The Chandra Source Catalog

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CXC

The Chandra Source Catalog: *User Interface*

http://cxc.harvard.edu/csc/columns/

The Chandra Source Catalog (CSC) is presented to the user in two table views: the

Master Chandra Source Table and the **Table of Individual Source Observations**

Master Chandra Source Table

Each identified distinct X-ray source on the sky is represented in the catalog by a single "master source" entry and one or more "individual source" entries, one for each observation in which the source has been detected. The master source entry records the best estimates of the properties of a source, based on the data extracted from the set of observations in which the source has been detected.

Go to: Catalog Columns Index | Alphabetical List

Context	Column Name	Type	Units	Description
Source Name				
	name	string		source name in the form "CXO Jhhmmss.s+ddmmss" [Chandra source names use the ICRS position to an accuracy of 0.1s in RA and 1.0s in Dec.]
Position and Position Errors	ra	double	deg	Source position, ICRS right ascension
	dec	double	deg	Source position, ICRS declination
	err_ellipse_r0	double	arcseconds	major radius of the 1σ error ellipse of the source position
	err_ellipse_r1	double	arcseconds	minor radius of the 1σ error ellipse of the source position
	err_ellipse_ang	double	deg	position angle of the major axis of the 1σ error ellipse
	gal_b	double	deg	Source position, galactic longitude
	gal_l	double	deg	Source position, galactic latitude

Table of Individual Source Observations

Each identified distinct X-ray source on the sky is represented in the catalog by one or more "individual source" entries, one for each observation in which the source has been detected, and a single "master source" entry. The individual source entries record all of the properties about a detection extracted from a *single* observation, as well as associated file-based data products, which are observation-specific.

Go to: Catalog Columns Index | Alphabetical List

Context	Column Name	Type	Units	Description
Observation Identification	obsid	integer		Observation Id (ObsID)
	obi	integer		Observation Interval (ObI)
Pointing Information	targname	string		target name for the observation
	ra_targ	double	deg	ICRS right ascension of the target
	dec_targ	double	deg	ICRS declination of the target
	ra_pnt	double	deg	ICRS right ascension of the mean pointing
	dec_pnt	double	deg	ICRS declination of the mean pointing
	roll_pnt	double	deg	roll angle of the mean pointing
	ra_nom	double	deg	ICRS right ascension of the tangent point
	dec_nom	double	deg	ICRS declination of the tangent point
	roll_nom	double	deg	roll angle of the tangent point

Master source properties represent the <u>best estimates</u> of the properties of a source, based on data derived from all observations in which a source has been detected.

In the Table of Individual Source Observations, source properties are recorded on a per-observation basis; i.e., it contains multiple entries for a source, one for each individual observation in which it has been detected.

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Individual source observations are linked to a corresponding single, merged master source. However, the properties of confused and/or piled-up individual sources do not contribute to the reported master source properties.
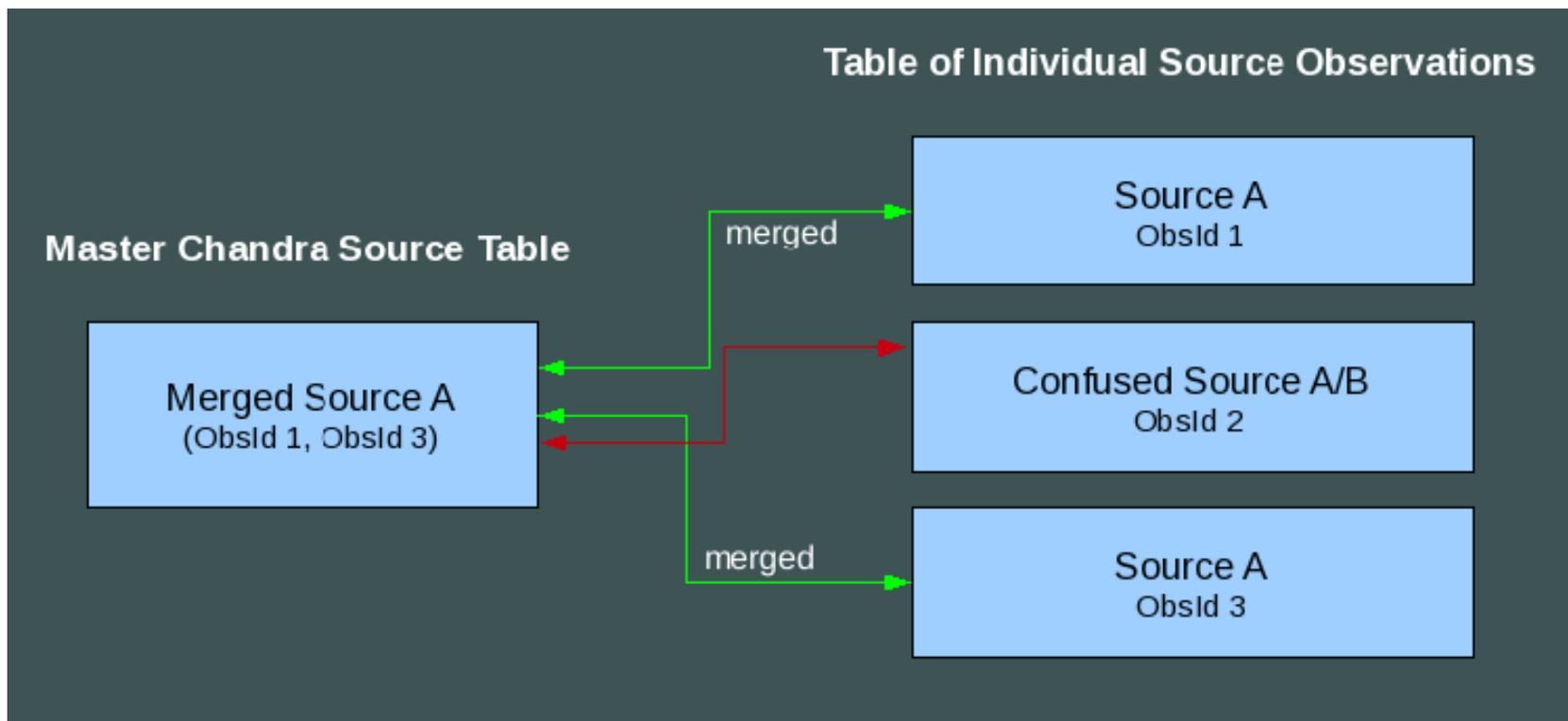
For more on the organization of the catalog, see:
http://cxc.harvard.edu/csc/organization.html

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The CSC contains source positions and multi-band fluxes, as well as derived spatial, spectral, and temporal source properties.

Source properties are presented in the following categories:

Master Source Properties

Position and Position Errors

Source Flags

Source Extent and Errors

Source Fluxes

Source Significance

Spectral Properties

Source Variability

Individual ("Per Obi") Source Properties

Observation Identification

Pointing Information

Timing Information (Obi and Source)

Instrument Information (Obi and Source)

Processing Information

Observing Cycle

Source Identification
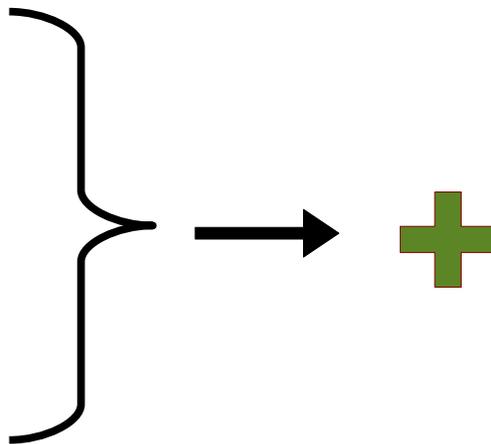
The CSC Column Descriptions pages describe how each source property is determined.

http://cxc.harvard.edu/csc/columns/index.html#coldesc

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The bird's-eye view of the CSC, with master source properties, individual source properties, and file-based data products connected by the catalog processing steps.
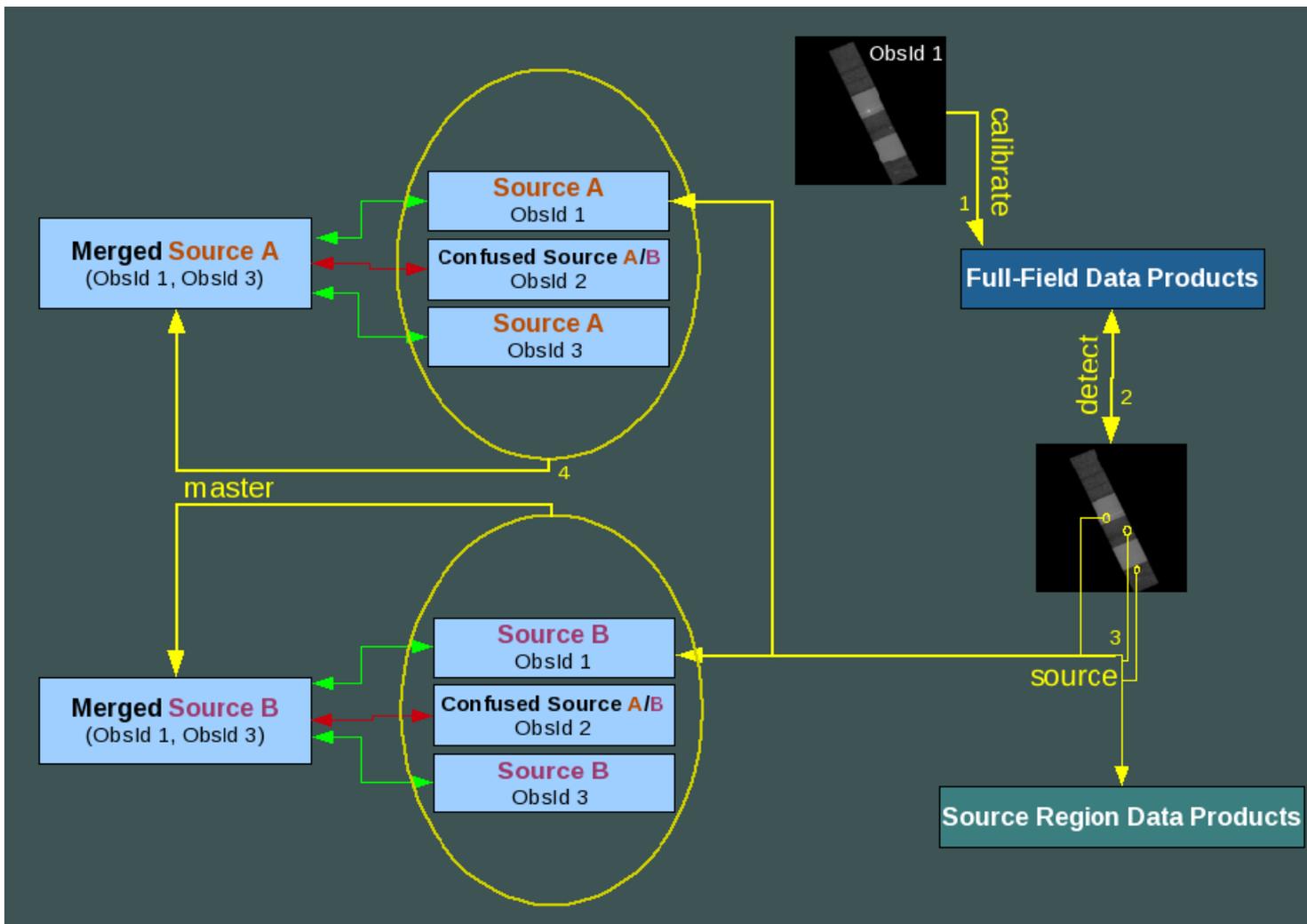
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CSC Homepage: *http://cxc.harvard.edu/csc*

CSCview

CSC Data Access GUI

CSCview provides direct access to the contents of the catalog via user-specified queries.

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Master Source Properties

Per Obi Source and Observation Properties

1. Enter source property search conditions here.

OR

Define a cone search.

2. Enter desired results here.

3. Submit catalog query.

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Here, we establish a search on all Chandra observations which targeted supernova SN 1993 ;

'**o.targname LIKE SN 1993%**' translates to

"find all sources in observations with a target name beginning with 'SN 1993', followed by any set of characters ."

But the query isn't yet complete...

We complete the query by specifying which source properties we would like returned for all sources located in the database search:

We have the options to save the query and query results to individual text files before submitting the query.

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After the query is submitted, the query results interface appears, displaying a table of query results in which each row represents a source, and each column a selected property characterizing the source.

We now have the option to browse and download data files associated with each source in the query results table.

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To download data products, we select the source(s) of interest in the query results table, and the desired filetype(s) in the list of Level 3 data products.

We have the option to download data products to a tar or batch file.

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See the full list of Level 3 data products at http://cxc.harvard.edu/csc/data_products/

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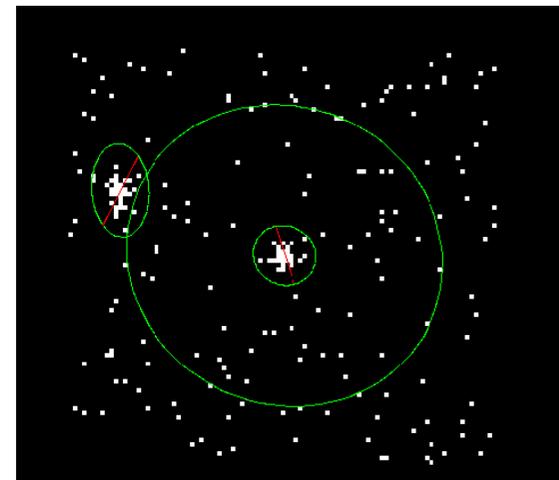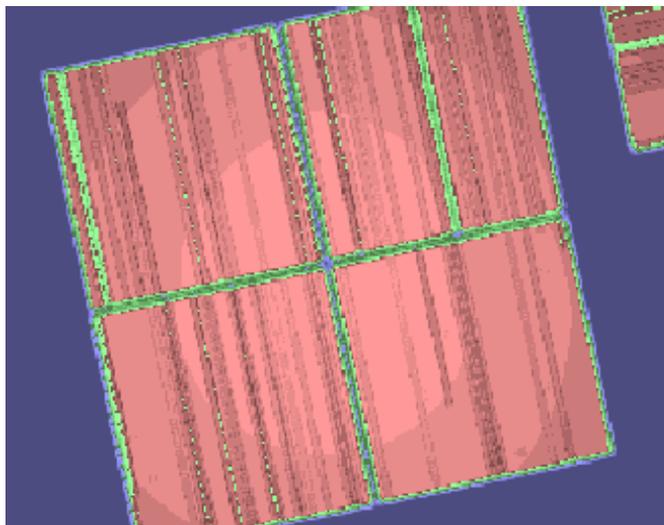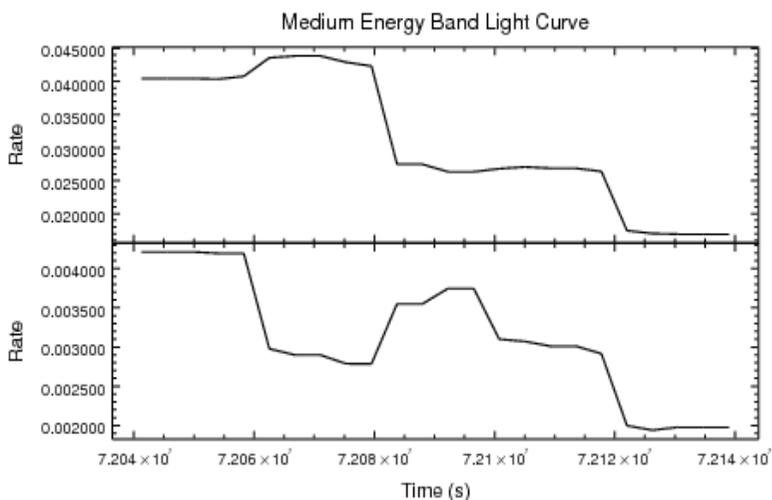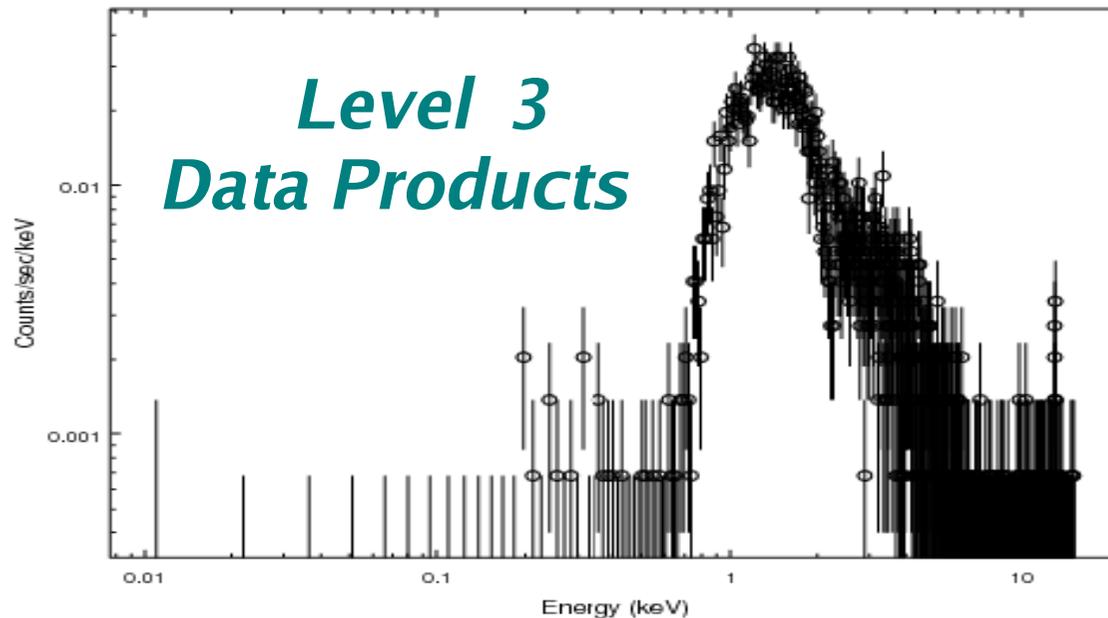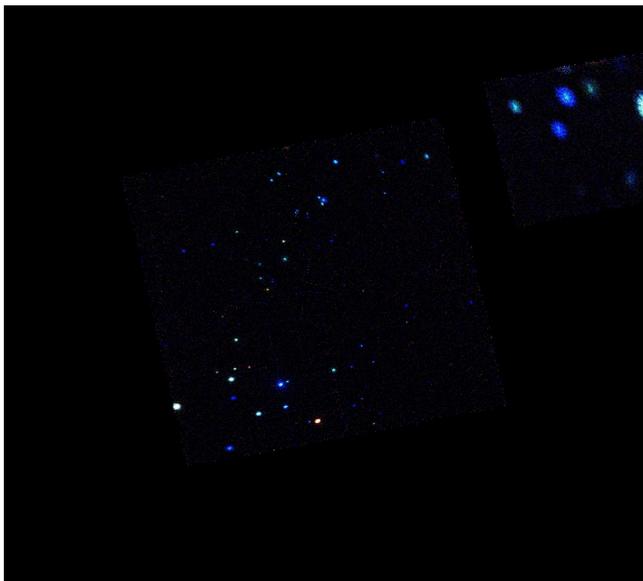
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Query   Results   Log   Help

Query Builder   Query Editor

Import from Builder

SELECT TOP 10 m.name, m.ra, m.dec, o.obsid, o.ra_targ, o.dec_targ, m.photflux_aper_b FROM cscat WHERE o.targname LIKE "SN 1993%"

As an alternative to submitting web-style queries in the Query Builder of CSCview, users may enter SQL-like query expressions in the Query Editor of CSCview. For example,

'SELECT m.name, m.ra, m.dec, o.obsid, m.photflux_aper_b FROM cscat WHERE o.targname LIKE "SN 1993%"'

translates to "*return the master source catalog name, equatorial coordinates and broad band photon flux, and the per obi ObsID associated with all sources found in observations with a target name beginning with 'SN 1993' .*"

Validate Query

Catalog: Current database view ▼   ☐ Save results to file   Submit Query

Download package canceled.
Running query...
Query completed: 10 rows found.
Download package canceled.

Chandra
X-ray Center

CHANDRA
SOURCE CATALOG

Applet CSCview started

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If the CSCview GUI is to be avoided altogether, the user may access tables of catalog data and file-based data products from the command line, using cURL or Wget.

```
unix% curl --form query='SELECT TOP 10 m.name, m.ra, m.dec, o.obsid,
o.ra_targ, o.dec_targ, m.photflux_aper_b FROM cscat WHERE o.targname LIKE "SN
1993%"''http://cda/cscview/getProperties'
```

cURL and Wget are tools which allow a user to retrieve files with URL syntax from the command line, simulating the user's actions at a web browser.

```
unix% wget -O out.file 'http://cda.cfa.harvard.edu/cscview/getPropertiesquery=SELECT
TOP 10 m.name, m.ra, m.dec, o.obsid, o.ra_targ, o.dec_targ, m.photflux_aper_b
FROM cscat WHERE o.targname LIKE "SN 1993%"''http://cda/cscview/getProperties'
```

Questions about the CSC should be submitted to the

CXO HelpDesk
http://cxc.harvard.edu/helpdesk