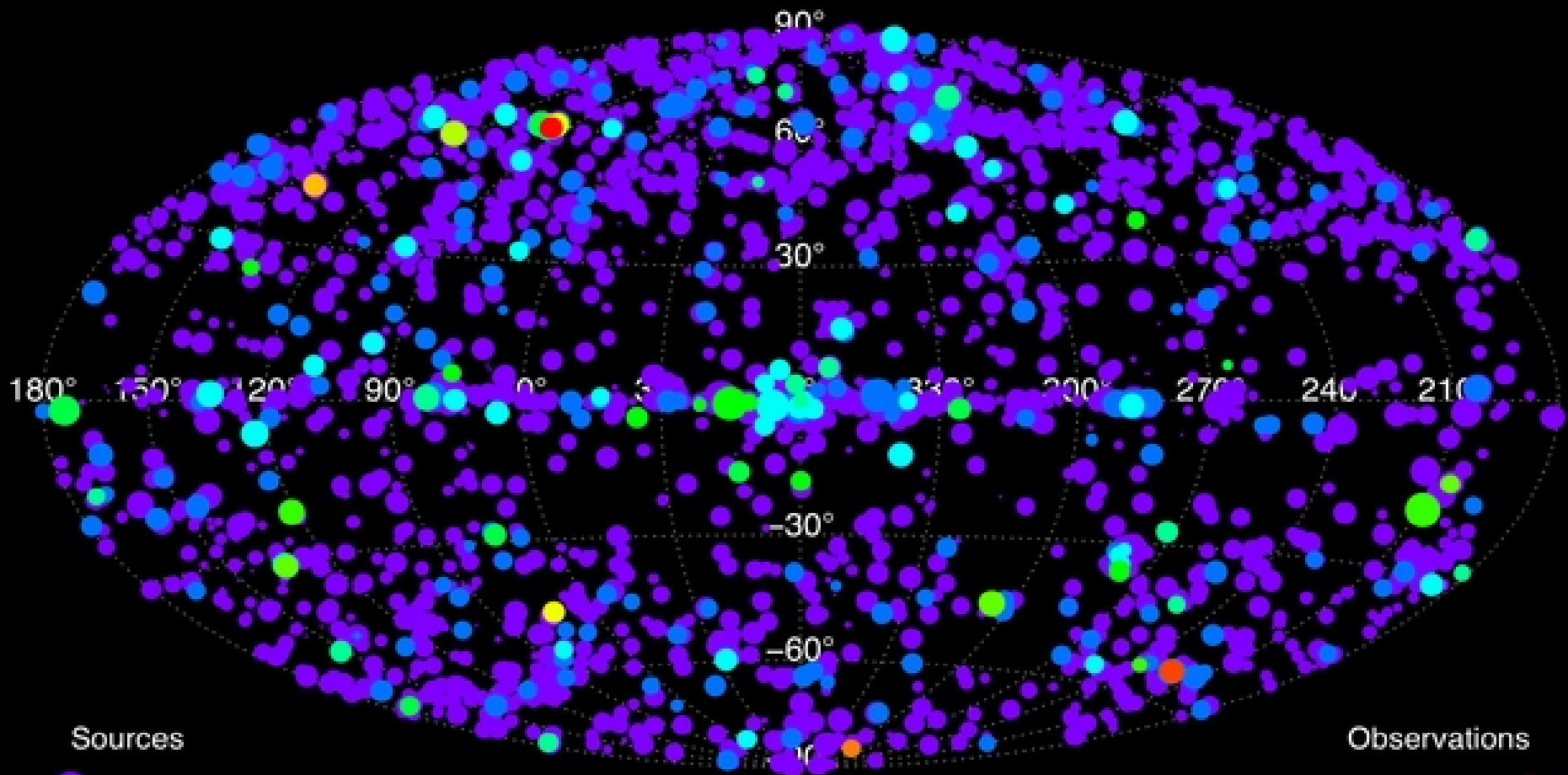


Chandra Source Catalog



Sources

- 1000
- 100
- 10
- 1

X-ray Imaging

Spectroscopy

Timing Analysis

Observations

- 20
- 10
- 5
- 2
- 1

Spatial Analysis

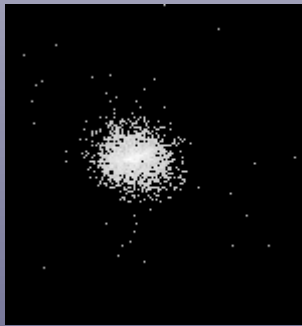
Source region and PSF extent + errors

ICRS RA & DEC + errors

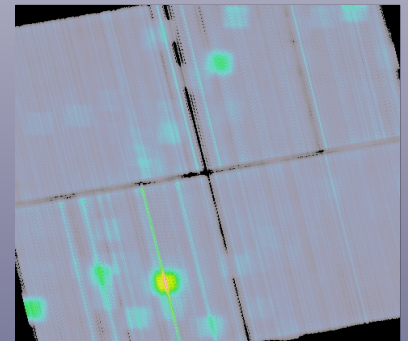
Download full-field and
source region event files

*u-, s-, m-, h-, w-, b-band
images*

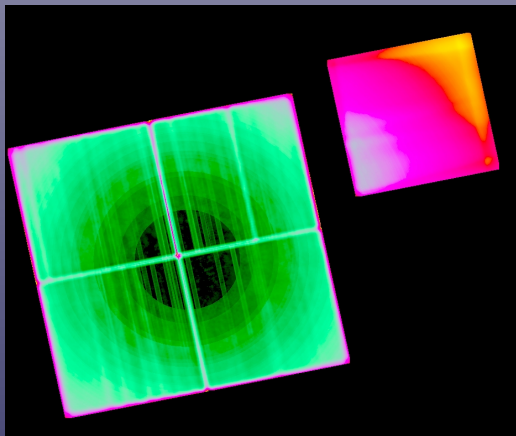
PSF images



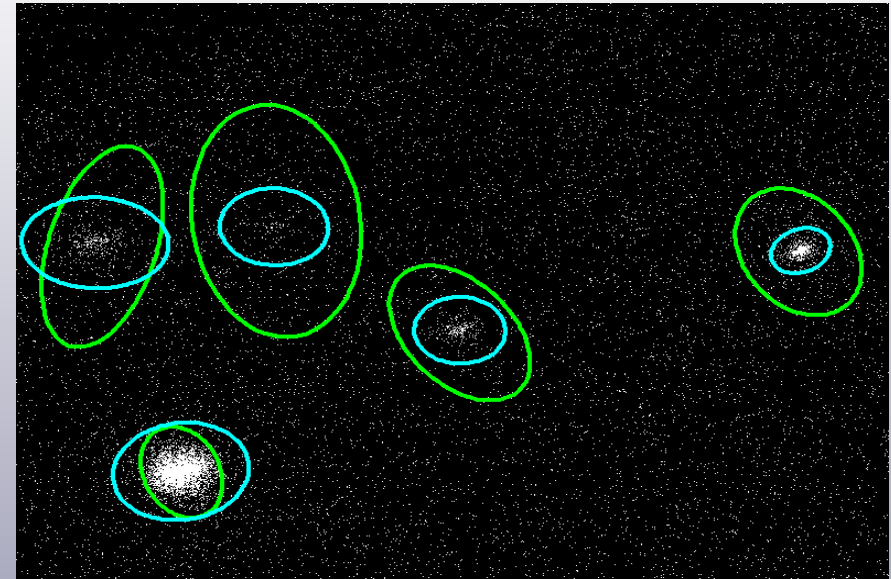
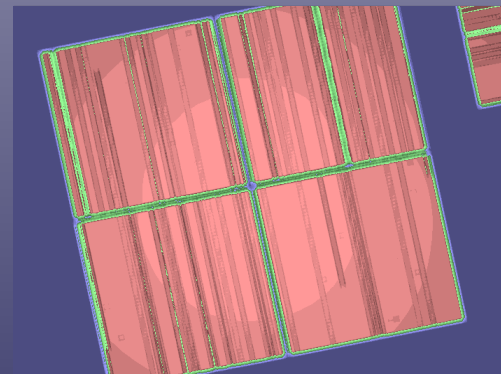
*Background
maps*



*Sensitivity
maps*

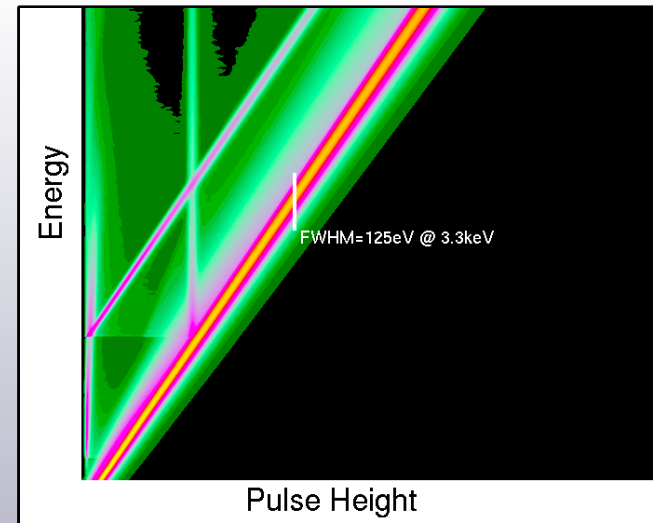


*Exposure
maps*

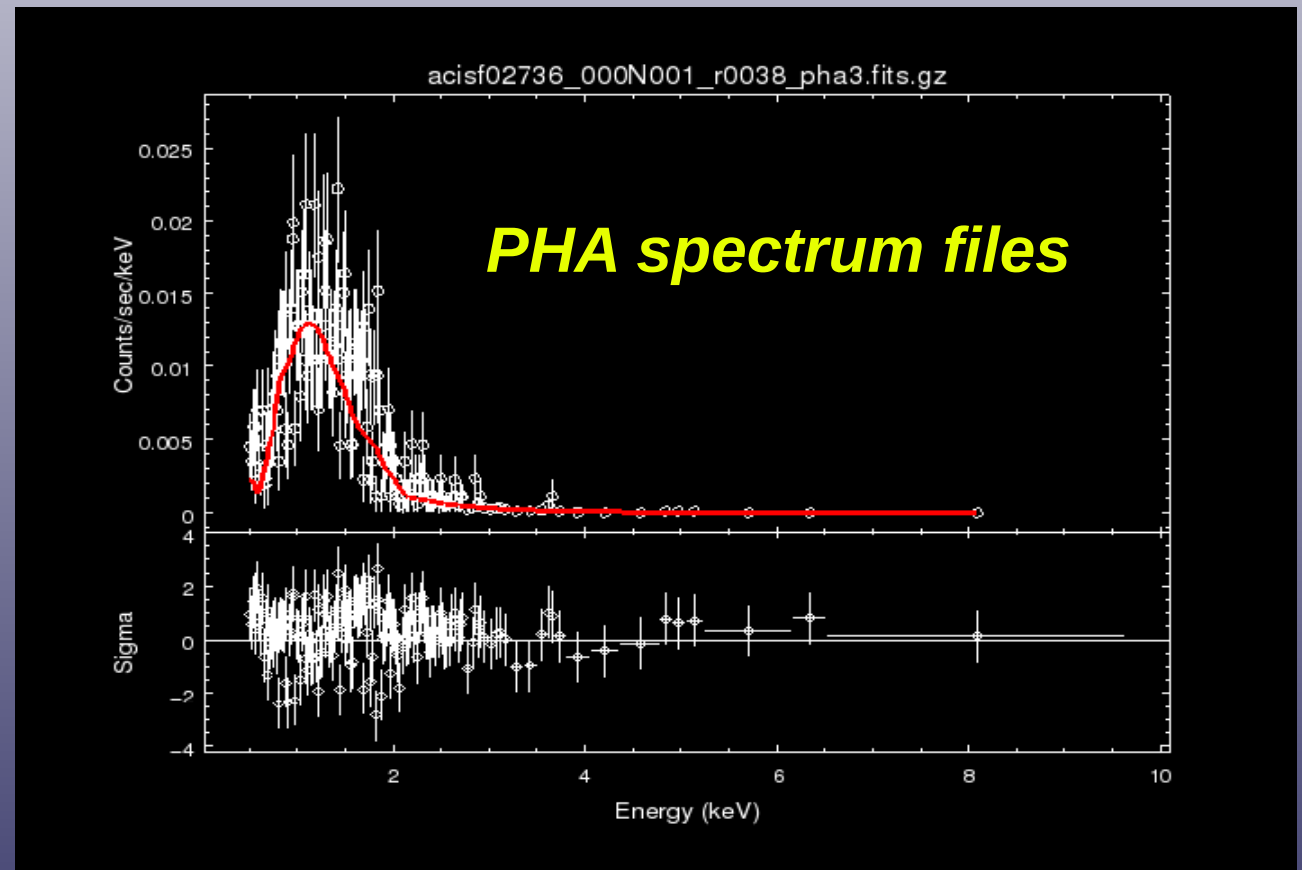
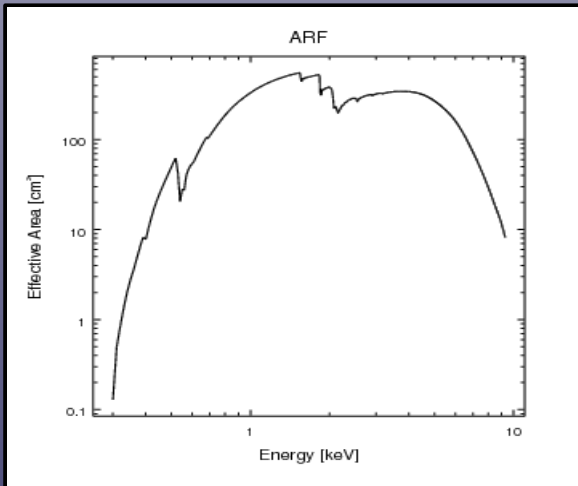


Spectral Analysis

Power law and black body
model fluxes and
spectral fit parameters



Download
ARF and RMF
files



Timing Analysis

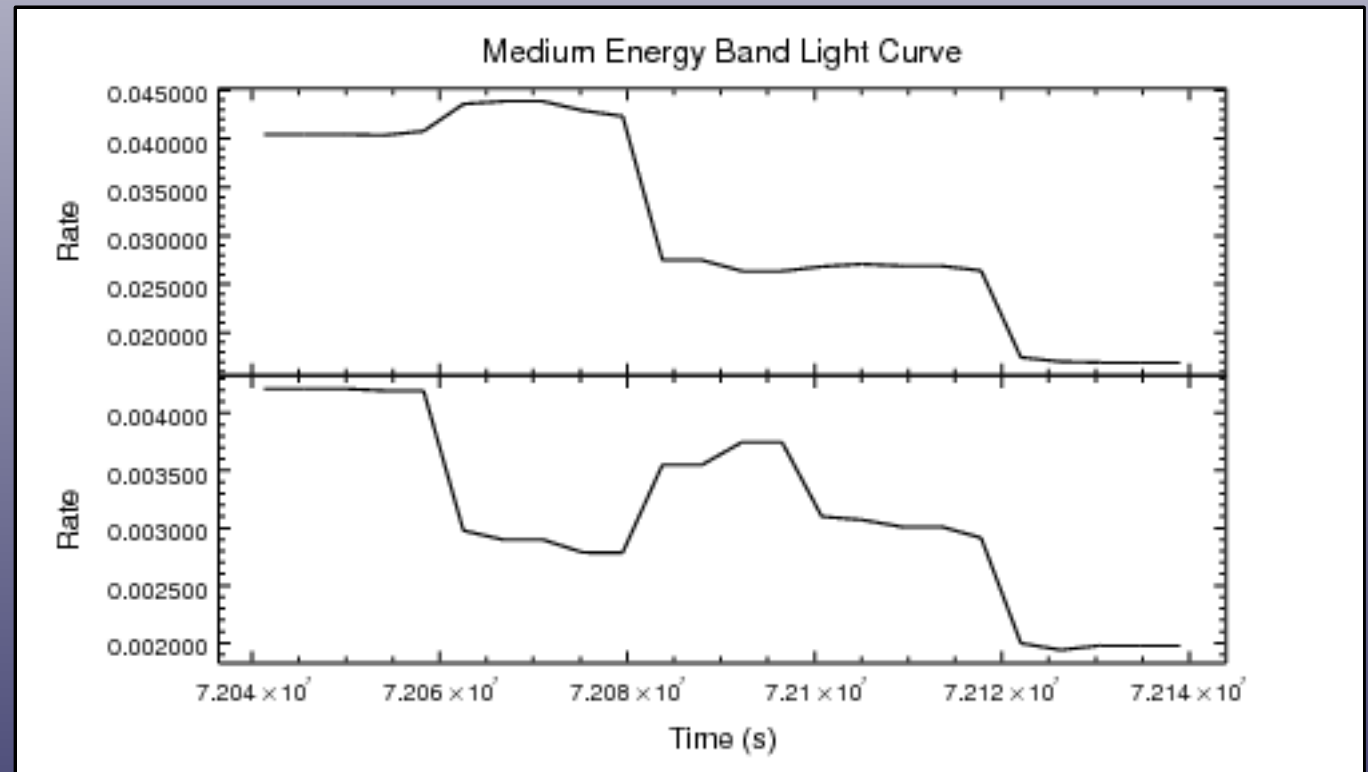
Source variability within an observation is assessed by three methods:

(1) the Kolmogorov-Smirnov (K-S) test

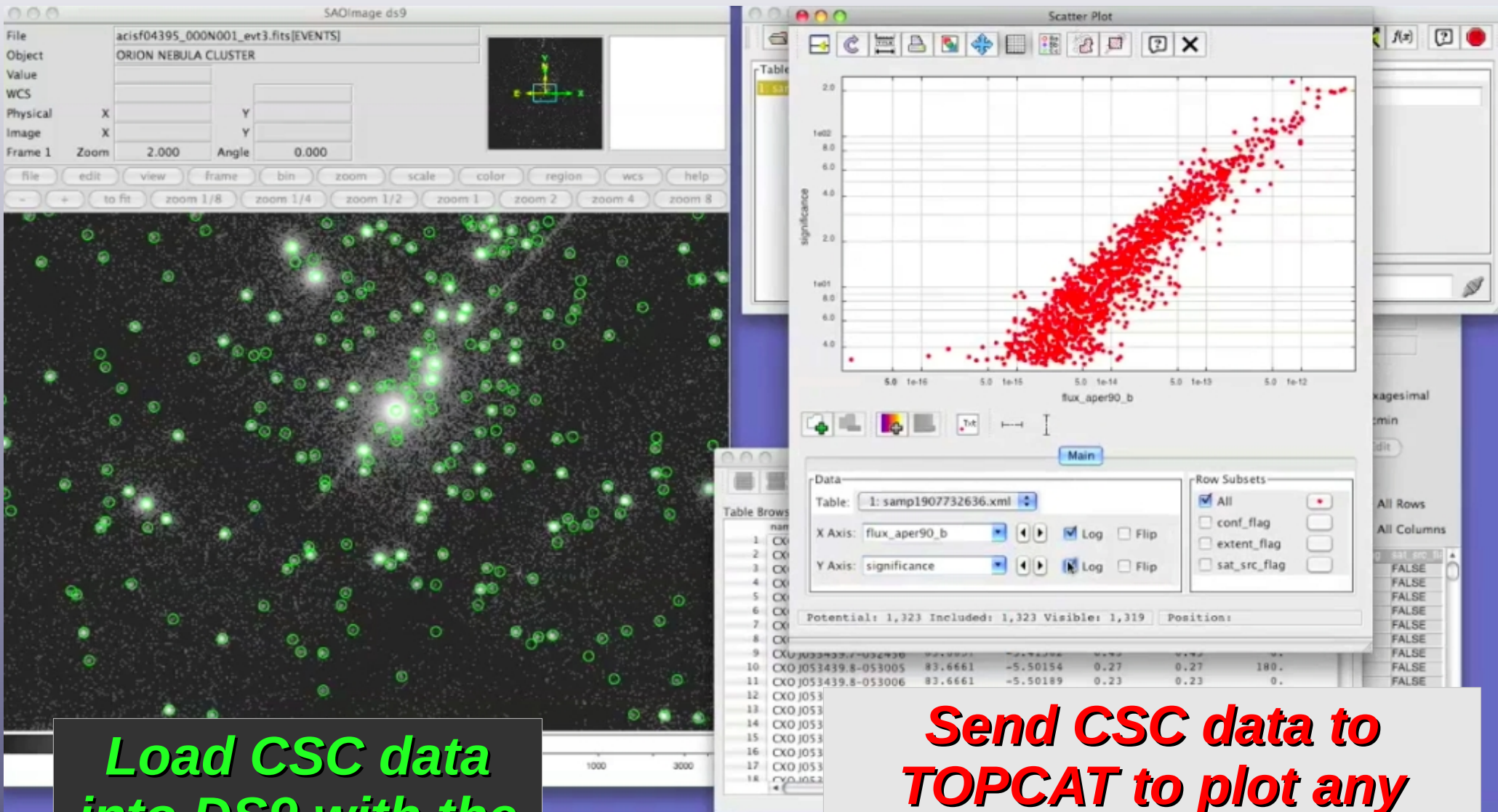
(2) the Kuiper's test

(3) computation of the Gregory-Loredo variability probability

Download
light curves
per energy
band



Plot CSC data with *DS9* and *TOPCAT*



Load CSC data into DS9 with the DS9 Catalog tool

SAMP →

Send CSC data to TOPCAT to plot any combination of source properties

Access CSC data with CSCview

Search and download data with CSCview

Features

ADQL 2.0 interface

Getting Started guide

Customizable toolbar and
output data format

Example queries

Save tables of source data

Download source data files

The screenshot displays the CSCview application window, titled "Chandra Source Catalog Release 1.0". The interface includes a menu bar (File, Edit, View, Tools, Help) and a toolbar with icons for Search, New, Open, Save, Download, Script, Add, Remove, Up, Down, Select All, and Deselect. Below the toolbar are tabs for Catalog, Query, Results, and Products. The main area is divided into several panels:

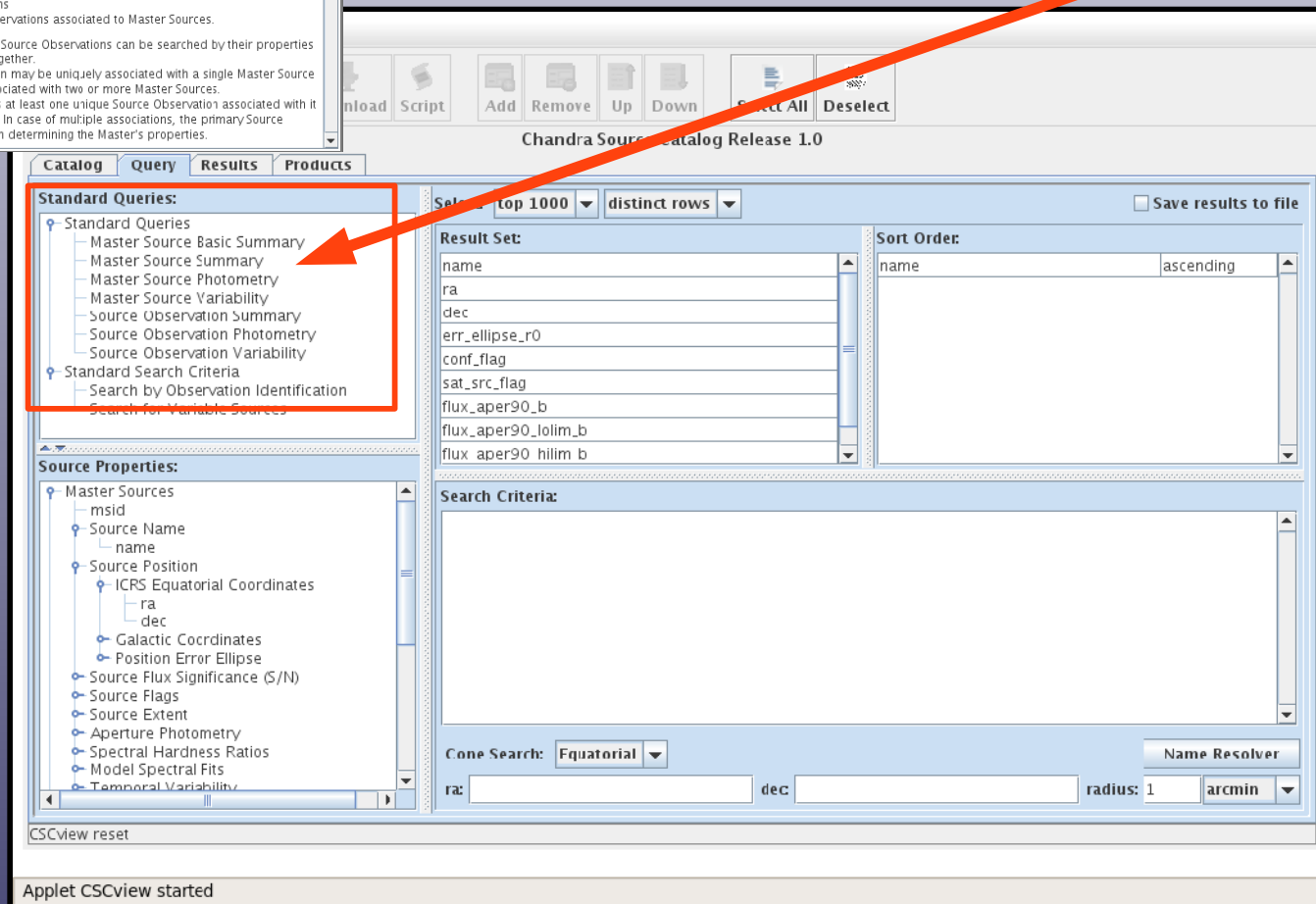
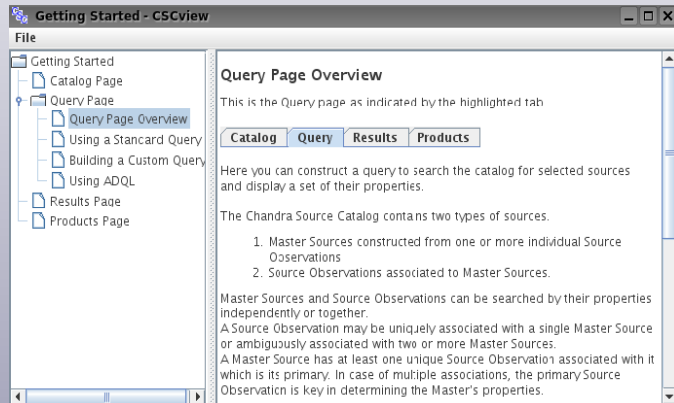
- Standard Queries:** A tree view containing "Standard Queries" (with sub-items like Master Source Basic Summary, Master Source Summary, etc.) and "Standard Search Criteria" (with sub-items like Search by Observation Identification, Search for Variable Sources).
- Source Properties:** A tree view showing hierarchical properties such as Master Sources, msid, Source Name, Source Position (ICRS Equatorial Coordinates, Galactic Coordinates, Position Error Ellipse), Source Flux Significance (S/N), Source Flags, Source Extent, Aperture Photometry, Spectral Hardness Ratios, Model Spectral Fits, and Temporal Variability.
- Select:** A dropdown menu set to "top 1000" and "distinct rows", with a "Save results to file" checkbox.
- Result Set:** A table with columns for "name" and "Sort Order". The "name" column lists various source parameters like ra, dec, err_ellipse_r0, conf_flag, sat_src_flag, flux_aper90_b, flux_aper90_lolim_b, and flux_aper90_hilim_b. The "Sort Order" column is set to "ascending".
- Search Criteria:** A large empty text area for entering search queries.
- Cone Search:** A dropdown menu set to "Equatorial" and a "Name Resolver" button.
- Search Fields:** Input fields for "ra:", "dec:", and "radius: 1 arcmin".

At the bottom of the window, a status bar indicates "Applet CSCview started".

Access CSC data with CSCview

Start a query with the Getting Started guide

or a canned query



Access CSC data with CSCview

In the Query tab, search the catalog by...

File Edit View Tools Help

Search New Open Save Download Script Add Remove Up Down Select All Deselect

Chandra Source Catalog Release 1.0

Catalog **Query** Results Products

Standard Queries:

- Standard Queries
 - Master Source Basic Summary
 - Master Source Summary
 - Master Source Photometry
 - Master Source Variability
 - Source Observation Summary
 - Source Observation Photometry
 - Source Observation Variability
- Standard Search Criteria
 - Search by Observation Identification
 - Search for Variable Sources

Source Properties:

- Master Sources
 - msid
 - Source Name
 - name
 - Source Position
 - ICRS Equatorial Coordinates
 - Galactic Coordinates
 - Position Error Ellipse
 - Source Flux Significance (S/N)
 - Source Flags
 - Source Extent
 - Aperture Photometry
 - Spectral Hardness Ratios
 - Model Spectral Fits
 - Temporal Variability
 - Observation Summary
- Source Observations

Select: top 1000 rows Save results to file

Result Set:

name	ra	dec	o.obsid	o.targname	o.dec_targ
			o.obsid		

Sort Order: o.obsid descending

Search Criteria:

(o.targname LIKE SN 1993%)

Cone Search: Equatorial

ra: dec: radius: 1 arcmin

Name Resolver

canned queries

any source property

coordinates

source name

Access CSC data with CSCview

Write query expressions in ADQL 2.0

File Edit View Tools Help

Search New Open Save Download Script Add Remove Up Down Select All Deselect

Chandra Source Catalog Release 1.0

Catalog Query Results Products

Standard Queries:

- Standard Queries
 - Master Source Basic Summary
 - Master Source Summary
 - Master Source Photometry
 - Master Source Variability
 - Source Observation Summary
 - Source Observation Photometry
 - Source Observation Variability
- Standard Search Criteria
 - Search by Observation Identification
 - Search for Variable Sources

Source Properties:

- Spectral Hardness Ratios
- Model Spectral Fits
- Temporal Variability
- Observation Summary
- Source Observations
 - posid
 - Observation-Specific Information
 - Observation Identification
 - obsid
 - obi
 - Observation Target and Pointing
 - Observation Target
 - targname
 - ra_targ
 - dec_targ
 - Telescope Pointing
 - Tangent Plane Coordinates

Astronomical Data Query Language: Save results to file

```
SELECT top 1000 o.productid,m.name,m.ra,m.dec,o.obsid,o.targname,o.ra_targ,o.dec_targ FROM master_obi_assoc a, master_source m, obi_source o WHERE ((o.targname LIKE 'SN 1993%')) AND o.posid=a.posid AND m.msid=a.msid
```

“SELECT, TOP, FROM, WHERE, ORDER BY” syntax

Highlight and drag CSC source properties into this area to construct a query.

Searching for properties

Applet CSCview started

...in the Query tab.

Access CSC data with CSCview

In the Results tab...

The screenshot displays the CSCview application window. The menu bar includes File, Edit, View, Tools, and Help. The toolbar contains icons for Search, New, Open, Save, Download, Script, Add, Remove, Up, Down, Select All, and Deselect. The main window is titled "Chandra Source Catalog Release 1.0" and has tabs for Catalog, Query, Results, and Products. The Results tab is active, showing a table of 50 rows found. The table columns are: p_obsid, name, ra, dec, o_obsid, o_targname, o_ra_targ, and o_dec_targ. The left sidebar shows a tree view of Data Products, with "Full Field" expanded to show "evt3" and "Images".

view sources found in the search

save search results to a text file

search for data files for your selected sources

Search completed

Applet CSCview started

p_obsid	name	ra	dec	o_obsid	o_targname	o_ra_targ	o_dec_targ
192874	CXO J095627.5+691010	09 56 27.56	+69 10 10.57	735	SN 1993J	09 55 25.00	+69 01 12.00
192873	CXO J095510.6+690843	09 55 10.66	+69 08 43.00	735	SN 1993J	09 55 25.00	+69 01 12.00
192872	CXO J095406.4+690840	09 54 06.46	+69 08 40.98	735	SN 1993J	09 55 25.00	+69 01 12.00
192871	CXO J095515.5+685428	09 55 15.59	+68 54 28.27	735	SN 1993J	09 55 25.00	+69 01 12.00
192869	CXO J095239.6+690400	09 52 39.64	+69 04 00.80	735	SN 1993J	09 55 25.00	+69 01 12.00
192868	CXO J095239.2+685631	09 52 39.20	+68 56 31.12	735	SN 1993J	09 55 25.00	+69 01 12.00
192857	CXO J095553.0+690518	09 55 53.02	+69 05 18.71	735	SN 1993J	09 55 25.00	+69 01 12.00
192855	CXO J095351.8+690250	09 53 51.80	+69 02 50.65	735	SN 1993J	09 55 25.00	+69 01 12.00
192852	CXO J095548.2+685915	09 55 48.24	+68 59 15.21	735	SN 1993J	09 55 25.00	+69 01 12.00
192851	CXO J095501.0+685622	09 55 01.09	+68 56 22.83	735	SN 1993J	09 55 25.00	+69 01 12.00
192850	CXO J095502.7+685621	09 55 02.70	+68 56 21.90	735	SN 1993J	09 55 25.00	+69 01 12.00
192849	CXO J095542.1+690336	09 55 42.14	+69 03 36.51	735	SN 1993J	09 55 25.00	+69 01 12.00
192848	CXO J095528.4+690244	09 55 28.43	+69 02 44.67	735	SN 1993J	09 55 25.00	+69 01 12.00
192847	CXO J095501.0+685622	09 55 01.09	+68 56 22.83	735	SN 1993J	09 55 25.00	+69 01 12.00
192867	CXO J095506.4+690840	09 55 06.46	+69 08 40.98	735	SN 1993J	09 55 25.00	+69 01 12.00
192865	CXO J095501.0+685622	09 55 01.09	+68 56 22.83	735	SN 1993J	09 55 25.00	+69 01 12.00
192865	CXO J095501.0+685622	09 55 01.09	+68 56 22.83	735	SN 1993J	09 55 25.00	+69 01 12.00
192864	CXO J095501.0+685622	09 55 01.09	+68 56 22.83	735	SN 1993J	09 55 25.00	+69 01 12.00
192863	CXO J095501.0+685622	09 55 01.09	+68 56 22.83	735	SN 1993J	09 55 25.00	+69 01 12.00
192862	CXO J095501.0+685622	09 55 01.09	+68 56 22.83	735	SN 1993J	09 55 25.00	+69 01 12.00
192859	CXO J095519.8+690110	09 55 19.84	+69 01 10.57	735	SN 1993J	09 55 25.00	+69 01 12.00
192858	CXO J095506.4+690840	09 55 06.46	+69 08 40.98	735	SN 1993J	09 55 25.00	+69 01 12.00
192846	CXO J095506.4+690840	09 55 06.46	+69 08 40.98	735	SN 1993J	09 55 25.00	+69 01 12.00
192843	CXO J095507.3+690110	09 55 07.30	+69 01 10.57	735	SN 1993J	09 55 25.00	+69 01 12.00
192841	CXO J095505.0+690110	09 55 05.00	+69 01 10.57	735	SN 1993J	09 55 25.00	+69 01 12.00
192840	CXO J095502.0+690110	09 55 02.00	+69 01 10.57	735	SN 1993J	09 55 25.00	+69 01 12.00
192839	CXO J095502.0+690110	09 55 02.00	+69 01 10.57	735	SN 1993J	09 55 25.00	+69 01 12.00
192838	CXO J095426.7+684659	09 54 26.78	+68 46 59.76	735	SN 1993J	09 55 25.00	+69 01 12.00
192835	CXO J095541.3+690435	09 55 41.38	+69 04 35.81	735	SN 1993J	09 55 25.00	+69 01 12.00

Access CSC data with CSCview

Download Level-3 data products

The screenshot shows the CSCview application interface. The 'Products' tab is active, displaying a list of 23 products. A red circle highlights the 'Download' button in the toolbar, with an arrow pointing to the 'Download Products' dialog box. The dialog box shows the save location as 'science' and the file name as 'cscpackage.tar'. A red arrow points from the 'Download' button to the dialog box with the text 'to a tar file'. A red arrow also points from the 'Download' button to the text 'or with a batch file of Wget commands'. The status bar at the bottom indicates 'Download canceled' and 'Applet CSCview started'.

File Edit View Tools Help

Search New Open Save Download Script Add Remove Up Down Select All Deselect

Chandra Source Catalog Release 1.0

Catalog Query Results Products

23 products found

Total file size = 98,354,880 bytes

File name	File type	File size (in bytes)
acisf00735_001N001_evt3.fits	evt3	37,828,800
acisf00735_001N001_bpix3.fits	badpix3	155,520
acisf00735_001N003_b_bkgimg3.fits	bkgimg	50,451,840
acisf00735_001N002_r0189_arf3.fits	arf	51,840
acisf00735_001N002_r0189_rmf3.fits	rmf	1,739,520
acisf00735_001N002_r0188_arf3.fits	arf	51,840
acisf00735_001N002_r0188_rmf3.fits	rmf	1,532,160
acisf00735_001N002_r0171_arf3.fits	arf	51,840
acisf00735_001N002_r0171_rmf3.fits	rmf	1,221,120
acisf00735_001N002_r016		51,840
acisf00735_001N002_r016		1,739,520
acisf00735_001N002_r018		829,440
acisf00735_001N002_r018		567,360
acisf00735_001N002_r017		457,920
acisf00735_001N002_r016		244,800
acisf00735_001N002_r016		190,080
acisf00735_001N002_r017		305,280
acisf00735_001N002_r018		63,360
acisf00735_001N002_r018		305,280
acisf00735_001N002_r018		135,360
acisf00735_001N002_r018		123,840
acisf00735_001N002_r017		123,840
acisf00735_001N002_r016		132,480

Download Products

Save In: science

File Name: cscpackage.tar

Files of Type: .tar

Save Cancel

Download canceled

Applet CSCview started

...in the Products tab

Retrieve CSC data from the command line with **cURL** and **Wget**

Cone search in ADQL 2.0

```
unix% curl --form query='SELECT m.name, m.ra, m.dec, m.flux_aper_b FROM master_source m WHERE dbo.cone_distance(m.ra,m.dec,83.77333,-5.68464)<=10' 'http://cda/csccli/getProperties'
```

```
unix% wget -O out.file 'http://cda.cfa.harvard.edu/csccli/getProperties?query=SELECT m.name, m.ra, m.dec, m.flux_aper_b FROM master_source m WHERE dbo.cone_distance(m.ra,m.dec, 83.77333,-5.68464)<=10'
```

Basic source property search in ADQL 2.0

```
unix% curl --form query='SELECT TOP 1000 m.name, m.significance, m.flux_aper_b, m.alpha FROM master_source m WHERE (m.significance > 10.0 AND m.pileup_flag = 0 AND m.hard_hs > 0.7)' 'http://cda/csccli/getProperties'
```

```
unix% wget -O out.file 'http://cda.cfa.harvard.edu/csccli/getProperties?query=SELECT TOP 1000 m.name, m.significance, m.flux_aper_b, m.alpha FROM master_source m WHERE (m.significance > 10.0 AND m.pileup_flag = 0 AND m.hard_hs > 0.7)'
```



VO Cone Search Service

unix% *curl* \

'<http://cda.cfa.harvard.edu/cscvo/coneSearch?RA=83.77333&DEC=-5.68464&SR=.233&VERB=1>'

unix% *wget -O out.file* \

'<http://cda.cfa.harvard.edu/cscvo/coneSearch?RA=83.77333&DEC=-5.68464&SR=.233&VERB=1>'

R.A. & Dec. *in decimal degrees*

Cone Search Radius *in decimal degrees*

Verbosity level: 1, 2, 3

Want to know more?

**Find extensive documentation on the
CSC web pages:**

<http://cxc.harvard.edu/csc>

**Submit your questions to the
CXC Helpdesk:**

<http://cxc.harvard.edu/helpdesk>