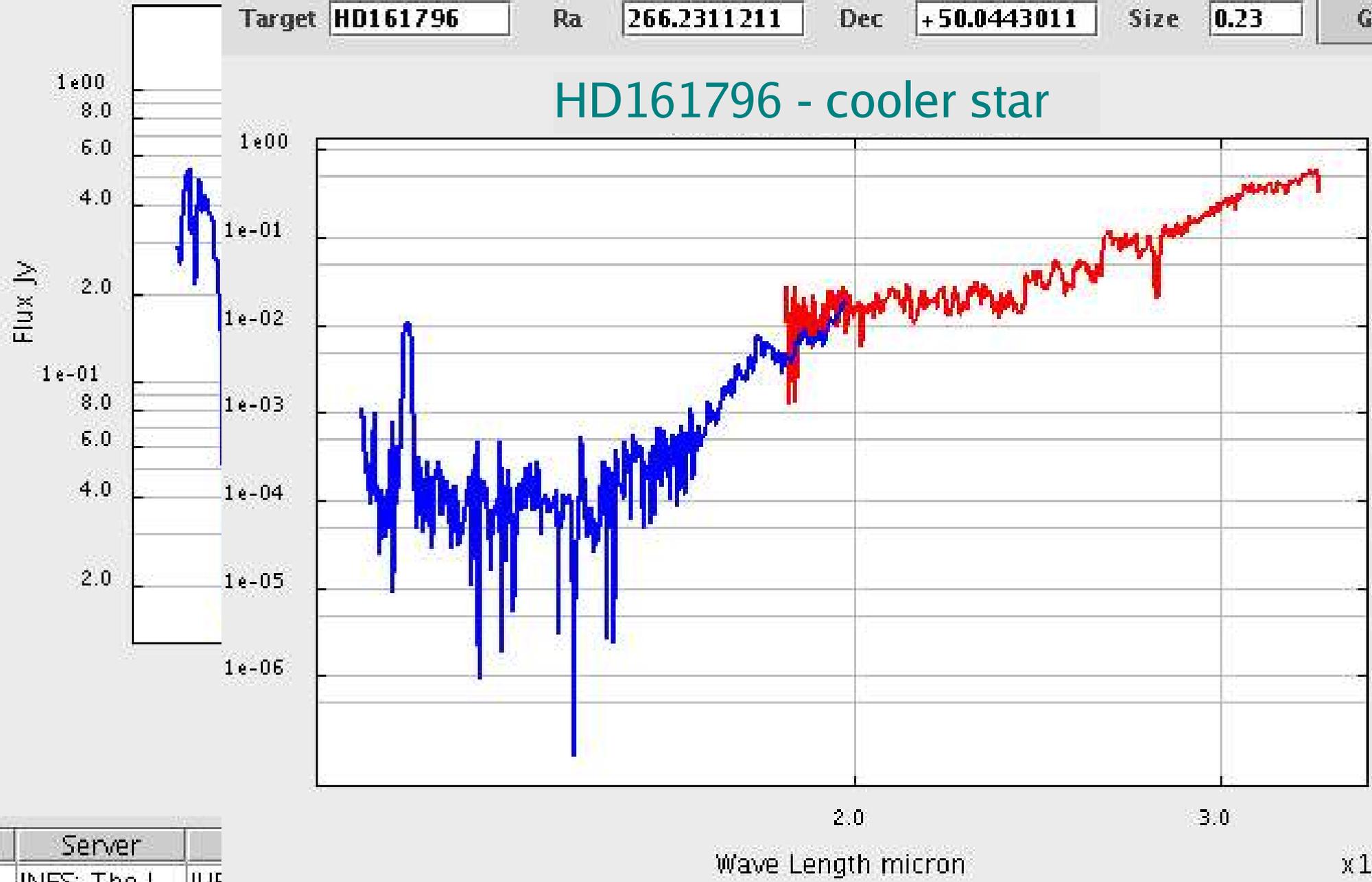
Ra **266.2311211**

Dec **+50.0443011**

Size **0.23**

Go

HD161796 - cooler star



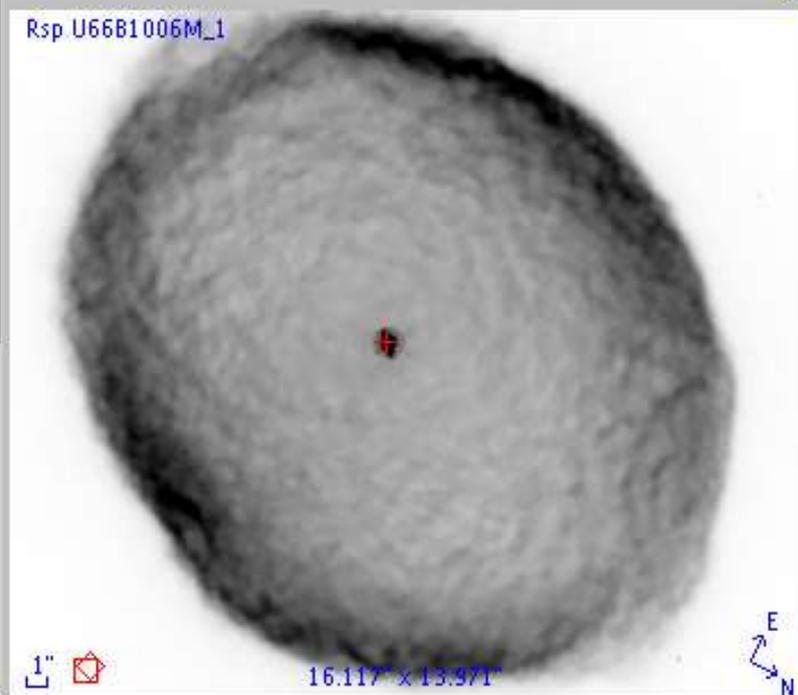
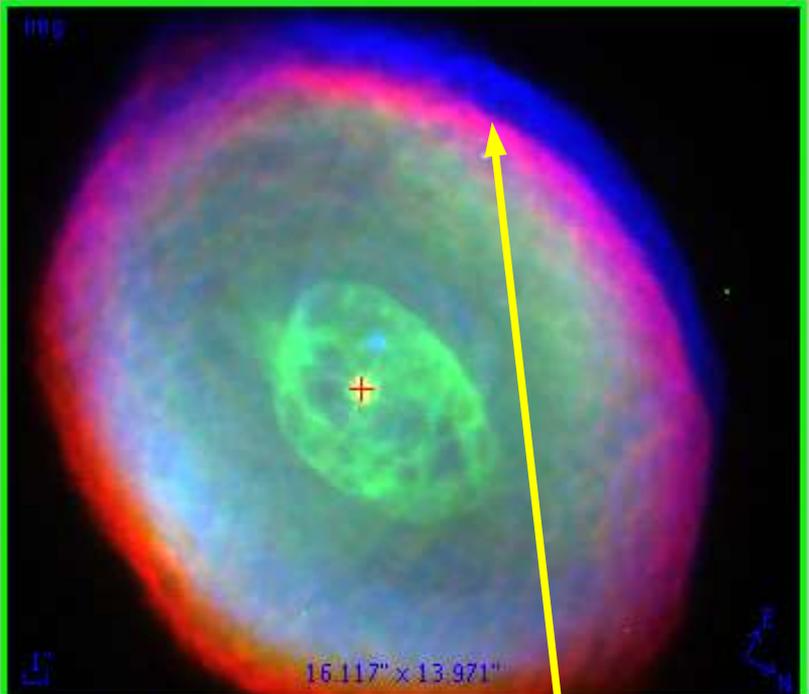
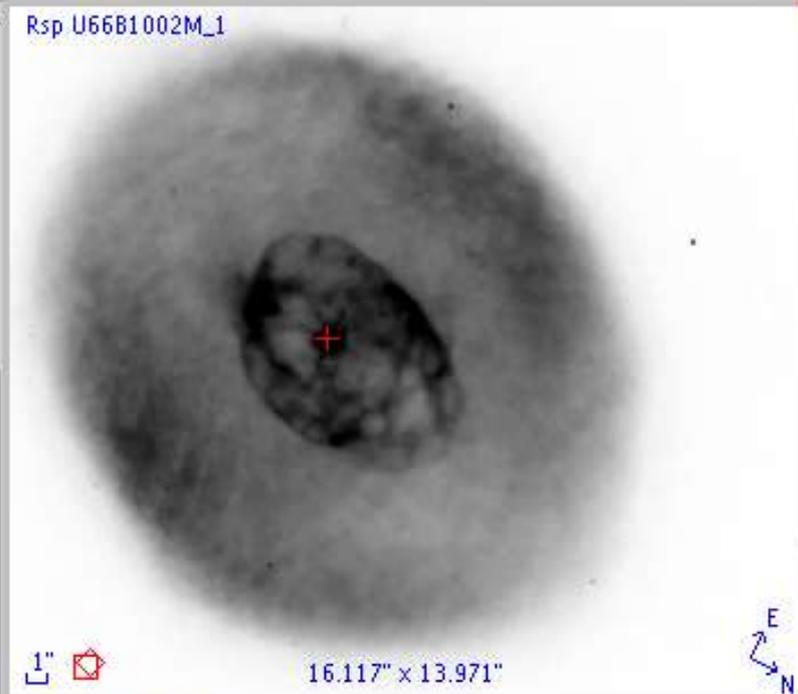
Server	
INES: The I...	IUE
INES: The I...	IUE/INES spectrum: SWP431...

Wave Length micron $\times 10^{-1}$

ready

Narrow-band imaging of IC418

- Review of VO Client Side Tools
- Construct false-colour image
- Make use of the HST archive
 - [N II] (F658N)
 - Low excitation line
 - H-alpha (F656N)
 - [O III] (F502N)
 - Higher excitation line
- Simple over lay of images shows mis-alignment
 - Due to mismatch in the astrometric reductions
- Use of Aladin to enable astrometric alignment
 - And create the final RGB image ...



selec
dist
draw
tag
text
filter
rgb
blink
rsamp
cont
zoom
maglss
hist
prop
del

HST
Drawing 2
RGB img
U35T0905R
RGB img
Rsp U66B11
U66B1002M
Rsp U66B11
U66B1006M
U35T0905R
HIP



Properties of the plane ``U35T0905R_1''

Name: U35T0905R_1

Format: Fits Hcompressed format

Equinox: 2000.0

Resolution: 800x800 pixels

Origin: provided by the original archive server

Geometrical reduction

Method: WCS reduction

Flip methods

Astronomical calibration

Adjust the following form according to the plane "U35T0905R_1"

Label:

NAXIS1	=	800
NAXIS2	=	800
CRPIX1	=	427.0
CRPIX2	=	444.0
EQUINOX	=	2000.0
CRVAL1	=	81.86805605297
CRVAL2	=	-12.69672058801
CTYPE1	=	'RA—TAN'
CTYPE2	=	'DEC—TAN'
CD1_1	=	5.752075E-6
CD1_2	=	1.125766E-5
CD2_1	=	1.126285E-5
CD2_2	=	-5.749422E-6
RADECSYS	=	FK5

gins... Print... Data Tree... Help... Quit

2:41:45.2 Pixel full not available

select

dist

draw

tag

text

filter

rgb

blink

rsamp

cont

zoom

mgls

hist

prop

del

HST

Drawing 2

RGB img

U35T0905R

RGB img

Rsp U66B11

U66B1002N

Rsp U66B11

U66B1006N

U35T0905R

HIP

16.117" x 13.971"

16.117" x 13.971"

36.41" x 36.419"

Overplot measurer and cut graph - click or drag to set a cut graph

multiview Zoom 1x



Lecture 5: Acknowledgements + Refs

- Slides 5-8 describing some new Aladin features from Allen: see <http://www.euro-vo.org/internal/Avo/SwgMeeting06/tools.pdf>
- Slides 26-53 are from Mark Allen and illustrate the 'extragalactic' science case demonstration: see <http://www.euro-vo.org/twiki/bin/view/Avo/SwgMeeting04>
 - You can follow that demonstration using the detailed instructions given <http://www.euro-vo.org/twiki/bin/view/Avo/ExtragalacticScenario>
 - The science paper (Padovani, Allen, Rosati, Walton, 2004) is at:
http://ukads.nottingham.ac.uk/cgi-bin/nph-bib_query?bibcode=2004A%26A...424..545P&db_key=AST&high=412cbd1d6f00525
- Slides 54-58 due to Anita Richards – elements of the 'stellar' case from the AVO Jan 2005 demo – see <http://www.euro-vo.org/twiki/bin/view/Avo/SwgMeeting06>
- Other credits as noted in the individual slides.

Next Lecture: Workflow based demonstrations