

XRISM Data Archive, Data Products, and Software

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The 3rd XRISM Community Workshop

Useful Websites and Documents

The XRISM Data Analysis page:

<https://heasarc.gsfc.nasa.gov/docs/xrism/analysis/index.html>

The XRISM Data Archive page:

<https://heasarc.gsfc.nasa.gov/docs/xrism/archive/index.html>

The XRISM Data Reduction Guide - also known as the ABC guide:

https://heasarc.gsfc.nasa.gov/docs/xrism/analysis/abc_guide/

https://heasarc.gsfc.nasa.gov/docs/xrism/analysis/abc_guide/

[xrism_abc.pdf](#)

XRISM ARCHIVE:

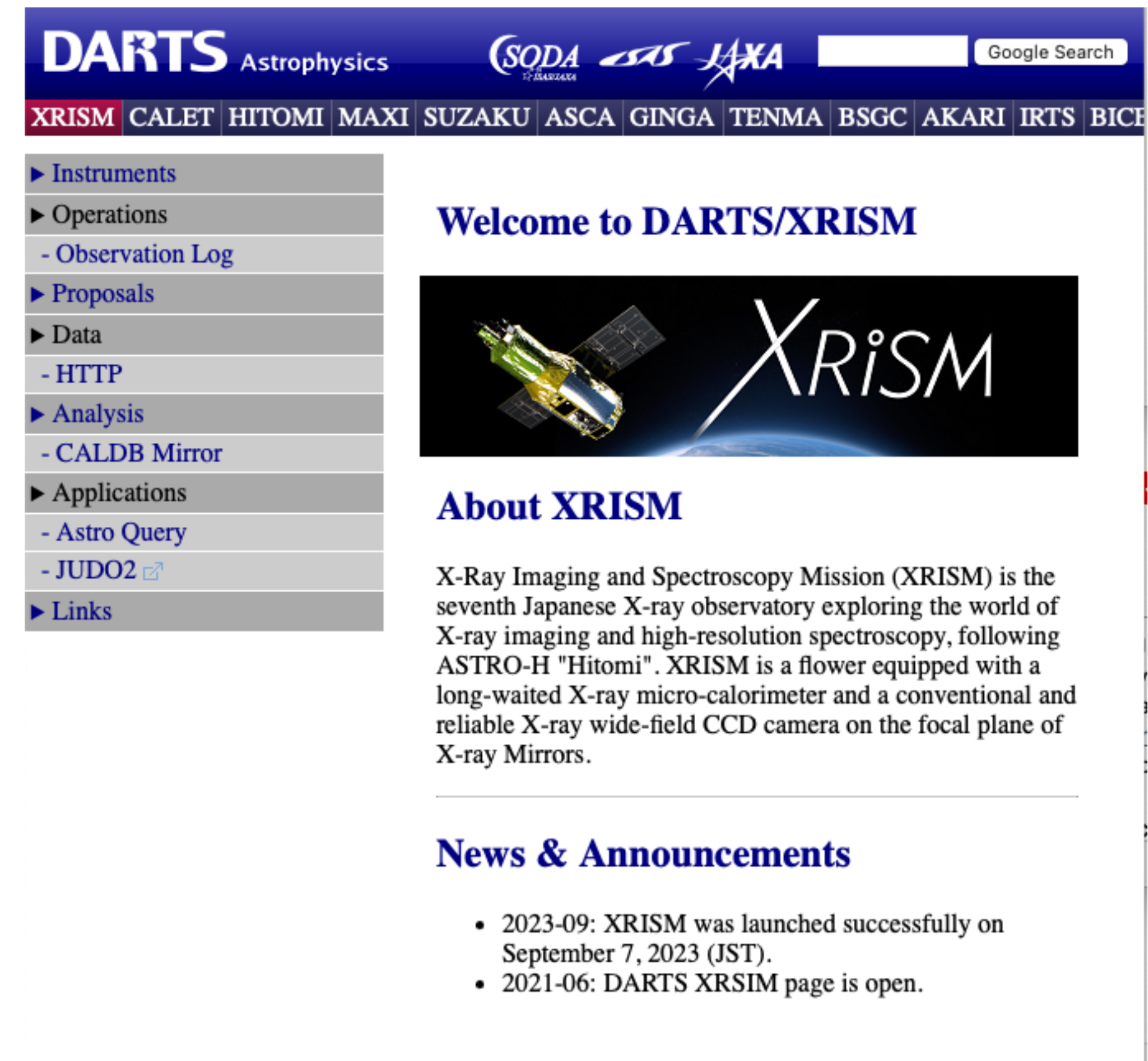
JAXA DARTS or NASA HEASARC

JAXA DARTS (Data ARchives and Transmission System):
<https://www.darts.isas.jaxa.jp/astro/xrism/>

Observation log

Accepted Targets

Observation data



The screenshot shows the DARTS (Data Archives and Transmission System) website for XRISM. The header includes the DARTS Astrophysics logo, SODA logo, and JAXA logo, along with a Google Search bar. A navigation bar lists various X-ray observatories: XRISM, CALET, HITOMI, MAXI, SUZAKU, ASCA, GINGA, TENMA, BSGC, AKARI, IRTS, and BICE. A left sidebar menu contains the following items: Instruments, Operations (with a sub-link for Observation Log), Proposals, Data (with a sub-link for HTTP), Analysis (with a sub-link for CALDB Mirror), Applications (with sub-links for Astro Query and JUDO2), and Links. The main content area features a 'Welcome to DARTS/XRISM' heading, a banner image of the XRISM satellite, and an 'About XRISM' section. The 'About XRISM' text states: 'X-Ray Imaging and Spectroscopy Mission (XRISM) is the seventh Japanese X-ray observatory exploring the world of X-ray imaging and high-resolution spectroscopy, following ASTRO-H "Hitomi". XRISM is a flower equipped with a long-awaited X-ray micro-calorimeter and a conventional and reliable X-ray wide-field CCD camera on the focal plane of X-ray Mirrors.' Below this is a 'News & Announcements' section with two bullet points: '2023-09: XRISM was launched successfully on September 7, 2023 (JST).', and '2021-06: DARTS XRSIM page is open.'

Welcome to DARTS/XRISM



About XRISM

X-Ray Imaging and Spectroscopy Mission (XRISM) is the seventh Japanese X-ray observatory exploring the world of X-ray imaging and high-resolution spectroscopy, following ASTRO-H "Hitomi". XRISM is a flower equipped with a long-awaited X-ray micro-calorimeter and a conventional and reliable X-ray wide-field CCD camera on the focal plane of X-ray Mirrors.

News & Announcements

- 2023-09: XRISM was launched successfully on September 7, 2023 (JST).
- 2021-06: DARTS XRSIM page is open.

Downloading Data: JAXA DARTS or NASA HEASARC

JAXA DARTS: <https://darts.isas.jaxa.jp/app/query/astroquery/>

▶ User's Guide
- for Basic Search
- for SQL/ADQL Search
- Migration Guide
▶ Available Data
▶ Start Basic Search
▶ Start SQL Search
▶ Start ADQL Search

[English | [Japanese](#)]

DARTS/Astro Query System

The *DARTS/Astro Query System* enables you to search for observation data, logs, proposals, etc., which are publicly available in *DARTS/Astro*. You can search for various data from different satellites such as *AKARI*, *SUZAKU*, *ASCA*, *GINGA*, *HALCA*, etc. at once on the same platform.

The following three search methods are available in the *DARTS/Astro Query System*:


Basic Search

Circular search around an input celestial location, as is common in many astronomical databases. Users input both the search location and the radius. *Basic Search* can search for all the data in the database at a time.

For the datasets whose "observation regions" or "fields of view" are defined, the *DARTS/Astro Query System* returns the lists of the datasets whose observation regions overlap the input circular area. For the definition of the "observation region" of each data product, please refer to [User's Guide](#) >> [How to use BasicSearch](#) >> [Judgement of overlapping](#).

SQL Search and *ADQL Search*

You can search by directly inputting *SQL* or *ADQL* statements. It is possible to customize your own search conditions, and sort the outputs as you like. You can reproduce exactly the same searches which were available in the previous satellite/instrument specific *DARTS Astro* search systems. For details, please refer to [User's guide](#) >> [Migration Guide](#).

* *ADQL* (defined by [IVOA](#) ) is an extension of *SQL* where popular astronomical functions are implemented. Using *ADQL*, you can efficiently search for astronomical data in various situations specific in astronomical study.

Searchable data

In *DARTS/Astro Query System*, we register all the available data products into the database. Sending a query to the database, you can find the data you need. Please find the following for the list of all the data products searchable in the *DARTS/Astro Query System*:

- [Searchable data products](#)

A single satellite/project may have several kinds of data products. We make a single database-table for each kind of data product. Below, we explain all the database items of all the tables. You may carry out the *SQL Search* or *ADQL Search* based on these database items:

XRISM ARCHIVE:

JAXA DARTS or NASA HEASARC

HEASARC XRISMMASTER: <https://heasarc.gsfc.nasa.gov/W3Browse/xrism/xrismmastr.html>

Accepted Targets
Data (processed & archived)

[Search in Xamin or Browse...](#)

XRISMMASTR - XRISM Master Catalog

[HEASARC Archive](#)

Overview

The X-Ray Imaging and Spectroscopy Mission (XRISM) is an international mission led by Institute of Space and Astronautical Science (ISAS) of Japan Aerospace Exploration Agency (JAXA). XRISM was launched on 2023 September 6 (UT) into a near-circular orbit with an apogee of ~575 km, an inclination of ~31 degrees, and an orbital period of about 96 minutes. During the performance verification (PV) phase, targets selected by the XRISM science team are being observed. Subsequently, it will become a general observatory with annual call for proposals open to all astronomers.

XRISM has two co-aligned instruments that are used concurrently: Resolve, a soft X-ray spectrometer, and Xtend, a wide field-of-view imager. Resolve uses an X-ray microcalorimeter with ~5 eV spectral resolution with a 3x3 arcmin field of view. It is currently operating with the Gate Valve closed, which limits its effective bandpass to 1.7-12 keV. Xtend is an X-ray CCD instrument with a 38 x 38 arcmin² field of view.

This table contains a list of observations that have taken place as well as those that have been accepted and planned. The latter includes pre-approved targets for TOO observations and priority C targets whose observations are not guaranteed.

Catalog Bibcode

[2020SPIE11444E..5DL](#)

Bulletin

The XRISMMASTR database table was last updated on 31 January 2025.

References

XRISM: X-ray imaging and spectroscopy mission
Tashiro, M. S.

Downloading Data:

NASA HEASARC or JAXA DARTS

Browse HEASARC: <https://heasarc.gsfc.nasa.gov/cgi-bin/W3Browse/w3browse.pl>

Browse XRISM master catalog: <https://heasarc.gsfc.nasa.gov/db-perl/W3Browse/w3table.pl?tablehead=name=xrismmastr&Action=More+Options>

Description	Catalog	Data Default	Radius (arcmin)	Mission	Table Type
XRISM Master Catalog	xrismmastr	Y	35	XRISM	Observation

- Enter any constraints on the query below. [\[Help on constraint syntax \]](#)
Examples of query constraints: [\[? \]](#)
(What about [wildcards, spaces, and case sensitivity?](#))
- To change the fields that are returned, select the box in the "View" column beside each field desired.
- To sort the results by any field, select one box in the "Sort" column beside the field to sort on.

View	Sort	Parameter (Unit)	Query Terms	Min Value	Max Value	Value Type
<input type="checkbox"/>	<input type="checkbox"/>	All				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	obsid		000100000	901001010	string
<input checked="" type="checkbox"/>	<input type="checkbox"/>	name		1E 1740.7-2942	Z_Cam	string
<input checked="" type="checkbox"/>	<input type="checkbox"/>	ra		00 00 00.00	23 44 43.90	position
<input checked="" type="checkbox"/>	<input type="checkbox"/>	dec		-72 01 59.4	+73 07 10.0	position
<input type="checkbox"/>	<input type="checkbox"/>	l _{ij} (degree)		0.10924	359.97100	float
<input type="checkbox"/>	<input type="checkbox"/>	b _{ij} (degree)		-87.96455	88.01842	float
<input type="checkbox"/>	<input type="checkbox"/>	roll_angle (degree)		4.89326	331.16729	float
<input checked="" type="checkbox"/>	<input type="checkbox"/>	time		2023-10-09 02:01:04.0 UTC	2025-01-17 16:05:04.0 UTC	date
<input type="checkbox"/>	<input type="checkbox"/>	end_time		2023-10-13 23:51:04.0 UTC	2025-01-20 04:33:04.0 UTC	date
<input type="checkbox"/>	<input type="checkbox"/>	duration (s)		11520.00000	818280.00000	float
<input checked="" type="checkbox"/>	<input type="checkbox"/>	exposure (s)		0.00000	451210.39589	float
<input type="checkbox"/>	<input type="checkbox"/>	xt _d _expo (s)		0.00000	371911.90570	float
<input type="checkbox"/>	<input type="checkbox"/>	rsl_datamode		PX_MIDRES	PX_NORMAL	string
<input type="checkbox"/>	<input type="checkbox"/>	rsl_adr		HELIUM	HELIUM	string
<input type="checkbox"/>	<input type="checkbox"/>	rsl_fil_be		N	Y	string
<input type="checkbox"/>	<input type="checkbox"/>	rsl_fil_fe55		N	Y	string
<input type="checkbox"/>	<input type="checkbox"/>	rsl_fil_nd		N	Y	string
<input type="checkbox"/>	<input type="checkbox"/>	rsl_fil_poly		N	Y	string

Downloading Data:

Available XRISM data in the Heasarc archive

- Two objects (3 observations) are archived
 - The first light observation LMC N132D - an extended source
 - Obsids: 000126000 & 000128000
 - A recent TOO V4641 Sgr - a point source
 - Obsid: 901001010

[XRISM Master Catalog \(xrismmastr\)](#)

[Bulletin](#)

Select	Services	obsid	name	ra	dec	time	exposure	status	public date
<input type="checkbox"/> All		↓↑	↓↑	↓↑	↓↑	↓↑	↓↑ [s]	↓↑	↓↑
<input type="checkbox"/>	O R N S D B	000126000	N132D	05 25 02.04	-69 38 28.4	2023-12-03 22:01:04.0	128936.00000	archived	2025-01-16
<input type="checkbox"/>	O R N S D B	000128000	N132D	05 25 02.11	-69 38 28.6	2023-12-09 09:53:04.0	75266.64787	archived	2025-01-16
<input type="checkbox"/>	O R N S D B	901001010	V4641_Sgr	18 19 21.71	-25 24 25.9	2024-09-30 09:42:04.0	13360.93750	archived	2023-09-07

3 rows retrieved from xrismmastr

Downloading Data:

Three XRISM Observations used in the workshop demos

- **The following commands can be used to download selected data products:**

```
wget -q -nH --no-check-certificate --cut-dirs=5 -r -w1 -l0 -c -N -np -R 'index*' -erobots=off --retr-symlinks https://heasarc.gsfc.nasa.gov/FTP/xrism/data/obs/9//901001010/
```

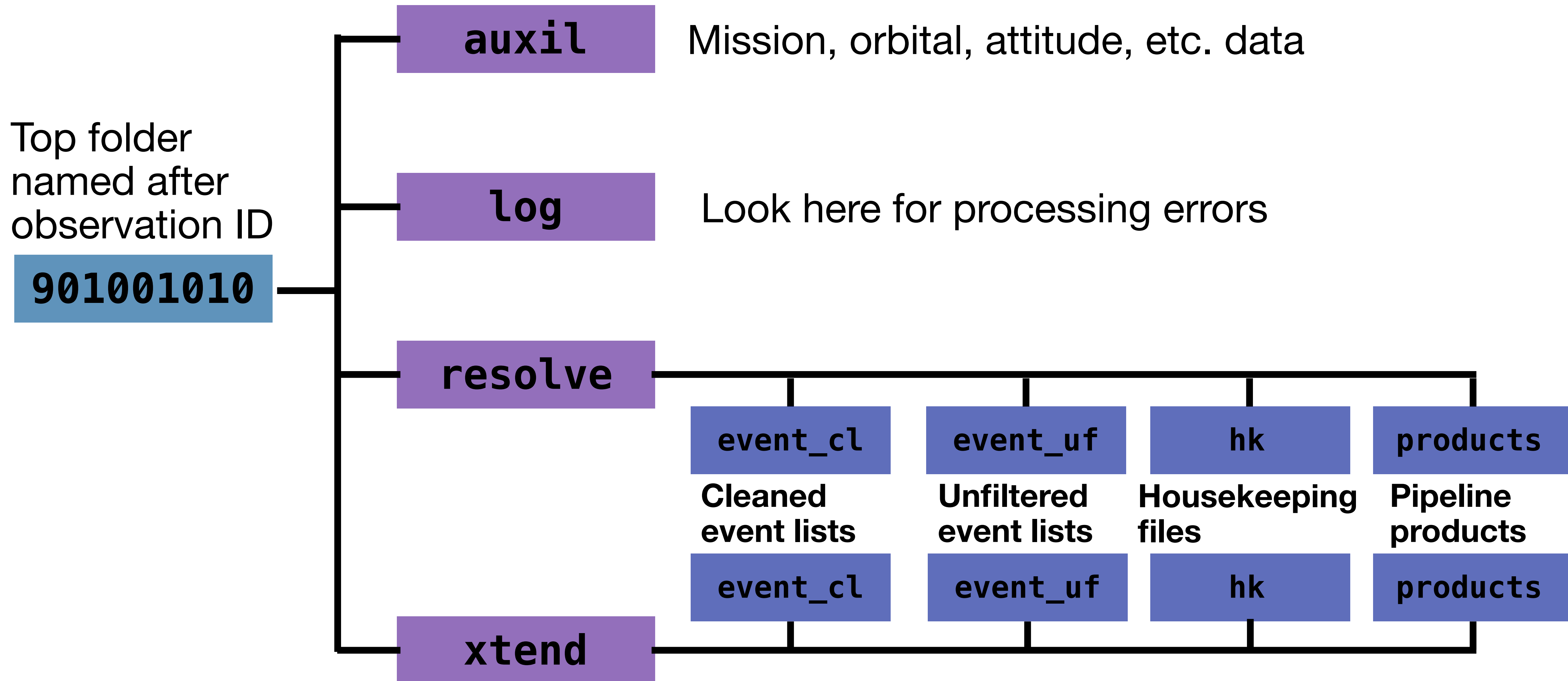
```
wget -q -nH --no-check-certificate --cut-dirs=5 -r -w1 -l0 -c -N -np -R 'index*' -erobots=off --retr-symlinks https://heasarc.gsfc.nasa.gov/FTP/xrism/data/obs/0//000126000/
```

```
wget -q -nH --no-check-certificate --cut-dirs=5 -r -w1 -l0 -c -N -np -R 'index*' -erobots=off --retr-symlinks https://heasarc.gsfc.nasa.gov/FTP/xrism/data/obs/0//000128000/
```

Total size of data product files local to the HEASARC system: 7 GB

Data Directory Structure

See the [ABC guide](#)



Resolve Data Directory Structure

See the ABC guide

resolve

event_cl

Cleaned event lists

xa901001010rsl_p0px0000_cl.evt.gz
xa901001010rsl_p0px1000_cl.evt.gz

**'Cleaned', calibrated data.
(almost) ready to analyze.**

event_uf

Unfiltered event lists

xa901001010rsl_000_fe55.ghf.gz
xa901001010rsl_000_pxcal.ghf.gz
xa901001010rsl_a0ac_uf.evt.gz
xa901001010rsl_a0pxcal000_uf.evt.gz
xa901001010rsl_a0pxfw000_uf.evt.gz
xa901001010rsl_a0pxpr_uf.evt.gz
xa901001010rsl_adr.gti.gz
xa901001010rsl_el.gti.gz
xa901001010rsl_opn.gti.gz
xa901001010rsl_p0px0000_uf.evt.gz
xa901001010rsl_p0px1000_uf.evt.gz
xa901001010rsl_p0px5000_uf.evt.gz
xa901001010rsl_px0000_exp.gti.gz
xa901001010rsl_px1000_exp.gti.gz
xa901001010rsl_px5000_exp.gti.gz
xa901001010rsl_s0px5000_uf.evt.gz
xa901001010rsl_tel.gti.gz

Calibrated but unfiltered data with supporting files. This is what you recalibrate and rescreen.

hk

Housekeeping files

xa901001010rsl_a0.hk1.gz

Instrument housekeeping, some used in reprocessing.

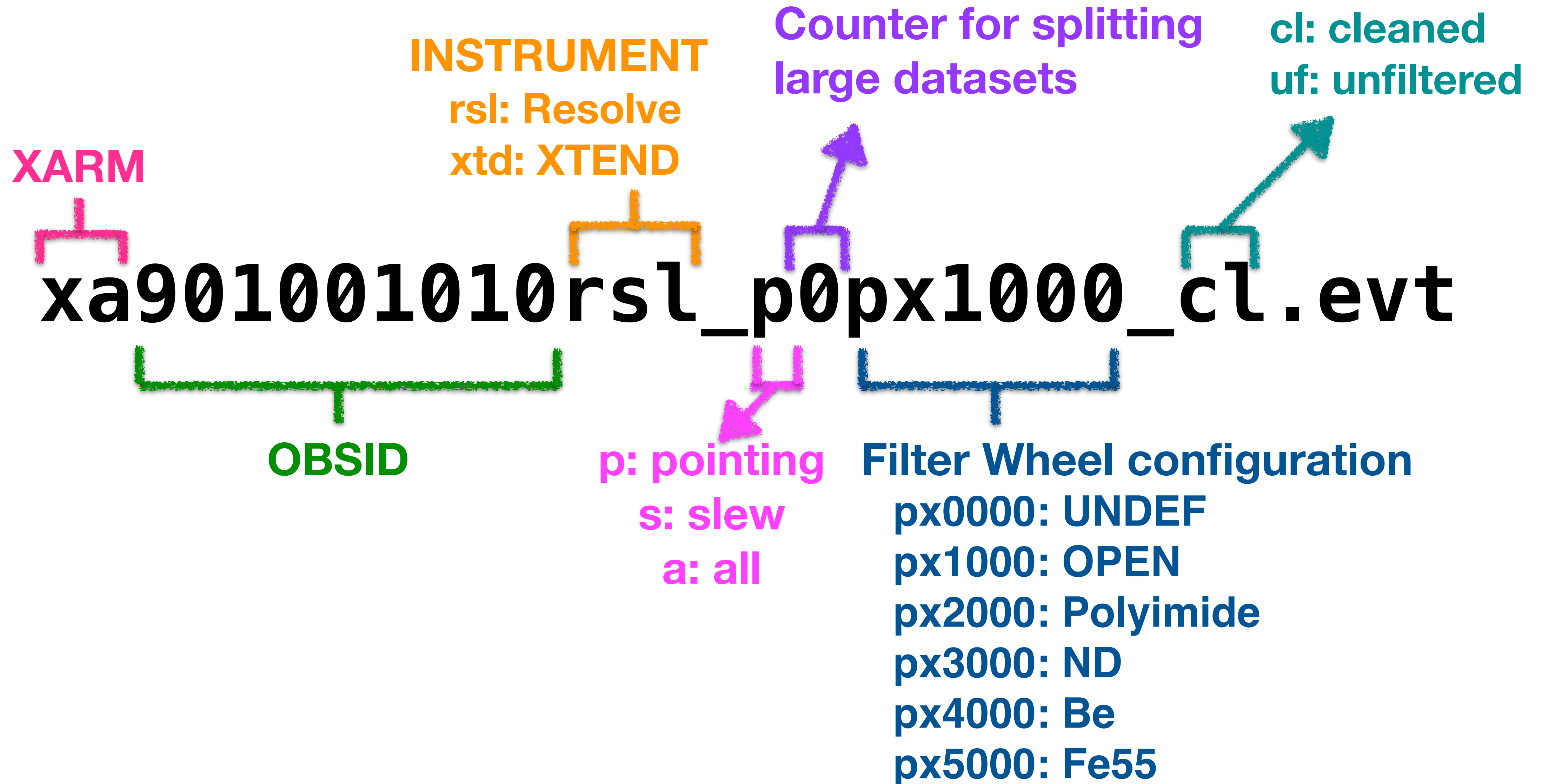
products

Pipeline products

**Quick-look image, light curves, and spectra.
Not for analysis.**

Resolve File Name Convention

See the ABC guide



Xtend Data Directory Structure

See the [ABC guide](#)

Xtend

event_cl

Cleaned event lists

xa901001010xtd_p0300000a0_cl.evt.gz

**‘Cleaned’, calibrated data.
(almost) ready to analyze.**

event_uf

Unfiltered event lists

xa901001010xtd_a0300000a0.fpix.gz
xa901001010xtd_a0300000a0.hpix.gz
xa901001010xtd_a030100000.hpix.gz
xa901001010xtd_a031100010.hpix.gz
xa901001010xtd_a0320000a0.hpix.gz
xa901001010xtd_a0exp.fits.gz
xa901001010xtd_mode.gti.gz
xa901001010xtd_p0300000a0.bimg.gz
xa901001010xtd_p0300000a0_uf.evt.gz
xa901001010xtd_s0300000a0.bimg.gz
xa901001010xtd_s0300000a0_uf.evt.gz
xa901001010xtd_s030100000_uf.evt.gz
xa901001010xtd_seg.gti.gz
xa901001010xtd_tel.gti.gz

**Calibrated but unfiltered data with supporting
files. This is what yourecalibrate and rescreen.**

hk

Housekeeping
files

xa901001010xtd_a0.hk.gz

**Instrument
housekeeping, some
used in reprocessing.**

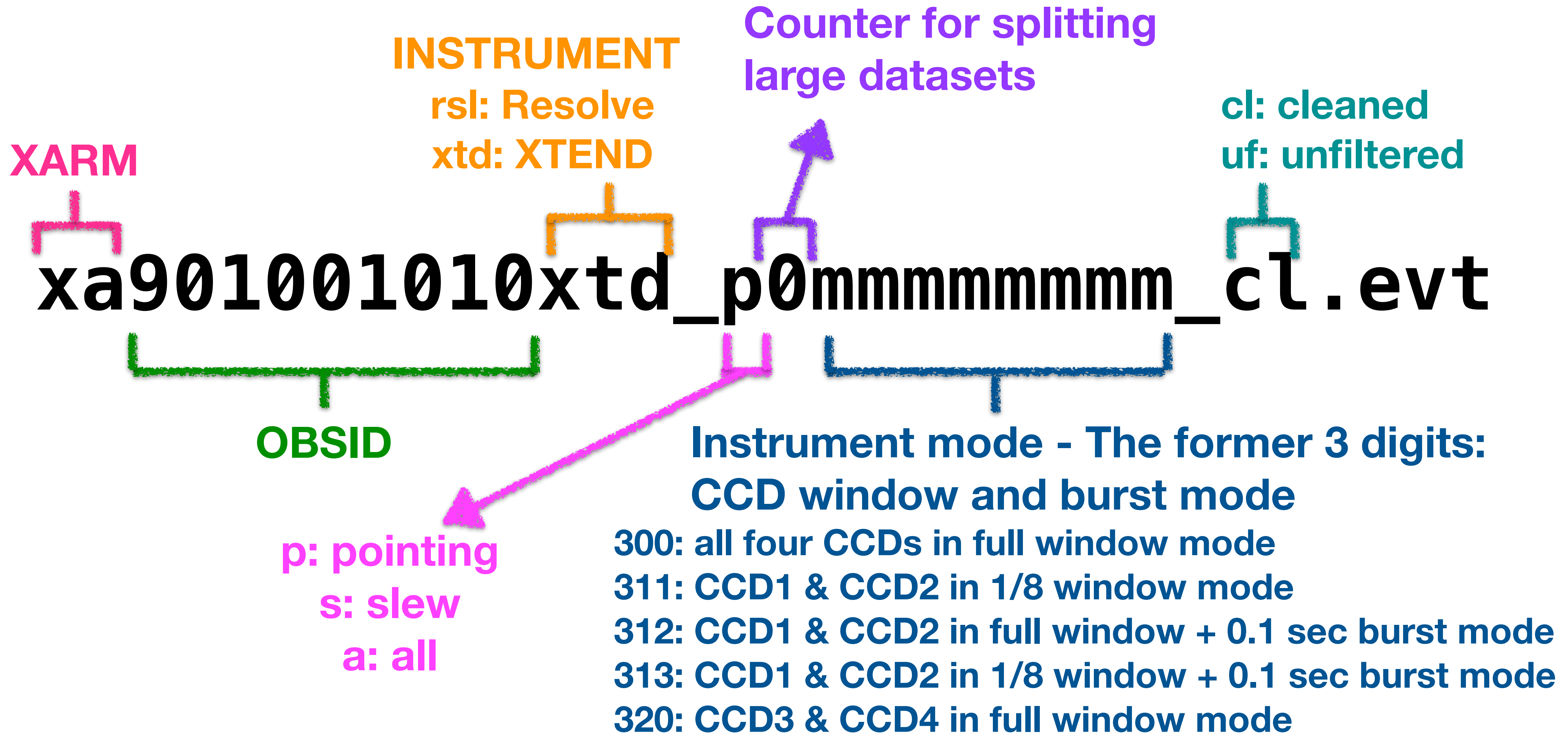
products

Pipeline products

**Quick-look image, light
curves, and spectra.
Not for analysis.**

Xtend File Name Convention

See the ABC guide



Analysis Software

On your computer:

- HEASoft v6.34: <https://heasarc.gsfc.nasa.gov/docs/software/lheasoft/download-go.html>
 - HEASoftpy (python interface) : <https://heasarc.gsfc.nasa.gov/lheasoft/heasoftpy/>
- CALDB v20241115: The HEASARC Calibration Database: <https://heasarc.gsfc.nasa.gov/docs/xrism/calib/index.html>
 - Local installation or ~~remote access~~ (the current heasoft v.6. 34 version does not work)
- SAOImage ds9 - an astronomical imaging and data visualization application
- XSPEC: An X-ray spectral fitting package: <https://heasarc.gsfc.nasa.gov/docs/xanadu/xspec/index.html>
 - Other fitting packages: CXC sherpa, SPEX, and others

HEASoft, CALDB, XSPEC and DATA on Sciserver

Sciserver:

- A cloud computing service developed at, and administered by, the Institute for Data Intensive Engineering and Science at Johns Hopkins University.
- Individual accounts for free at <https://www.sciserver.org/>
- HEASARC manages the container where the Heasoft and CALDB are already installed.
- The detailed steps can be found at <https://heasarc.gsfc.nasa.gov/docs/sciserver/>

We will help you for setting up your machine during the lunch or coffee breaks if needed.