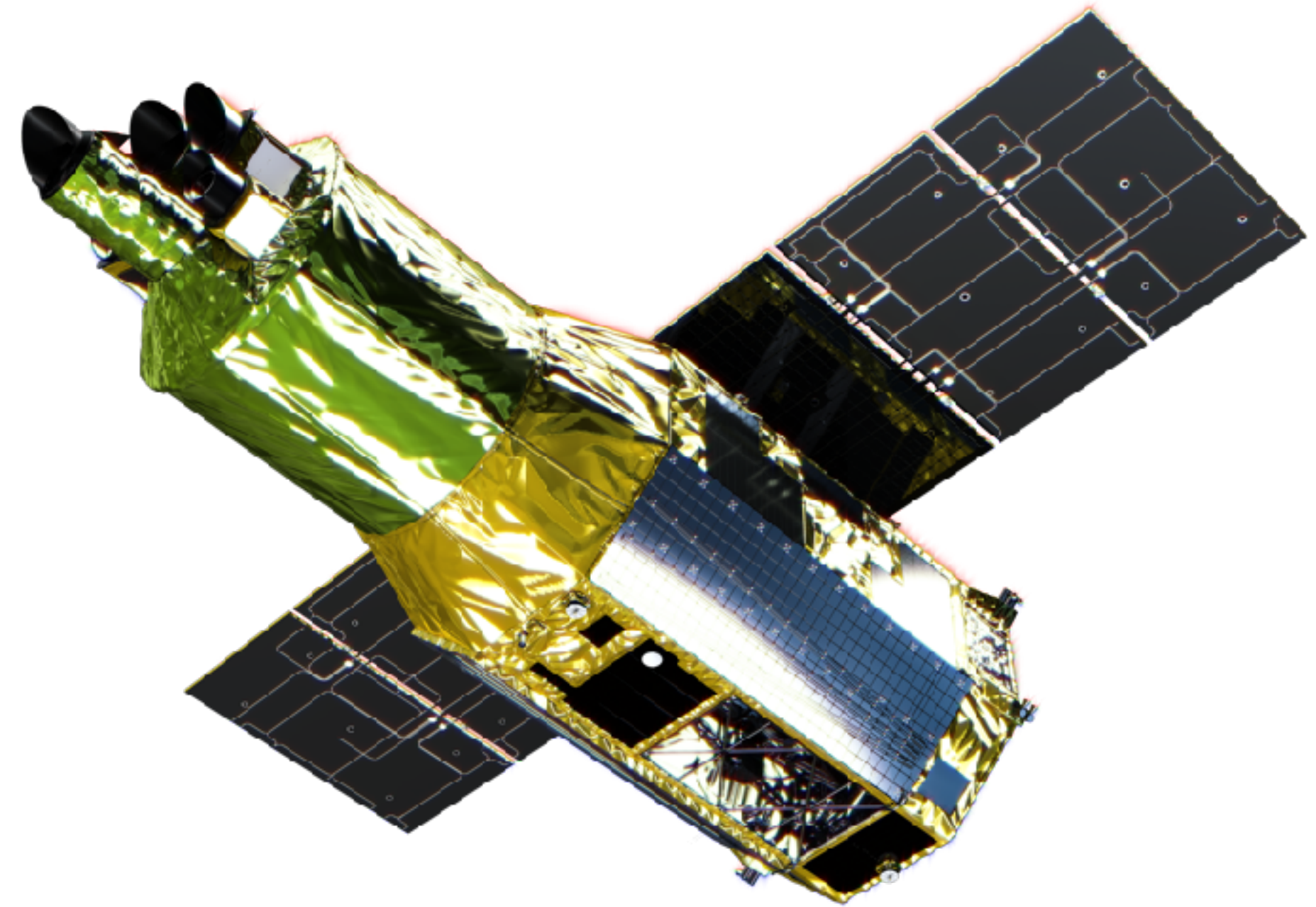


# XRISM Operations

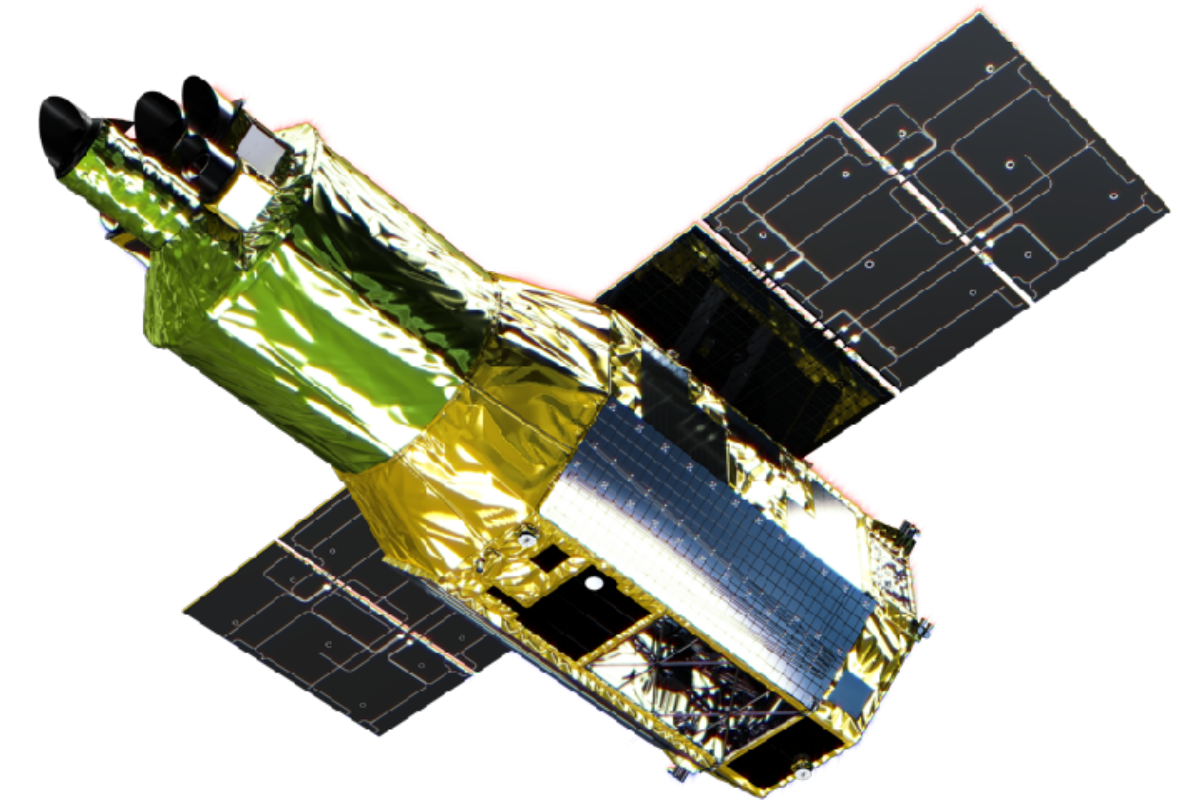


**Katsuhiro Hayashi (ISAS/JAXA)**

On behalf of Science Operations Center (SOC)

# Today's Contents

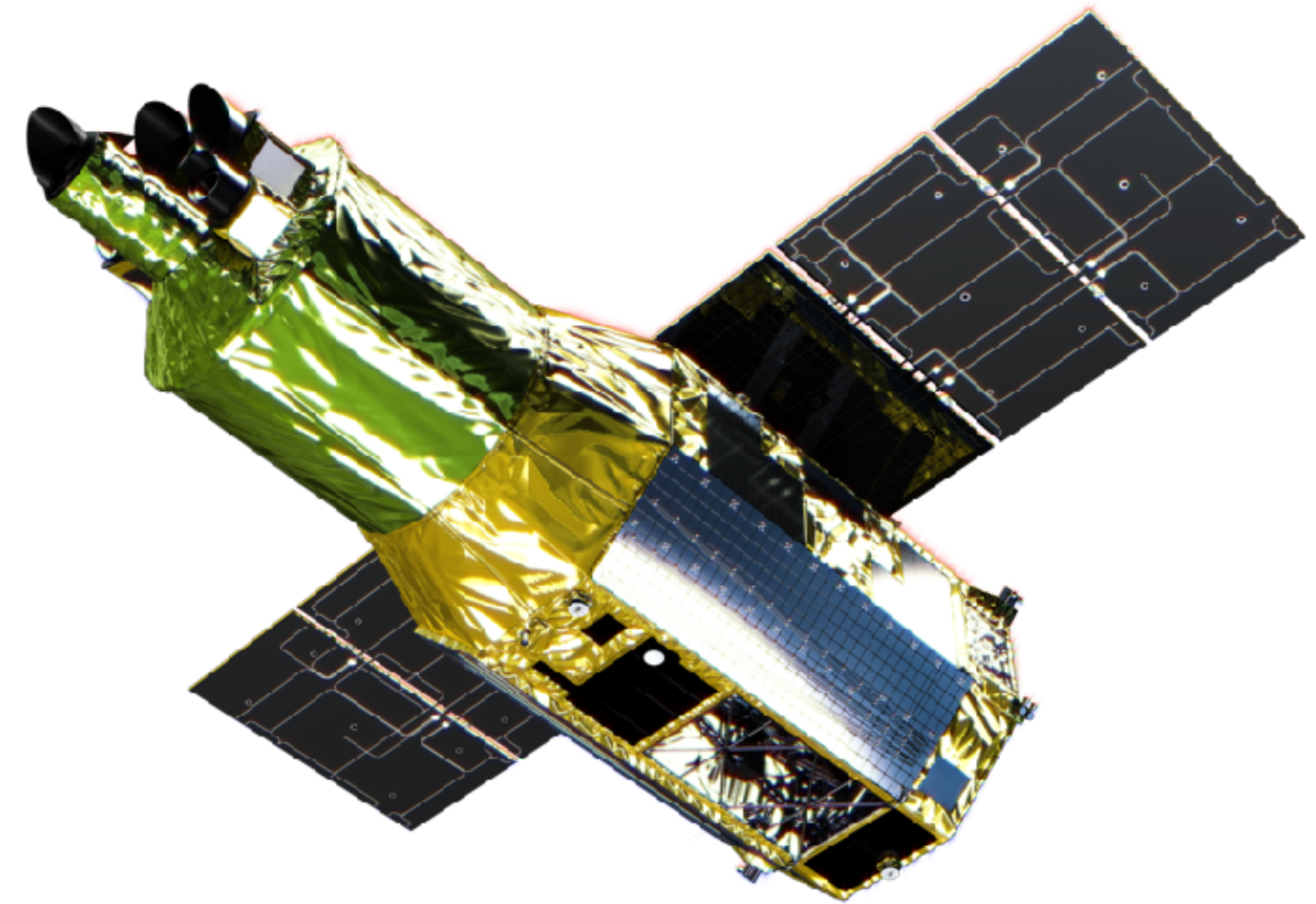
- Science Operation Team
- JAXA facilities for the spacecraft operation
- Operation timeline
- Data process/distribution
- User Support
- ARK/RPS (Xtend transient search)
- Current Status of the Project
- Future Plan



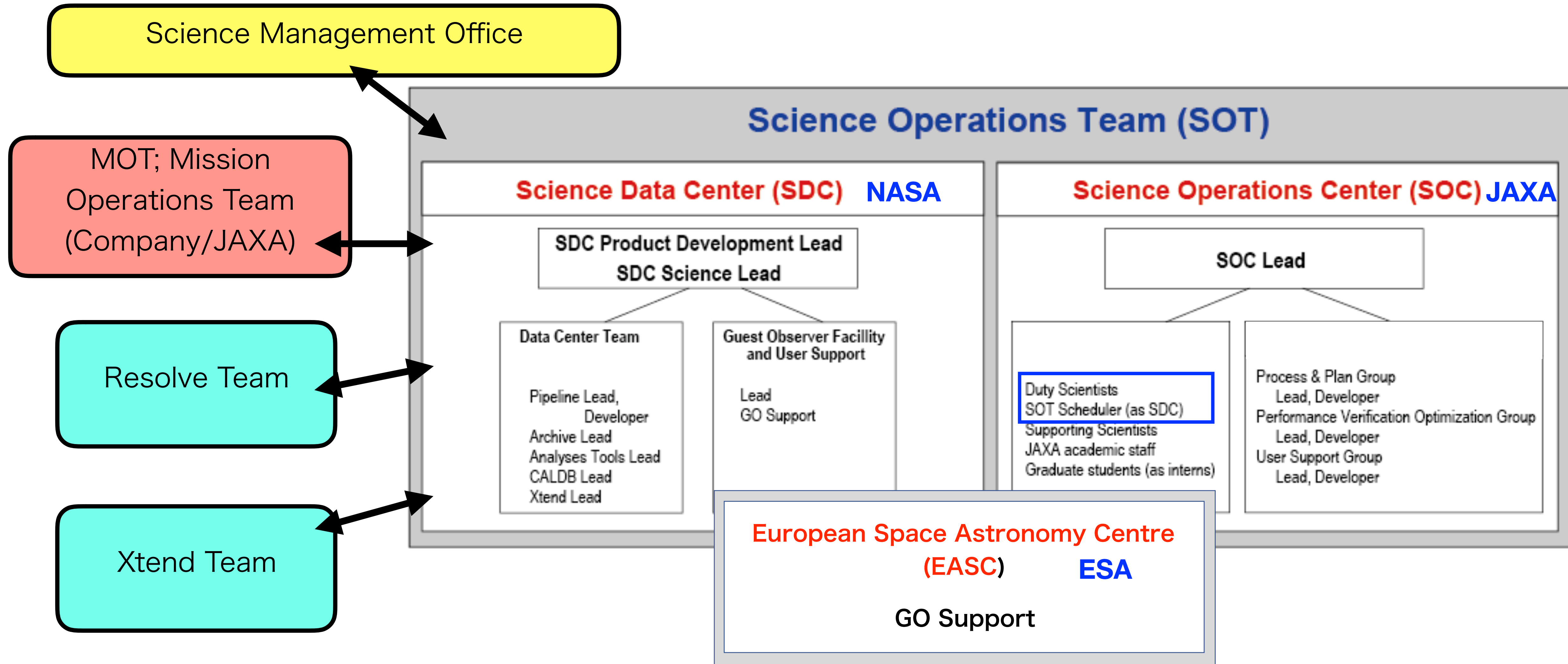
Goal of the Science Operations: **Enhance science outputs from the XRISM mission**

## Tasks/responsibility of the Science Operations Team (SOT)

- ❖ SO1: Performing guest observer (GO) program and the data distribution
  - Proposal handling
  - Science Observation scheduling, Planning, ToO handling etc
  - Pre-pipeline process / Pipeline process
  - Data archive
  - Quick-look viewing
- ❖ SO2: Release of the analysis software and calibration database
  - Development and release of analyses tools & CALDB
- ❖ SO3: GO support
  - User guide documents
  - Researcher webpages
  - Helpdesk, handling questions from GO
- ❖ SO4: Performance Verification and Optimization (PVO) activities
  - Activities to enhance performance of observatory
  - Health/performance checking.



# SOT Structure



- ❖ SOT tasks are covered by SOC (JAXA), SDC (NASA), and ESAC (ESA)
- ❖ SOC duty scientists perform major tasks of the science operations in JAXA

# Spacecraft Operation

**Uchinoura (USC): Main  
34/20m antenna**



**Tanegashima: launch**



**ISAS:  
Sagamihara Space Operation Center (SSOC)**



ISAS News No.511:  
[https://www.isas.jaxa.jp/outreach/isas\\_news/files/ISASnews511.pdf](https://www.isas.jaxa.jp/outreach/isas_news/files/ISASnews511.pdf)

**Katsuura (KTU): Backup  
20m antenna**



# Operation Timeline

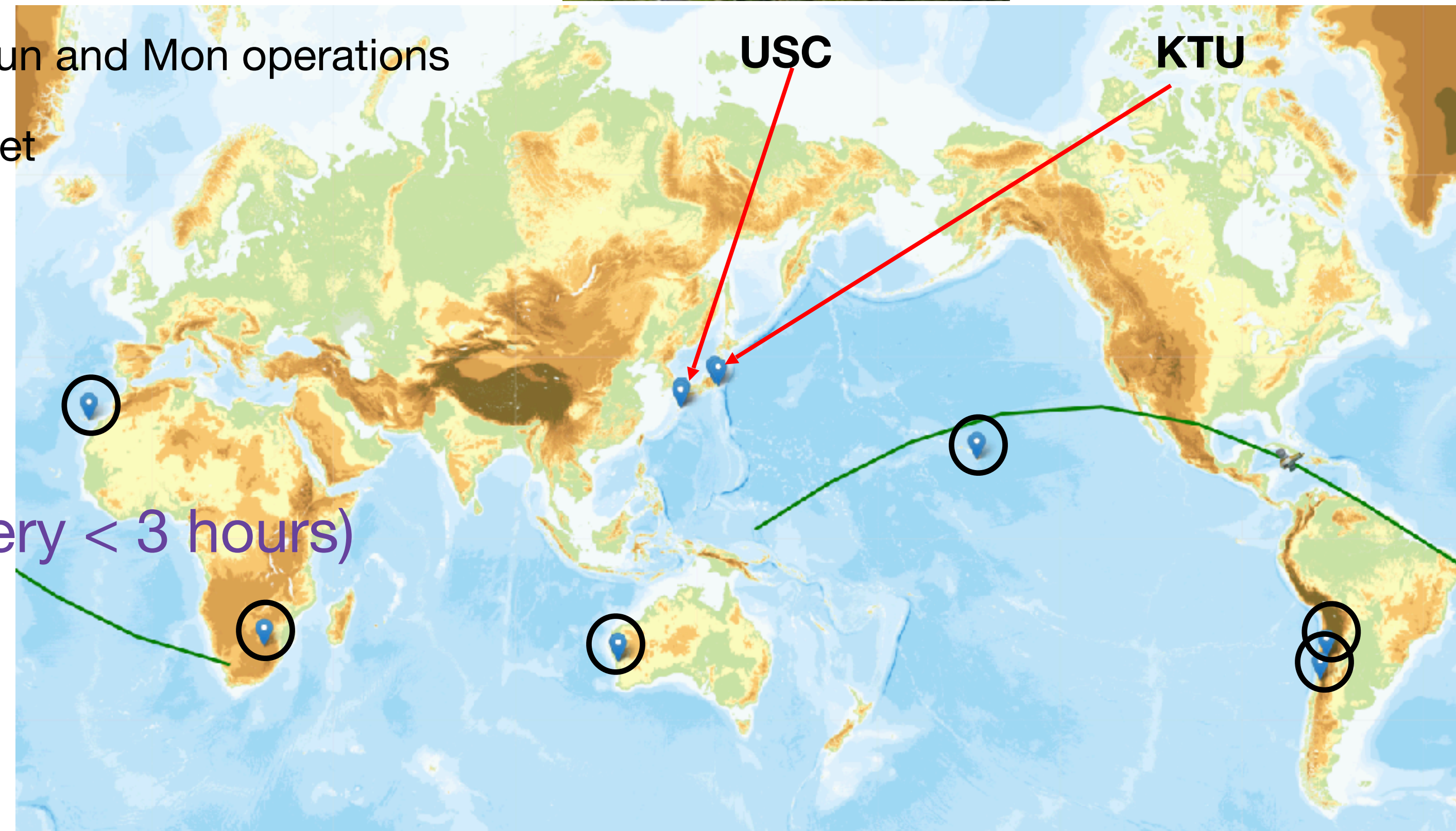
Uchinoura (USC) / Katsuura (KTU): 4-5 passes/day

- ❖ Command uplink/Data downlink are performed everyday
- ❖ Commands are generated only on Mon-Sat (except for Sun)
  - On Sat, 2 command sets are generated for Sun and Mon operations
  - It takes ~3.5 hours to generate 1 command set



Other NASA/JAXA ground stations (every < 3 hours)

- ❖ Status monitor in nominal case
- ❖ Operations only in emergency cases





Home	<b>Observation Plan</b>
News & Announcements	<a href="#">Long term Observation plan</a>
About XRISM	<a href="#">Short term observation plan</a>
Proposer	<b>Operation log</b>
Observers	<a href="#">Observation log(link to DARTS)</a>
Analysis	<a href="#">Resolve operation log(under construction)</a>
Helpdesk	<a href="#">Xtend operation log(under construction)</a>
Useful links	<a href="#">satellite system operation log(under construction)</a>

## Planning observation schedule

- ❖ Long-term schedule: every 3 months
- ❖ Short-term schedule: every 1 week (inc. next 3 weeks)
- ❖ Before 2 weeks, PIs are informed to check observation modes

## Information from Researchers' web page

- ❖ Scheduling the PV observation for the gate value closed case will be released soon.

<https://xrism.isas.jaxa.jp/research/observers/index.html>

# ToO Request/Timeline



Home > Proposer

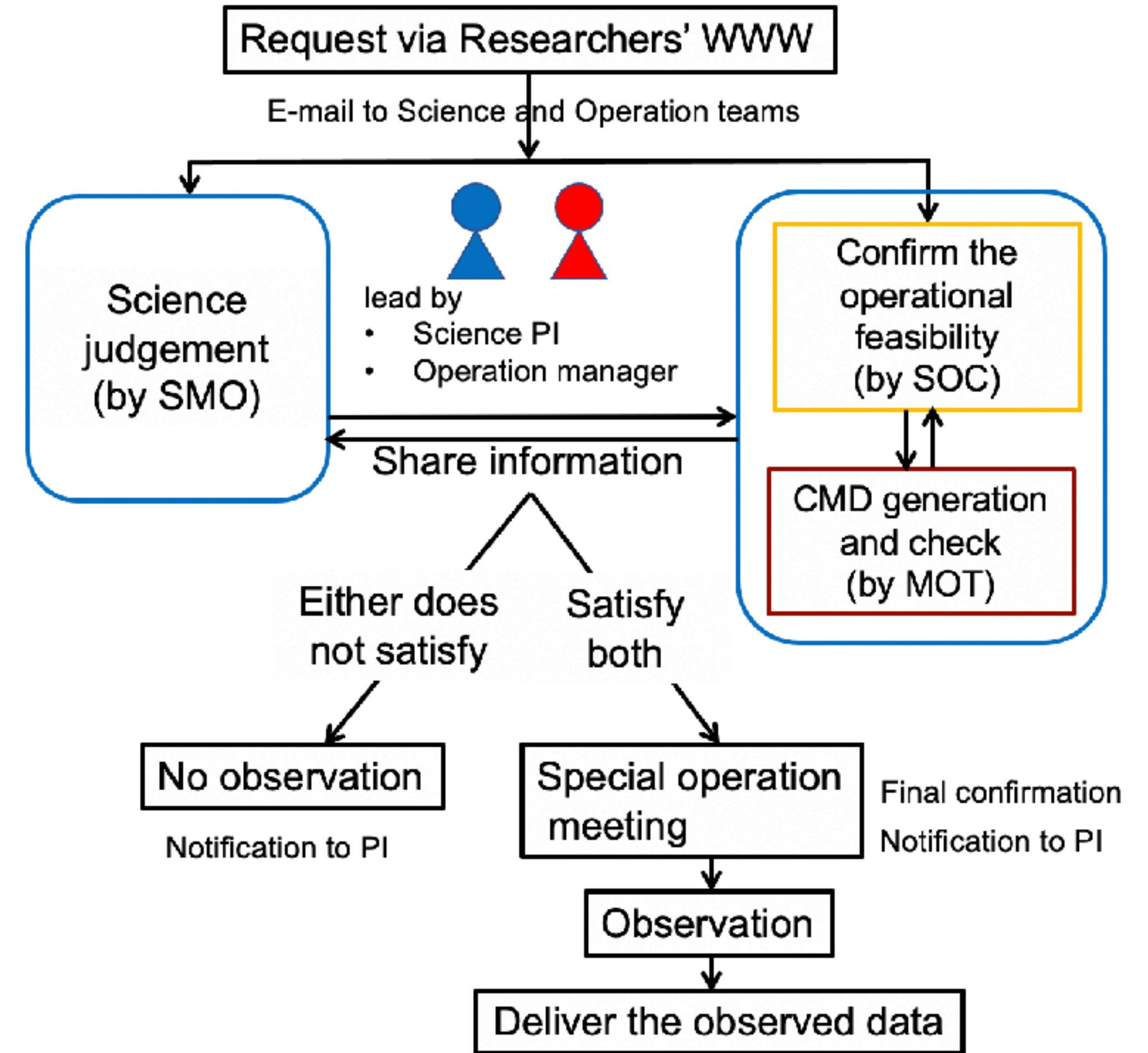
Home \*: under construction  
About XRISM  
Proposer  
Useful links

**Proposer**

- \* Current AO announcement
- \* Current AO ARK/RPS page
- Planning Observation
- \* Generic TOO request
- Approved Target List

<https://xrism.isas.jaxa.jp/research/proposer/index.html>

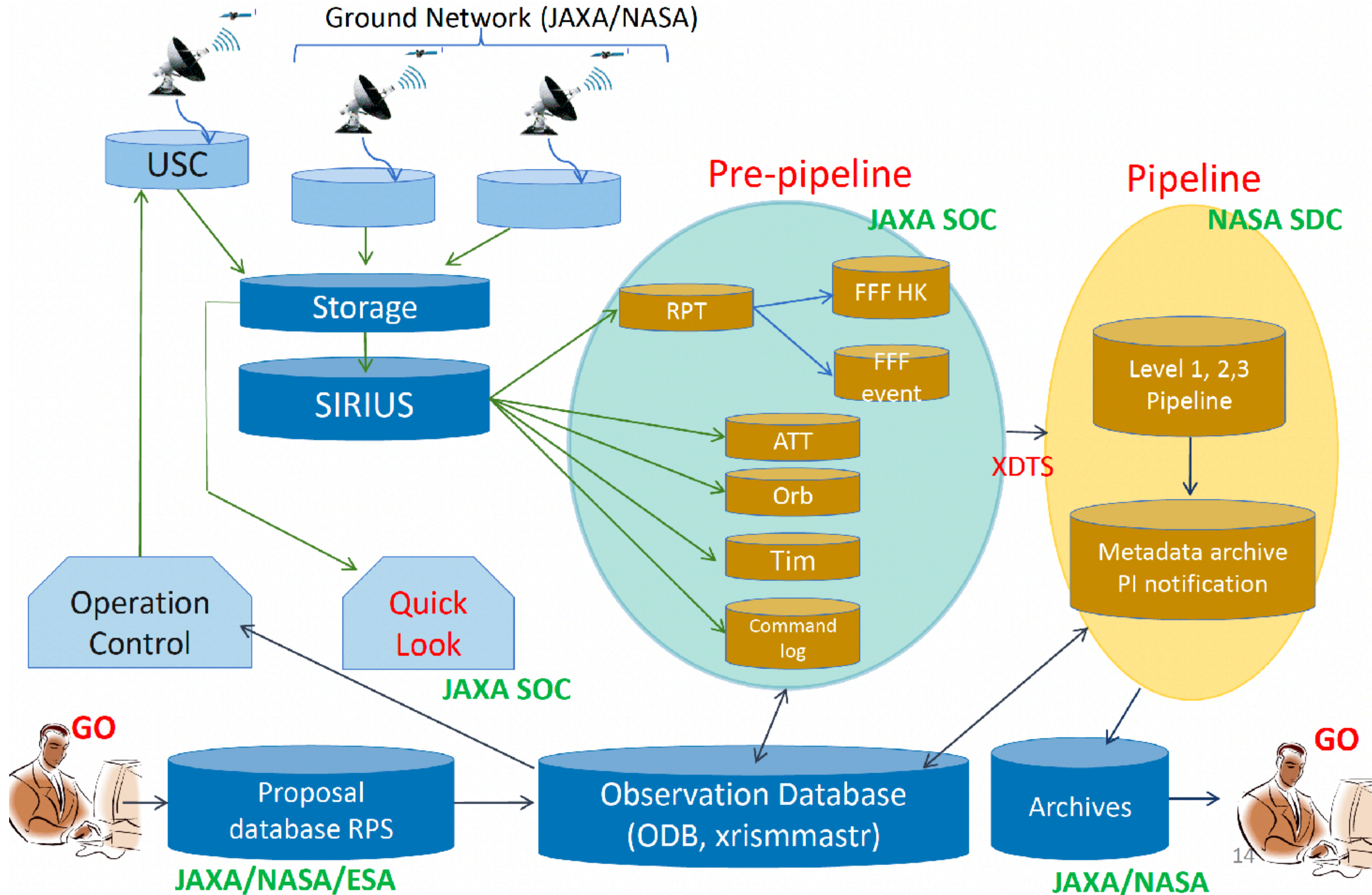
- ❖ ToO request from JAXA Researchers' web page
- ❖ ToO request can be started from GO program.



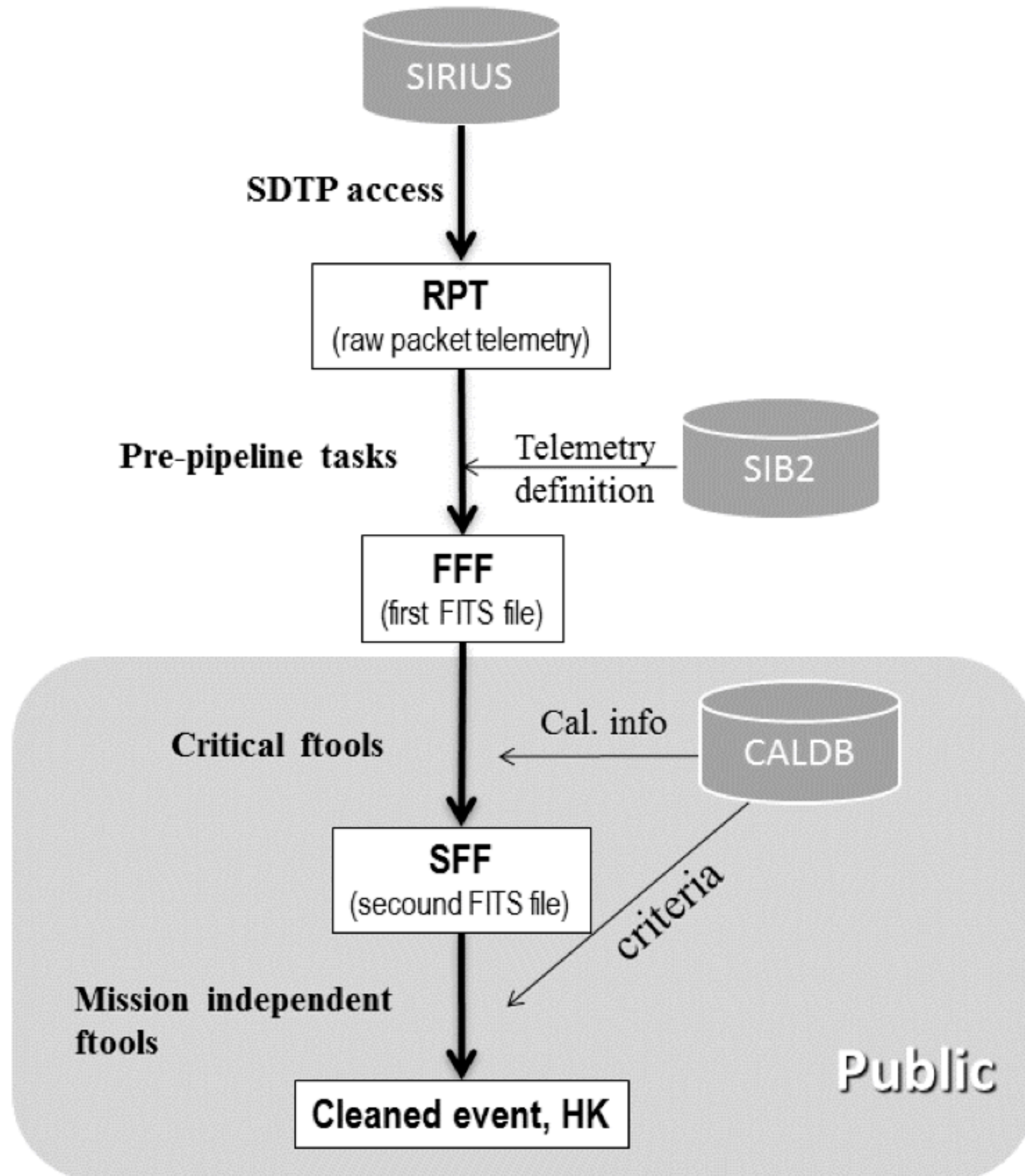
- ❖ Start of ToO observation may take up to 2 days (weekday) or 3 days (weekend)



# Data Process/Distribution



# Data Type/Format



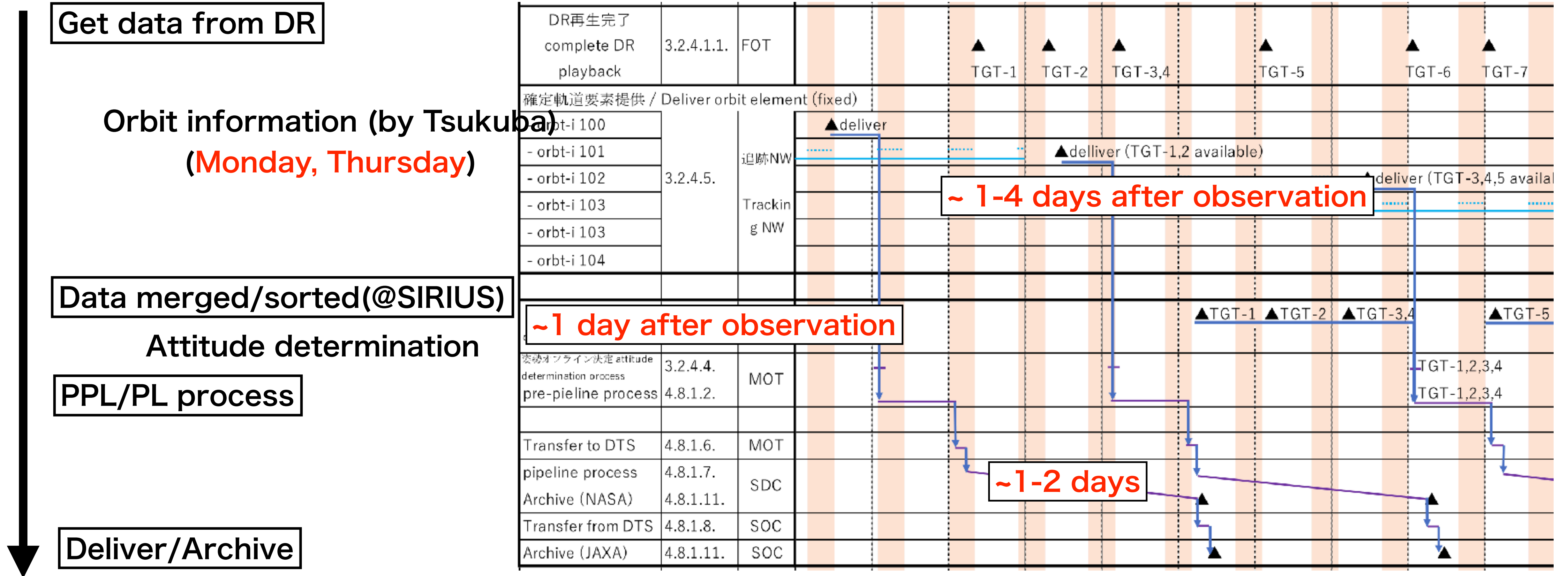
Pre-pipeline

- ❖ RPT (raw packet telemetry)
  - ❖ FFF (first fits file)
- are not public

Pipeline

- ❖ SFF (second fits file) is the same format as FFF with calibrated information.
- ❖ Users can reprocess from SFF

# Data-process Timeline



Data will be delivered within 2 weeks after observation

# Archive/User Support

## Archived information from DARTS

✿ <https://darts.isas.jaxa.jp/astro/xrism/>

## JAXA Researchers' web page

✿ Maintenance

✿ Announcements

<https://xrism.isas.jaxa.jp/research/index.html>

## Help Desk

✿ Opening Help Desk for Japan

✿ Handling questions from guest observers

<https://xrism.isas.jaxa.jp/research/helpdesk/index.html>

XRISM X-Ray Imaging and Spectroscopy Mission For Researchers

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### Greeting

▶ Japanese Page

Dear XRISM users,

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 an astrophysical satellite 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. We believe the combination will bring the epoch-making and reliable results to you, XRISM users. The new vision of astrophysics you encounter may be too novel to cook only with the tools we prepare. We want to encourage the XRISM user community to develop new analysis tools or methods to explore the world of XRISM.

Enjoy the new space!

Tashiro, Makoto (XRISM PI)  
田代 信

### Announcements

January 10, 2024

The Resolve aperture door status and a request for the proposals for the guest observer program cycle-1

The XRISM Resolve instrument's Gate Valve (X-ray aperture door) has not opened on multiple attempts. The Gate Valve blocks soft X-rays, shifting Resolve's energy band from 0.3 - 12 keV to 1.7 - 12 keV. While the XRISM team will continue to assess different approaches to opening the Gate Valve, the Guest Observer Cycle-1 program will be carried out with the closed Gate Valve configuration. Proposals must justify the science case given the closed Gate Valve and limited in the energy band. The relevant program function files and related information will be provided on the XRISM website.

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### Help Desk

FAQ

all questions to the help desk and their status

manuals

form for question

Proposal submission system (ARK/RPS) has been opened last week.

✿ JAXA site: <https://xrsrv1.isas.jaxa.jp/ark/>

## Agreement to Xtend Transient Search

✿ For contributing Multi-messenger astronomy, if GO proposers agree at proposal submission, XRISM team will search transient sources using Xtend data outside FoV(Resolve)

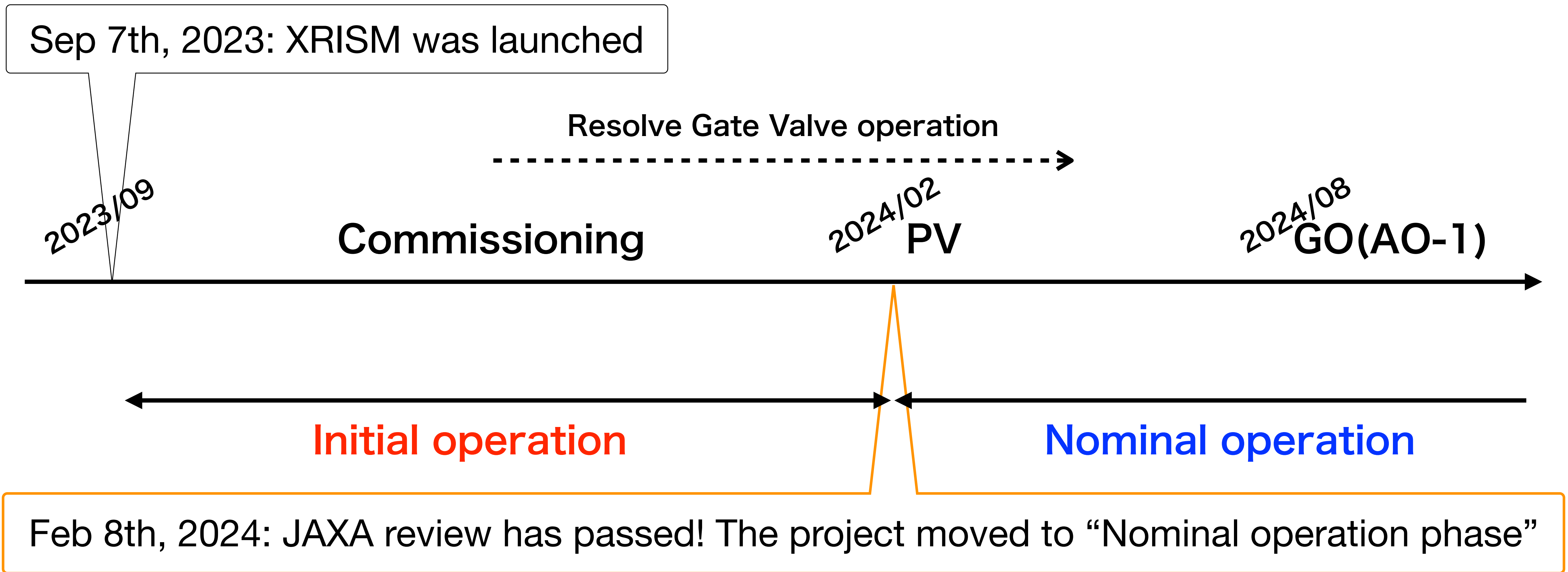
The screenshot shows a web form for proposal submission. The 'Xtend Transient Search' section is highlighted with a red box. It contains the following text and controls:

- Xtend Transient Search** (underlined)
- Do you agree to Xtend Transient Search by the XRISM team?  Y
- If Yes, do you want to be a co-author of the telegram?  N

Below this section, there are fields for 'Coordinated Observation?' (checkbox), 'Observatory', and 'Description'.

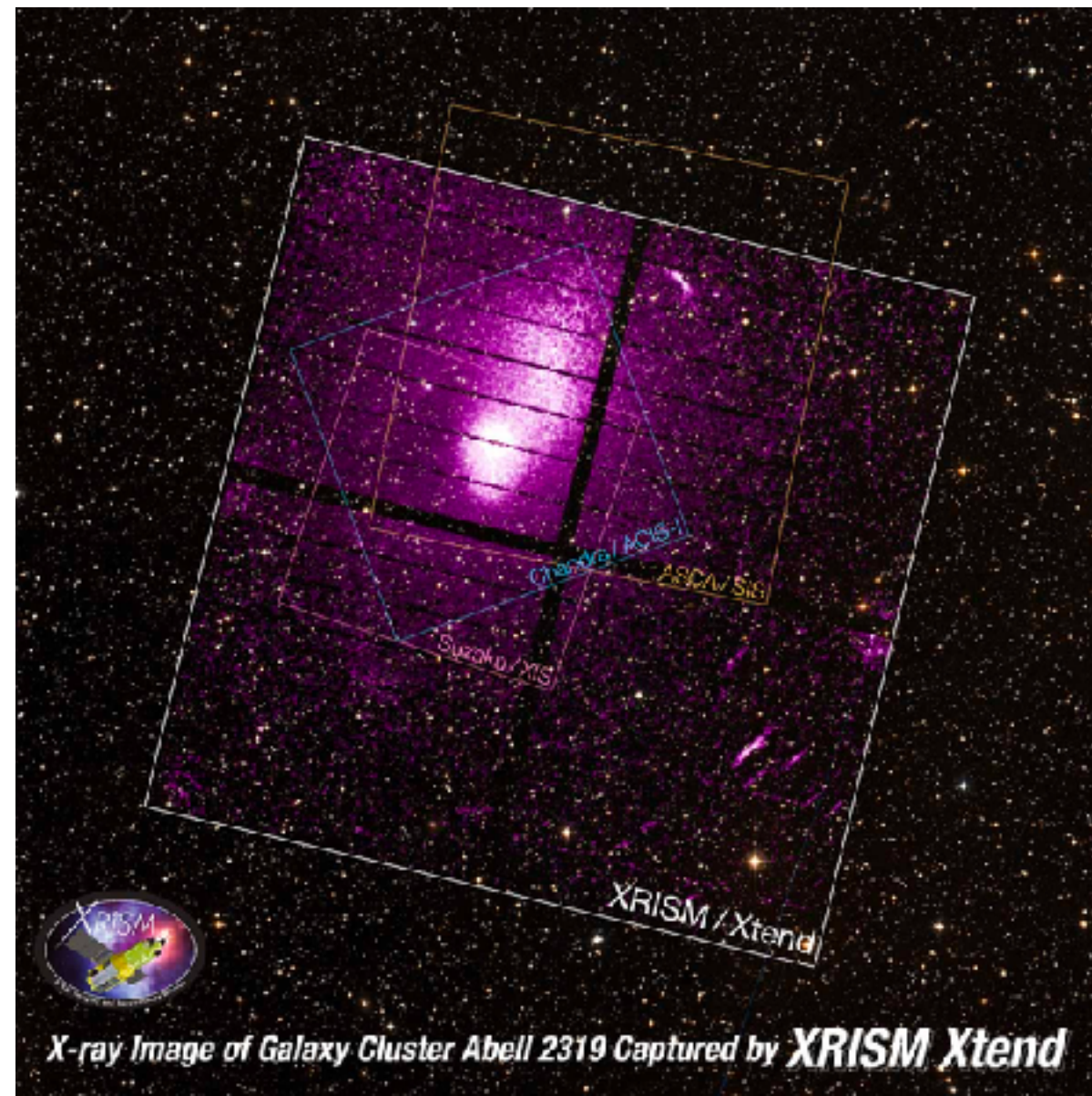
✿ Please check “YES” for Xtend transient search

# Current Status of the Project



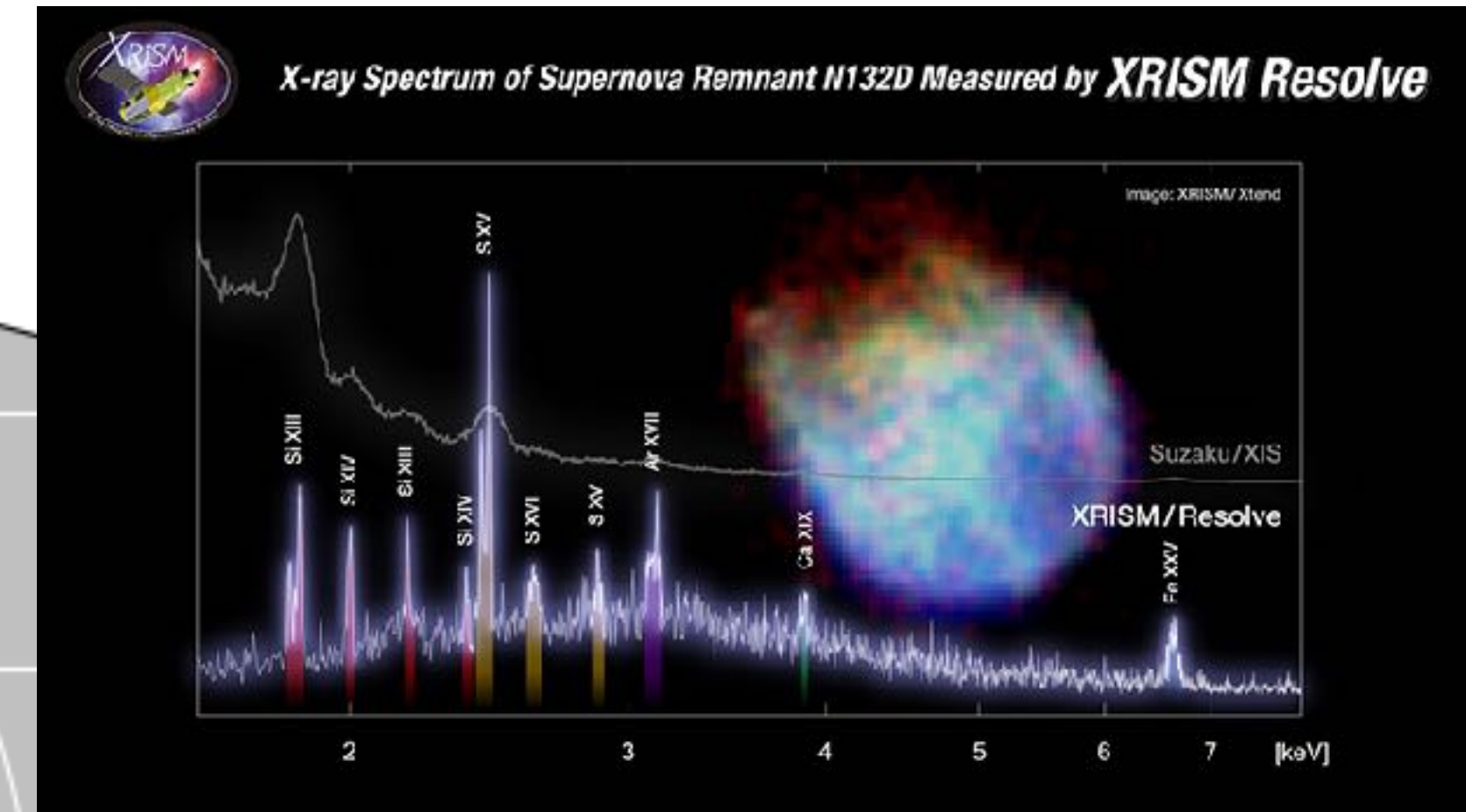
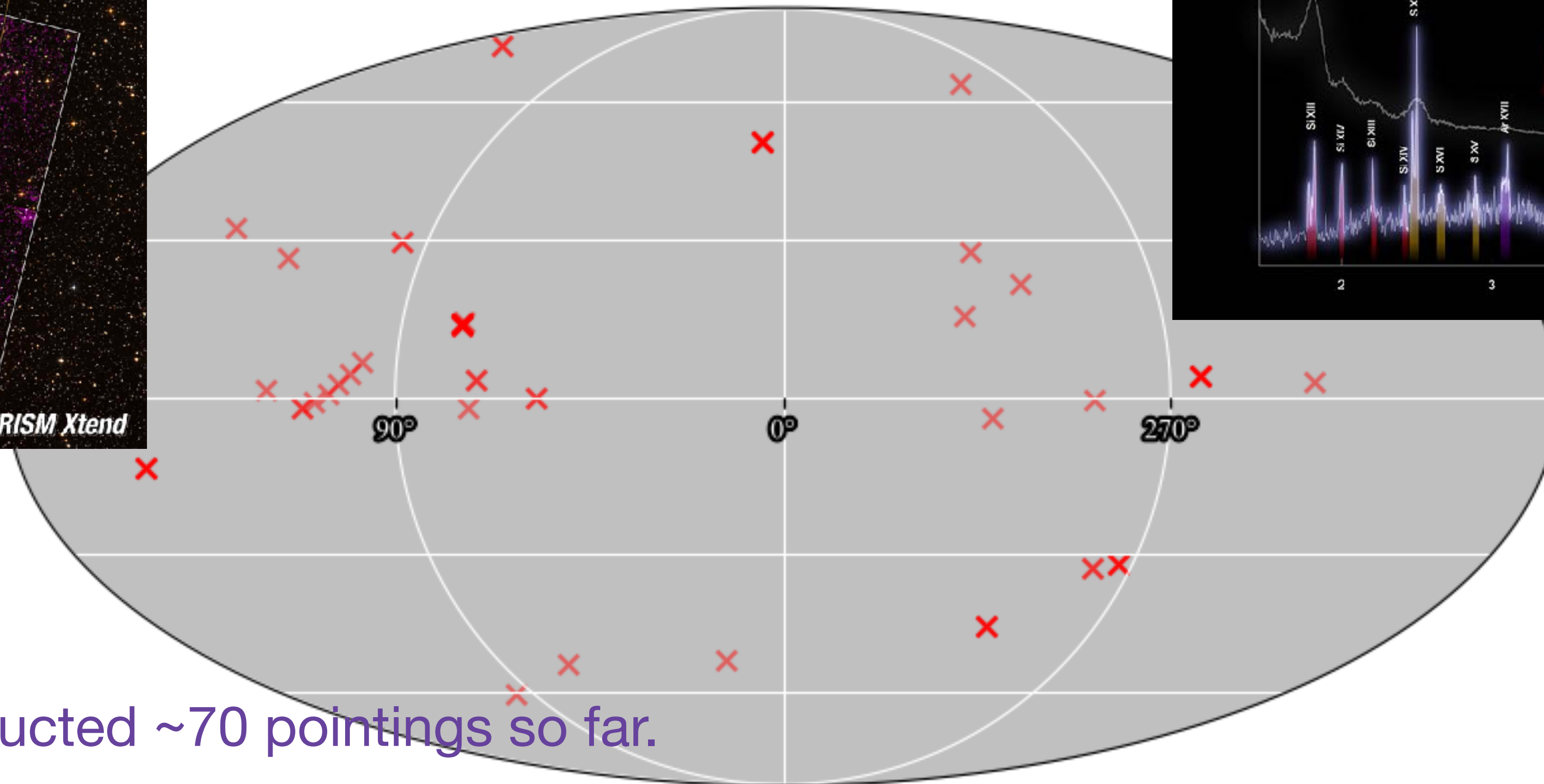
- ✿ Observations of the Performance Verification (PV) targets are carried out.
- ✿ We will try to assess to opening the Resolve Gate Valve during the PV phase.

# Targets Observed So far



Abell 2319

## Galactic Coordinate



N132D

We have conducted ~70 pointings so far.

- ✿ These targets are selected to evaluate the pointing and timing accuracies, and check functions of the Resolve and Xtend observation modes.
- ✿ Targets for the calibration measurements, First Light, and Early Release are included.

XRISM project moves to nominal operation phase and now carry out observations of PV targets

- ✿ Long term schedule of the PV observation for the gate valve closed case will be released soon.
- ✿ We will try to assess to opening the Resolve Gate Valve during the PV phase.

GO observation will be started from August 2024

- ✿ The observed data with the FITS format will be provided within 1-2 weeks after the observation
- ✿ XRISM help desk is opened.

The deadline for AO-1 is April 4th

- ✿ The proposal system has been opened in JAXA, NASA and ESA.
- ✿ Approval targets will be announced ~1 month prior to the start of GO observations.

**Let's enjoy the XRISM data analysis!**





# ToO Timeline

ケース	N日 / N day																N+1日 / N+1 day																N+2日 / N+2 day																		
	JST																JST																JST																		
	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1
	UTC																UTC																UTC																		
Time after request	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	
① ・リクエストが日動帯前半 Request is in the first half of day shift ・パス群が日動帯前半 Pass group is in the first half of day shift																																																			
② ・リクエストが日動帯後半 Request is in the second half of day shift ・パス群が日動帯前半 Pass group is in the first half of day shift																																																			
③ ・リクエストが日動帯前半 Request is in the first half of day shift ・パス群が日動帯後半以降 Path group after the second half of the day shift																																																			
④ ・リクエストが日動帯後半 Request is in the second half of day shift ・パス群が日動帯後半以降 Path group after the second half of the day shift																																																			

- ❖ Commands are generated during the daytime on Mon-Sat in Japan time
- ❖ If you request ToO during the daytime and the request are approved before next USC passes, the observation will start next USC passes

# ToO Timeline

	N日 (土曜) / N day (Sat.)	N+1日 (日曜) / N+1 day (Sun.)	N+2日 (月曜) / N+2 day (Mon.)	N+3日 (火曜) / N+3 day (Tue.)
IS1	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0 1	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0 1	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0 1	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0 1
UTC	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
ケース				
① Time after request	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39	47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63	71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87
・リクエストが日勤前半 Request is in the first half of day shift ・パス群が日勤前半 Pass group is in the first half of day shift - ToO時刻がNOGOの場合、N+1E,N+2EにTLを更新しないことを許可 Allow TL not to be updated on N+1 and N+2 days if ToO is NOGO.				
② Time after request	0 1 2 3 4 5 6 7 8	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56	64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
・リクエストが日勤後半 Request is in the second half of day shift ・パス群が日勤前半 Pass group is in the first half of day shift				
③ Time after request	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39	47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63	71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87
・リクエストが日勤前半 Request is in the first half of day shift ・パス群が日勤後半以降 Pass group after the second half of the day shift				
④ Time after request	0 1 2 3 4 5 6 7 8	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56	64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
・リクエストが日勤後半 Request is in the second half of day shift ・パス群が日勤後半以降 Pass group after the second half of the day shift				

- ❖ Commands are not generated on Sunday in Japan time
- ❖ If you request ToO on weekend, command will be generated next Monday and the observation will start after 3 days