

# Archives and Data for X-ray astronomy

Part 1: Getting observation data

Part 2: Source catalogs

Jonathan McDowell

SAO/CXC

with acknowledgements to (and plagiarism from) Keith Arnaud

## Part 1: Observation data

## Active missions



Chandra X-ray Observatory (1999-present)

CCDs, MCP, gratings

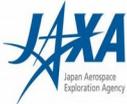
[cxc.harvard.edu/cda](http://cxc.harvard.edu/cda)



XMM-Newton (1999-present)

CCDs, gratings (and UV)

[xmm.vilspa.esa.es/xsa/](http://xmm.vilspa.esa.es/xsa/)



Suzaku (2005-present)

CCD, phoswich/Si diode

[heasarc.nasa.gov/docs/archive.html](http://heasarc.nasa.gov/docs/archive.html) (and [darts.jaxa.jp/astro/suzaku](http://darts.jaxa.jp/astro/suzaku))



Swift (2004-present)

CCD, CdZnTe/Mask (and UV)

[heasarc.nasa.gov/docs/archive.html](http://heasarc.nasa.gov/docs/archive.html)



Rossi XTE (1995-present)

PCs, phoswich

[heasarc.nasa.gov/docs/archive.html](http://heasarc.nasa.gov/docs/archive.html)

# Notable archival missions and instruments

## Non-imaging Proportional counters:

 HEAO-1 A1,A2 (1977-1979), Exosat ME (1983-86), Ginga LAC (1987-1991)  
 

## Imaging proportional counters:

 Einstein IPC (1978-81) , Rosat PSPC-B,C (1990-99), BeppoSAX LECS,MECS ,HPGSPC (1996-2002)

## CCDs:



 ASCA GIS,SIS (1993-2000)

## Microchannel plates:

 Einstein HRI, Rosat HRI

## Phoswich:

BeppoSax PDS



NASA's HEASARC High Energy Astrophysics Science Archive Research Center

Chi-Square	Lvl	Fl	Param # 1	2	3	Recent X-Ray Missions
924.176	-2	5.887	5.076	0.4056	ASCA	Chandra (GSFC)
305.507	-2	4.525	3.791	0.7249	RXTE	XMM-Newton (ESA)
	-2	2.580	3.367	0.6538	Swift	Swift (NASA)
	-3	0.6868	2.244	1.4835E-02	Chandra X-Ray Missions	Chandra (GSFC)
	-4	0.4337	2.201	1.2289E-02	Swift	Swift (NASA)

Guest Observer Facilities & Science Centers	
AGILE	ASCA

The High Energy Astrophysics Science Archive Research Center (HEASARC) is the primary archive for NASA missions dealing with extremely energetic phenomena, from black holes to the Big Bang. Having recently merged with the Legacy Archive for Microwave Background Data Analysis (LAMBDA), it includes data obtained by NASA's high energy astrophysics missions from the extreme...

**Latest News**

- [ROSES 2011 Amendment 16 about the Swift Cycle 8 GI Program Has Been Released](#)

## NASA High Energy Astrophysics Science Archive Research Center

- centered at GSFC (but also with a component at CXC)

Provides access to all the publicly available X- and gamma-ray datasets. Also many general catalogs and datasets held at other data centers

Powerful search engine (Browse) with a uniform interface across missions.

Batch processing and cross-correlation capabilities.

Includes bibliographic links to datasets where available.

If you haven't used browse before read the introduction at [heasarc.gsfc.nasa.gov/W3Browse/w3browse-help.html](http://heasarc.gsfc.nasa.gov/W3Browse/w3browse-help.html)

# BROWSE at HEASARC

File Edit View History Bookmarks Tools Help

http://heasarc.nasa.gov/cgi-bin/W3Browse/w3browse.pl

GO Search HEASARC website [Advanced Search]

NASA National Aeronautics and Space Administration  
Goddard Space Flight Center  
Sciences and Exploration

HEASARC Quick Links  
---Quick Links---

HEASARC Home Observatories Archive Calibration Software Tools Students/Teachers/Public

Archive HEASARC Browse Tip Archive Hera HELP

Other Browse interfaces:  
[Notification Service](#) | [Batch](#) | [Correlation](#) | [Index of all tables](#) | [Keyword Search](#)

Query File And Session Uploads

Main Search Form > Search Results > Choose Data Products

Start Search Reset Detailed Mission/Catalog Search

1. Do you want to search around a position ... ?  
(If you want to search on parameters other than object name or coordinates, select "Detailed Mission/Catalog Search".)

Object Name Or Coordinates:  and/or [Select Local File:](#)  Browse...

e.g. Cyg X-1 or 12 00 00, 412 6 or  
Cyg X-2; 12.235, 15.345 (Note use of  
semi-colons (;) to separate multiple  
object names or coordinate pairs)

Coordinate System: J2000

Search Radius: Default arcmin

Default uses the optimum radius for each catalog searched.

... and/or search by date?

Observation Dates:  YYYY-MM-DD hh:mm:ss or MJD: DDDDD.ddd

The time portion of the date is optional. Separate multiple dates/ranges with semicolons (;).  
Range operator is '..' (e.g. 1992-12-31; 4000.5; 1995-01-15 12:00:00; 1997-03-20 .. 2000-10-10)

2. What missions and catalogs do you want to search? (Bold text indicates mission is active)

**Most Requested Missions**

<input type="checkbox"/> Chandra <b>CXC.CSC</b>	<input type="checkbox"/> Fermi	<input type="checkbox"/> ROSAT	<input type="checkbox"/> RXTE
<input type="checkbox"/> Suzaku	<input type="checkbox"/> Swift	<input type="checkbox"/> WMAP	<input type="checkbox"/> XMM-Newton <b>XSA</b>

**Other X-Ray and EUV Missions**

<input type="checkbox"/> Ariel V	<input type="checkbox"/> ASCA	<input type="checkbox"/> BeppoSAX	<input type="checkbox"/> BBXRT/Astro-1
<input type="checkbox"/> Copernicus	<input type="checkbox"/> Einstein	<input type="checkbox"/> EUVE	<input type="checkbox"/> EXOSAT
<input type="checkbox"/> Ginga	<input type="checkbox"/> HEAO 1	<input type="checkbox"/> Kvant	<input type="checkbox"/> OSO8
<input type="checkbox"/> SAS 3	<input type="checkbox"/> Uhuru	<input type="checkbox"/> Vela 5B	

**Other Gamma-Ray Missions**

<input type="checkbox"/> AGILE	<input type="checkbox"/> CGRO	<input type="checkbox"/> COS B	<input type="checkbox"/> HETE-2
<input type="checkbox"/> INTEGRAL <b>ISDA.ISDC</b>	<input type="checkbox"/> SAS 2	<input type="checkbox"/> Gamma-Ray Bursts	<input type="checkbox"/> RHESSI

Archive

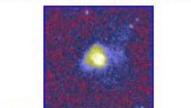
## Browse Search Results: Results Summary for all Missions

Tip Archive Hera HELP

Images generated by [SkyView](#)  
Click on image to see full SkyView image

**Search was based on:**

Object/Coordinates:   
 resolved by SIMBAD (local cache) to [ 15 34 57.27, +23 30 10.5 ]  
 Coord. System: Equatorial, equinox 2000  
 Maximum Rows:   
 Search Radius:  arc minutes



DSS Optical image, 2.83'



RASS X-ray image, 75.0'

Images centered on requested position

How to use the information on this page

Select box to view, click View Selected Tables button. ↓  
 Table name. Click for info about table. ↓  
 Number of rows in this table that satisfy selection criteria. Click to see results for this table. ↓

INTEGRAL Public Pointed Science Window Data 27

### Active HEASARC Missions

<input type="checkbox"/> ASCA	<input type="checkbox"/> ASCA Proposals	2	<input type="checkbox"/> ASCA Master Catalog	1	<input type="checkbox"/> ASCA GIS Source Catalog (AMSS-I + AMSS-II)	1
<input type="checkbox"/> CHANDRA	<input type="checkbox"/> Chandra Observations	1	<input type="checkbox"/> Chandra XAssist Source List	3	<input type="checkbox"/> Chandra Multiwavelength Project (ChaMP) Point Source Catalog	5
<input type="checkbox"/> GALEX	<input type="checkbox"/> Galaxy Evolution Explorer (GALEX) Observation Log	3				
<input type="checkbox"/> HETE-2	<input type="checkbox"/> HETE-2 Timeline	1451				
<input type="checkbox"/> INTEGRAL	<input type="checkbox"/> INTEGRAL Science Window Data	121	<input type="checkbox"/> INTEGRAL Observing Program	1	<input type="checkbox"/> INTEGRAL Public Pointed Science Window Data	49
<input type="checkbox"/> RXTE	<input type="checkbox"/> XTE Master Catalog	1	<input type="checkbox"/> XTE Target Index Catalog	1	<input type="checkbox"/> XTE Proposal Info & Abstracts	1
	<input type="checkbox"/> XTE Archived Public Slew Data	2				
<input type="checkbox"/> SPITZER	<input type="checkbox"/> Spitzer Space Telescope Observation Log	25				
<input checked="" type="checkbox"/> SUZAKU	<input checked="" type="checkbox"/> Suzaku Master Catalog	1	<input checked="" type="checkbox"/> Suzaku XIS Configuration Log	8		
<input type="checkbox"/> XMM-NEWTON	<input type="checkbox"/> XMM-Newton OM Objects	35	<input type="checkbox"/> XMM-Newton Accepted Targets	2	<input type="checkbox"/> XMM-Newton XAssist Source List	16
	<input type="checkbox"/> XMM-Newton Master Log & Public Archive	5	<input type="checkbox"/> XMM-Newton Serendipitous Source Catalog (2XMMi DR3 Version)	5	<input type="checkbox"/> XMM-Newton Optical Monitor Serendipitous UV Source Survey Catalog	21

### Other Missions

<input type="checkbox"/> BEPPoSAX	<input type="checkbox"/> BeppoSAX Approved Pointings	2	<input type="checkbox"/> BeppoSAX/GRBM Gamma-Ray Burst Catalog	7	<input type="checkbox"/> BeppoSAX NFI Archive and Observation Log	2
<input type="checkbox"/> CGRO	<input type="checkbox"/> CGRO Timeline	2	<input type="checkbox"/> CGRO/OSSE Observations	9	<input type="checkbox"/> CGRO/BATSE 4B Catalog	3
	<input type="checkbox"/> CGRO/BATSE Trigger Data	16	<input type="checkbox"/> CGRO/EGRET Photon Lists and Maps	13	<input type="checkbox"/> CGRO/BATSE Gamma-Ray Burst Catalog	5
	<input type="checkbox"/> CGRO/COMPTEL Low-Level Data and Maps	17	<input type="checkbox"/> Stern et al. (2001) BATSE Gamma-Ray Burst Catalog	8	<input type="checkbox"/> GRBs Uniformly Selected from BATSE Archival Data (Version 2.1)	3
	<input type="checkbox"/> Kommers et al. (2001) BATSE Non-Triggered Gamma-Ray Burst Catalog	5				
<input type="checkbox"/> EINSTEIN	<input type="checkbox"/> Einstein IPC Images	1	<input type="checkbox"/> Einstein MPC Raw Data	10	<input type="checkbox"/> Einstein IPC Sources Catalog	1
	<input type="checkbox"/> Einstein IPC Photon Event Data	1	<input type="checkbox"/> Einstein IPC Unscreened Photon Event List	1	<input type="checkbox"/> Einstein Survey of Optically Selected Galaxies	1
	<input type="checkbox"/> Einstein Observatory 2E Catalog of IPC X-Ray Sources	1				
<input type="checkbox"/> GAMMA-RAY BURSTS	<input type="checkbox"/> CGRO/BATSE 4B Catalog	3	<input type="checkbox"/> CGRO/BATSE Gamma-Ray Burst Catalog	5	<input type="checkbox"/> BeppoSAX/GRBM Gamma-Ray Burst Catalog	7

select a (or the) observation of interest  
and then go to Data Prods. Retrieval tab

File Edit View History Bookmarks Tools Help

http://heasarc.nasa.gov/cgi-bin/W3Browse/w3table.pl#

KK Toolbar CIAO Google GNews SpaceTrack / NK SFN CfACal NW Babel CfALib W3 WX DSWeekly HVMA Cambridge Explan...

HEASARC Browse: Main Query...

Main Search Form Browse Query Results Tip Archive Hera HELP

Query Information Query Results **Data Products Retrieval** Help

suzaku  
suzamaster suzaxislog

Click mission tabs (middle tab level) to display table tabs. Move cursor over t

**Table Legend:**

Display all parameters for a row  
Sort by a column in order: 1,2,3 Sort by column in reverse order: 3,2,1 Current tab  
Services links: O: Digitized Sky Survey image, R: ROSAT All-Sky Survey image, N: NED objects ne  
S: SIMBAD objects near coordinates, D: get list of data products, H: analyze data  
B: ADS bibliography holdings, F: FOV plot for observation

**Data Products:** Click checkbox to add row to Data Product Retrieval List

[Suzaku Master Catalog \(suzamaster\)](#) [Bulletin](#)  
Search radius used: 10.00

Select	Related Links	Services	name	ra	dec	time	obsid	exposure
<input type="checkbox"/> All								
<input type="checkbox"/> XIS	<a href="#">O</a> <a href="#">B</a> <a href="#">N</a> <a href="#">S</a> <a href="#">D</a> <a href="#">H</a> <a href="#">B</a>		ARP220	15 35 03.94	+23 33 56.9	2006-01-07 08:22:41	700006010	98550.60000

1 row retrieved from suzamaster

**Data Product Retrieval**

- Select the checkboxes for the rows of interest above.
- Un-check any data products below you are not interested in.
- Select the Data Product Retrieval tab for retrieval options.

**Data Products available for suzamaster**

- All
- Suzaku Auxiliary Data (aux)
- Suzaku HXD Data (hxd data)
- Suzaku Logs (logs)
- Suzaku XIS Data (xis data)

Show current rows selected for Data Products Retrieval

**Further Actions:**

Do you want to  your suzamaster results  
Do you want to  your suzaku

File Edit View History Bookmarks Tools Help

http://heasarc.nasa.gov/cgi-bin/W3Browse/w3table.pl

KK Toolbar CIAO Google GNews SpaceTrack / NK SFN CfACal NW Babel CfALib W3 WX DSWeekly HVMA Cambridge Explan...

HEASARC Browse: Main Query...

Main Search Form Browse Query Results Tip Archive Hera HELP

Query Information Query Results **Data Products Retrieval** Help

**Data Products Download Options and Other Services**

**Data Products Download Options**

for data products for selected rows  
 data products for selected rows  
 data products for selected rows  
 data products for selected rows

Optionally, add a file name constraint to specify product types, e.g. \*/hri/\*.gif\* Use a semicolon (;) for multiple constraints, e.g., \*rfts\*.gif\*  
 File name filter:

**Other services for selected rows**

all the columns for selected rows

Web-based services for selected rows

NED  
SIMBAD  
SkyView-ROSAT All-Sky  
SkyView-DSS  
CoCo

[Web-based services help](#)

**Data products that you have selected will be appear below**

Select all rows

**Suzaku Master Catalog**

name	ra	dec	time	obsid	exposure	processing date	public date	Search Offset
<input checked="" type="checkbox"/> ARP220	15 35 03.94	+23 33 56.9	2006-01-07 08:22:41	700006010	98550.60000	2007-08-18 18:07:39	2007-05-27	4.071 (Arp220)

[Browse Feedback](#)

[Browse Feedback](#)

Then click on e.g. 'Preview and Retrieve' to get to this page

File Edit View History Bookmarks Tools Help

http://heasarc.nasa.gov/cgi-bin/W3Browse/w3hdprods.pl

HEASARC Browse: Data Produ...

Archive Data Products for selected rows

Choose Tables > Choose Data Products > Retrieve Data Products

- Do you want to view a data product? Click on its hyperlinked data format.
- Do you want to retrieve data products in a tarfile? Check the boxes beside each product and click one of the buttons at the bottom of the page.

Select all products for all rows

Suzaku Master Catalog (suzamaster) FTOOLS

name	ra	dec	time	obsid	exposure	processing_date	public_date
ARP220	15 35 03.94	+23 33 56.9	2006-01-07 08:22:41	700006010	98550.00000	2007-08-18 18:07:39	2007-05-27

Select all products in this row

**Suzaku XIS Data**

- XIS All Data (xis) [DIRECTORY](#) 534466 kB updated: 2007/08/18 19:06:42
- XIS Cleaned (event\_cl) [DIRECTORY](#) 11112 kB updated: 2007/08/18 19:07:05
- XIS Cleaned XIS0 Events (ae700006010xi0\_0\_3x3n000a\_cl.evt.gz) [FITS](#) 1259 kB updated: 2007/08/18 19:06:41
- XIS Cleaned XIS0 Events (ae700006010xi0\_0\_5x5n000a\_cl.evt.gz) [FITS](#) 257 kB updated: 2007/08/18 19:06:41
- XIS Cleaned XIS1 Events (ae700006010xi1\_0\_3x3n001b\_cl.evt.gz) [FITS](#) 4857 kB updated: 2007/08/18 19:06:50
- XIS Cleaned XIS1 Events (ae700006010xi1\_0\_5x5n001b\_cl.evt.gz) [FITS](#) 868 kB updated: 2007/08/18 19:06:50
- XIS Cleaned XIS2 Events (ae700006010xi2\_0\_3x3n000a\_cl.evt.gz) [FITS](#) 1996 kB updated: 2007/08/18 19:06:55
- XIS Cleaned XIS2 Events (ae700006010xi2\_0\_5x5n000a\_cl.evt.gz) [FITS](#) 415 kB updated: 2007/08/18 19:06:55
- XIS Cleaned XIS3 Events (ae700006010xi3\_0\_3x3n000a\_cl.evt.gz) [FITS](#) 1207 kB updated: 2007/08/18 19:07:04
- XIS Cleaned XIS3 Events (ae700006010xi3\_0\_5x5n000a\_cl.evt.gz) [FITS](#) 252 kB updated: 2007/08/18 19:07:05
- XIS HK All Housekeeping Data (hk) [DIRECTORY](#) 9223 kB updated: 2007/08/18 19:07:13
- XIS HK XIS0 Data (ae700006010xi0\_0.hk.gz) [FITS](#) 2326 kB updated: 2007/08/18 19:06:40
- XIS HK XIS1 Data (ae700006010xi1\_0.hk.gz) [FITS](#) 2212 kB updated: 2007/08/18 19:06:50
- XIS HK XIS2 Data (ae700006010xi2\_0.hk.gz) [FITS](#) 2307 kB updated: 2007/08/18 19:06:55
- XIS HK XIS3 Data (ae700006010xi3\_0.hk.gz) [FITS](#) 2305 kB updated: 2007/08/18 19:07:04
- XIS Products (products) [DIRECTORY](#) 1091 kB updated: 2007/08/18 19:07:13
- XIS Products Plot Images (ae700006010xis\_0\_im.gif.gz) [GIF](#) 37 kB updated: 2007/08/18 19:07:13
- XIS Products Plot Lightcurves (ae700006010xis\_0\_lc.gif.gz) [GIF](#) 22 kB updated: 2007/08/18 19:07:13
- XIS Products Plot Spectra (ae700006010xis\_0\_pl.gif.gz) [GIF](#) 46 kB updated: 2007/08/18 19:07:13
- XIS Products XIS0 Bkg Spectrum (ae700006010xi0\_0\_3x3n000a\_bg.pl.gz) [FITS](#) 75 kB updated: 2007/08/18 19:06:40
- XIS Products XIS0 Full Image (ae700006010xi0\_0\_3x3n000a\_cl\_img.gz) [FITS](#) 60 kB updated: 2007/08/18 19:06:41
- XIS Products XIS0 Source Lightcurve (ae700006010xi0\_0\_3x3n000a\_slc.gz) [FITS](#) 116 kB updated: 2007/08/18 19:06:55
- XIS Products XIS0 Source Spectrum (ae700006010xi0\_0\_3x3n000a\_spl.gz) [ASCII](#) 1 kB updated: 2007/08/18 19:07:04
- XIS Products XIS1 Bkg Spectrum (ae700006010xi1\_0\_3x3n001b\_bg.pl.gz) [ASCII](#) 107 kB updated: 2007/08/18 19:07:04
- XIS Products XIS1 Full Image (ae700006010xi1\_0\_3x3n001b\_cl\_img.gz) [FITS](#) 115626 kB updated: 2007/08/18 19:04:39
- XIS Products XIS1 Source Lightcurve (ae700006010xi1\_0\_3x3n001b\_slc.gz) [FITS](#) 33566 kB updated: 2007/08/18 19:04:33
- XIS Products XIS1 Source Spectrum (ae700006010xi1\_0\_3x3n001b\_spl.gz) [FITS](#) 6 kB updated: 2007/08/18 19:04:34
- XIS Products XIS2 Bkg Spectrum (ae700006010xi2\_0\_3x3n000a\_bg.pl.gz) [FITS](#) 19803 kB updated: 2007/08/18 19:04:35
- XIS Products XIS2 Full Image (ae700006010xi2\_0\_3x3n000a\_cl\_img.gz) [FITS](#) 34330 kB updated: 2007/08/18 19:04:37
- XIS Products XIS2 Source Lightcurve (ae700006010xi2\_0\_3x3n000a\_slc.gz) [FITS](#) 21805 kB updated: 2007/08/18 19:04:38
- XIS Products XIS2 Source Spectrum (ae700006010xi2\_0\_3x3n000a\_spl.gz) [FITS](#) 4198 kB updated: 2007/08/18 19:04:39
- XIS Products XIS3 Bkg Spectrum (ae700006010xi3\_0\_3x3n000a\_bg.pl.gz) [FITS](#) 1917 kB updated: 2007/08/18 19:04:39

**Suzaku Auxiliary Data**

- Auxil All Data (auxil) [DIRECTORY](#) 115626 kB updated: 2007/08/18 19:04:39
- Auxil: Attitude File (ae700006010.att.gz) [FITS](#) 33566 kB updated: 2007/08/18 19:04:33
- Auxil: Catalog of Files (ae700006010.cat.gz) [FITS](#) 6 kB updated: 2007/08/18 19:04:34
- Auxil: Extended HK File (ae700006010.ehk.gz) [FITS](#) 19803 kB updated: 2007/08/18 19:04:35
- Auxil: General HK File (ae700006010.hk.gz) [FITS](#) 34330 kB updated: 2007/08/18 19:04:37
- Auxil: Make Filter File (ae700006010.mk.f.gz) [FITS](#) 21805 kB updated: 2007/08/18 19:04:38
- Auxil: Orbit Data File (ae700006010.orb.gz) [FITS](#) 4198 kB updated: 2007/08/18 19:04:39
- Auxil: Timing Correction File (ae700006010.tim.gz) [FITS](#) 1917 kB updated: 2007/08/18 19:04:39

TAR selected products Create Download Script Reset

Save to Hera What is Hera?

Page maintainer: [Browse Feedback](#)

Done

select products, and remember to scroll down to the bottom to actually get the tar file/download script

# Getting Chandra data: Chaser

cda.harvard.edu/chaser

File Edit View History Bookmarks Tools Help

http://cda.harvard.edu/chaser/ Google

Chandra Data Archive: Observ...

**Chandra X-ray Center** [New Search](#) [Retrieval List](#) [Help](#) 

Search Reset

Target Name   RA/Long/l  Dec/Lat/b  Radius 10 arcmin

Name Resolver SIMBAD/NED  Coordinate System Equatorial J2000  Equinox 2000

---

Observation ID  Sequence Number  Proposal Number

Proposal Title  PI Name  Observer Name

Start Date  Public Release Date

Exposure Time (ks)  Avg. Count Rate (hz)

---

Status Archived  Observed  Scheduled  Unobserved  Untinggered

Science Category Solar System  Stars and WD  WD Binaries and CV  BH and NS Binaries  SN, SNR and Isolated NS

Proposal Cycle A00  A01  A02  A03  A04

Joint Observatories None  HST  NOAO  NRAO  RXTE

Instrument ACIS-I  ACIS-S  HRC-I  HRC-S

Grating None  LETG  HETG

Type GO  GTO  TOO  DDT

Exposure Mode TE  CC

Grid

---

**Customize Output:**

Sort Order Status   ascending  descending

Display Format HTML  Row Limit 50

Coordinate System Equatorial J2000  Equinox 2000  Format Sexagesimal (hh/dd mm ss.ss)

For online support please contact the [CXC Helpdesk](#).

## Chaser: search results

Click on e.g. 'select all' and then 'add to retrieval list'

File Edit View History Bookmarks Tools Help

http://cda.harvard.edu/chaser/dispatchOcat.do;jsessionid=s4klTvgRkLLZtHTD5npTSpBKGWKhwl8td1RDzZKtc

Chandra Data Archive: Search...



### Search Results



[New Search](#)
[Retrieval List](#)
[Help](#)

[Primary products](#)  
 [Secondary products](#)

[Select all](#) | [Unselect all](#)

Select	Row	Seq Num	Obs ID	Instrument	Grating	Appr Exp	Exposure	Target Name	PI Name	RA	Dec	Status	Data Mode	Exp Mode	Avg Cnt
<input checked="" type="checkbox"/>	1	600089	786	ACIS-S	NONE	50.0	46.85	M33	McDowell	01 33 50.80	+30 39 36.60	archived	FAINT	TE	
<input checked="" type="checkbox"/>	2	600090	787	ACIS-S	NONE	10.0	9.66	M33 X-8	McDowell	01 33 50.80	+30 39 36.60	archived	FAINT	TE	
<input checked="" type="checkbox"/>	3	600145	1730	ACIS-I	NONE	50.0	50.07	M33	McDowell	01 33 50.80	+30 39 36.60	archived	VFAINT	TE	
<input type="checkbox"/>	4	600322	3948	HRC-S	NONE	5.0	5.35	M33 X-8 (NUCLEUS)	DUBUS	01 33 50.80	+30 39 36.80	archived			12
<input type="checkbox"/>	5	600478	6376	ACIS-I	NONE	100.0	94.27	M33 Field 1	Sasaki	01 33 50.80	+30 39 36.60	archived	VFAINT	TE	
<input type="checkbox"/>	6	600479	6377	ACIS-I	NONE	100.0	94.07	M33 Field 1	Sasaki	01 33 50.80	+30 39 36.60	archived	VFAINT	TE	
<input type="checkbox"/>	7	600480	6378	ACIS-I	NONE	100.0	111.65	M33 Field 2	Sasaki	01 34 13.80	+30 47 48.10	archived	VFAINT	TE	
<input type="checkbox"/>	8	600481	6379	ACIS-I	NONE	55.0	54.26	M33 Field 2	Sasaki	01 34 13.80	+30 47 48.10	archived	VFAINT	TE	
<input type="checkbox"/>	9	600481	7402	ACIS-I	NONE	45.0	45.16	M33 Field 2	Sasaki	01 34 13.80	+30 47 48.10	archived	VFAINT	TE	

**28 observations found** [Change Search Criteria](#)

Target Name=M33  
 Status=archived; observed; scheduled; unobserved; untriggered  
 Sort Order=Status ascending

For online support please contact the [CXC Helpdesk](#).

# Chaser: retrieval list

Now click on 'Retrieve products'

File Edit View History Bookmarks Tools Help

http://cda.harvard.edu/chaser/dispatchOcatResults.do

KK Toolbar CIAO Google GNews SpaceTrack NK SFN CfACal NW Babel CfALib WX DSWeekly HVMA

Chandra Data Archive: Retrie...

**Chandra X-ray Center** [New Search](#) [Retrieval List](#) [Help](#)

[Browse Products](#) [Retrieve Products](#) [Chandra Data Archive](#) Not logged in [Login](#) [Remove All](#)

Row	Product	Seq Num	Obs ID	Instrument	Target Name	PI Name	Status	Public Release Date	Remove
1	primary	600322	3948	HRC-S	M33 X-8 (NUCLEUS)	DUBUS	archived	2004-08-13 20:15:06	<a href="#">Remove</a>
2	secondary	600322	3948	HRC-S	M33 X-8 (NUCLEUS)	DUBUS	archived	2004-08-13 20:15:06	<a href="#">Remove</a>
3	primary	600145	1730	ACIS-I	M33	McDowell	archived	2001-07-18 18:30:00	<a href="#">Remove</a>
4	secondary	600145	1730	ACIS-I	M33				
5	primary	600089	786	ACIS-S	M33				
6	secondary	600089	786	ACIS-S	M33				
7	primary	600090	787	ACIS-S	M33 X-8				
8	secondary	600090	787	ACIS-S	M33 X-8				
9	primary	600478	6376	ACIS-I	M33 Field 1				
10	secondary	600478	6376	ACIS-I	M33 Field 1				
11	primary	600479	6377	ACIS-I	M33 Field 1				
12	secondary	600479	6377	ACIS-I	M33 Field 1				
13	primary	600480	6378	ACIS-I	M33 Field 2				
14	secondary	600480	6378	ACIS-I	M33 Field 2				
15	primary	600481	6379	ACIS-I	M33 Field 2				
16	secondary	600481	6379	ACIS-I	M33 Field 2				
17	primary	600482	6380	ACIS-I	M33 Field 3				
18	secondary	600482	6380	ACIS-I	M33 Field 3				
19	primary	600483	6381	ACIS-I	M33 Field 3				
20	secondary	600483	6381	ACIS-I	M33 Field 3				
21	primary	600484	6382	ACIS-I	M33 Field 4				
22	secondary	600484	6382	ACIS-I	M33 Field 4				
23	primary	600485	6383	ACIS-I	M33 Field 4				

File Edit View History Bookmarks Tools Help

http://cda.harvard.edu/chaser/dispatchRetrievalList.do

KK Toolbar CIAO Google GNews SpaceTrack NK SFN CfACal NW Babel CfALib WX DSWeekly HVMA

Chandra Data Archive: Retrie...

**Chandra X-ray Center** [New Search](#) [Retrieval List](#) [Help](#)

**Retrieval Results**

Your requested data will be available at <http://cdfaftp.cfa.harvard.edu/pub/stage/MJpVCOOK/>. It may take several minutes before your data are ready for retrieval.

Would you like to [view the status of your retrieval](#)?

Would you like to receive email notification when your data are ready?  
 Email:

For online support please contact the [CXC Helpdesk](#).

Done

# Chandra Fast Image: [cda.harvard.edu/pop](http://cda.harvard.edu/pop)

File Edit View History Bookmarks Tools Help

http://cda.harvard.edu/pop/

Chandra X-ray Center

## Chandra Data Archive Search

Quick Picture [Advanced Search](#) [Help](#)

### Quick Picture

Search by name    **Name**

Search by position    **RA**     **Dec**

File Edit View History Bookmarks Tools Help

http://cda.harvard.edu/pop/dispatchQuick.do

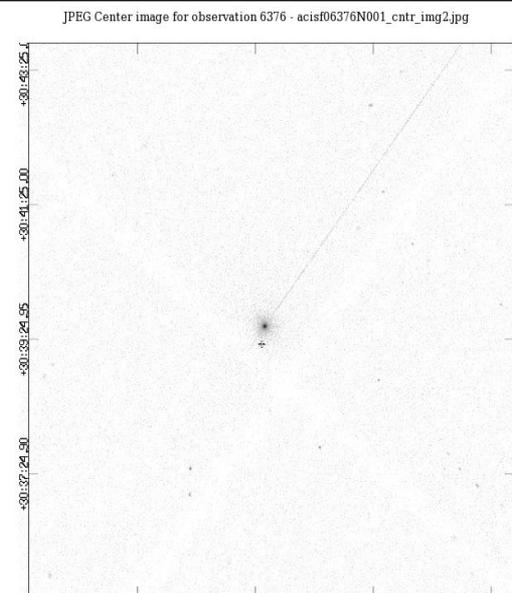
Chandra X-ray Center

## Chandra Data Archive Results

[Quick Picture](#) [Advanced Search](#) [Help](#)

For online support please contact the [CXO](#)

Done



# CIAO: download\_chandra\_obsid

If you know the observation ID and you have CIAO installed, a simple command line can get you the data:

```
neptune> download_chandra_obsid 945  
Downloading files for ObsId 945, total size is 200 Mb.
```

Type	Format	Size	0.....H.....1	Download Time	Average Rate
vv	pdf	79 Kb	#####	< 1 s	83.0 kb/s
oif	fits	25 Kb	#####	< 1 s	52.0 kb/s
sum	html	2 Kb	#####	< 1 s	6.1 kb/s
sum	ps	2 Mb	#####	19 s	94.0 kb/s
sum	html	4 Kb	#####	< 1 s	5.8 kb/s
sum	html	3 Kb	#####	< 1 s	3.5 kb/s
cntr_img	fits	146 Kb	#####	2 s	70.4 kb/s
cntr_img	jpg	666 Kb	#####	6 s	113.5 kb/s
evt2	fits	21 Mb	#####	3 m	118.1 kb/s
full_img	fits	88 Kb	#####	1 s	67.6 kb/s
full_img	jpg	61 Kb	#####	< 1 s	64.9 kb/s
src2	fits	22 Kb	#####	< 1 s	43.2 kb/s
src_img	jpg	62 Kb	#####	< 1 s	70.6 kb/s
bpix	fits	13 Kb	#####	< 1 s	25.7 kb/s
fov	fits	6 Kb	#####	< 1 s	13.5 kb/s
eph1	fits	281 Kb	#####	4 s	73.3 kb/s
asol	fits	13 Mb	#####	1 m 57 s	109.8 kb/s
aoff	fits	5 Mb	#####	51 s	109.9 kb/s
evt1	fits	139 Mb	#####	19 m 56 s	118.7 kb/s
flt	fits	7 Kb	#####	< 1 s	16.0 kb/s
msk	fits	5 Kb	#####	< 1 s	14.2 kb/s
mtl	fits	2 Mb	#####	29 s	71.4 kb/s
soff	fits	5 Kb	#####	< 1 s	15.9 kb/s
stat	fits	2 Mb	#####	19 s	92.8 kb/s
bias	fits	430 Kb	#####	8 s	55.9 kb/s
bias	fits	491 Kb	#####	4 s	113.1 kb/s
bias	fits	425 Kb	#####	4 s	111.3 kb/s
bias	fits	431 Kb	#####	4 s	106.6 kb/s
bias	fits	430 Kb	#####	4 s	112.0 kb/s
bias	fits	433 Kb	#####	4 s	110.2 kb/s
pbk	fits	4 Kb	#####	< 1 s	12.8 kb/s
vv	pdf	9 Mb	#####	1 m 31 s	101.8 kb/s
eph1	fits	18 Kb	#####	< 1 s	42.7 kb/s
eph1	fits	274 Kb	#####	3 s	106.8 kb/s
eph1	fits	252 Kb	#####	3 s	96.3 kb/s
osol	fits	352 Kb	#####	4 s	98.4 kb/s
aqual	fits	758 Kb	#####	7 s	103.1 kb/s
osol	fits	353 Kb	#####	7 s	52.0 kb/s
osol	fits	348 Kb	#####	3 s	108.6 kb/s
osol	fits	347 Kb	#####	3 s	108.3 kb/s
osol	fits	342 Kb	#####	3 s	107.6 kb/s
osol	fits	347 Kb	#####	3 s	106.7 kb/s
osol	fits	347 Kb	#####	3 s	108.7 kb/s
osol	fits	347 Kb	#####	3 s	109.2 kb/s
osol	fits	360 Kb	#####	3 s	109.8 kb/s

```
Total download size for ObsId 945 = 200 Mb  
Total download time for ObsId 945 = 29 m 56 s
```

```
neptune>  
neptune>  
neptune> ls 945/  
axaff00945N001_VV001_vv2.pdf oif.fits primary/ secondary/  
neptune> ls 945/primary  
acisf00945N003_1_sum2.html acisf00945N003_cntr_img2.jpg acisf00945N003_src_img2.jpg  
acisf00945N003_1_sum2.ps acisf00945N003_evt2.fits.gz acisf00945_000N003_bpix1.fits.gz  
acisf00945N003_2_sum2.html acisf00945N003_full_img2.fits.gz acisf00945_000N003_fov1.fits.gz  
acisf00945N003_3_sum2.html acisf00945N003_full_img2.jpg orbitf079358700N001_eph1.fits.gz  
acisf00945N003_cntr_img2.fits.gz acisf00945N003_src2.fits.gz pcdaf079384137N003_asol1.fits.gz  
neptune> ls 945/secondary  
acisf00945_000N003_aoff1.fits.gz acisf00945_000N003_stat1.fits.gz acisf079384196N003_5_bias0.fits.gz  
acisf00945_000N003_evt1.fits.gz acisf079384196N003_0_bias0.fits.gz acisf079385498N003_pbk0.fits.gz  
acisf00945_000N003_flt1.fits.gz acisf079384196N003_1_bias0.fits.gz aspect/  
acisf00945_000N003_msk1.fits.gz acisf079384196N003_2_bias0.fits.gz axaff00945N001_VV001_vvref2.pdf.gz  
acisf00945_000N003_mtl1.fits.gz acisf079384196N003_3_bias0.fits.gz ephem/  
acisf00945_000N003_soff1.fits.gz acisf079384196N003_4_bias0.fits.gz  
neptune> □
```

# Chandra Footprint Service

File Edit View History Bookmarks Tools Help

http://cxc.harvard.edu/cda/footprint/cdview.html#Footprints|filterText%3D%24filterTypes%3D|query\_string=Arp 2

Chandra Data Archive (Arp 220)



## Chandra Footprint Service

Arp 220   [Search Options](#)

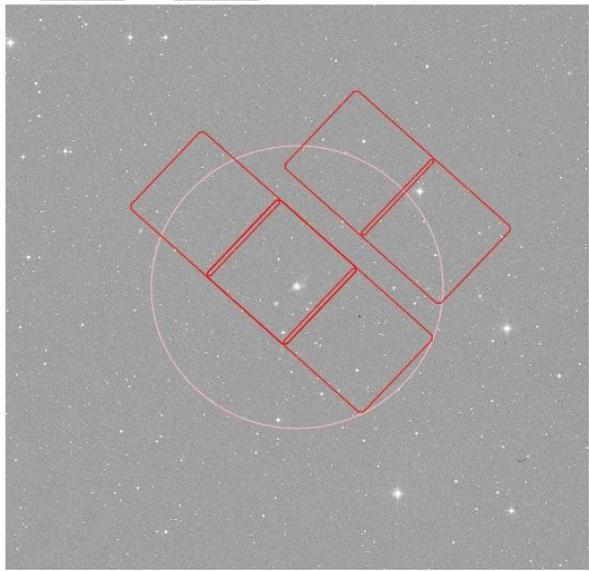
Examples: Eta Carinae: 10 45 03.591 -59 41 04.26 r=0.2d.  
Requires Firefox 3, Safari 4, IE8, or compatible browser

- Footprints
- Image Inventory
- Preview Images/Download Data
- Help
- FAQ

Arp 220 RA =233.738633 Dec = 23.502911 r = 0.200000 [15:34:57.272 +23:30:10.48]

Instrument: RA  DEC  Search Radius (deg): 0.2

- ACIS-I
- ACIS-S
- HRC-I
- HRC-S
- Footprints to display:
  - All Public Observations
  - CSC Coverage ?
- Show DSS Image:
- [Get VOTable ?](#)



Results 1- 1 Show  results per page

Click column heading to sort list - Click rows to select  
[Download Selected ObsIDs](#)  
 Show selected rows: [First](#) [Mixed](#) [Only](#) [Not](#) [Reset selection](#)

Text boxes under column headings allow specifying a filter to be applied to columns [Apply Filter](#) [Clear Filter](#)

ObsID	Target	Observation Date	RA	DEC	Proposal ID	PI Last Name	Instrument	Exposure	Grating	JPEG Preview	«	»
869	ARP 220	2000-06-24T15:01:00	15:34:57.11	23:30:12.0	1700748	Clements	ACIS-S	57.18	NONE	<a href="#">JPEG</a>		

Done

## Some other Chandra archive options:

Bibliography search for Chandra papers on an object

<http://cxc.harvard.edu/cgi-gen/cda/bibliography>

Chandra source catalog (discussed later)

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

Chandra source catalog cross-match with SDSS

<http://cxc.harvard.edu/cgi-gen/cda/CSC-SDSSxmatch.html>

# XMM-Newton Science Archive

Java Runtime Environment-based interface provides access to all XMM-Newton datasets: <http://xmm.esac.esa.int/xsa>

(warning: Linux boxes may not have JRE by default)

Must register (get username and password)

Can also use the “AIO” (Archive Interoperability Subsystem)

<http://xsa.esac.esa.int:8080/aio/doc/index.html>

# XMM interface (via Java Web Start)

File Print/Save Results Find Field Radiation Monitor Documentation Help

esa XMM-Newton Science Archive European Space Agency

Query Specification Latest Results Shopping Basket Login/Register Logout Request Monitor

Not Logged In Idle Session Expires in: 23.9 hours

Execute Query Cancel Query View/Edit SQL

Results Display Observations Sort Criterion Observation Start Time Sort Order Ascending

Close Principal Search Criteria Clear

Observation ID File with Observation ID List

Search Target By  Name  Equatorial  Galactic  Ecliptic

Name for SIMBAD Arp 220 Radius 5

File With Target List Locate File Co

Obs. Status Any Obs. Mode Pointed Observed

Open Slew Data Product Search

Open Orbit and Data Processing

Open Proposal

Open Exposures

Open XMM-Newton EPIC Source Catalogue

Open XMM-Newton OM Source Catalogue

Open XMM-Newton Slew Source Catalogue

File Print/Save Results Find Field Radiation Monitor Documentation

esa XMM-Newton Science Archive European Space Agency

Query Specification Latest Results Shopping Basket Login/Register Logout Request Monitor

Not Logged In Idle Session Expires in: 23.9 hours

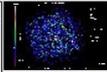
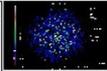
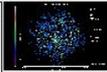
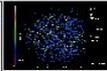
Move Selected to Basket Move All to Basket Mark All Delete Selected ALADIN

Observations 5. Shown: 1st until 5th 25 in Page

Search Centre: 15h34m57.27s +23d30'10.5" (J2000)

Observations  Exposures  Sources

Observation Info  
Exposures info  
Proposal info  
Epic Image  
Relat. Light Curve

Exposures	53 Sources	0101640801 Arp 220	15h34m57.11s +23d30'16.0"	6 arcsec	Gallery
<input type="checkbox"/>	XID observations	0489 2002-08-11 08:16:20.0 2002-08-11 12:09:15.0 13975 Bernd Aschenbach			
	Details Articles	EPN FF(1) MOS1 FF(1) MOS2 FF(1) RGS1 SES(1) RGS2 SES(1) OM V(5)			
	Query Other Archives	AGNs, QSOs and BL-Lacs IR GALAXY RADIO (P) Guest Observer Public Data Quality Report			
	Retrieve				
Exposures	55 Sources	0101640901 Arp 220	15h34m57.11s +23d30'16.0"	6 arcsec	Gallery
<input checked="" type="checkbox"/>	XID observations	0568 2003-01-15 20:07:31.0 2003-01-16 00:15:16.0 14865 Bernd Aschenbach			
	Details Articles	EPN FF(1) MOS1 FF(1) MOS2 FF(1) RGS1 SES(1) RGS2 SES(1) OM UVM2(1) OM V(3)			
	Query Other Archives	AGNs, QSOs and BL-Lacs IR GALAXY RADIO (P) Guest Observer Public Data Quality Report			
	Retrieve				
Exposures	27 Sources	0205510201 ARP220	15h34m57.11s +23d30'11.5"	2 arcsec	Gallery
<input checked="" type="checkbox"/>	XID observations	0934 2005-01-14 22:20:13.0 2005-01-15 08:08:19.0 35286 David Sanders			
	Details Articles	EPN FF(1) MOS1 FF(1) MOS2 FF(1) RGS1 SES(1) RGS2 SES(1) OM U(2) OM B(1) OM UVM1(2)			
	Query Other Archives	Active Galactic Nuclei, Quasars, EIR GALAXY RADIO (P) Guest Observer Public Data Quality Report			
	Retrieve				
Exposures	11 Sources	0205510401 ARP220	15h34m57.11s +23d30'11.5"	2 arcsec	Gallery
<input type="checkbox"/>	XID observations	0952 2005-02-19 21:18:44.0 2005-02-20 05:22:12.0 29008 David Sanders			
	Details Articles	EPN FF(2) MOS1 FF(1) MOS2 FF(1) RGS1 SES(1) RGS2 SES(1) OM UVM1(1) OM UVM2(3)			
	Query Other Archives	Active Galactic Nuclei, Quasars, EIR GALAXY RADIO (P) Guest Observer Public Data Quality Report			
	Retrieve				
Exposures	20 Sources	0205510501 ARP220	15h34m57.11s +23d30'11.5"	2 arcsec	Gallery

Start of List Previous Next End of List

## Mirror sites and archives outside USA

Several sites mirror some datasets. You should use these if you are physically located near them.

LEDAS at Leicester University in the UK has mirrors of the ASCA, ROSAT archives and the XMM source catalog (<http://ledas-www.star.le.ac.uk>). (The Chandra mirror was retired in 2009)

DARTS at ISAS/JAXA in Japan has several archival datasets including a mirror of the ROSAT All-sky survey (<http://darts.isas.jaxa.jp>).

ASDC in Italy has BeppoSAX, ASCA, and ROSAT datasets, among others (<http://www.asdc.asi.it>).

# Calibration databases

One of the problems in X-ray astronomy is the large number of files that are usually required to store all the calibration information for an instrument.

There are two types of calibration databases in use: the HEASARC CALDB used for Chandra and GSFC-supported missions, which has a directory structure and indexing system for calibration FITS data; software uses the index to find out which files are needed for a particular observation.

For HEASARC missions, remote CALDB access is available via instructions at [http://heasarc.nasa.gov/docs/heasarc/caldb/caldb\\_remote\\_access.html](http://heasarc.nasa.gov/docs/heasarc/caldb/caldb_remote_access.html) and the data is at [heasarc.gsfc.nasa.gov/FTP/caldb/data](http://heasarc.gsfc.nasa.gov/FTP/caldb/data) and can be downloaded using a wget-based approach -see the caldb intro page [caldb/caldb\\_intro.html](http://heasarc.gsfc.nasa.gov/FTP/caldb/caldb_intro.html)

For Chandra, the ciao-install tool will automatically download the CALDB.

The XMM mission has its own set of calibration files that use a different approach – CIF and CCF files.. Can download those needed for your observation date using

[xmm.vilspa.esa.es/external/xmm\\_sw\\_cal/calib/cifbuild.shtml](http://xmm.vilspa.esa.es/external/xmm_sw_cal/calib/cifbuild.shtml)



National Aeronautics and Space Administration  
Goddard Space Flight Center  
Sciences and Exploration

GO Search HEASARC website [Advanced Search]

HEASARC QuickLinks  
---Quick Links---

HEASARC Home Observatories Archive Calibration Software Tools

Students/Teachers/Public

# NASA's HEASARC: Calibration Database

Remote Access Documentation Keywords Cross-Calibration Mission-Specific Calibration Info

## The HEASARC Calibration Database

Caldb manager: [Dr. M. F. Corcoran](#)

The HEASARC's calibration database (CALDB) system stores and indexes datasets associated with the calibration of high energy astronomical instrumentation. The system can be accessed by users and software alike to determine which calibration datasets are available, and which should be used for data reduction and analysis. ([Read more...](#))

### User Information

[Supported Missions](#): Missions and Instruments which use the HEASARC CALDB

Find out who's using the CALDB

[Remote Access to the HEASARC CALDB](#)

The easiest way to access calibration data from the HEASARC

[CALDB Documentation Library](#)

CALDB file format definitions, user guides and more. For quick reference, a table listing the [CALDB Header Keywords](#), with brief definitions, is available.

[Cross-Calibration Information](#)

This page contains documents regarding efforts at cross-calibration of X-ray and Gamma-ray instruments.

[CALDB Software](#)

Find out what HEASOFT software interacts with the CALDB.

[Installing, Managing or Creating your own CALDB](#)

Download the HEASARC CALDB and update it, or make your own CALDB

[CALDB Personnel](#)

Who's who at the CALDB (and who was who)

[Need Help?](#)

Take a look at the [HEASARC Frequently Asked Questions](#), or use the [Feedback page](#) to ask a question.

[CALDB Mirror](#)

A mirror of the HEASARC CALDB is available at <http://tda.cfa.harvard.edu/pub/arcftp/heasarc/caldb/>

### Latest News

- [Swift CALDB Data updated](#) (05 Jul 2011)  
The Swift Caldb has been updated for the SC (update version 20110705). This release is the same as the 20110630 release, but fixes a problem with the file names in the caldb.indx file...
  - [Suzaku CALDB updated again](#) (01 Jul 2011)  
The Suzaku CALDB has been updated for the XIS (update version 20110630)...
  - [Chandra CALDB 4.4.5 installed](#) (01 Jul 2011)  
CALDB 4.4.5 is now installed and available at the HEASARC. Note that this release requires CIAO 4.3...
  - [Swift CALDB Data updated](#) (01 Jul 2011)  
The Swift Caldb has been updated for the SC (update version 20110630)...
- [+RSS... \[What?\]](#)  
[+Caldb News Archive](#)  
[+Caldb Mail Archives](#)

Page author: [Michael F. Corcoran](#)

Last updated: Tuesday, 15-Feb-2011 16:54:56 EST.

[HEASARC Home](#) | [Observatories](#) | [Archive](#) | [Calibration](#) | [Software](#) | [Tools](#) | [Students/Teachers/Public](#)

Last modified: Tuesday, 15-Feb-2011 16:54:56 EST

File Edit View History Bookmarks Tools Help

http://xmm.vilspa.esa.es/external/xmm\_sw\_cal/calib/cifbuild.shtml

KK Toolbar CIAO Google GNews SpaceTrack /./ NK SFN CFCaL NW Babel CFCALB tWX DSWeekly HVMA Cambridge Explan...

CIFBuild

AO-11 Timeline  
AO-10 Information  
OTAC Results  
Target Visibility Tool  
Target Search Tool  
Observers Info

TO Alert  
TO Details  
Observation Enhancement  
Long Term Plan  
Scheduled Observations Search  
Scheduled Guided Tour  
Observation Log Browser

Data Analysis  
SAS News  
What is SAS?  
How to use SAS  
SAS Workshops  
SAS Version Changes  
Download and Install SAS  
Science Simulator (SciSim)

Archive & Source Catalogues  
XMM-Newton Science Archive  
Observation & Data Status  
Browsing Interface for RGS Data  
Time Correlation Fix  
XMM-Newton Latest Slew Results  
XMM-Newton Slew Survey  
Live Radiation Monitor Data  
Time Correlated Radiation Monitor  
Calibration & Background  
Calibration  
Background Analysis  
SOC Info  
XMM-Newton Contact Details  
ESA Research Fellowships  
How to get to ESAC  
ESAC Trainee Projects  
ESA Young Graduate Trainees  
About XMM-Newton  
Image Gallery  
XMM-Newton Technical Details  
XMM-Newton SOC Overview  
XMM-Newton 10th Anniversary  
Publications  
Publication Guidelines  
Source Naming Convention  
Other Links  
XMM-Newton SSC  
Project Related Links  
Other X-ray Missions

Using cifbuild

With the following form you can interact with the SAS task **cifbuild**. Only two parameters of that task are of relevance here: the **observation date** and the **analysis date**. Both have the following format `yyyy-mm-ddThh:mm:ss`. The string `now` is also a valid date.

The observation date is available in several places, one of these is in the ODF constituent `TTTT_0000000000_CXX0000000000.SUM.ASC`. For example:

```
OBSERVATION
0052370701 / Observation/Slew Identifier
0269 / Revolution number
2001-05-29T17:16:58 / Scheduled Start Time  <-- Use this c
2001-05-29T20:47:05 / Scheduled Stop Time
```

The analysis date will in general be `now`, but can also be any other c

File Edit View History Bookmarks Tools Help

http://xmm.vilspa.esa.es/ccf-cg/cifbuild.cgi

KK Toolbar CIAO Google GNews SpaceTrack /./ NK SFN CFCaL NW Babel CFCALB tWX DSWeekly HVMA Cambridge Explan...

XMM-Newton Current Calibrat...

Observation date:  [yyyy-mm-ddThm]  [yyyy-mm-ddThm]

Analysis date:  [yyyy-mm-ddThm]

## cifbuild results

**Note:** do not enter an analysis date earlier than 2000-12-01, as the c

**Options**

- Allow me to download the CIF  
This will create a CIF based on the two dates above. You'll b
- Prepare a script to ftp all the CCF constituents  
This will generate a (Unix/Linux) **shell script** with which you c  
the **password** field, make that file **executable**, and run it in t
- Compare with my CIF  
My CIF is:    
This will compare a CIF you upload with the CIF generated at  
selected one of the download options above.
- Allow me to download the individual CCF constituents  
This will generate a list of **ftp links** to the individual CCF consto:

**note :** use the *Save Link As* option in your browser to save the CCF constituents and/or the CIF to your local disk.

### Download the CIF

For the **next hour** you can download the CIF [71.174.33.180\\_8444\\_xmm-newton.cif](#) from our [ftp server](#). File older than one hour are deleted.

### Ftp script

```
#!/bin/sh
# Script to download parts of the XMM-Newton calibration database
# Created: Sun Jul 17 05:49:18 2011
ftp -i -n <<"EOF"
open xmm.vilspa.esa.es
user anonymous password_here
cd /pub/ccf/constituents
bin
hash
get EMOS1_ADUCOIV_0061.CCF
get EMOS1_BACKGROUND_0001.CCF
get EMOS1_BADPIX_0030.CCF
get EMOS1_CALSOURCEDATA_0001.CCF
get EMOS1_CTI_0049.CCF
get EMOS1_DARKFRAME_0013.CCF
get EMOS1_EFFICIENCY_0001.CCF
get EMOS1_FILTERTRANSX_0012.CCF
get EMOS1_HKPARMINT_0008.CCF
get EMOS1_LINCOORD_0018.CCF
get EMOS1_MODEPARAM_0006.CCF
get EMOS1_PATTERNLIB_0005.CCF
get EMOS1_QUANTUMEF_0018.CCF
get EMOS1_REDIST_0096.CCF
get EMOS1_SCREENRESH_0001.CCF
get EMOS1_TIMECORR_0003.CCF
get EMOS2_ADUCOIV_0062.CCF
get EMOS2_BACKGROUND_0001.CCF
get EMOS2_BADPIX_0022.CCF
get EMOS2_CALSOURCEDATA_0001.CCF
get EMOS2_CTI_0050.CCF
get EMOS2_DARKFRAME_0013.CCF
get EMOS2_EFFICIENCY_0001.CCF
get EMOS2_FILTERTRANSX_0012.CCF
get EMOS2_HKPARMINT_0008.CCF
get EMOS2_LINCOORD_0018.CCF
get EMOS2_MODEPARAM_0006.CCF
get EMOS2_PATTERNLIB_0005.CCF
get EMOS2_QUANTUMEF_0018.CCF
get EMOS2_DERIVT_0096.CCF
```

## Part 2: Catalogs

## Catalog pipelines in X-ray astronomy

For early missions (Uhuru, HEAO-1) the catalog **was** the science product  
With imaging missions – Einstein was the first – a new challenge:  
serendipitous source detection in targeted image observations

Challenging to make a UNIFORM catalog from data with different  
observing modes, backgrounds and exposure times.

Einstein 2E catalog – 4800 sources

ROSAT all sky catalog – 100000 sources

2XMMi-DR3 catalog – 192000 sources

Chandra CSC1.1 - 106000 sources

## 2XMM catalog(ue)

<http://xmmssc-www.star.le.ac.uk/Catalogue/2XMMi-DR3>

with FITS download at 2XMMi-DR3cat\_v1.0.fits.gz under that URL  
with 299 columns and one line per detection  
and 2XMMi\_DR3cat\_slim\_v1.0.fits.gz with a subset of 38 columns  
and one line per source

# Chandra Source Catalog

An example of how to download a version of the catalog roughly equivalent to XMM's “slim”:

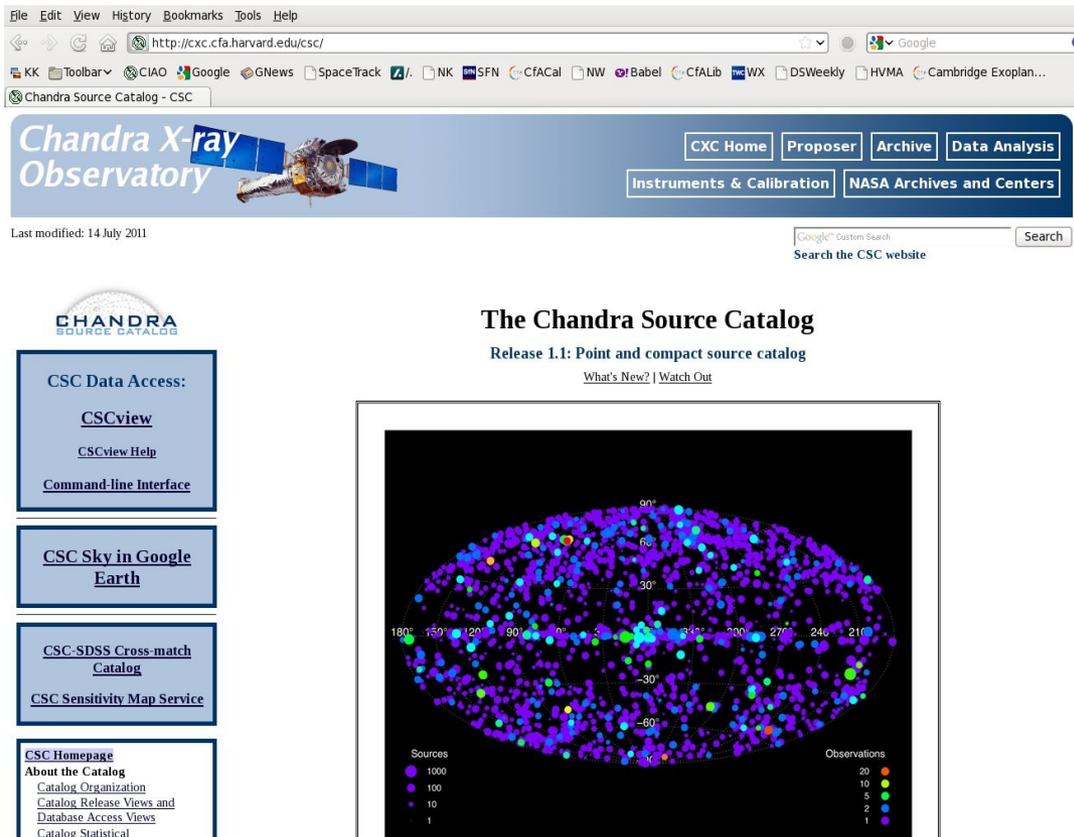
```
wget -O csc.cat "http://cda.cfa.harvard.edu/csccli/getProperties?nullAppearance=-99
&coordFormat=decimal&query=SELECT
m.name,m.ra,m.dec,m.err_ellipse_r0,m.conf_flag,m.sat_src_flag,m.significance,m.flux_aper_b,
m.flux_aper_lolim_b,m.flux_aper_hilim_b,m.flux_aper_w,m.flux_aper_lolim_w,m.flux_aper_h
ilim_w,m.flux_aper_s,m.flux_aper_lolim_s,m.flux_aper_hilim_s,m.flux_aper_m,m.flux_aper_l
olim_m,m.flux_aper_hilim_m,m.flux_aper_h,m.flux_aper_lolim_h,m.flux_aper_hilim_h,m.ext
ent_flag,m.hard_hm,m.hard_hm_lolim,m.hard_hm_hilim,m.hard_ms,m.hard_ms_lolim,m.hard
_ms_hilim,m.var_intra_index_b,m.var_inter_index_b,m.var_intra_index_w,m.var_inter_index_
w FROM master_source m"
```

I've placed the CSC1.1 results for this query at

<http://planet4589.org/sci/csc/csc.cat>

# Using the CSC

Instead of downloading the whole catalog you can use the sophisticated Java application CSCView

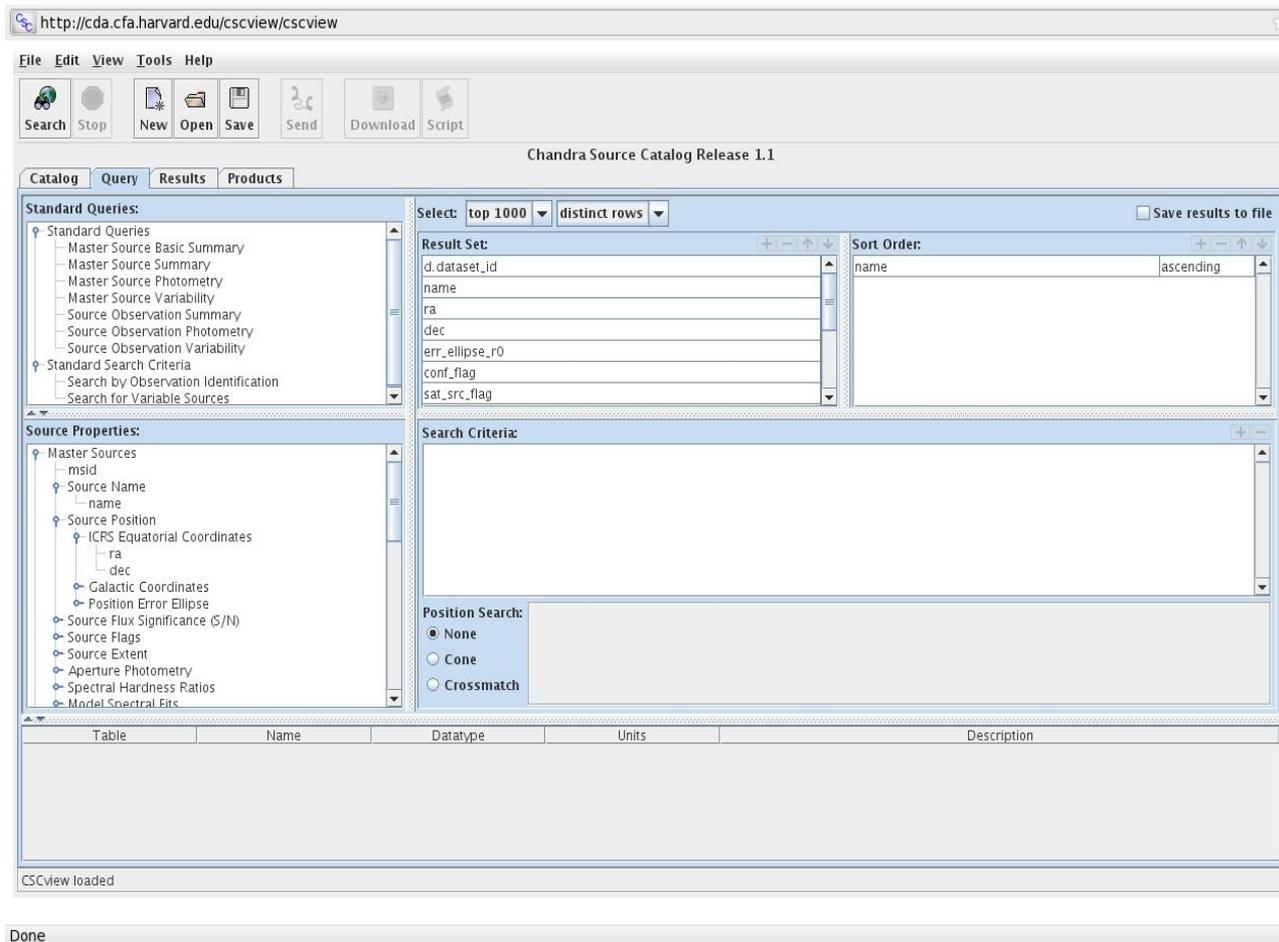


The screenshot shows the Chandra Source Catalog website. At the top, there is a navigation bar with links for [CXC Home](#), [Proposer](#), [Archive](#), [Data Analysis](#), [Instruments & Calibration](#), and [NASA Archives and Centers](#). Below this is a search bar with the text "Search the CSC website" and a "Search" button. The main content area features the Chandra Source Catalog logo and the title "The Chandra Source Catalog" with the subtitle "Release 1.1: Point and compact source catalog". A sidebar on the left contains several links: "CSC Data Access:" with sub-links for [CSCview](#), [CSCview Help](#), and [Command-line Interface](#); "CSC Sky in Google Earth"; "CSC-SDSS Cross-match Catalog"; "CSC Sensitivity Map Service"; and "CSC Homepage" with sub-links for [About the Catalog](#), [Catalog Organization](#), [Catalog Release Views and Database Access Views](#), and [Catalog Statistical](#). The main content area displays a sky map with a grid of latitude and longitude lines. The map is filled with numerous colored dots representing sources. A legend at the bottom left indicates the number of sources per dot: 1000 (purple), 100 (blue), 10 (green), and 1 (yellow). A legend at the bottom right indicates the number of observations per dot: 20 (red), 10 (orange), 5 (yellow), 2 (green), and 1 (blue).

# CSCView documentation

<http://cxc.cfa.harvard.edu/csc/gui/intro.html>

First click 'cone'  
then click  
'Master source  
summary'



# CSCView start window

The screenshot shows the CSCView web interface for Chandra Source Catalog Release 1.1. The browser address bar shows <http://cda.cfa.harvard.edu/cscview/cscview>. The interface includes a menu bar (File, Edit, View, Tools, Help) and a toolbar with buttons for Search, Stop, New, Open, Save, Send, Download, and Script. The main content area is divided into several sections:

- Standard Queries:** A tree view on the left showing various query categories like Master Source Basic Summary, Source Observation Photometry, and Search for Variable Sources.
- Source Properties:** A tree view on the left showing properties like Source Name, Source Position, and Source Flux Significance.
- Select:** A dropdown menu set to "top 1000" and "distinct rows".
- Result Set:** A list of columns to be displayed, including separation, d.dataset\_id, name, ra, dec, err\_ellipse\_r0, conf\_flag, sat\_src\_flag, significance, and flux\_aper\_b.
- Sort Order:** A list of columns to be sorted, with "separation" set to "ascending" and "name" set to "ascending".
- Search Criteria:** A large empty text area for entering search criteria.
- Position Search:** Radio buttons for "None", "Cone", and "Crossmatch". The "Cone" option is selected. Below it, there are fields for "Name", "Resolver" (set to "Simbad/NED"), "Radius" (set to "1.0 arcmin"), and a dropdown for "Equatorial".
- Table:** A table at the bottom showing the structure of the data products, with columns for Name, Datatype, Units, and Description.

Table	Name	Datatype	Units	Description
Data Products	dataset_id	int		Dataset identifier used to access Data Products
Master Sources	name	varchar		Source name in the format 'CXOU Jhhmmss.s +/- ddmms'
Master Sources	ra	double	deg	Source position, ICRS right ascension
Master Sources	dec	double	deg	Source position, ICRS declination
Master Sources	err_ellipse_r0	double	arcsec	Major radius of the 95% confidence level error ellipse
Master Sources	conf_flag	boolean		Source regions overlap (source is confused)
Master Sources	sat_src_flag	boolean		Source is saturated in all observations; source properties are unreliable
Master Sources	significance	double		Highest source flux significance across all observations
Master Sources	flux_aper_b	double	erg/s*cm^2	Aperture-corrected net energy flux inferred from the source region aperture, calculated by counting X-ray events, ACIS broad energy band
Master Sources	flux_aper_lolim_b	double	erg/s*cm^2	Aperture-corrected net energy flux inferred from the source region aperture, calculated by counting X-ray events (95% lower confidence limit), ACIS broad energy band

Enter source name and then click Search button at top left

Warning: note default search limit of 1000

# CSCView results window

http://cda.cfa.harvard.edu/cscview/cscview

File Edit View Tools Help

Search Stop New Open Save Send Download Script

Chandra Source Catalog Release 1.1

Catalog Query Results Products

Data Products:  Select all 5 rows returned

**Source Region:**

- Event List
- Image
- Spectrum
- ARF
- RMF
- Exposure Map
- PSF
- Light Curve
- Region

**Full Field:**

- Event List
- Image
- Background Image
- Exposure Map
- Sensitivity Map
- Aspect Histogram
- Bad Pixel File
- Field of View

**Energy Bands:**

- wide [HRC]  broad [ACIS]
- hard [ACIS]  medium [ACIS]
- soft [ACIS]  ultrasoft [ACIS]

Select	View	separation (arcsec)	d.dataset_id	name	ra	dec	err_ellipse_r0 (arcsec)	conf_flag	sat_src_flag	significance	flux_aper_b (erg/s*cm^2)	flux_aper_lolim_b (erg/s*cm^2)	flux_aper. (erg/s*c
<input checked="" type="checkbox"/>	q	0.20	246403	CXO J191149.5+045857	19 11 49.57	+04 58 57.71	0.18	TRUE	FALSE	158.46	4.980e-12	4.947e-12	5.0
<input type="checkbox"/>	q	2.77	246405	CXO J191149.3+045858	19 11 49.39	+04 58 58.73	0.35	TRUE	FALSE	6.81			
<input type="checkbox"/>	q	3.12	246452	CXO J191149.3+045857	19 11 49.36	+04 58 57.55	0.33	TRUE	FALSE	6.01			
<input type="checkbox"/>	q	3.33	246402	CXO J191149.7+045857	19 11 49.79	+04 58 57.07	0.47	FALSE	FALSE	4.88			
<input type="checkbox"/>	q	38.75	253039	CXO J191148.5+045933	19 11 48.52	+04 59 33.32	0.50	FALSE	FALSE	5.05	5.563e-15	4.076e-15	7.0

Product Type	Product Specifier	Format	Description
Source Region Event List	regev3	FITS table	Photon event list, with associated GTIs recorded in consecutive FITS HDUs
Source Region PI Spectrum	spectrum	FITS table	(ACIS-only) Per-energy-band pulse-invariant source region aperture and background region aperture spectra, with associated GTIs, in consecutive FITS HDUs
Source Region ARF	arf	FITS table	Ancillary response file; table of telescope plus detector effective area (cm^2) vs. energy bin
Source Region RMF	rmf	FITS table	(ACIS-only) Detector redistribution matrix file

Search completed

Now have results!  
Can do even better and get associated data products: select source and click desired products

http://cda.cfa.harvard.edu/cscview/cscview

File Edit View Tools Help



Chandra Source Catalog Release 1.1

Catalog Query Results Products

Select all 2 files found

Select	Name	Size (bytes)	Product	Format
<input type="checkbox"/>	hrcf06600_000N001_r0002_arf3.fits	43,200	Source Region ARF	FITS table
<input type="checkbox"/>	hrcf06600_000N001_r0002_regev43.fits	1,321,920	Source Region Event List	FITS table

Search completed

Done

CSC is a point source catalog – chips with large extended sources are omitted.  
This is probably why you're not finding your favorite source!  
Here is an example, using Chandra Sky in Google Earth

