

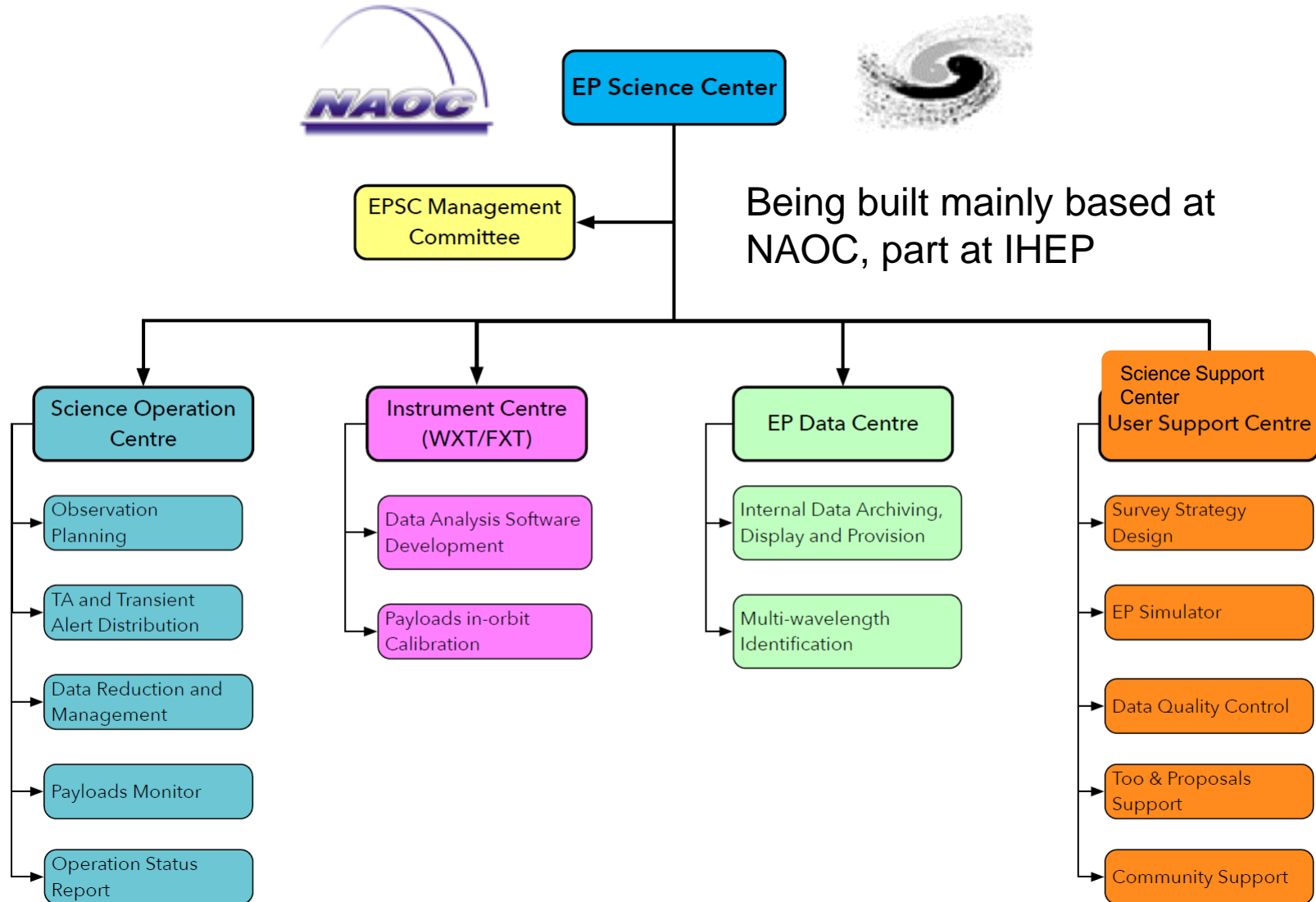
Yuan Liu

National Astro. Observatories
Chinese Academy of Sciences

On behalf of EPSC

The Status of Einstein Probe Science Center

EP Science Center



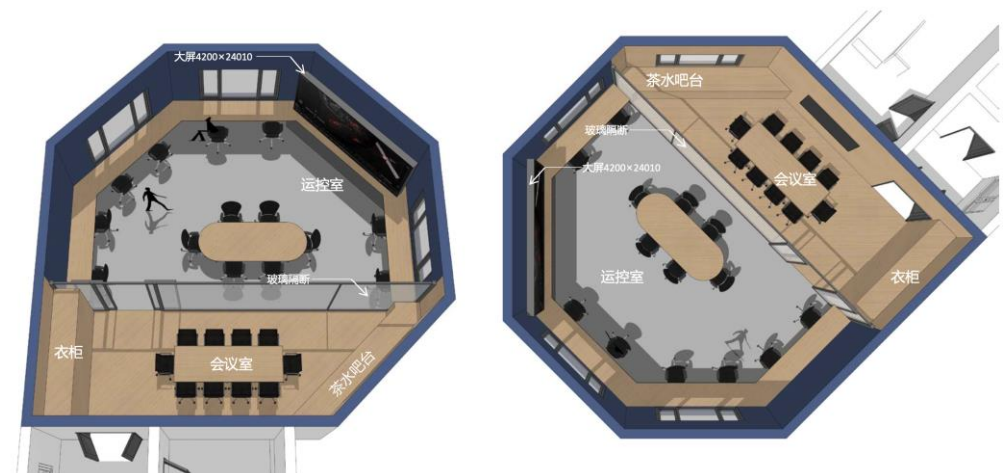
Science Operations and Control Room

Science Operation and Control Room (NAOC, EP/SVOM)



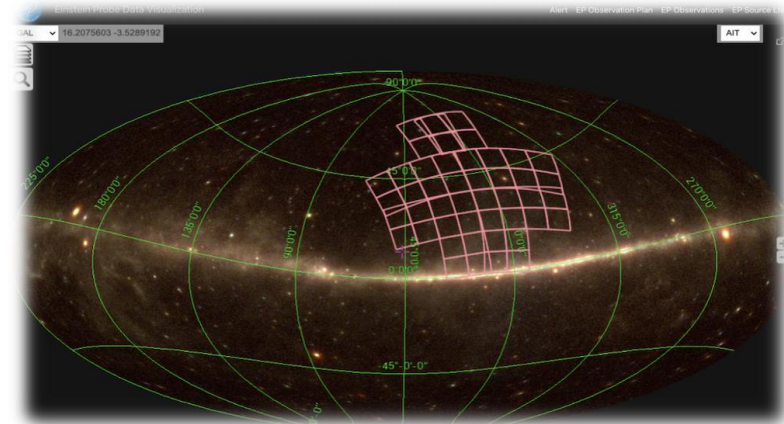
The Science Operation and Control Room (NAOC) is currently under renovation and is expected to be fully equipped in about two months. It will provide various software and hardware services for scientists, including payload monitoring, data analysis, and observation plan applications.

EP-FXT Science Data Center (FXTSDC) in



Visualizing Tools for monitoring

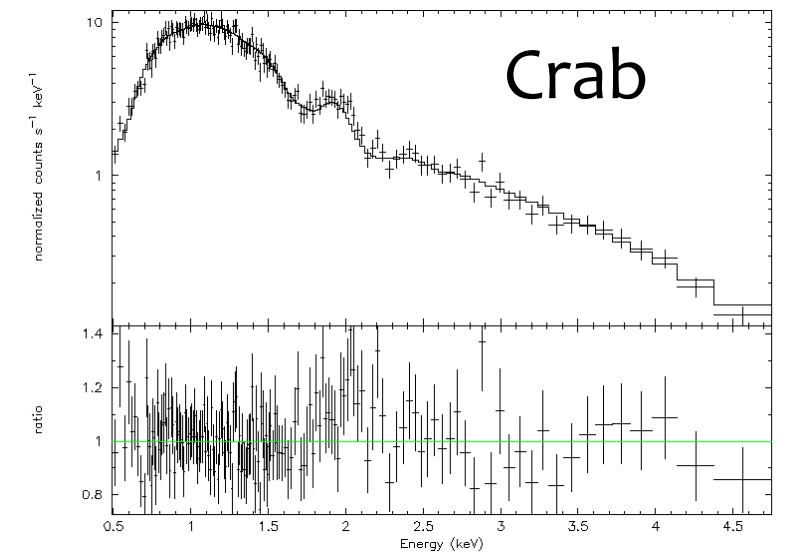
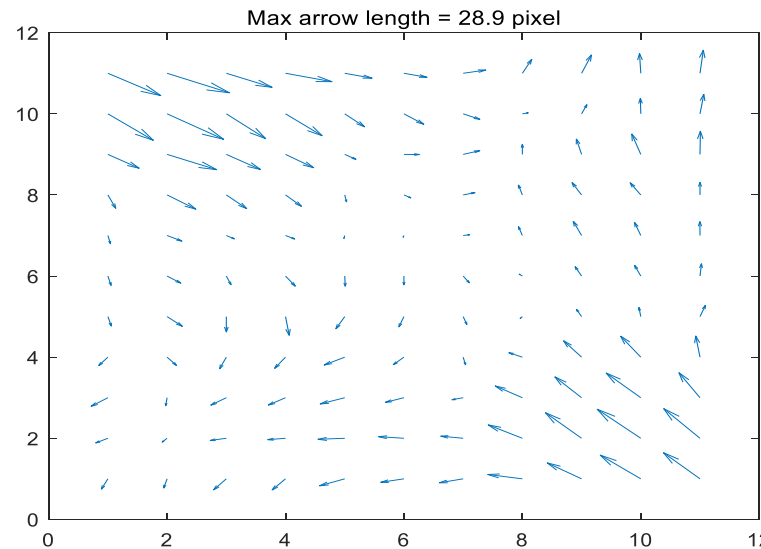
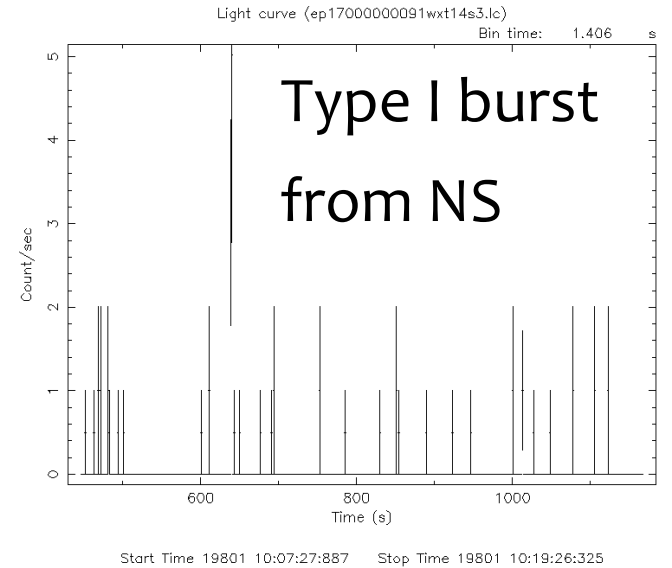
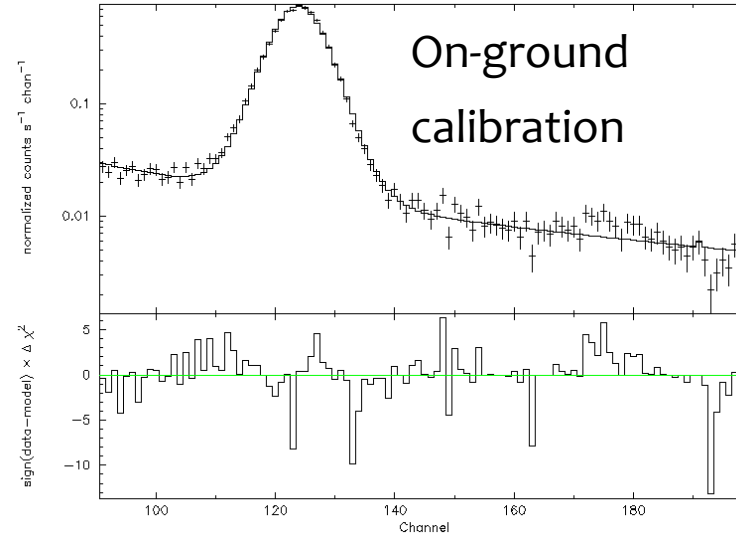
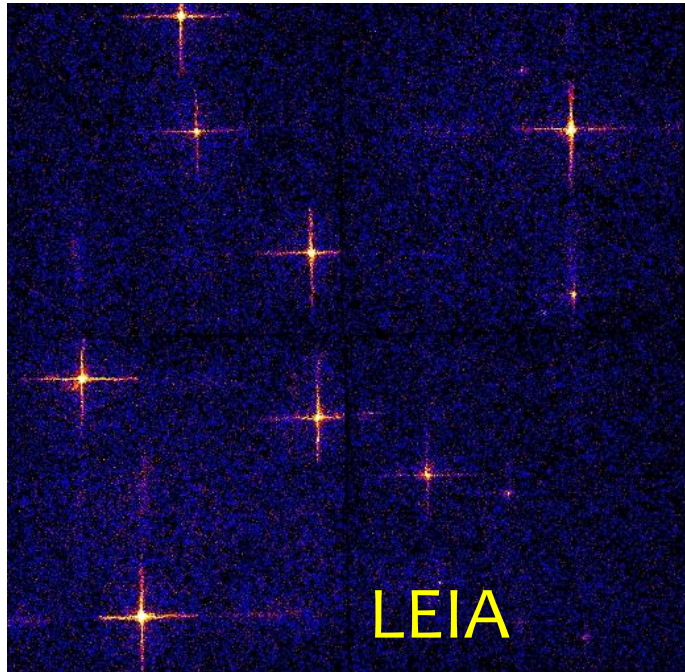
ID	观测请求编号	观测类型	状态
284	176166e4-3e00-41bf-a400-fb60fd 9594d1	ToO-NOM-AT	已提交
283	5955c33c-ba64-4366-8f6b-531ace 23c022	ToO-NOM-AT	已提交
282	a94ccbe6-5e76-4217-a853-e6dc4 d57bf57	ToO-NOM-AT	已提交
281	1200bb3b-c579-454b-8449-397f61 e2430e	ToO-NOM-AT	已提交
280	81c3aa89-d811-4b21-94f4-f4b662 290000	ToO-NOM-AT	已提交
279	b431eb17-d960-4aa1-a539-e2a66f 4b2002	ToO-NOM-AT	已提交



The operation and control room provides a variety of monitoring tools.
Near real-time information via VHF

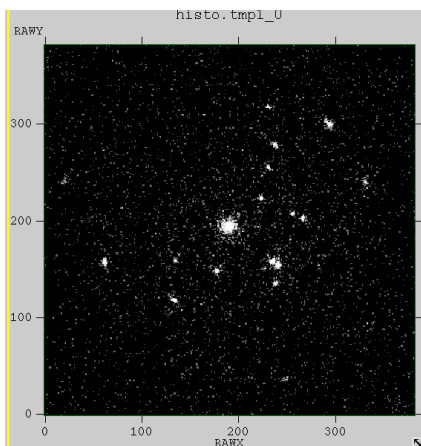
WXT Data Analysis software

- Define data products
- Build CALDB
- Develop and test software
- HEASARC framework

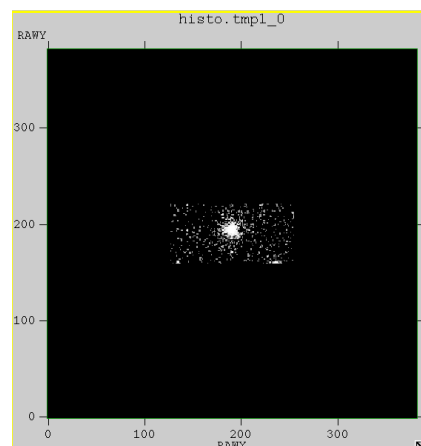


FXT Data Analysis Software

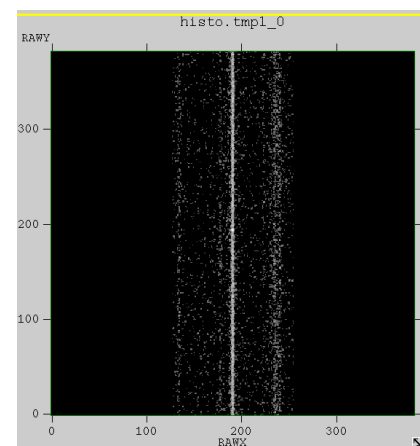
- FXT-DAS
- FXT-CALDB
- HEASARC framework



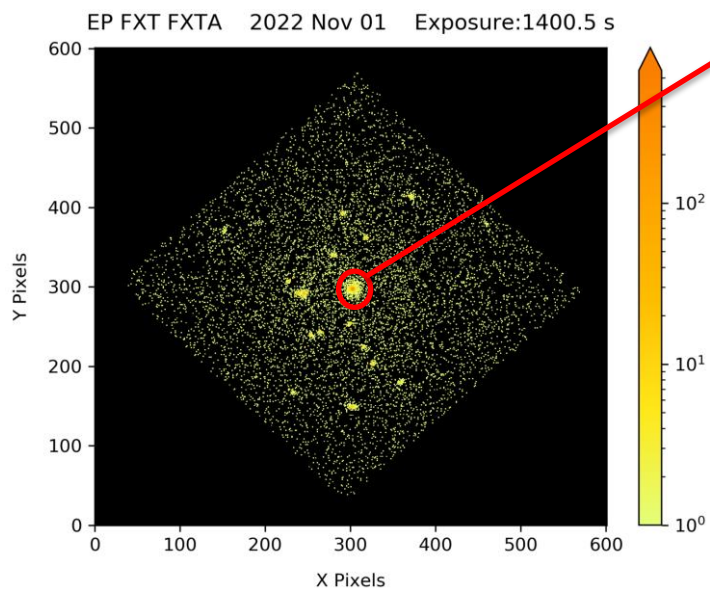
Full frame



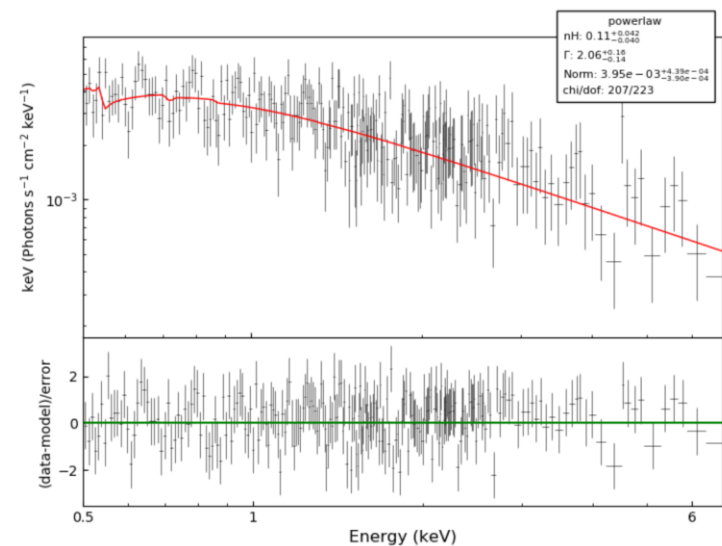
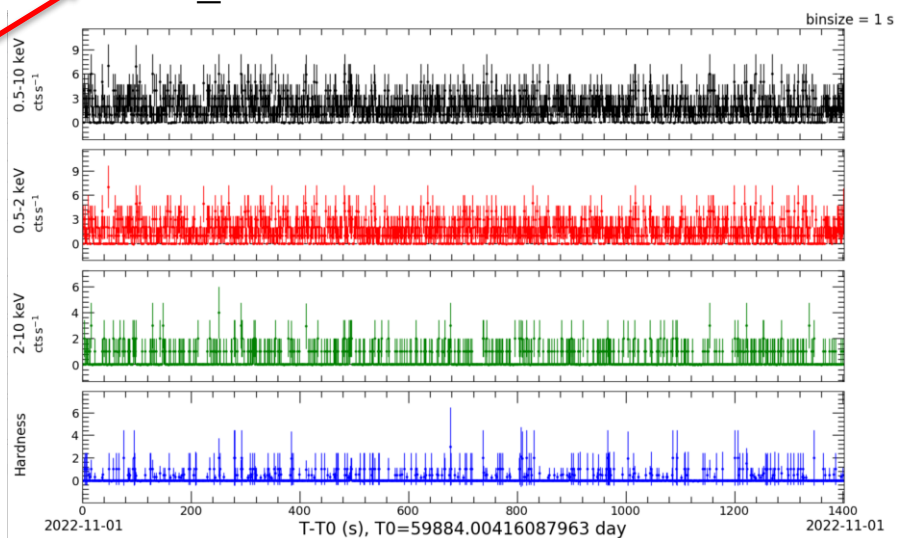
Partial window



Timing mode




2RXS_J004241.9+411546



Pipelines

■ Pipelines

流水线状态展示

流水线名称	节点状态
pipeline	
bd_pipeline	

Pipelines status

流水线ID: 65 流水线名称: pipeline

开始时间 至 状态

序号	流水线实例号	开始时间	结束时间	节点状态	操作
11	85325	2023-05-30 12:46:23	2023-05-30 13:52:10		
12	85324	2023-05-30 11:41:47	2023-05-30 12:47:17		
13	85323	2023-05-30 10:37:09	2023-05-30 11:42:42		
14	85322	2023-05-30 09:32:21	2023-05-30 10:38:01		
15	85321	2023-05-30 08:27:34	2023-05-30 09:33:15		
16	85320	2023-05-30 07:22:56	2023-05-30 08:28:28		
17	85319	2023-05-30 06:18:21	2023-05-30 07:24:04		

Pipelines History

流水线详情

名称: pipeline commit版本号: 7ba27084

Yml文件内容:

```
1 apiVersion: argoproj.io/v1alpha1
2 kind: Workflow
3
4 #
5 # pipeline
6 #
7
8 metadata:
9   generateName: eptest-pipeline
10  namespace: epbeta
11 spec:
12   entrypoint: EPPipeline
13   serviceAccountName: argo
14   arguments:
15     parameters:
16     - name: lstFile
17       value:
18         oss://epver/data/OA_EVT/dislist/20220926/EVT_OA_20220926B131153181.
19         json
```

Pipelines Details



Products Management

Products

存储接口 Storage Controller

GET	/v1/storage/**	下载
POST	/v1/storage/**	上传
DELETE	/v1/storage/**	删除
GET	/v1/storage/addTags	根据urn增加tags
POST	/v1/storage/adsearch	高级搜索
DELETE	/v1/storage/deIDatatype	根据path删除type,会删除type, 属于批量删除
DELETE	/v1/storage/deIDatatypeData	根据path只删除数据不删除type, 属于批量删除
POST	/v1/storage/delete	会删除type(参数传递)
POST	/v1/storage/deleteData	只删除数据, 不删除type(参数传递)
DELETE	/v1/storage/delTag	根据tag删除tag
DELETE	/v1/storage/delTemplate	删除模板
POST	/v1/storage/filter	筛选检索后数据

Products API

数据条件选择

定制检索 使用URN检索

位置: 2000 RA (degree) Dec (degree) 搜索半径 角分

* 产品类型: 0B_IMG_SY01_SSDC 产品ID 等级 仪器

观测ID 模式 开始时间 (起) 选择日期 开始时间 (止) 选择日期 结束时间 (起) 选择日期 结束时间 (止) 选择日期 上传时间 (起) 选择日期 上传时间 (止) 选择日期

查询条件 类型 关键字 值 版本 默认搜索最新版本

搜索

数据下载

搜索摘要

产品类型=0B_IMG_SY01_SSDC

检索内容

序号	级别	版本	目标名	仪器	文件名称	发布时间
1	0	1.3			SY01_WXT_0B_IMG_20230530T13121_2_OAA.xml	2023-05-31 10:13:35
2	0	1.3			IMG_0B_20230531B095032652.json	2023-05-31 10:09:15
3	0	1.3			SY01_WXT_0B_IMG_20230527T02091_2_OAA.xml	2023-05-28 06:39:46
4	0	1.3			IMG_0B_20230528B061325955.json	2023-05-28 06:35:31
5	0	1.3			SY01_WXT_0B_IMG_20230526T02341_2_OAA.xml	2023-05-27 12:31:31
6	0	1.3			IMG_0B_20230527B120914181.json	2023-05-27 12:27:15
7	0	1.3			SY01_WXT_0B_IMG_20230519T03541_2_OAA.xml	2023-05-20 07:04:50
8	0	1.3			SY01_WXT_0B_IMG_20230519T03550_2_OAA.xml	2023-05-20 07:05:20

WEB UI

Interfaces Management

Interfaces

数据接口状态信息

接口名称 调用状态 最后调用时间 至

序号	接口名称	传输协议	接口方向	调用状态	历史调用次数	最后调用时间	操作
1	EpObservePlan	ftp	进入	正常	289	2023-05-26 13:22:20	
2	ObserveRequestGp	ftp	输出	正常	2	2023-02-10 16:06:30	
3	ObserveRequestToo	ftp	输出	正常	253	2023-05-26 12:57:35	
4	OB_EVT	nftp	进入	正常	8626	2023-05-31 10:34:00	
5	ALERT	ftp	进入	正常	64982	2023-05-29 12:18:48	
6	LoadParameterUpdate	ftp	输出	正常	0		
7	OB_IMG	nftp	进入	正常	879	2023-05-31 10:13:36	
8	OA_IMG	nftp	进入	正常	307	2023-05-31 10:09:17	
9	ATT	nftp	进入	正常	1250	2023-05-30 16:06:01	
10	ORB	nftp	进入	正常	1258	2023-05-30 16:08:58	
11	MKF	nftp	进入	正常	1231	2023-05-30 16:00:05	

Interfaces status

数据接口消息日志

接口编号 数据来源 传输协议 接口方向

详情 开始时间 至

序号	接口编号	数据来源	传输协议	状态	接口方向	开始时间	结束时间	数据大小
1	OB_EVT-9654	ssdc	nftp	成功	进入	2023-05-31...	2023-05-31...	20.81 MB
2	OB_EVT-9653	ssdc	nftp	成功	进入	2023-05-31...	2023-05-31...	1.19 KB
3	OB_EVT-9654	ssdc	nftp	传输中	进入	2023-05-31...		
4	OB_EVT-9653	ssdc	nftp	传输中	进入	2023-05-31...		
5	OB_EVT-9652	ssdc	nftp	成功	进入	2023-05-31...	2023-05-31...	2.96 MB

Interfaces messages

Transient Identification

- Comparison of archived X-ray catalogues
- Multi-wavelength data as reference
- AI based classification (coming soon)

Source List 49

Export CSV Search:

Name	Type	Classification	Common Name	PDF	LC	Spec	Esti_Flux	Ref_Flux	Sep
ep06800004709wxt13s1	known_source	LMXB	LU TRa				8.55e-11	2.65e-10	75.30
ep06800004711wxt13s3	known_source	Pulsar	AJG 44				1.51e-10	1.085e-12	92.87
ep06800004710wxt14s3	known_source	Pulsar	AJG 44				9.39e-11	1.085e-12	182.39
ep06800004704wxt13s1	known_source	LMXB	GR Mus				1.56e-10	1.66e-09	108.09
ep06800004710wxt14s2	known_source	LMXB	QX Nor				8.81e-11	2.761e-10	182.52
ep06800004709wxt14s2	known_source	LMXB	QX Nor				1.23e-10	2.761e-10	108.85
ep06800004718wxt14s2	known_source	LMXB	4U 1746-371				1.69e-10	9.48e-10	28.07
ep06800004706wxt15s1	burst	High Proper Motion Star	CD-50 7760				3.65e-11	1.86e-12	241.44
ep06800004718wxt16s2	known_source	LMXB	Ara X-1				2.43e-10	1.02e-09	58.43 2:
ep06800004711wxt13s2	known_source	LMXB	V801 Ara				1.84e-10	9.298e-09	49.54 2:

ep06800004706wxt15s1

RA, Dec	201.487, -51.126
RA (HMS), Dec (DMS)	13h25m56.88s, -51d07m30.36s
Galactic l, b	308.442, 11.377
Pos Err (Arcmin)	0.722
Exposure Time (s)	325
Observation Start	2023-06-01 04:30:55
Net Rate	0.018
Estimated Flux	3.65e-11
Counts	5.937
Background Counts	0.062
Significance	6.353
Source Detected Number	1
Observation Number	24

Open an issue in Redmine

Issues of related observation

Source QuickLook

Detection result: /Av2/61a2f358628c4d50b50fcd:576f57ac/obs/06800004706/ep06800004706wxt15.img/01 Detection threshold: 5
source significance == 5.0

Light Curve

Light curve (ep06800004706wxt15s1.lc)

Bin time: 1.000 s

Start Time 20096 4:43:53.761 Stop Time 20096 4:49:17.761

Spectrum

Energy spectrum (ep06800004706wxt15s1.sp)

Normalized counts s⁻¹ keV⁻¹

Cross Matching Information ESA Sky ASAS-SN

Catalog Legend: Error Circle (10 arcmins) EP Reference 2RXS SIMBAD SWIFT 2SXPS MAXI ALLWISE Dark Energy Survey

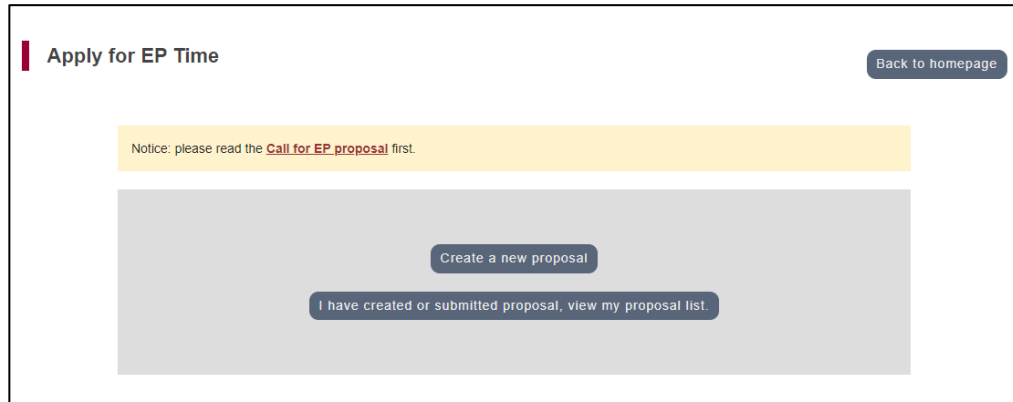
GAL 13h25m56.88s -51.1251000

24 Observations at Source Location

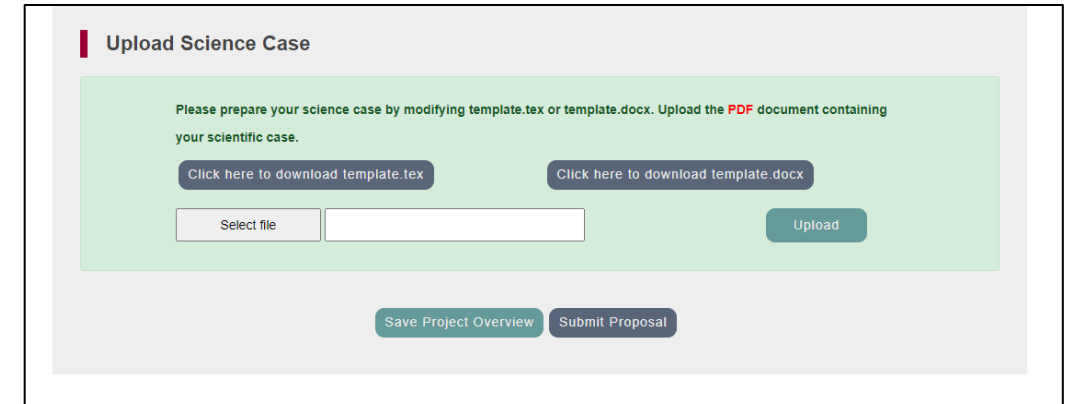
OBS ID	CMOS ID	Pointing RA	Pointing Dec	Exposure Time	Obs Start Time	Obs End Time
06800003722	CMOS16	203.495	-54.086	823	2023-03-28 16:59:34	2023-03-28 17:00:00
06800003721	CMOS16	203.491	-54.092	823	2023-03-28 15:25:09	2023-03-28 15:25:35
06800003520	CMOS16	202.957	-55.282	960	2023-03-15 11:04:05	2023-03-15 11:04:31
06800003098	CMOS13	206.39	-53.876	759	2023-02-15 18:33:49	2023-02-15 18:34:15
06800003396	CMOS16	203.143	-55.917	1060	2023-03-07 07:51:21	2023-03-07 07:51:47
06800003456	CMOS16	202.87	-55.633	986	2023-03-11 06:19:10	2023-03-11 06:19:36
06800003588	CMOS16	203.089	-54.893	719	2023-03-19 22:06:05	2023-03-19 22:06:31
06800003641	CMOS16	203.224	-54.584	924	2023-03-23 09:30:56	2023-03-23 09:31:22
06800003587	CMOS16	203.087	-54.898	866	2023-03-19 20:31:39	2023-03-19 20:32:05

Proposal Tools

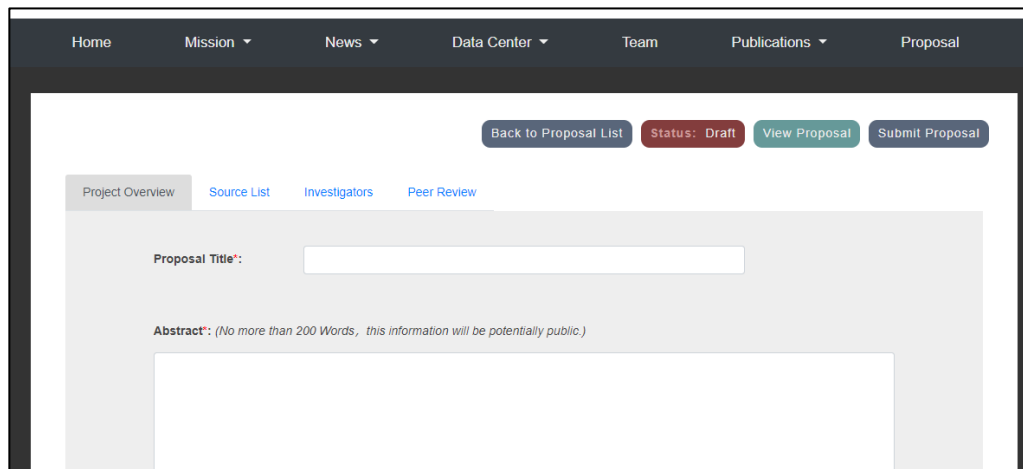
■ Proposal submission and review



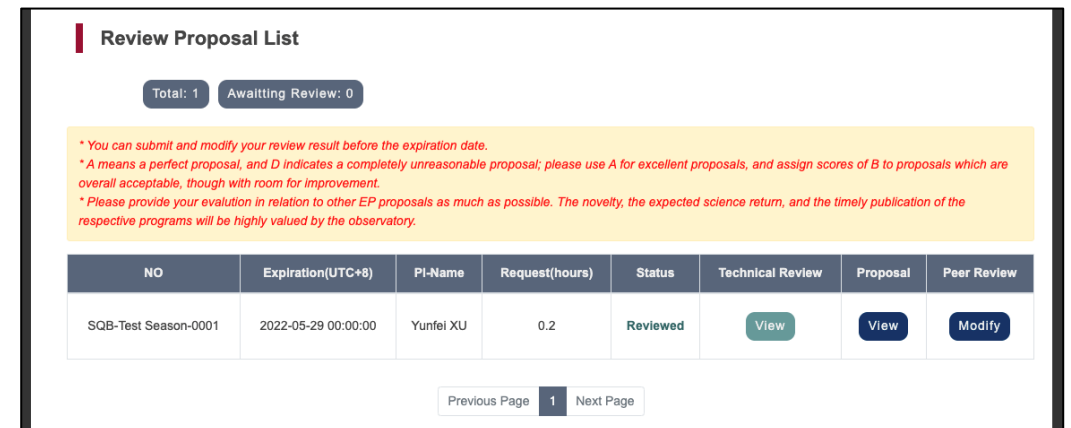
Proposal Management



Science Use Case Submission



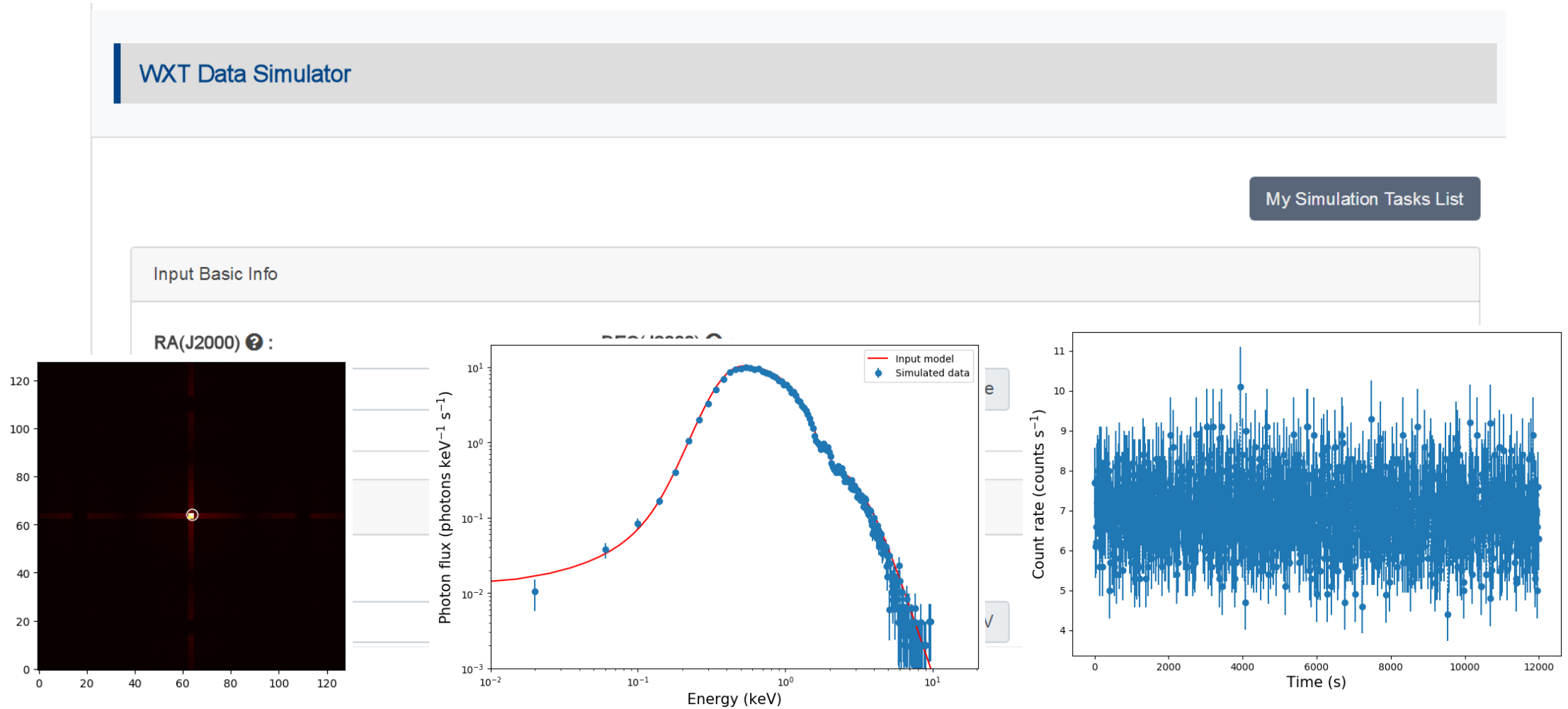
Proposal Content Filling



Proposal Review Management

WXT/FXT online simulator

- Simple and quick (<https://ep.bao.ac.cn/ep/simulator/>)



FXT Online Tools

<http://epfxt.ihep.ac.cn/simulation> —— 提供：快视结果 & 数据文件下载

Observation Simulator

Preliminary Analysis of the Results

Output [Download simulation result](#) [Back to Input](#)

source rate (counts/s, 0.5-10keV) 1.72e+00 (3.78e-02)

background rate (counts/s, 0.5-10keV) 5.33e-02 (6.67e-03)

significance of the source 49.521

Quick Look

Light Curve Image Spectrum

Input Summary

Name	fxd	RA_src	0
DEC_src	0	Flux	2.11e-11
nH	0.2	Emin	0.5
Emax	10	Spectrum	PL
Index	2	Input Light Curve	
Filter	open	Mode	FF
RA_PNT	0	DEC_PNT	0
Exposure	1200		

- arf.fits
- bkg.pha
- FXT_evt.fits
- obs.img
- obs.lc
- obs.pha
- obsimg.jpg
- obslc.jpg
- obsspc.jpg
- rmf.fits

Exposure Time Estimator

Source Info

*Flux: 2.11e-11 erg/s/cm² *nH: 0.2 x10²¹cm⁻²

*Emin: 0.5 keV *Emax: 10 keV

*Spectral Model: BB *Temperature: keV

Observation Info

Filter: open Mode: FF

Output Energy Range (keV): 0.5 - 10

Input & Output

*Input Signal-to-Noise Ratio: Output Exposure Time (s)

*Input Exposure Time (s): Output Signal-to-Noise Ratio

[Download Package](#)

- estimate_fakeit.py
- fxd_normalized_singles_20190416_v0p2.rmf
- FXT_notf_med.arf
- FXT_notf_open.arf
- FXT_notf_thick.arf
- FXT_notf_thin.arf
- wfi_spc_FF_med.pha
- wfi_spc_FF_open.pha
- wfi_spc_FF_thick.pha
- wfi_spc_FF_thin.pha
- wfi_spc_PW_med.pha
- wfi_spc_PW_open.pha
- wfi_spc_PW_thick.pha
- wfi_spc_PW_thin.pha

Filter & Window Mode Evaluation

Source Info

Name: Source Name, optional

*RA_src: 0 deg *DEC_src: 0 deg

*Flux: 2.11e-11 erg/s/cm² *nH: 0.2 x10²¹cm⁻²

*Emin: 0.5 keV

Result [Download simulation result](#)

***** pile-up results *****

Current warning limit is set to 10.0%

Optical Spectral Type: the pile up fraction

Filter mode	r>0	r>30''	r>1.5'
open	FF	0.49%	0.00%
open	PW	0.00%	0.00%
open	TM	0.00%	0.00%
thin	FF	0.00%	0.00%
thin	PW	0.00%	0.00%
thin	TM	0.00%	0.00%
med	FF	0.00%	0.00%
med	PW	0.00%	0.00%
med	TM	0.00%	0.00%
thick	FF	0.00%	0.00%
thick	PW	0.00%	0.00%
thick	TM	0.00%	0.00%

for user defined open filter and FF readout mode, the pileup is

r>=0 0.40%

r>=30'' 0.00%

r>=1.5' 0.00%

----> to obtain a pileup lower than 10%, r>=0 pixels (i.e. radius> 0.00') is suggested

***** optical loading *****

Current warning limit is set to 14 counts/frame/pixel

Mode : FF

Filter : open

Expected optical counts from target is 0.01 counts/frame/pixel

At the source position, the optical loading from the bright source catalog is 0.00 counts/frame/pixel

optical loading from the target source

Filter	FF	PW	TM
open	0.01	0.00	0.00
thin	0.00	0.00	0.00

optical loading from the catalog sources

Filter	FF	PW	TM
open	0.00	0.00	0.00
thin	0.00	0.00	0.00

根据pile-up和optical loading
推荐observation mode和filter

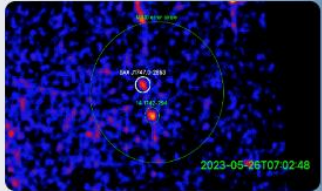
News and Announcement (<https://ep.bao.ac.cn>)

Upcoming Events

- 爱因斯坦探针 (EP) 科学讨论会 . 2023北京香山
- Kick-off meeting of the Einstein Probe Science Topical Panels (April 19 2023)

News

MORE



- LEIA detected possible brightening of SAX J1747.0-2853 and v... [2023-05-30]
- The FXT FM payload completed delivery from IHEP to IAM [2023-05-28]
- LEIA detected a bright X-ray flare from 1RXS J054317.4-760222 [2023-05-06]
- Kick-off meeting of the EP Science Topical Panels held online [2023-04-24]

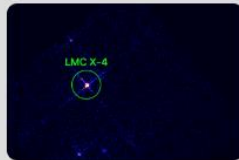
Highlights

MORE

Xinhua: China to launch Einstein Probe to observe changing universe



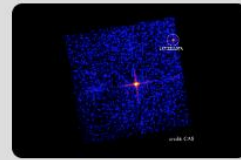
LEIA detected a bright outburst from LMC X-4



Happy New Year 2023



EP-WXT Pathfinder LEIA discovered an X-ray transient LXT 221107A



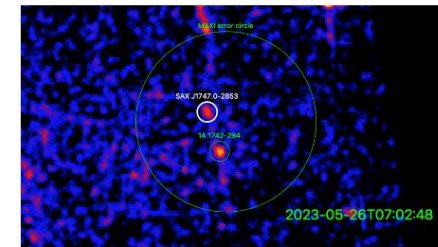
Home / News / Latest News / LEIA detected possible brightening of SAX J1747.0-2853 and variability of 1A 1742-294 in the Galactic Center region

LEIA detected possible brightening of SAX J1747.0-2853 and variability of 1A 1742-294 in the Galactic Center region

LEIA detected possible brightening of SAX J1747.0-2853 and X-ray variability of 1A 1742-294 in the Galactic Center region, where MAXI reported the detection of a new X-ray outburst since May 24 2023(ATel #16059). The Galactic Center region has been regularly monitored by LEIA in the last few months. In the latest observations taken on May 26 2023, within the field of view (1.5 degrees, FWHM) of MAXI/GSC detection ((l, b) = (359.944, -0.046)), LEIA detected two sources at (RA=266.782, Dec=-28.85, uncertainty=2.6 arcmin) and (RA=266.535, Dec=-29.499, uncertainty=2.2 arcmin), that are spatially consistent with SAX J1747.0-2853 and 1A 1742-294, respectively.

SAX J1747.0-2853 remained undetected in all previous observations of LEIA with a typical cadence of ~10 days and a typical exposure time of ~700s, indicating an upper limit of ~4e-11 erg/s/cm²; whereas an X-ray source was detected around this position in the last two observations at 2023-05-26T05:28:30 and 2023-05-26T07:02:48. Assuming the source is indeed SAX J1747.0-2853 and a spectral shape of absorbed powerlaw with a photon index of 2.0 and NH of 7e+22 cm⁻² (Wijnands et al. 2002, ApJ, 579, 422), its unabsorbed 0.5-4 keV flux was (3.5+/-1.2)e-9 erg/s/cm² and (9.3+/-7.0)e-10 erg/s/cm², respectively, implying that SAX J1747.0-2853 has entered a new outburst.

The other source was firstly detected by LEIA on May 12 2023. Assuming it is 1A 1742-294 and a spectral shape of absorbed powerlaw with a photon index of 2.0 and NH of 6e+22 cm⁻² (Lutovinov et al. 2000, arXiv:astro-ph/0009349), its unabsorbed 0.5-4 keV flux was (1.8+/-1.0)e-9 erg/s/cm². During the following observations till May 26 2023, 1A 1742-294 shows moderate variability with its 0.5-4 keV unabsorbed flux varies in the range of ~6e-10 to 3e-9 erg/s/cm².



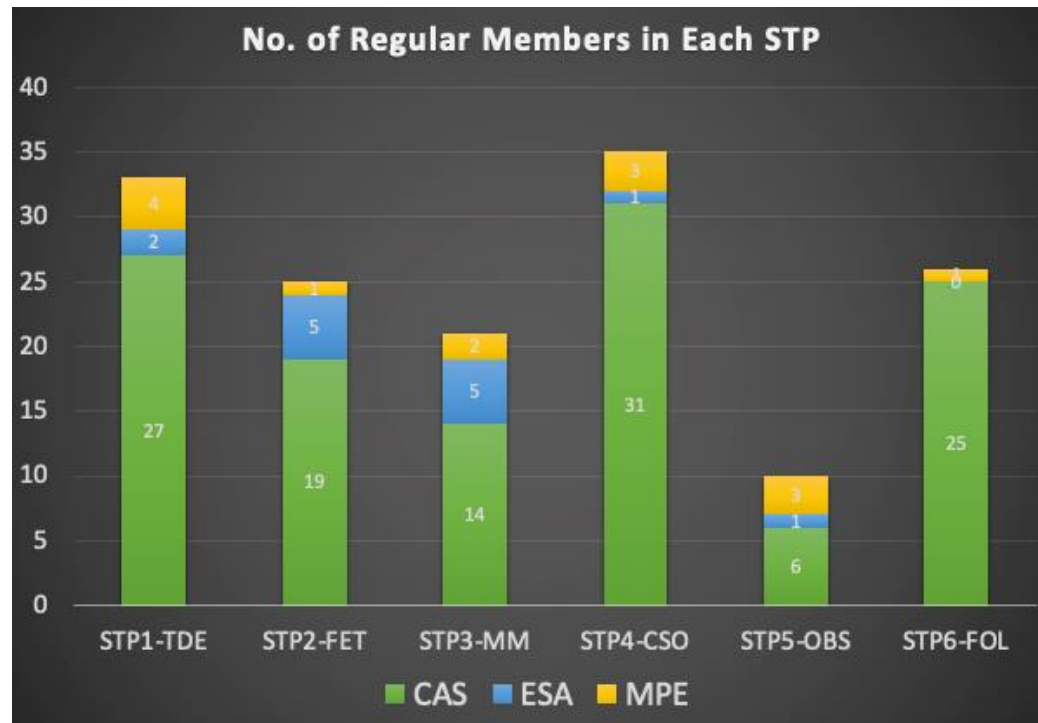
The preliminary results have been posted at Astronomer's Telegram as ATel 16061. Click here for more EP/LEIA Astronomer's Telegrams.

Edit Editor: Hui Sun

Access to the most current updates on EP-related news, events, transient alerts, and proposal call

Science Team and the STP Kick-off meeting

- **Built the EP science team: STP members and associate members**
- **Current team: STP members (~90), associate members (~120)**
- **Scientific Activities:**
 - ✓ International STP Kick-off meeting, 19th April 2023
 - ✓ Online user meeting, 11th Nov. 2022



Summary

- Significant progress since 2017
- Develop and test software
- Verify some functions by LEIA (obs planning, instrument monitoring, WXT data reduction, Beidou alert, TA management, transient identification, alert distribution)
- Update FM CALDB of WXT/FXT
- Interface testing with VHF and ground supporting system
- Whole system test (August)
- Distribute software and train TA

Thanks!