

# STIX data center web applications

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# STIX data center portal

Solar Orbiter STIX Data Center

[User Portal](#) [Instrument Team Portal](#) [Contact](#)









## The Spectrometer/Telescope for Imaging X-rays (STIX)

The Spectrometer Telescope for Imaging X-rays (STIX) on Solar Orbiter is a hard X-ray imaging spectrometer covering the energy range from 4 to 150 keV. STIX observes hard X-ray bremsstrahlung emissions from solar flares and therefore provides diagnostics of the hottest (10 MK) flare plasma while quantifying the location, spectrum, and energy content of flare-accelerated nonthermal electrons.

To accomplish this, STIX applies an indirect bigrid Fourier imaging technique using a set of tungsten grids (at pitches from 0.038 to 1 mm) in front of 32 coarsely pixelated CdTe detectors to provide information on angular scales from 7 to 180 arcsec with 1 keV energy resolution (at 6 keV). The imaging concept of STIX has intrinsically low telemetry requirements and it is therefore well-suited to the limited resources available to the Solar Orbiter payload. To further reduce the downlinked data volume, STIX data are binned on board into 32 selectable energy bins and dynamically-adjusted time bins with a typical duration of 1 second during flares.

Through hard X-ray diagnostics, STIX provides critical information for understanding the acceleration of electrons at the Sun and their transport into interplanetary space and for determining the magnetic connection of Solar Orbiter back to the Sun. In this way, STIX serves to link Solar Orbiter's remote and in-situ measurements. [Read more ...](#)

## Quick Links

 <b>Quick-look light curves</b> View STIX Quick-look light curves. <a href="#">Start &gt;</a>	 <b>Science data browser</b> Preview/download science data. <a href="#">Start &gt;</a>	 <b>Ancillary Data Tools</b> View S/C orbit, altitude, or light travel time. <a href="#">Start &gt;</a>	 <b>Access to STIX data</b> Query and download STIX data products. <a href="#">Start &gt;</a>
 <b>Request STIX science data</b> Submit a data downlink application if the data you need is not available in our system. <a href="#">Start &gt;</a>	 <b>STIX solar flare list</b> View STIX solar flare list. <a href="#">Start &gt;</a>	 <b>Operations event calendar</b> View Operations events. <a href="#">Start &gt;</a>	 <b>Documentation</b> STIX instrumentation, data analysis tutorials, etc. <a href="#">Start &gt;</a>

- URL <https://datacenter.stix.i4ds.net/>
- Click tabs on Section “Quick links”
- Click “Instrument team portal” if you are an expert user

# Quick-look data browser

LC start time and time span

STIX QL data

To show simultaneous observations of other instruments

Home / Quick-look data

STIX data: TRIG  RCR  VAR  SPEC  BKGM  LOC  IMG  SIMOBS: GOES  SOLO EUI  SOLO EPD  EOVSAL  SDO/AIA

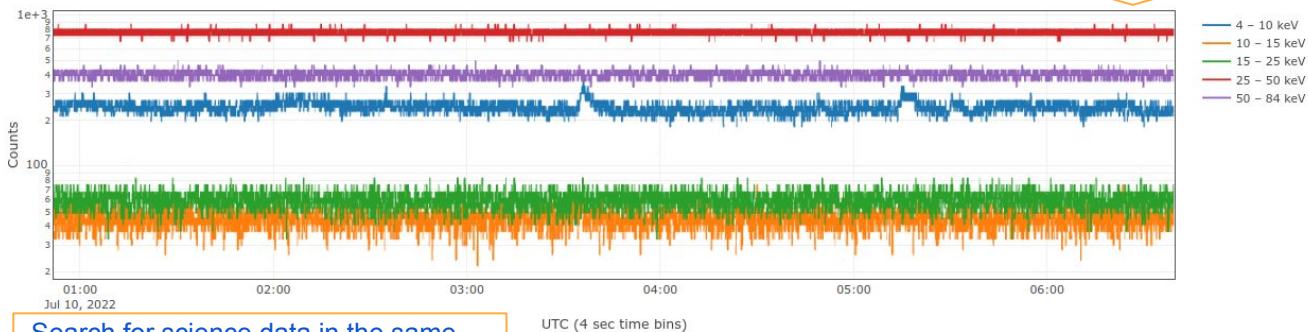
tools

Estimated flare GOES class

Plot toolbar

y-scale log Line-style line Units Counts Rebin 1 Go Apply light time correction GOES approximation

STIX Quick-look Light Curves



Search for science data in the same time frame

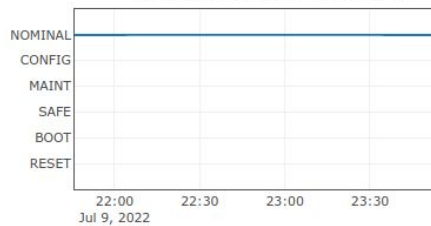
<https://datacenter.stix.i4ds.net/view/ql/lightcurves>

# Housekeeping data browser

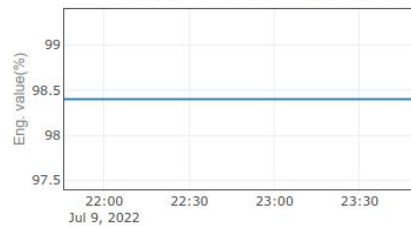
Start UTC Start UTC Time span (min)  File Id Load [Home](#) / [Housekeepi](#)

Overview CPU / FSW Archive memory SpaceWire IDPU / PSU Aspect Attenuator HV Detectors

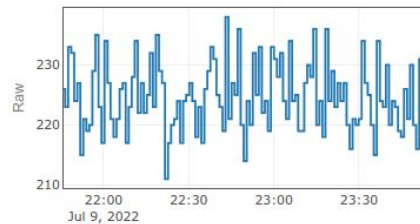
Instrument mode - NIXD0023



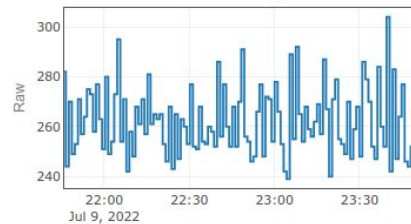
Archive Memory usage - NIXD0003



Med value of trig acc - NIX00072



Max value of trig acc - NIX00073



# Science data browser

Showing the most recent available science data.

#	UID	Type	Description	Tpkt	Tobs	Dur(s)	Tbin(s)	E (keV)	Ebin	Dmask	GOES class	Peak
11991	2204128368	L1	Flare 2204131303	2022-06-18T01:44:52	2022-04-13T11:57:51	45732	60	4-25 keV	1	0xFFFFFFF	B9.8	8560
11992	2204136817	L1	Flare 2204132034	2022-06-18T02:06:22	2022-04-13T14:58:47	32700	60	4-25 keV	1	0xFFFFFFF	B3.5	9147
11993	2204138874	L1	Flare 2204132034	2022-06-18T02:17:30	2022-04-13T20:58:47	32700	60	4-25 keV	1	0xFFFFFFF	B3.5	9147
11994	2204148904	L1	Flare 2204140851	2022-06-18T03:26:36	2022-04-14T04:39:07	58204	60	4-25 keV	1	0xFFFFFFF	B4.7	4300
11995	2204143141	L1	Flare 2204140851	2022-06-18T04:46:54	2022-04-14T10:39:07	58204	60	4-25 keV	1	0xFFFFFFF	B4.7	4300
11996	2204145801	L1	Flare 2204140851	2022-06-18T05:57:13	2022-04-14T16:39:07	58204	60	4-25 keV	1	0xFFFFFFF	B4.7	4300
11997	2204145130	L1	Flare 2204150258	2022-06-18T08:52:40	2022-04-14T21:19:23	29792	60	4-25 keV	1	0xFFFFFFF	B8.4	2764
11998	2204147057	L1	Flare 2204150258	2022-06-18T09:09:43	2022-04-15T03:19:23	29792	60	4-25 keV	1	0xFFFFFFF	B8.4	2764
11999	2204157770	L1	Flare 2204150625	2022-06-18T09:12:42	2022-04-15T06:22:07	2528	60	4-25 keV	1	0xFFFFFFF	C2.0	1291
12000	2204152075	L1	Flare 2204151004	2022-06-18T09:19:52	2022-04-15T09:54:07	1718	20	4-25 keV	1	0xFFFFFFF	C1.6	1754
12001	2204158671	L1	Flare 2204151313	2022-06-18T13:30:48	2022-04-15T10:27:58	28143	60	4-25 keV	1	0xFFFFFFF	M2.2	5570
12002	2204151888	L1	Flare 2204151313	2022-06-18T13:42:19	2022-04-15T16:27:58	28143	60	4-25 keV	1	0xFFFFFFF	M2.2	5570
12003	2204155497	L1	Flare 2204151948	2022-06-18T13:48:42	2022-04-15T19:38:23	1916	20	4-25 keV	1	0xFFFFFFF	C1.9	3379
12004	2204167675	L1	Flare 2204160208	2022-06-18T13:52:35	2022-04-16T02:02:55	1212	20	4-25 keV	1	0xFFFFFFF	C1.8	2256
12005	2204162738	L1	Flare 2204161108	2022-06-18T13:58:20	2022-04-16T10:50:52	3486	60	4-16 keV	1	0xFFFFFFF	C3.3	4018
12006	2206014416	Aspect	Slew center to limb	2022-06-22T01:02:14	2022-06-01T03:49:59	900	16	NA	NA	0xFFFFFFF	B2.9	302
12007	2206022709	Aspect	Slew limb to center	2022-06-22T01:02:49	2022-06-02T22:49:59	900	16	NA	NA	0xFFFFFFF	B2.3	298
12008	2206126138	Aspect	Slew center to limb	2022-07-09T19:24:57	2022-06-12T16:20:00	1500	16	NA	NA	0xFFFFFFF	NA	NA
12009	2206130289	Aspect	Slew limb to limb	2022-07-09T19:25:43	2022-06-13T11:35:00	1500	16	NA	NA	0xFFFFFFF	NA	NA
12010	2206139375	Aspect	Slew limb to center	2022-07-09T19:26:10	2022-06-13T22:08:59	900	16	NA	NA	0xFFFFFFF	NA	NA

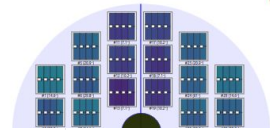
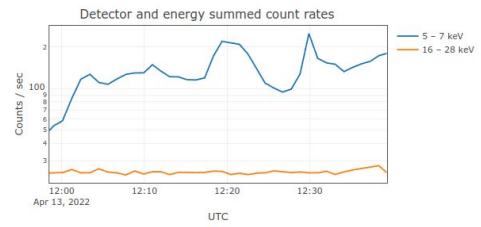
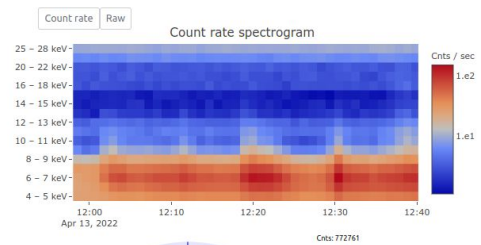
Search Select type Start UTC End UTC Search Entry # ID

Science data Preview

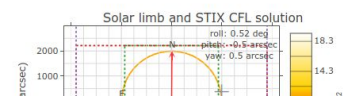
## Bulk science data #11991

Type: L1; Flare 2204131303;  
 Observation time range: 2022-04-12T23:57:5Z - 2022-04-13T12:40:04.000Z, Request ID: 2204128368.  
[Data attributes](#) [Interactive analysis](#)

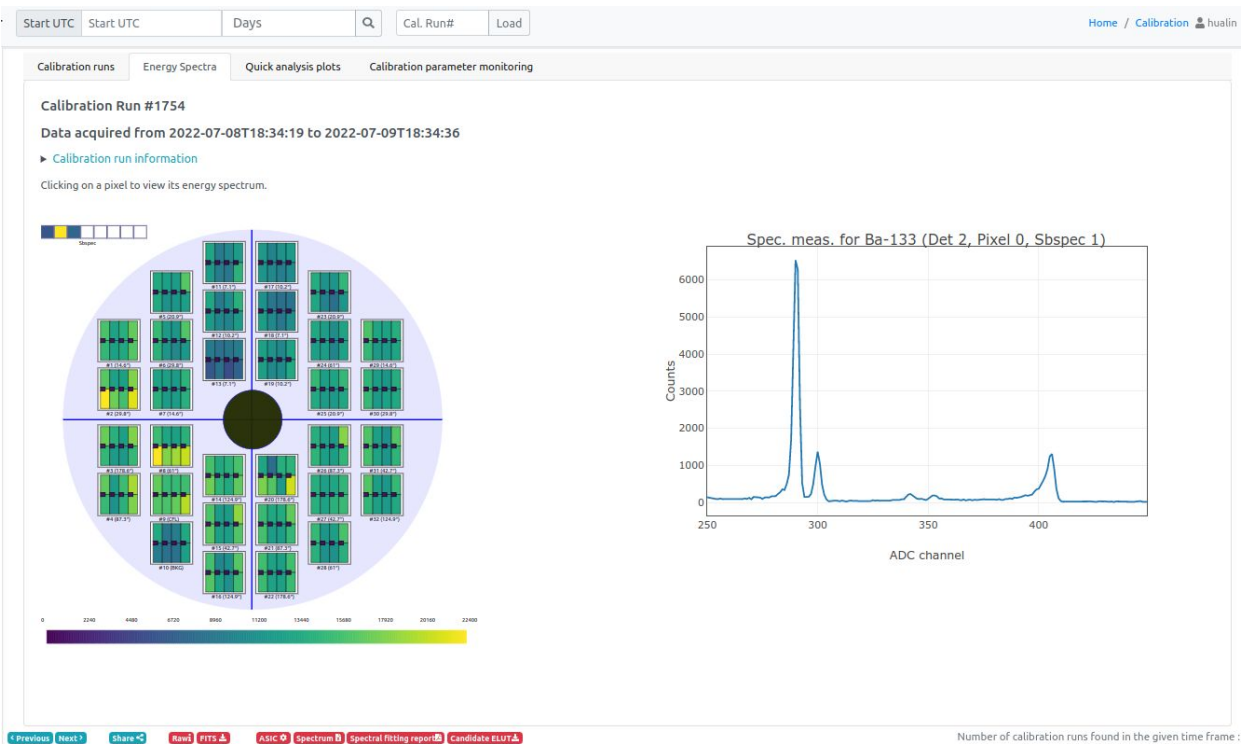
### Overview



- NORM
- Filter
- Copy



# Calibration data browser



# Auxiliary data browser and tools

S/C orientation and STIX pointing information

Light time calculator

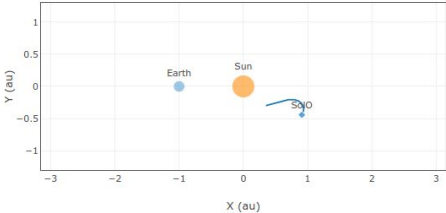
Home / STIX Data Center hualir

Solar Orbiter Ephemeris STIX Pointing and orientation Light time and relative angle calculator

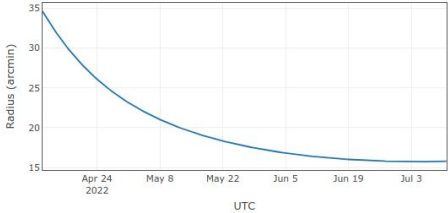
Time range 2022-04-11T00:00:00 2022-07-10T00:00:00 200 Q

SPICE kernel mk file: solo\_anc\_soc-flowin-mk\_V107\_20220620\_001.tlm; For more info see Solar Orbiter Ephemeris Data Wiki Page

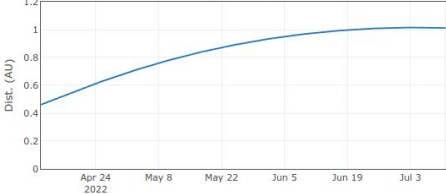
Solar Orbiter Orbit



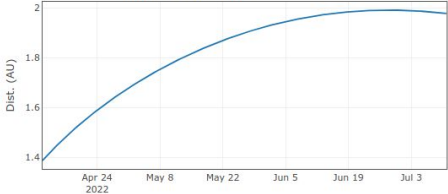
Apparent radius of the Sun as seen from SoLO



SoLO-Sun distance



SoLO-Earth distance



# Preview images and web imaging tools

STIX Data Center

Time range Start Time End Time Load Image #

Home / STIX Image Archive

STIX Preview Image Archive

Preview images are automatically created by the imaging pipeline. Please don't use them in publications! Absolute location accuracy of preview images ~ 1 arcmin.

Number of entries: 15

Animation Overlay Images Publish Delete

Entry #	Submitter	Creation time	Obs. Start Time	Duration (s)	Energy range (keV)	Science data UID	Browse
6357	Submitter	Fri, 08 Jul 2022 19:27:46 GMT	2022-04-13T06:29:02.564200	108	[14, 25]	2204134581	Browse
6358	Submitter	Fri, 08 Jul 2022 19:27:24 GMT	2022-04-13T06:29:02.564200	108	[14, 25]	2204134581	Browse
				74	[5, 20]	2110090088	Browse
				30	[4, 14]	2110090088	Browse
				12	[15, 70]	2205037308	Browse
				18	[12, 50]	2110040020	Browse
				13	[5, 7]	2203227606	Browse
				13	[11, 50]	2203227606	Browse
				170	[12, 25]	2203227606	Browse
				15	[13, 100000000]	2203227606	Browse
				16	[13, 100000000]	2203307117	Browse
				16	[0, 100000000]	2203307117	Browse
				16	[0, 100000000]	2203307117	Browse
				45	[16, 43]	2205022143	Browse
				24	[13, 43]	2205022143	Browse

Reconstructed flare images (Entry #6357)

Start UTC: 2022-04-13T06:29:02.564200; Exposure time: 108.0 sec; Energy range: 14.0 - 25.0 keV

STIX Q<sub>1</sub> Light Curves

STIX Q<sub>1</sub> Projection (all data)

STIX Q<sub>1</sub> LEAR

STIX Q<sub>1</sub> (Left) (collimated)

STIX Q<sub>1</sub> (Right) (collimated)

\*The images

- The imaging pipeline reconstruct images for all STIX flares
  - Counts at the peak time +/- 30 sec selected
  - Two energy ranges
- Users can submit image reconstruction requests to the server on the bulk science data page
- A tutorial about the preview images and web imaging tools can be found at <https://docs.google.com/presentation/d/18ULVn3Ted-eCYrSDvtKju7PP-obdcfrhR92RRK-ByR0/edit?usp=sharing>



# Querying and downloading data products from SDC

The screenshot displays the STIX Data Center interface. At the top, there is a navigation bar with a search bar and filters for 'Raw file ID' and 'ID'. A sidebar on the left contains various navigation options like 'Home', 'Raw file list', 'HK data browser', 'QL data browsers', 'Science data browser', 'Calibration data browser', 'Data access', 'Packet browser', 'Preview Image Archive', 'Ancillary data', 'Operations', 'Miscellaneous', and 'Documentation'. The main content area is titled 'STIX L1A data products' and shows a table of 10 FITS files. A pink warning banner states: 'L1A data products are not validated manually! STIX official released data products can be downloaded from Solar Orbiter Archive or STIX archive server.' Below the table, there are buttons for 'Select all' and 'Download selected'. A footnote at the bottom indicates that L1A products can also be queried/downloaded using 'stixdcpy'.

#	Category	Type	Level	Creation Time	Start UTC	End UTC	Filename	Size (kiB)
61038	QUICKLOOK	CALIBRATION_SPECTRUM	L1A	2022-07-11T05:02:44	2022-07-09T18:36:51	2022-07-09T21:00:51	solo_L1A_stix-ql-calibration-spectrum_20220709_061038_V01.fits	6168
61037	QUICKLOOK	FLAREFLAG_LOCATION	L1A	2022-07-11T05:02:44	2022-07-11T00:00:01	2022-07-11T03:17:13	solo_L1A_stix-ql-flareflag_20220711_061037_V01.fits	118
61036	QUICKLOOK	FLAREFLAG_LOCATION	L1A	2022-07-11T05:02:44	2022-07-10T06:06:56	2022-07-11T00:00:01	solo_L1A_stix-ql-flareflag_20220710_061036_V01.fits	557
61035	QUICKLOOK	QL_VARIANCE	L1A	2022-07-11T05:02:43	2022-07-11T00:00:01	2022-07-11T04:25:17	solo_L1A_stix-ql-variance_20220711_061035_V01.fits	180
61034	QUICKLOOK	QL_VARIANCE	L1A	2022-07-11T05:02:43	2022-07-10T05:47:36	2022-07-11T00:00:01	solo_L1A_stix-ql-variance_20220710_061034_V01.fits	664
61033	QUICKLOOK	QL_SPECTROGRAM	L1A	2022-07-11T05:02:43	2022-07-11T00:10:41	2022-07-11T04:10:09	solo_L1A_stix-ql-spectra_20220711_061033_V01.fits	276
61032	QUICKLOOK	QL_SPECTROGRAM	L1A	2022-07-11T05:02:43	2022-07-10T06:32:32	2022-07-10T23:54:09	solo_L1A_stix-ql-spectra_20220710_061032_V01.fits	1069
61031	QUICKLOOK	QL_BACKGROUND	L1A	2022-07-11T05:02:42	2022-07-10T23:59:57	2022-07-11T04:13:57	solo_L1A_stix-ql-background_20220711_061031_V01.fits	245
61030	QUICKLOOK	QL_BACKGROUND	L1A	2022-07-11T05:02:42	2022-07-10T05:37:56	2022-07-10T23:59:57	solo_L1A_stix-ql-background_20220710_061030_V01.fits	990
61029	QUICKLOOK	QL_LIGHT_CURVES	L1A	2022-07-11T05:02:41	2022-07-11T00:00:01	2022-07-11T04:34:28	solo_L1A_stix-ql-lightcurve_20220711_061029_V01.fits	537

- Go to the page <https://datacenter.stix.i4ds.net/view/list/fits>
- Users can also use stixdcpy to query and download L1A FITS files

# Requesting STIX science data

- Data requested by STIX team
  - L1 science data for all identified flares
  - Continuous high time & energy resolution spectrogram
  - level-1 data during quiet sun periods for background subtraction
- If you have special needs, please fill out the data request form at <https://datacenter.stix.i4ds.net/view/datareq/form>