

Exploiting Virtual Observatory and Information Technology: Techniques for Astronomy

Lecture #3 Goal:
Applications and
Theory,
Workflows

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Summary: Lecture #3

- Introduction
- Standards for Data Access
- Applications in a VO
 - Common Execution Architecture
 - Workflows
- Theory in a VO
- Science Example
 - Photometric redshifts
 - ... feeding into a observation/model SED case

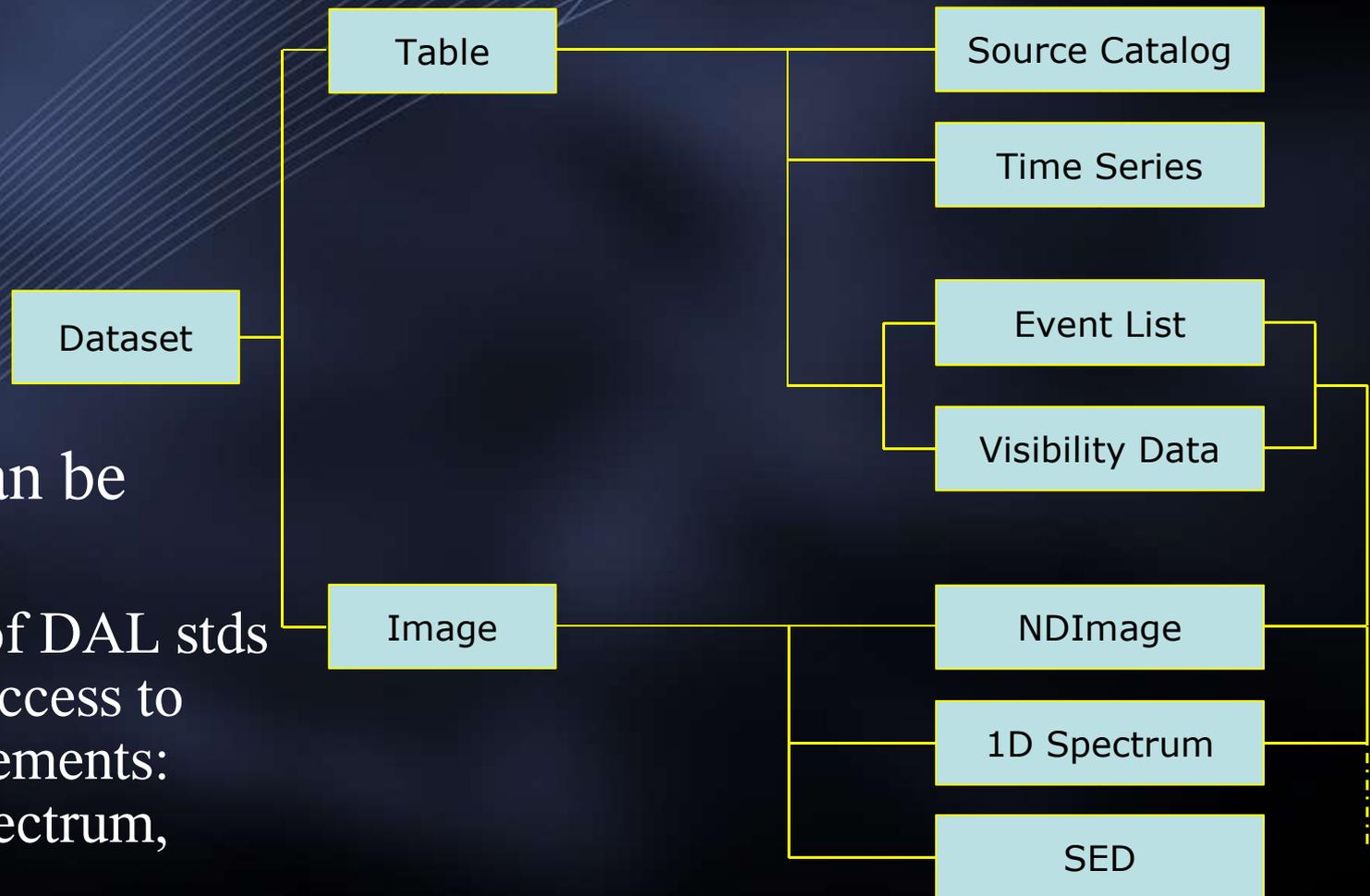
Introduction: Image Access

- Data exists in catalogue form and image form
 - Access to catalogues discussed in Lecture 2
 - Access to images (includes theory data, spectra and so forth)
- Virtual Observatory standards to address these
 - Data Access Layer (SIA, SSA)
 - Data Models
 - Common Execution Architecture
 - Workflow

Data Access Layer: DAL

<http://www.ivoa.net/twiki/bin/view/IVOA/IvoaDAL>

- Provide standards to enable access to data sets



- A dataset can be complex
 - Concept of DAL stds to allow access to dataset elements: image, spectrum, SED, etc

Simple Image Access: SIA

<http://www.ivoa.net/Documents/latest/SIA.html>

- Protocol for retrieving image data from a variety of astronomical image repositories through a uniform interface
- Provides access to 'image' data
 - regularly sampled (pixelated) data
 - (instead of spectrum, catalog, etc.)
 - usually an image of the sky, with a World Coordinate System (WCS)
- Service-oriented data discovery
 - query service to discover data
- Access to image *metadata*
 - can get image metadata without retrieving the actual image
 - uniform description based on standard data models
- Access to image *datasets*
 - data may be *virtual* or computed on demand
 - uniform interface to any type of image data

Simple Spectra Access: SSA

- Provides access to 'spectral' data
 - similar to SIA but deals with tabular spectrophotometric data
- Service-oriented data discovery
 - query service to discover data
- Access to dataset metadata
 - can get dataset metadata without retrieving actual dataset
 - uniform interface based on standard data models
- Access to actual dataset
 - data may be *virtual*, i.e., computed on demand
 - uniform interface to any type of spectral data
 - hides details of how data is stored or represented externally

Virtual Data

- Key VO concept: most data that is worked on is Virtual Data, i.e. Data that is created 'on the fly' during the VO process
 - Creation of virtual data may involve additional processing, e.g. Calibration of raw data from a request to an archive, subsetting of images etc.
 - Access conforms to 'Data Model' standards
- Basic SIAP usage:
 - Position and Size of search region sent via an HTTP GET call
 - Query response is a VOTable describing the images
 - Also gives an access reference to the actual data
 - Get the data via a fetch – use the returned file refs to actual data:
 - e.g <http://cass38.ast.cam.ac.uk/cgi-bin/wfs-siap/getImage?run=347497&ccd=2>
 - The reference URL may point to a service which returns a processed image, e.g. A cutout, a mosaic.

SIA and SSA Services

- A wide range of SIAP (the 'P' is for protocol) and SSAP services now provided to give access to image data
 - Cutout services
 - Mosaic services
 - Pointed observations
- Services discoverable through the 'Registry'
- NVO 'datascope' actions multiple SIAP/SSAP calls
 - Demonstrated in Lect 5
 - Science case later ...

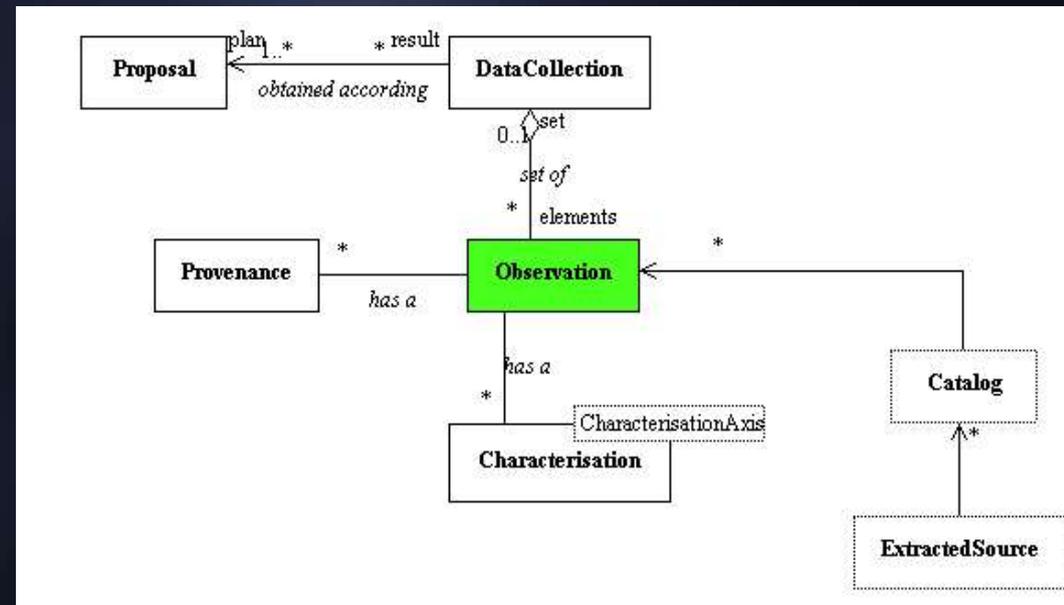
The screenshot shows the NVO Searchable Registry interface. The search term 'SIAP' has been entered, and the results are displayed in a table. The table has columns for Actions, Title / Description, Subject, and Resource Type. The results are as follows:

Actions	Title / Description	Subject	ResourceType
View XML Edit Copy Try It!	NCSA Astronomy Digital Image Library Simple Image Access(ADIL) This allows searching for ADIL images via the SIA protocol.		SIAP
View XML Edit Copy Try It!	The IRAS Galaxy Atlas(IGA) The IRAS Galaxy Atlas (IGA) is a high resolution image atlas of the Galactic plane at 60 and 100 microns, it has been produced using the IRAS satellite data. The HIRES program was developed by the Infrared Processing and Analysis Center (IPAC) to produce high resolution (~ 1 arcmin) images from IRAS data using the Maximum Correlation Method (H.H. Aumann, J.W. Fowler and M. Melnyk, 1990, Astronomical Journal, 99, 1674).		SIAP
View XML Edit Copy Try It!	Spitzer First Look Survey (FLS) -- Ancillary VLA Data(FLS_VLA) The Spitzer First Look Survey has obtained VLA radio data. Available to the public is a catalog of radio sources along with a mosaic of 35 VLA pointings taken during 2001 and 2002, representing 240 hours in B-array at 1.4 GHz.		SIAP
View XML Edit Copy Try It!	Spitzer First Look Survey (FLS) -- NOAO Extragalactic -- R(FLS_MAIN_R) The Spitzer First Look Survey has obtained approximately 30 pointings with the NOAO MOSAIC camera on the Kitt Peak 4m telescope covering the entire extragalactic First Look Survey region in the R-band. Available to the public are image FITS files, bad pixel maps, exposure maps and source catalogs of		SIAP

Data Models:

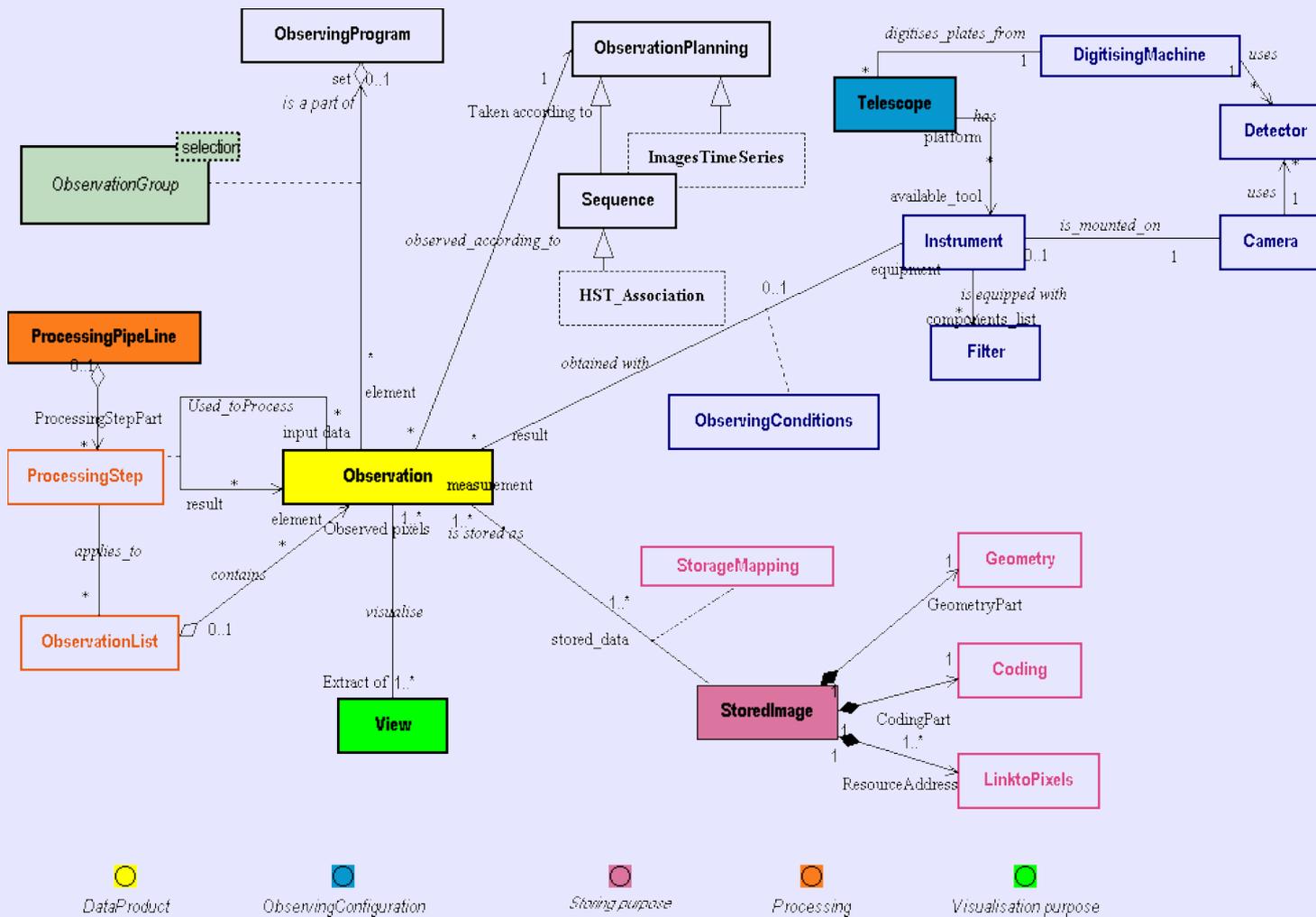
<http://www.ivoa.net/twiki/bin/view/IVOA/IvoaDataModel>

- Define standards to describe the structure and semantics of astronomical data
- Generic data model broken down into key elements:
 - High level: image, spectrum, time, catalog
 - Low level: quantity, resolution
 - Provenance
- IDHA model used by CDS
- Specific SED example
- DM defines other standard VO interfaces



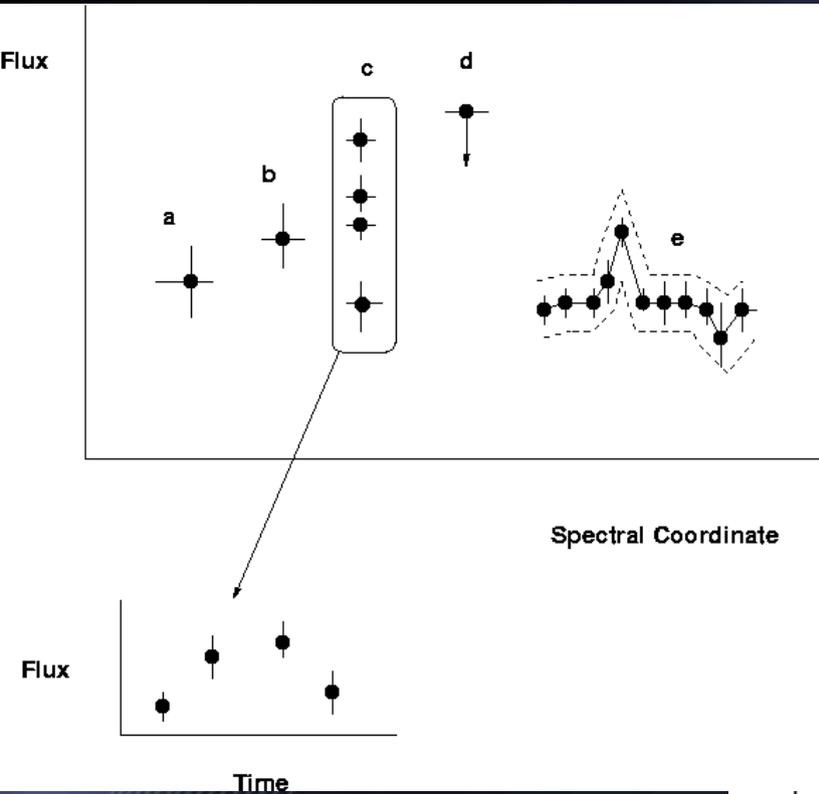
IDHA Data Model Example:

<http://alinda.u-strasbg.fr/IDHA/lastmodel/>

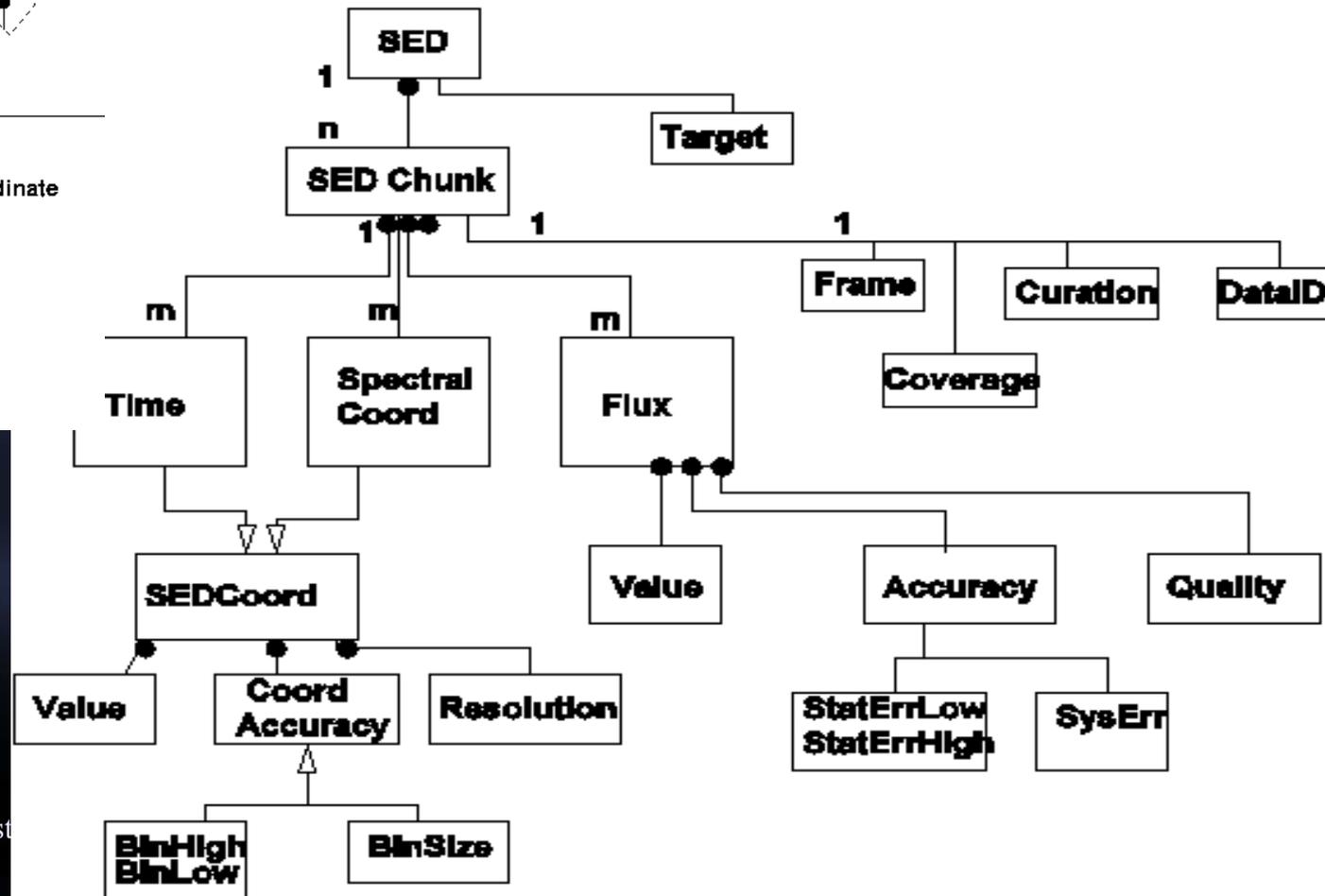


SED: Spectral Energy Distribution:

<http://hea-www.harvard.edu/~jcm/vo/docs/spec0.92.html>



Implementation available via VOSpec (Lecture 5/6)



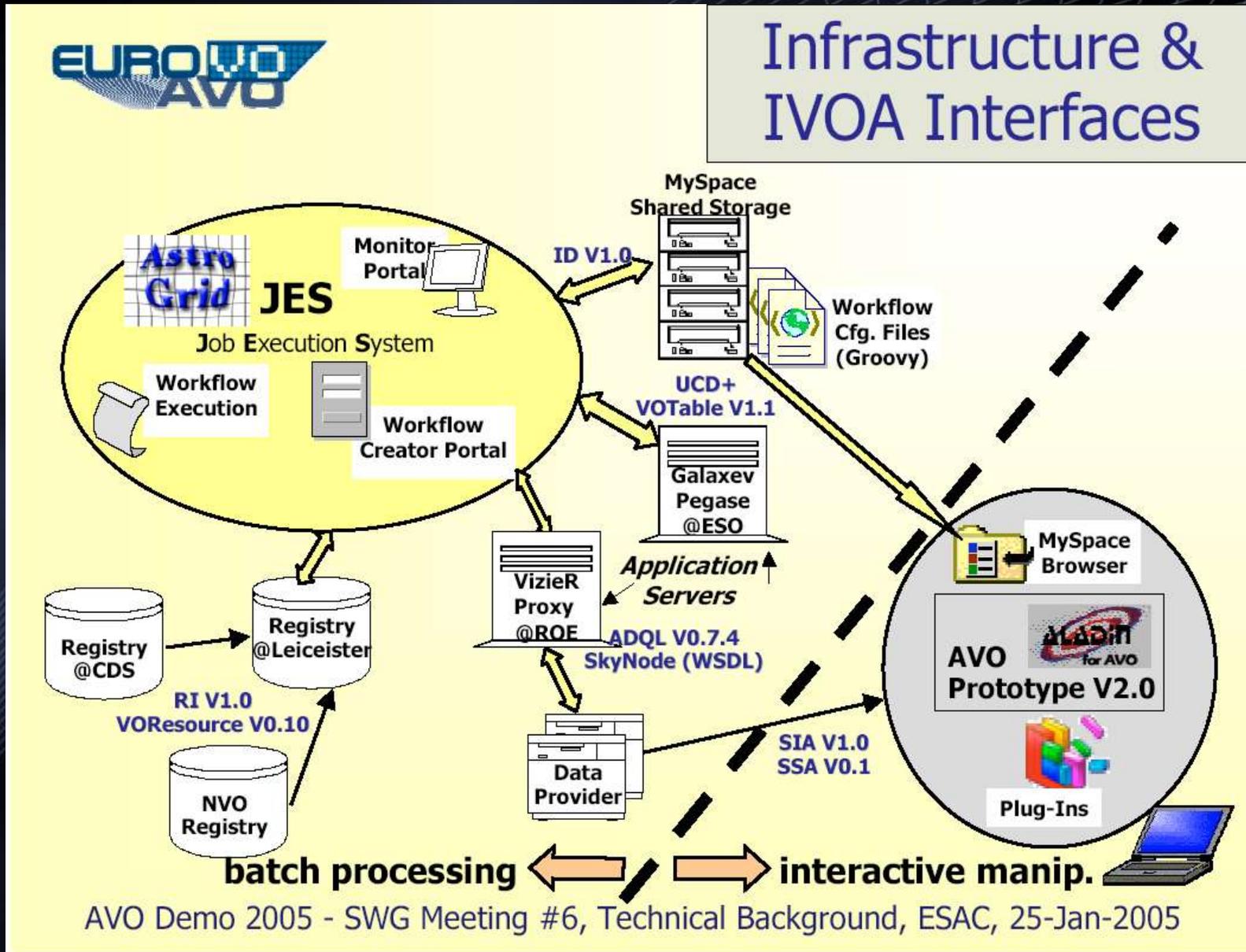
Model to enable construction of a multiwavelength SED from spectral AND photometric data points

Applications @ IVOA:

<http://www.ivoa.net/twiki/bin/view/IVOA/IvoaApplications>

- Applications to manipulate and process data
 - Client side tools: conforming VO standards: e.g. Aladin
 - Server side tools: e.g. 'hyperZ' running on 1000's of images
- Applications now being developed to exploit standard interfaces
 - Those employing VOTable for data exchange
 - VOPlot, TopCat, Mirage, Aladin
 - Large scale service applications, e.g. Montage
- For the server side systems, concept of a framework to allow the use of a wide variety of applications in user configurable workflows.
- More on specific applications in Lect 5 + 6.

Workflow: server side/ client side ...

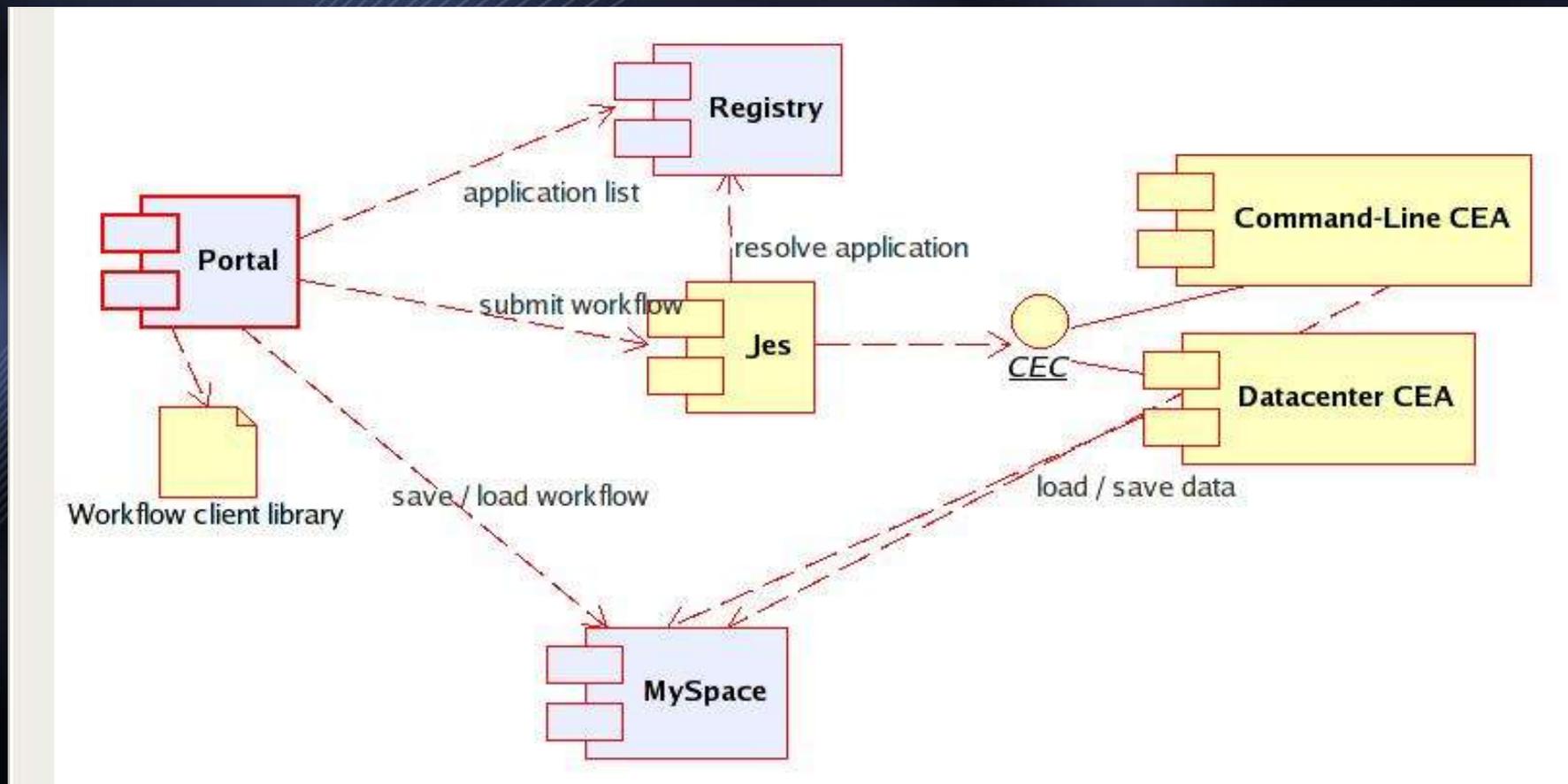


Common Execution Architecture

- Models how an application is run in the Virtual Observatory
 - An application is any process that consumes or produces data
- Set of interface definitions and schema
 - Defines the tool (application) and its parameters
 - How to execute the tool
 - Initialise
 - Registers listeners for logging and results
 - Gather remote data
 - Actually runs the application
- See <http://www.astrogrid.org/maven/docs/HEAD/applications/>

Workflow

- Work is run remotely and asynchronously
- Archives searched and results manipulated
- Results are stored in a virtual file system
- Queries and workflows can be re-used and shared



Workflow: continued

- Workflow enables complex operations to be carried out, with the exact details of where the operations are occurring being hidden from the user
 - Gives access to CPU away from the desktop
- Workflows can be shared, ammended – enables community sharing of processes in addition to results
- AstroGrid is currently the only VO project with a workflow workbench where scientific workflows can be created and run.
 - This workflow engine is being integrated into the Euro-VO
- Workflows are constructed via discovery of relevant data and applications from the Registry
 - Applications are provided through the CEA

AstroGrid Workflow Builder

Workflow - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://zhumulangma.star.le.ac.uk:8080/astrogrid-portal/main/mount/workflow/agj

Mozilla Firebird Help Mozilla Firebird Disc... Plug-in FAQ Personal Toolbar Fo... Demo-Dec04

Home MySpace Resources Queries Workflows Jobs Help Logout

Workflow

File Edit

Name: Photometric Redshift Maker.

Description: Full Version.

update workflow det

Sequence:

- Step :
- Set:
- Script:
- For:
 - Sequence:
 - Set:
 - Set:
 - Script:
 - Step :
 - Script:
 - For:
 - Sequence:
 - Set:
 - Set:

Parameters for step: siap; task: org.astrogrid/IN
(input parameters for this t

Format	image/fits
Position	240.94,55.10
Size	0.0001
(output parameters for this	
ImagesTable	
Update parameter valu	

Script:

Description:

Body:

```
import groovy.text.Template
import groovy.text.SimpleTemplateEngine

vospace = astrogrid.createVoSpaceClient(user)
queryIvorn = astrogrid.objectBuilder.newIvorn("ivo://astrogrid.lei/eduardo2#eduardo2/query/dqc_query.q")
query = astrogrid.getIoHelper().getContents(vospace.getOutputStream(queryIvorn))
```

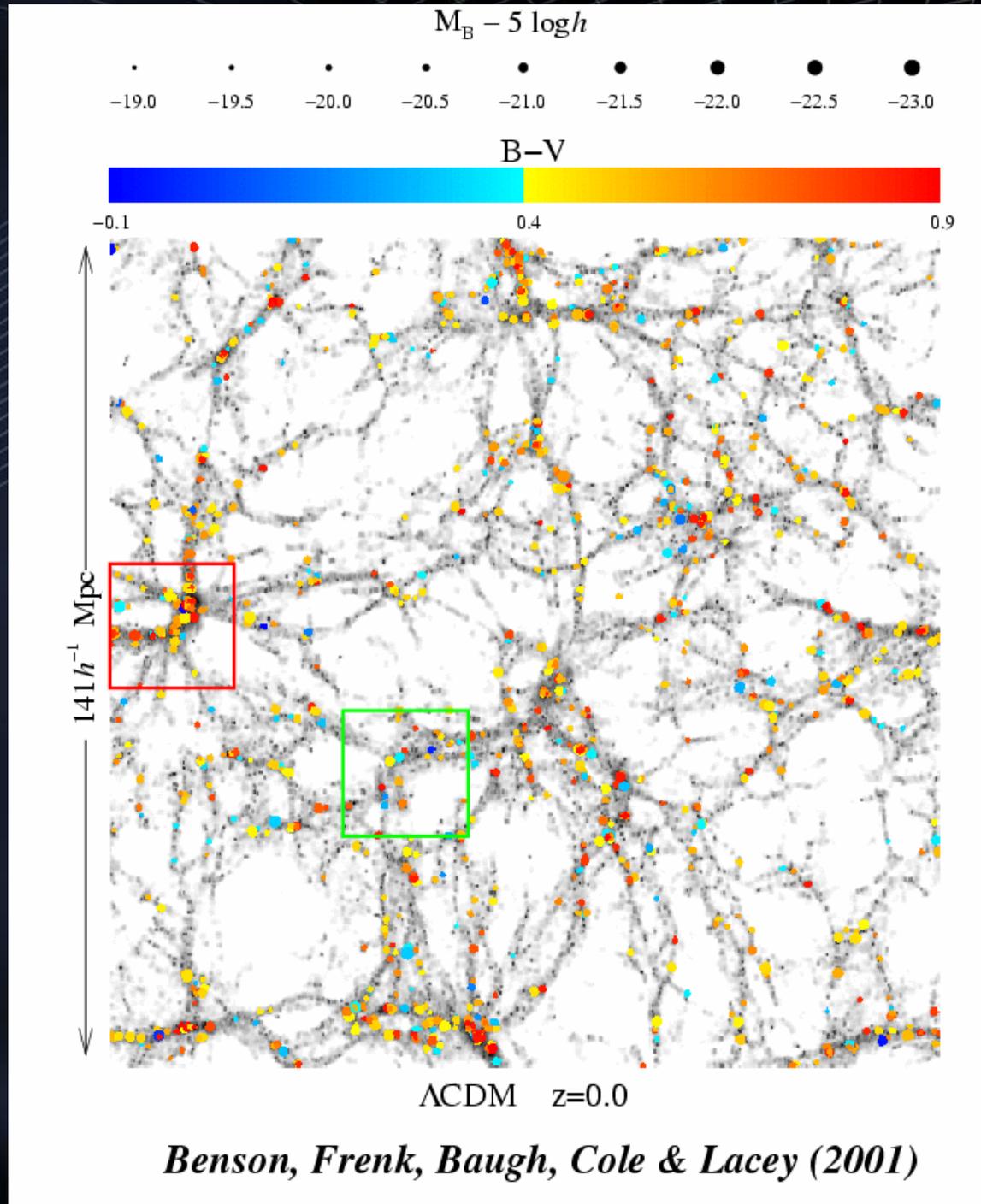
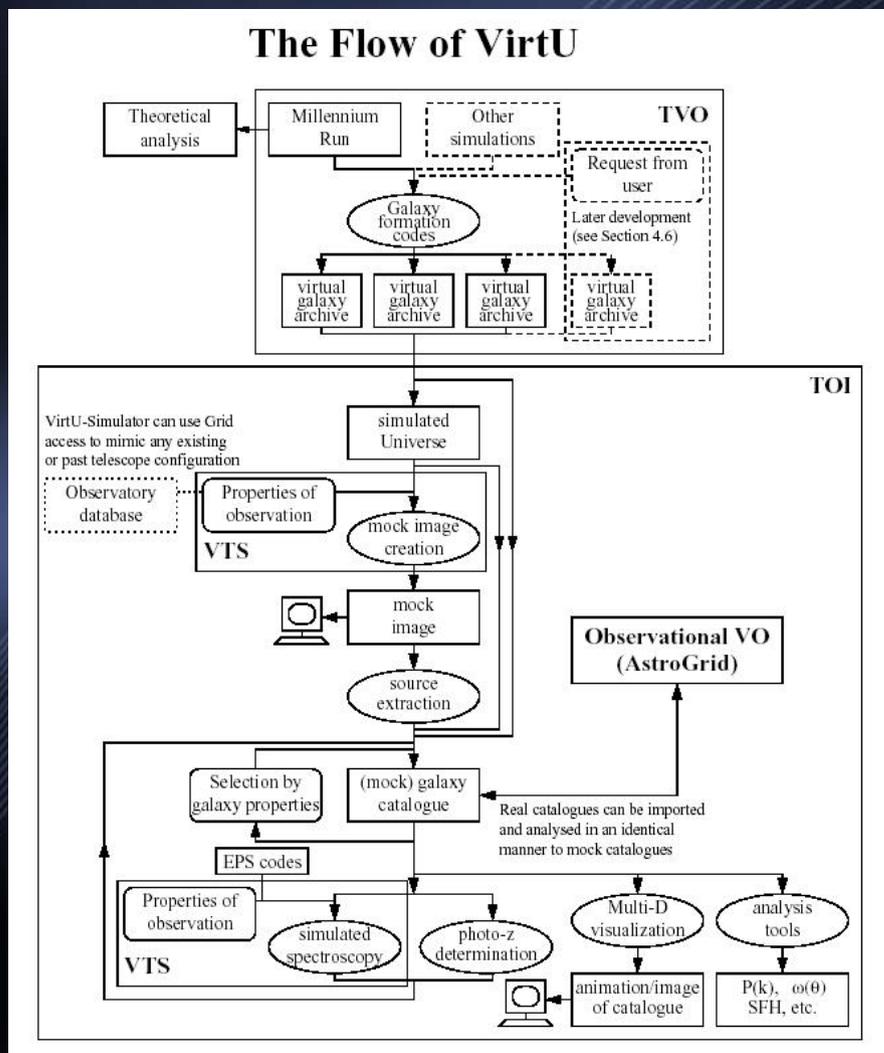
update script details

Theory in the VO

- A wide problem:
 - Large scale: e.g. Stellar hydro-codes, N-body simulations
 - Small scale: e.g. Spectral synthesis codes
 - Fundamental data: e.g. Excitation rate coefficients
- In principle treat simulation data as observational data
 - Enable comparison of simulations with observations
 - Enable comparison of simulations with simulations
- Early effort in areas of Data Models, Metadata

Virgo simulations

- Accessing observable properties computed from the simulations



Benson, Frenk, Baugh, Cole & Lacey (2001)

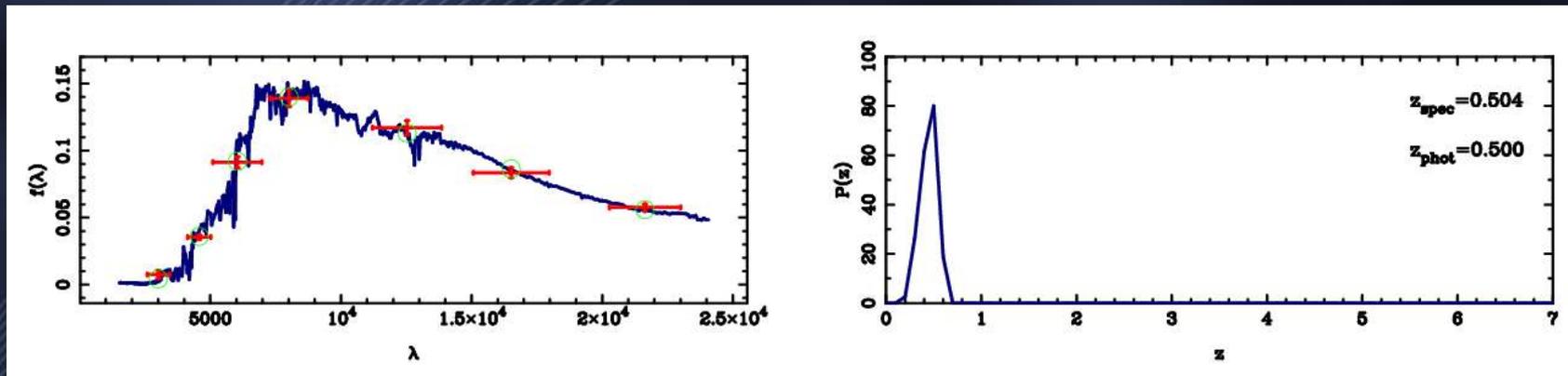
Science Example

Putting the technology to use ...

Science Case: Galaxy Distances

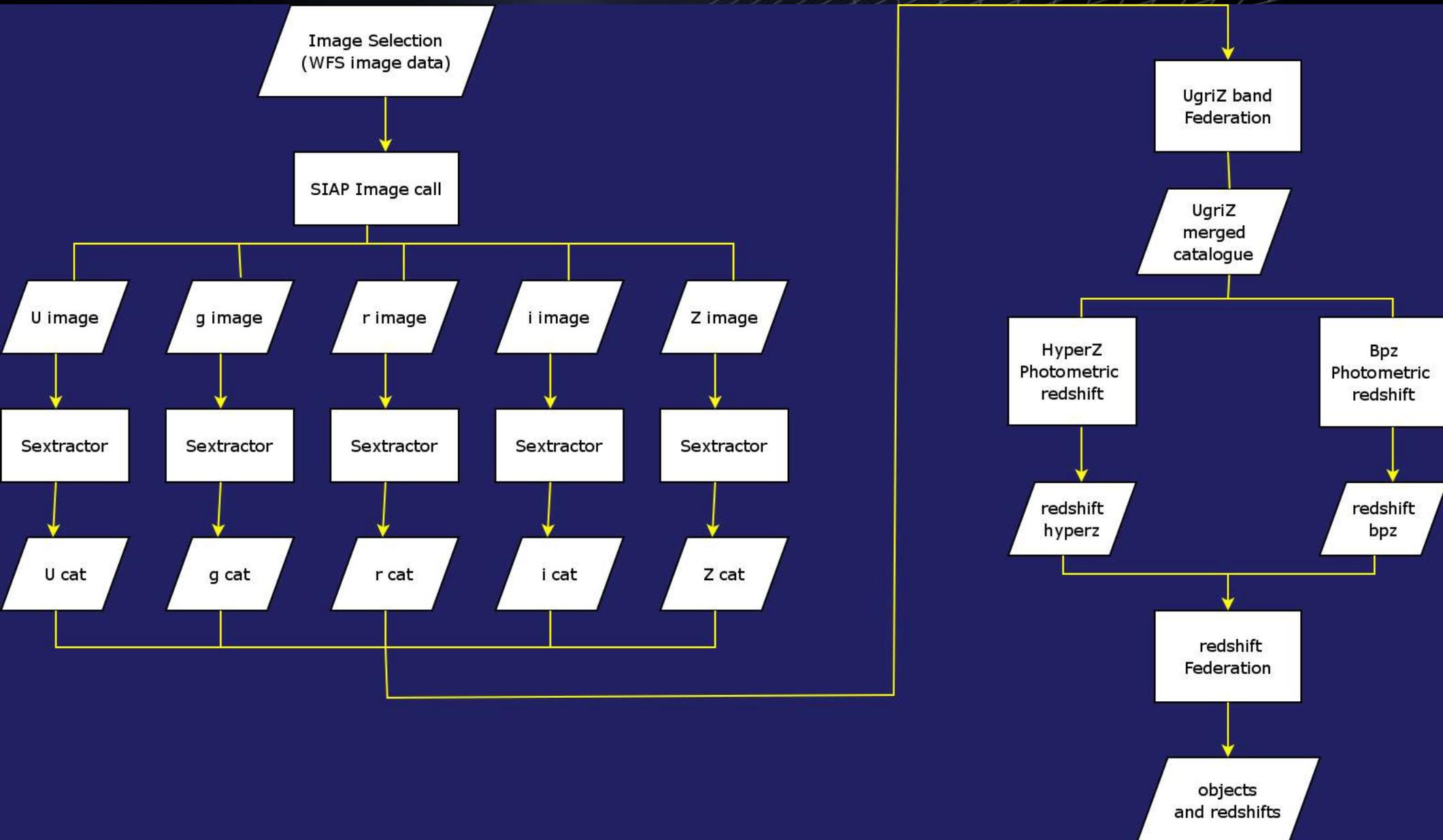
<http://wiki.astrogrid.org/bin/view/Astrogrid/AgDemoDec2004Extragalactic>

- Determine the distance to galaxies
 - Use of broad band photometry is efficient for large samples
 - Relies on the identification of spectral breaks in galaxies spectral energy distribution



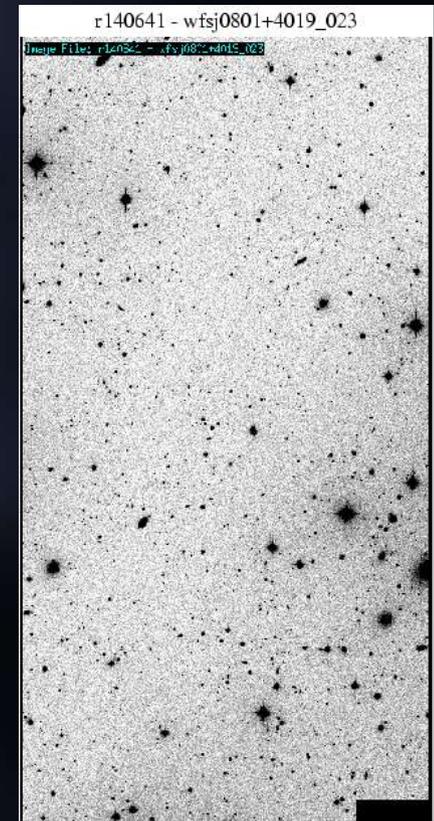
- Aim here is to automate the generation of the galaxy fluxes from survey image data, and feeding these fluxes into a number of specialist applications which return statistical estimates of galaxy redshifts (and thus distance)

Extragalactic Case Workflow



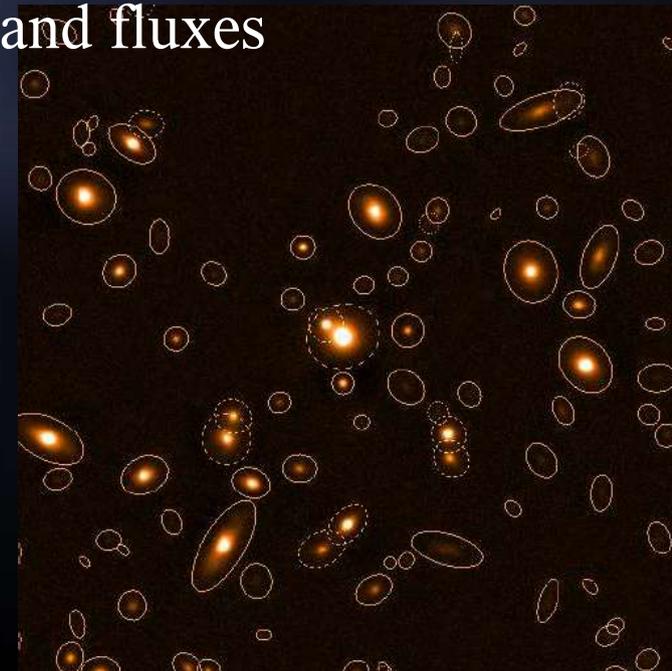
Accessing the image data

- INT Wide Field Survey data
- Data obtained using the Wide Field Camera on the INT
 - Accessed through an IVOA std SIAP call
 - Returns lists of files
 - These uploaded to MySpace via a 'workflow script'
- The data is held in Cambridge at CASU
- The MySpace server is in Leicester



Generating the image catalogues

- For each image field pointing, the mosaiced image data is returned on the basis of individual CCD images
 - One INT WFC pointing is a mosaic image with 4 CCD images
 - Each CCD image 16 MB: one pointing in 5 colours > 1/3 GB
- Each field pointing observed in 5 colours
- Each image file processed with SExtractor
 - This application returns positions of objects and fluxes
- Outputs for each colour federated
 - Metadata added to output file
 - This uses a VO federator application
- SExtractor runs at Jodrell
- The Federator runs in Leicester



```
emacs@cappc57.ast.cam.ac.uk
File Edit Options Buffers Tools C Help
//import java.net.URL
jes.info("Scripting version : " + astrogrid.version)
jes.info("JES version: " + jes.version)
jes.info("VoTable: " + votableUri)
ev = astrogrid.ioHelper.getExternalValue(votableUri)
try {
  table = astrogrid.tableHelper.builder.makeStarTable(ev)
} catch (Exception ioe) {
  jes.warn(ioe)
}
//Get column numbers of url, filter and magzp.
urlCol = 0
filterCol = 0
magzpCol = 0
for (x in 0 ... table.columnCount) {
  if (table.getColumnInfo(x).getUCD() == 'VOX:Image_AccessReference') {
    urlCol = x
  }
  if (table.getColumnInfo(x).getUCD() == 'VOX:BandPass_ID') {
    filterCol = x
  }
  if (table.getColumnInfo(x).getUCD() == 'VOX:MAG_ZeroPoint') {
    magzpCol = x
  }
}
urlsAll = []
filtersAll = []
magzpsAll = []
urls = []
filters = []
magzps = []
nfiles = 0
for (x in table.columnIterator(urlCol)) {
  urlsAll.add(x)
  nfiles++
}
for (x in table.columnIterator(filterCol)) {
  filtersAll.add(x)
}
for (x in table.columnIterator(magzpCol)) {
  magzpsAll.add(x)
}
count = 0
do {
  x = urlsAll[count]
  ccdno = x.substring(x.length()-1, x.length())
  if ( Integer.valueOf(ccdno) == 1 ) {
    urls.add(x.substring(0, x.length()-1))
    filters.add(filtersAll[count])
    if ( filtersAll[count].equals("Sloan-r") ) {
      reffile = x.substring(0, x.length()-1)
    }
    magzps.add(magzpsAll[count])
  }
  count++
} while (count < nfiles)
jes.info(urls)
jes.info(reffile)
jes.info(filters)
** 1.c (C Abbrev)--L1--All--
```

Workflow editor interface for 'org.astrogrid/SEextractor'. The interface includes a legend for workflow elements: Sequence (yellow), Flow (black), Step (grey), Logic (if/scope/script/set/unset) (green), Loops (for/parallel for/while) (blue), and Error handling (try/catch) (red). A central orange box contains the text "Rich scripting capability". Below this, a table shows parameters for the step:

Parameters for step: dosex, task: org.astrogrid/SEextractor.		
(input parameters for this task:)		
1.0	Browse...	<input type="checkbox"/>
ivo://astrogrid.org/agdemo#agdemo/seextractor/config/ini	Browse...	<input checked="" type="checkbox"/>
\${reffile+ccdno}	Browse...	<input checked="" type="checkbox"/>

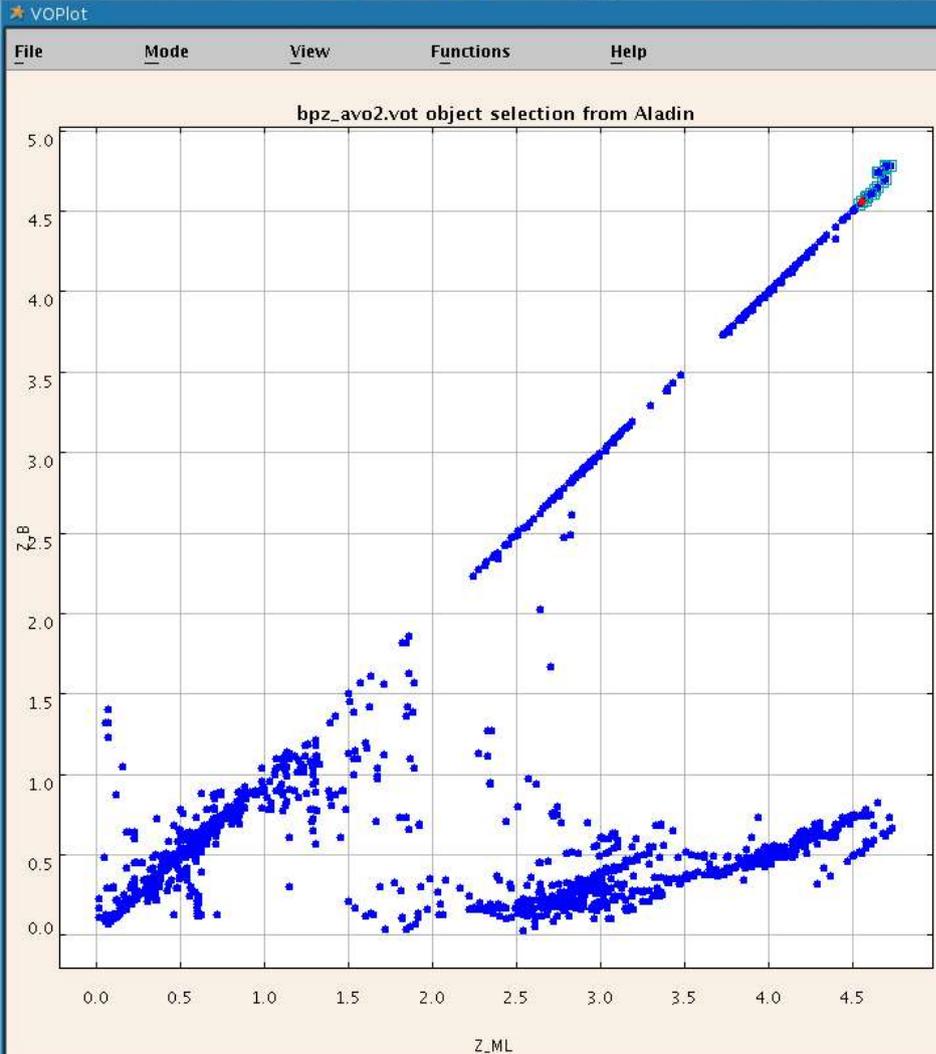
© AstroGrid 2004

The Workflow: SExtractor



Hyperz and Bpz: The redshift apps

- The object photometry catalogues are fed into two apps
 - Hyperz: determines redshifts by template fitting to the SEDs
 - Bpz: bayesian technique, similar to hyperz but includes weighting to reduce degenerate fits at different redshifts
- Applications run at Jodrell
 - Both compute intensive, generating large hyper cubes
- End step is the creation of two output files > then merged
- Final output catalogue:
 - Per field contains objects, photometry and redshifts
 - Integration with external viewers such as AVO/Aladin



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...
- SDSS
- Others:
- All VO
- SSA
- MyData
- MySpace

Data servers:

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

MvSpace Browser

[Login](#) | [Logout](#) | Logged in as ivo://astrogrid.org/ago

- Run-180220-CCD-2. fits
- Run-180220-CCD-3. fits
- Run-180220-CCD-4. fits
- Run-180224-CCD-1. fits
- Run-180224-CCD-2. fits
- Run-180224-CCD-3. fits
- Run-180224-CCD-4. fits
- Run-180228-CCD-1. fits
- Run-180228-CCD-2. fits
- Run-180228-CCD-3. fits
- Run-180228-CCD-4. fits
- Run-180228-CCD-1. fits
- Run-180232-CCD-1. fits
- Run-180232-CCD-2. fits

VLA...

Others...

SDSS

Others:

All VO

SSA

MyData

MySpace

- swire_5.8_tile_3_2_Ab.fits.gz 18.2 'x18.2
- swire_5.8_tile_3_2_Ac.fits.gz 18.2 'x18.2
- swire_5.8_tile_3_2_Ba.fits.gz 18.2 'x18.2
- swire_5.8_tile_3_2_Bb.fits.gz 18.2 'x18.2
- swire_5.8_tile_3_2_Bc.fits.gz 18.2 'x18.2
- swire_5.8_tile_3_2_Ca.fits.gz 18.2 'x18.2
- swire_5.8_tile_3_2_Cb.fits.gz 18.2 'x18.2
- swire_5.8_tile_3_2_Cc.fits.gz 18.2 'x18.2
- swire_5.8_tile_3_3
- swire_5.8_tile_3_3_Aa.fits.gz 18.2 'x18.2
- swire_5.8_tile_3_3_Ab.fits.gz 18.2 'x18.2
- swire_5.8_tile_3_3_Ac.fits.gz 18.2 'x18.2
- swire_5.8_tile_3_3_Ba.fits.gz 18.2 'x18.2

blink
rsamp
cont
Z
zoom
malss
hist
prop
del

bpz_avo2.v
PG img
mips.swire
mips.swire
mips.swire
irac.swire_8
irac.swire_5
irac.swire_4
irac... 39%
Run-18022

11.37 x 15.78

11.37 x 22.75

Zoom 1/4x

>	1494	4.58	3.847	5.313	5.0	0.9907	4.58	6.0	7.846	21.89	241.133408	54.981651
>	195	4.56	3.83	5.29	6.0	1.0	4.56	6.0	40.051	21.46	241.393295	54.985081
>	2142	4.61	3.873	5.347	5.0	0.9998	4.61	5.0	37.983	21.95	241.009995	54.984261
>	300	4.7	3.952	5.448	5.0	1.0	4.7	5.0	55.027	21.51	241.376007	55.044079
>	3044	4.74	3.986	5.494	4.0	1.0	4.66	1.0	36.178	22.18	240.895401	54.943069

multiview

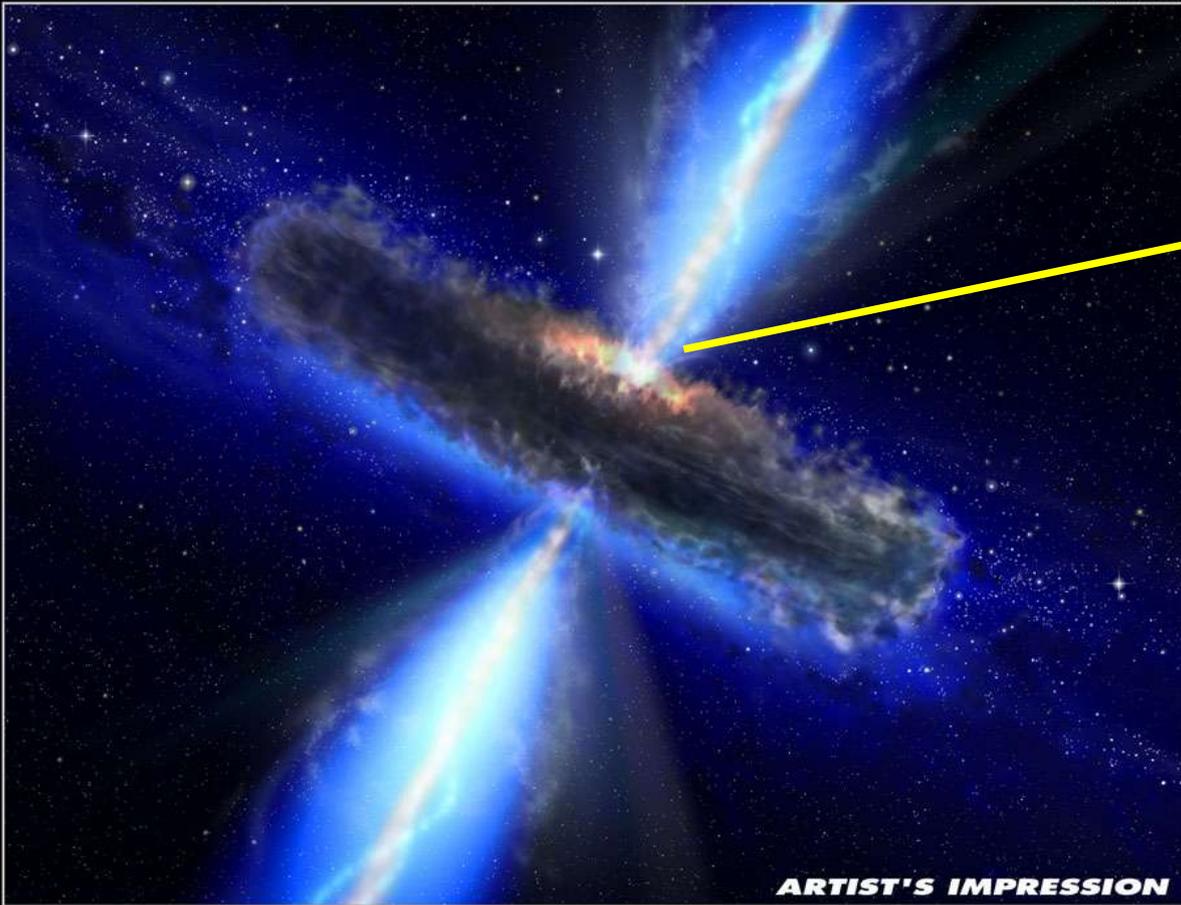
CDRS - ISO - AstroGrid - ST-ECF - UMAN/Jodrell Bank - CNRS DR01 - VO-India - STScI

9 planes, 1 view, 172Mb

Optical - IR - Redshifts

Example Usage: 1st Science from the AVO

RELEASE Virtual observatory discovers missing black holes



HUBBLE SPACE TELESCOPE

ESA/NASA, the AVO project and Paolo Padovani



prototype v1.0

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

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

cdfs

- zphot-out-cdf
- XMatch results
- Ext.App13
- Selected sources
- z_szoloky
- XMatch results
- szoloky_cat
- Selected sources
- Absor.. 100%
- Selected sources
- HR_fl.. 100%
- JAJ/126/539
- FoV for version
- RGB img
- GOODS-HST
- GOODS-HST
- GOODS-HST
- fields.xml
- GOODS-WFL

Zoom 1x

phot z : phot z					
53.2281846	-27.9325416	27978	3.445	0.118	9.4
53.2282924	-27.9341261	27987	0.053	phot_z / z	5.896
53.2283504	-27.9329594	27993	1.33	0.914	4.1
53.2284591	-27.9305945	28003	3.29	0.081	9.1



Science Case Extension

Extending this science case ...

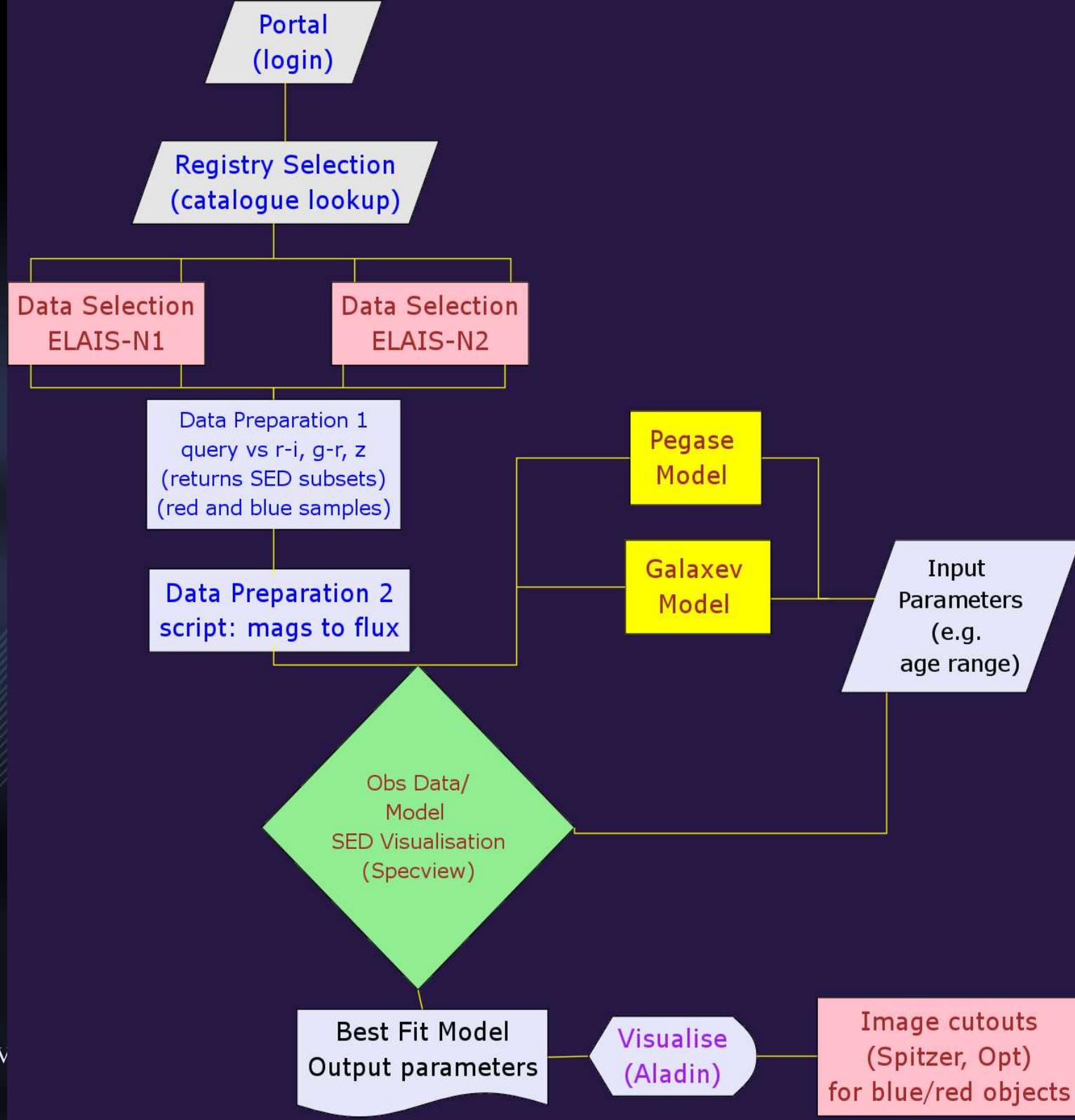
... this brings many elements of VO technologies
lectures 1, 2, and 3 together ...

Observation/ Model Comparisons

<http://www.euro-vo.org/twiki/bin/view/Avo/AvoDemo2005Gal>

- **Observational Data:**
 - At a position, return broadband photometric catalogues
 - Manipulate to generate uniform Spectral Energy Distributions
 - Plot and study the SEDs
 - Select samples: e.g. based on colours
- **Theoretical Data:**
 - For multiple spectral synthesis models
 - Generate multiple theoretical SEDs (e.g. For range of ages)
- **Comparison**
 - Access and compare/fit observational and model SEDs
- **Iterate**
 - Home in on parameter space to generate 'best fit' models

Workflow Overview



Euro-VO Portal

- User login
 - Authentication
 - Authorisation
 - Communities
- Credentials in Registry
- Central Access
 - All further components
- Portal runs in Garching
 - Registry in Leicester
 - Data Access in Cambridge, Edinburgh, Manchester, Strasbourg
 - Applications in Garching, Cambridge
 - Thus one user runs processes over a distributed network.



Querying the catalogue data

- ELIAS photometric catalogue
 - Held in queryable database
- Query constructed with IVOA std ADQL
 - Table metadata uploaded from the registry call
 - Query saved to MySpace
- Workflow element
 - Send data query to the database (CDS)
- Workflow execution
 - Query sent through a standard VOQL call to the database
 - Results of query returned to MySpace in a std VOTable file

Retrieve data from the Virtual Observatory

Data Query Builder

This is where the query should go. Example

```
SELECT * FROM server:/table1 as t1 where t1.recno > 0
```

Load from MySpace Select a Table

Astrogrid Portal - Mozilla

- VizieR/J/MNRAS/325/1173/catalog : ISO ELAIS 15 micron
- VizieR/J/A+A/379/798/table2 : ELAIS H α fields ELAIS a3
- VizieR/J/MNRAS/351/1290/catalog : ELAIS: final Catalogue
- VizieR/J/MNRAS/351/1290/unassoc : ELAIS: final 90 and 175micron
- VizieR/II/255/iraccat : SWIRE ELAIS IRAC-24micron
- VizieR/II/255/mips70 : SWIRE ELAIS Source Catalog
- VizieR/II/255/mips160 : SWIRE ELAIS Source Catalog

Select... Restart Cancel Help

Retrieve data from the Virtual Observatory

Data Query Builder (in (s)ADQL) User friendly Table-Query Form

```
Select * FROM J/MNRAS/351/1290/catalog AS T1 where t1.recno > 0
```

5
10
20
30
40
50

Clear

Table: J/MNRAS/351/1290/catalog AS: T1

CLICK & PASTE

Load from MySpace Select a Table Save to MySpace Execute Query ?

Examples: Cone Search (ivoa) Cone Search (roe) Example 3 Example 4

recno	ELAIS
RAJ2000	DEJ2000
S20cm	e_S20cm
S175um	e_S175um
S/N175	Off175
S90um	e_S90um
S/N90	Off90
S15um	S/N15
S6.7um	e_S6.7um
q_S6.7um	Flag1
Flag2	Jmag
e_Jmag	Hmag
e_Hmag	Kmag
e_Kmag	r_Jmag
RAo	DEo
Umag	g'mag
r'mag	i'mag
Zmag	e_Umag
e_g'mag	e_r'mag
e_i'mag	e_Zmag
S/GU	S/Gg'
S/Gr'	S/Gi'
S/GZ	r'magS

ADQL Helpers

from ...	top ...	(...	/ ...	> ...	sin ...	asin ...	abs ...
as ...	table ...) ...	= ...	>= ...	cos ...	acos ...	ceiling ...
where ...	name ...	+ ...	<> ...	and ...	tan ...	atan ...	floor ...
select ...	alias ...	- ...	< ...	or ...	cot ...	atan2 ...	exp ...
region ...	circle ...	* ...	<= ...	not ...	log ...	log10 ...	power ...
square ...	sqrt ...	min ...	avg ...	max ...	sigma ...	sum ...	
order ...	orderby ...	direction ...	asc ...	desc ...	distinct ...		
pi ...	degrees ...	radians ...	xmatch ...	like ...	notlike ...		



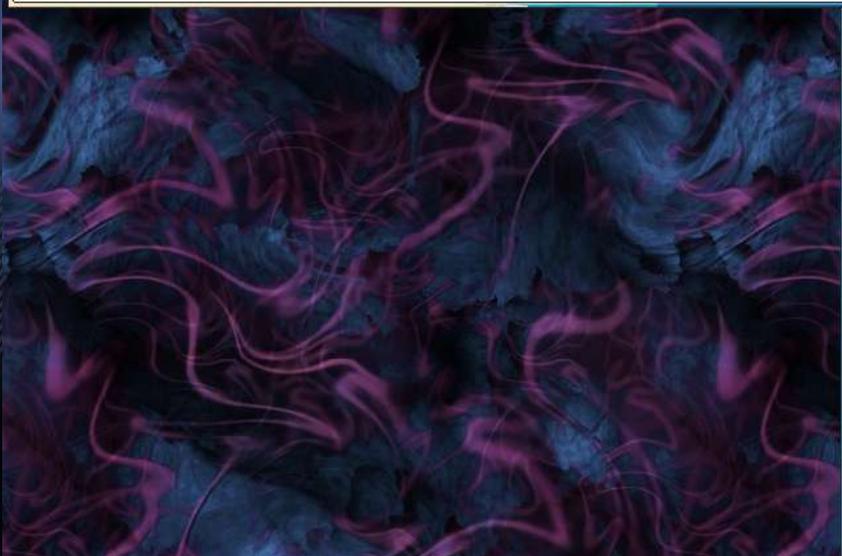
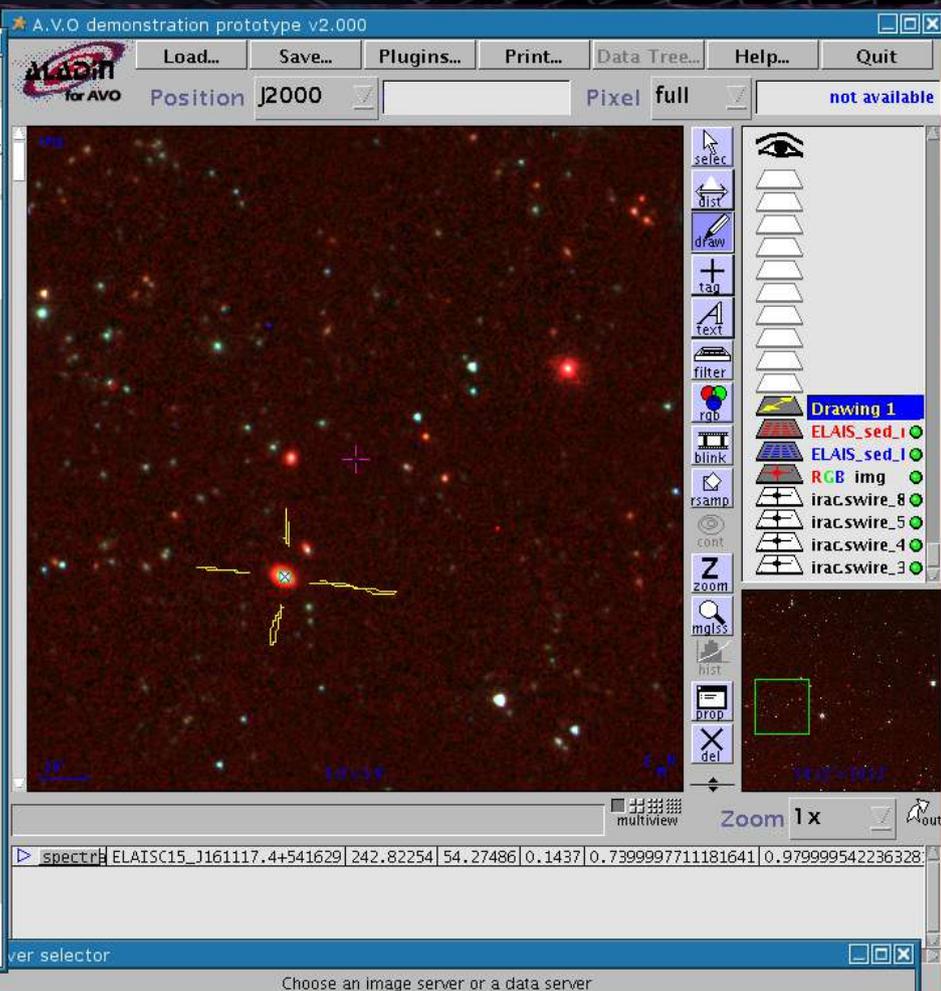
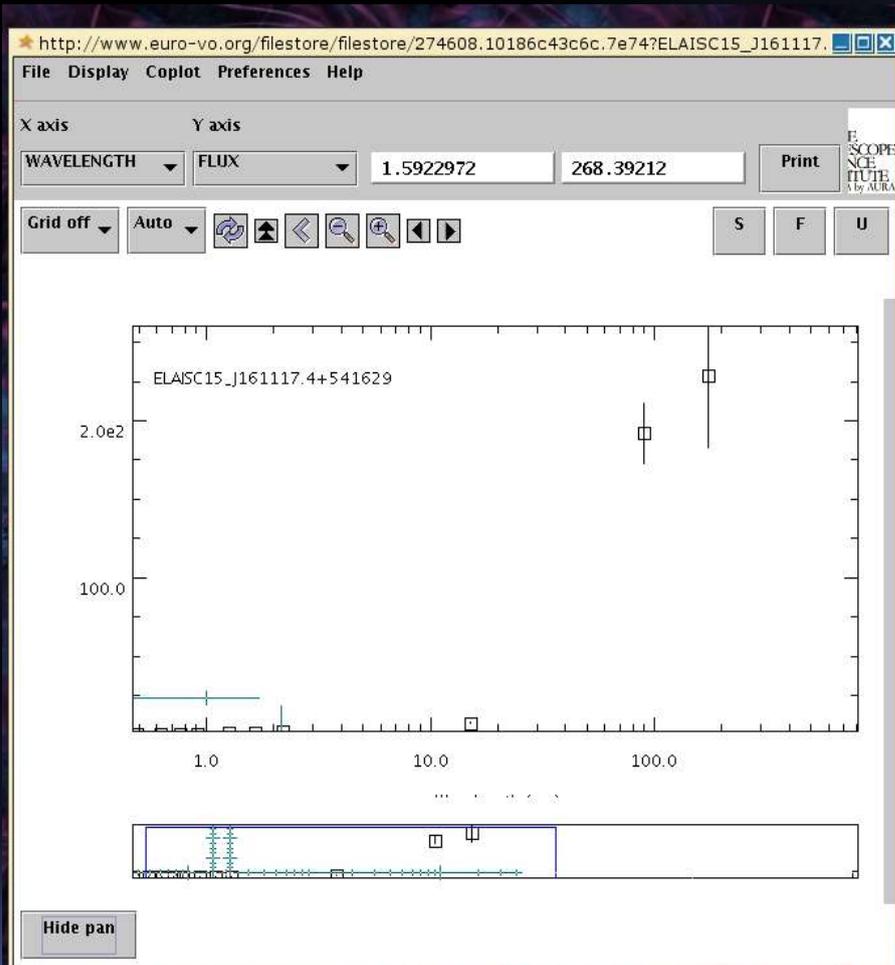
Workflow: Generating the SEDs

- The ELAIS catalogue contains 3500 objects
 - IR + opt photometry
- Problem:
 - IR fluxes, but optical magnitudes
- Solution:
 - Convert magnitudes to fluxes based on magnitude zero points
- Script
 - Takes input catalogue
 - Converts magnitudes to fluxes, and creates per object SED files
 - Each SED file in a standard format
 - Script implemented in Groovy (<http://www.groovy.org>)
- Workflow:
 - Find catalogue – retrieve catalogue – generate SEDs

Visualising the SEDs

- SEDs stored in MySpace
 - SED Index: Simple Spectrum Access standard
- Accessible:
 - The portal
 - External applications: e.g. Topcat, Treeview
 - In this case Aladin and Specview
- Aladin:
 - Myspace browser
 - Select SED
 - Each SED displayed in an Aladin plane
 - In the metadata browser, click 'view' spectrum
 - SED transferred to Specview for analysis

SED generate & visualise



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

Image servers: Aladin, VOdemo, SSS..., SkyView, VLA..., Others..., SDSS, Others: All VO, SSA, MyData

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

MvSpace Browser

Login Logout Logged in as ivo://org.eurovo/demo2005

- demo2005
 - galaxev
 - ABmag
 - input
 - magfilt1
 - othermag
 - spectra.xml
 - VegaColour
 - pegase
 - pegase.colours.txt
 - pegase.spectra.xml
 - query
 - vntable

Refresh Detach

Pegase and GALEXV: The spectral synthesis model applications

- Two techniques to generate theoretical galaxy spectral energy distributions.
- Search 'registry' to 'discover' relevant applications
- For each, include in workflow:
 - User ability to alter input parameters
 - Each run generates sets of output spectra
 - Output formats conform the VO interoperability standards
- Applications run within the AstroGrid CEA
 - Common Execution Architecture
 - Standard framework for applications
 - Metadata describes application, discoverer through 'Registry'

Workflow - Mozilla

File Edit View Go Bookmarks Tools Window Help

http://www.euro-vo.org/astrogrid-portal/main/

Home Bookmarks Ofs MyNews my Travel Ag VO Astro

Workflow

Home MySpace Resources Queries Workflows

Workflow

File Edit

Name: pegase

Description: default parameters

Sequence:

Step: Parameters for step: (input pa

binary fraction	0.05
Consistent Evolution	n
SubStellar fraction	0
Galactic winds	n
Galactic wind age	0.20001E+05
Global	0

?	Step:
Step name:	
Var. name:	
Description:	

Workflow transcript - Mozilla

File Edit View Go Bookmarks Tools Window Help

http://www.euro-vo.org/astrogrid-portal/main/mount/workflow/agjobmanager-printer-fr

Home Bookmarks Ofs MyNews my Travel Ag VO Astro-Lit MyAthens CDS NED Goo B-Txt Weer DB Trip

Workflow transcript

Home MySpace Resources Queries Workflows Jobs Help Logout

Workflow transcript

Summary

Name pegase
User demo2005 @ org.eurovo **Group** demo2005 @ org.eurovo
default parameters
JobURN jes:vonc1.hq.eso.org/134.171.16.95/demo2005@org.eurovo/1106228485753:1176206013
Execution COMPLETED **Start** 2005-01-20T14:41:25.795+01:00 **Finish** 2005-01-20T14:49:53.320+01:00

Activity Details

Sequence

```

Step: Name , Result Var
...
Tool org.astrogrid/Pegase Interface simple
Inputs
LMASS := 0.1
WINDS := y
GLOBALEXTINCTION := 0
GALWIND := n
SNMODEL := B
FRACSUB := 0
BINFRAC := 0.05
CONEVOL := n
INFALLMETAL := 0
NEBEMISS := y
INFALLTIME := 0.10000E+04
IME := 4
METALICITY := 0.0
GALWINDAGE := 0.20001E+05
SFSCENARIO := 0
UMASS := 120.0
INFALL := n
SMETAL := 0.02
Outputs
SPECTRA := Remote Reference ivo://org.eurovo/demo2005#demo2005/pegase/pegase.spectra.xml
COLOURS := Remote Reference ivo://org.eurovo/demo2005#demo2005/pegase/pegase.colours.txt

```

Execution COMPLETED **Start** 2005-01-20T14:41:26.308+01:00 **Finish** 2005-01-20T14:49:52.993+01:00

Message
Time 2005-01-20T14:41:29.604+01:00 Phase **INITIALIZING** Source org.astrogrid/Pegase#simple id:cea:vonc1.hq.eso.org/134.171.16.95
Setting up parameters

Message
Time 2005-01-20T14:41:29.618+01:00 Phase **INITIALIZING** Source org.astrogrid/Pegase#simple id:cea:vonc1.hq.eso.org/134.171.16.95



Observation/ Model Comparisons

- Observational and Theory data stored in MySpace
 - 'one click' access through Aladin
 - Read SEDs into Specview
 - Read models into Specview
- For any observed SED
 - Select and 'double left click'
 - Allows overplotting of model
 - Select best model
 - Rerun models to tune input parameters for best match
- Automatic model/observed SED fitting
 - This tool required – possible development through VOTECH.

Lecture 3: Acknowledgements + Refs

- SSA slides 5 to 7 adapted from Doug Tody: see <http://www.us-vo.org/summer-school/proceedings/presentations/dal-nvoss.ppt>
- IVOA standards – see <http://www.ivoa.net/forum/>
- Pegase: see <http://www2.iap.fr/users/fioc/PEGASE.html>
- Galexy: see <http://www.cida.ve/~bruzual/bc2003>

Next Lecture: Mining the Sloan Digital Sky Survey