

January 18th, 2024

The 2nd XRISM Community Workshop @ UMD

XRISM pre-pipeline/ operations/ToO response, etc Managed by ISAS/JAXA in Japan

Shoji Ogawa (ISAS/JAXA)

On behalf of Science Operation Team (SOT)
(=SOC in JP +SDC in US)

Today's Contents

Science Operation Team

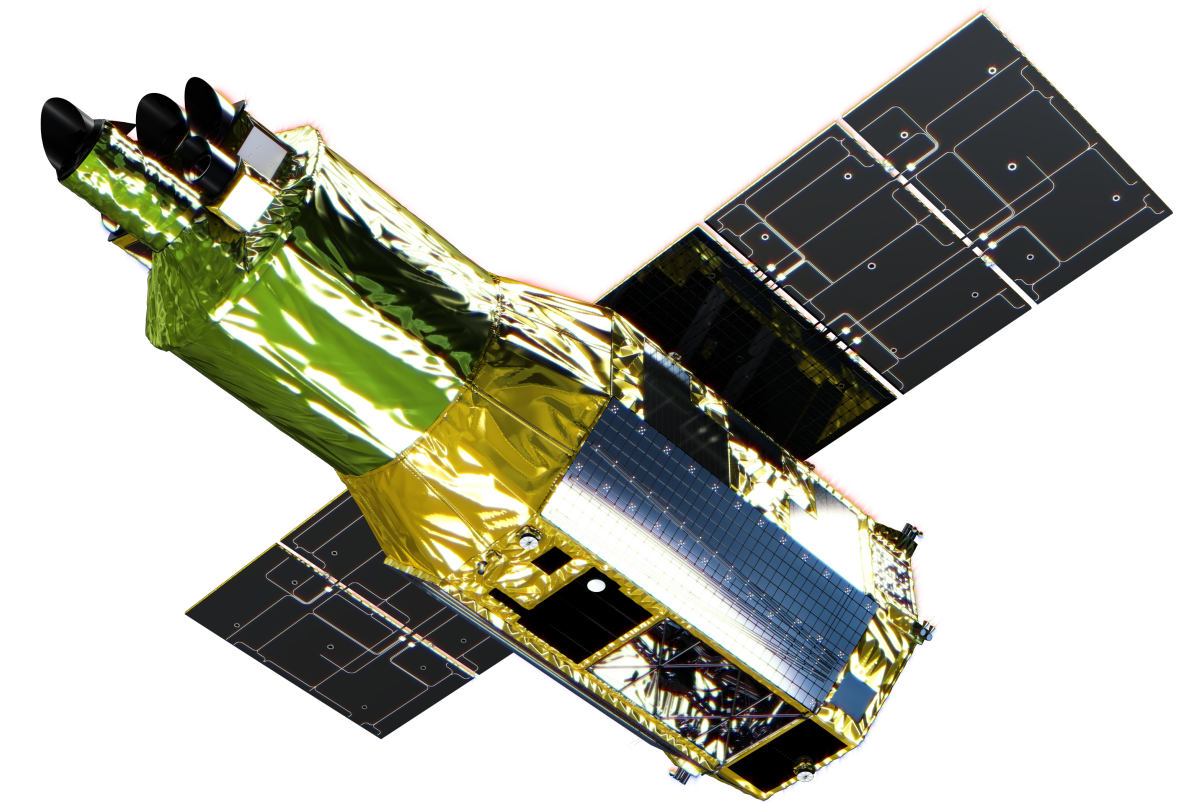
JAXA facilities

Operation timeline

Data process/distribution

User Support

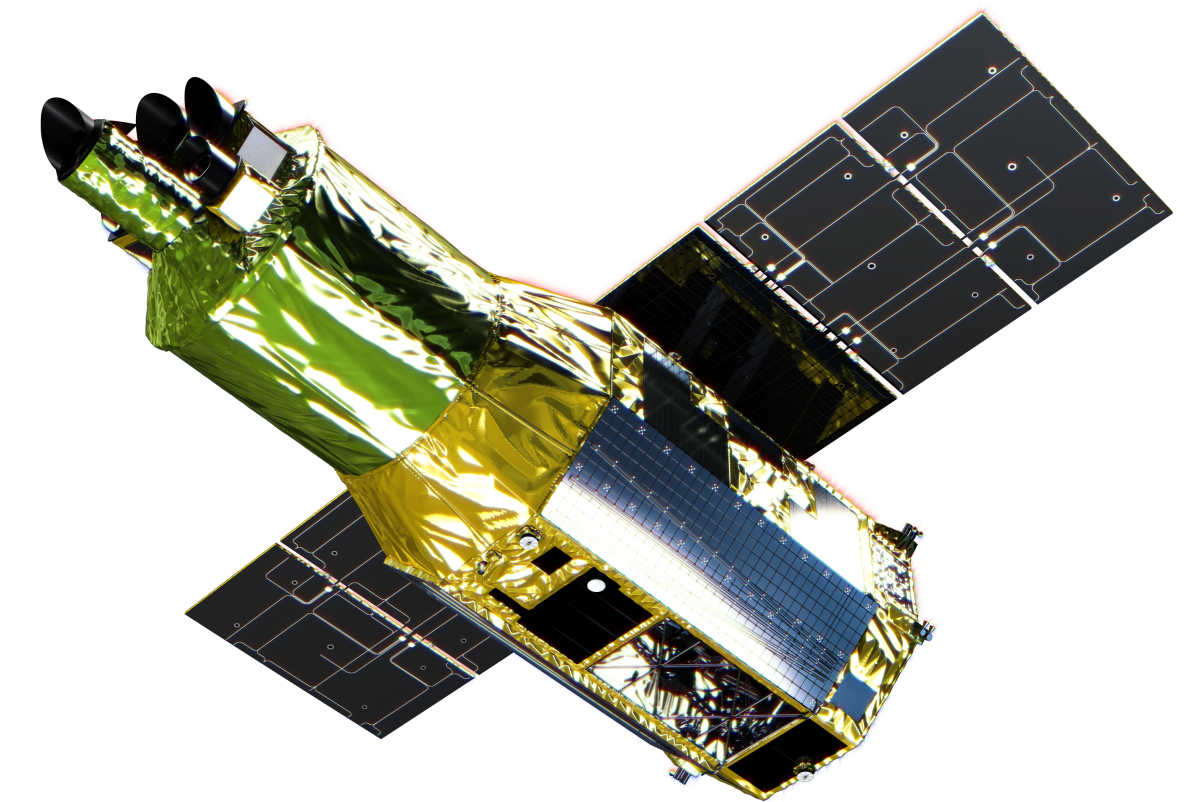
Xtend transient search

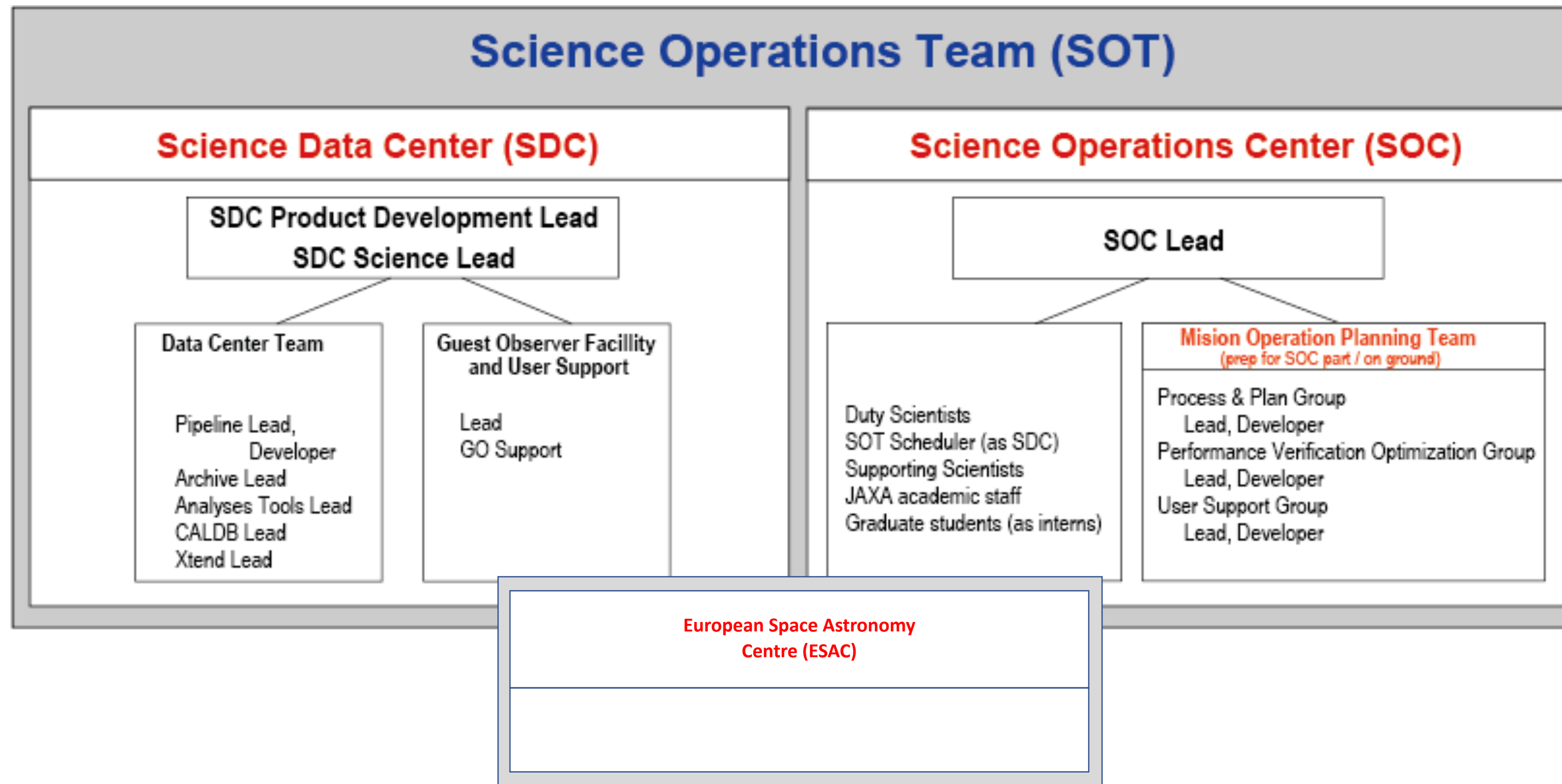


Goal of the Science Operations: **Enhance science outputs from the XRISM mission**

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.



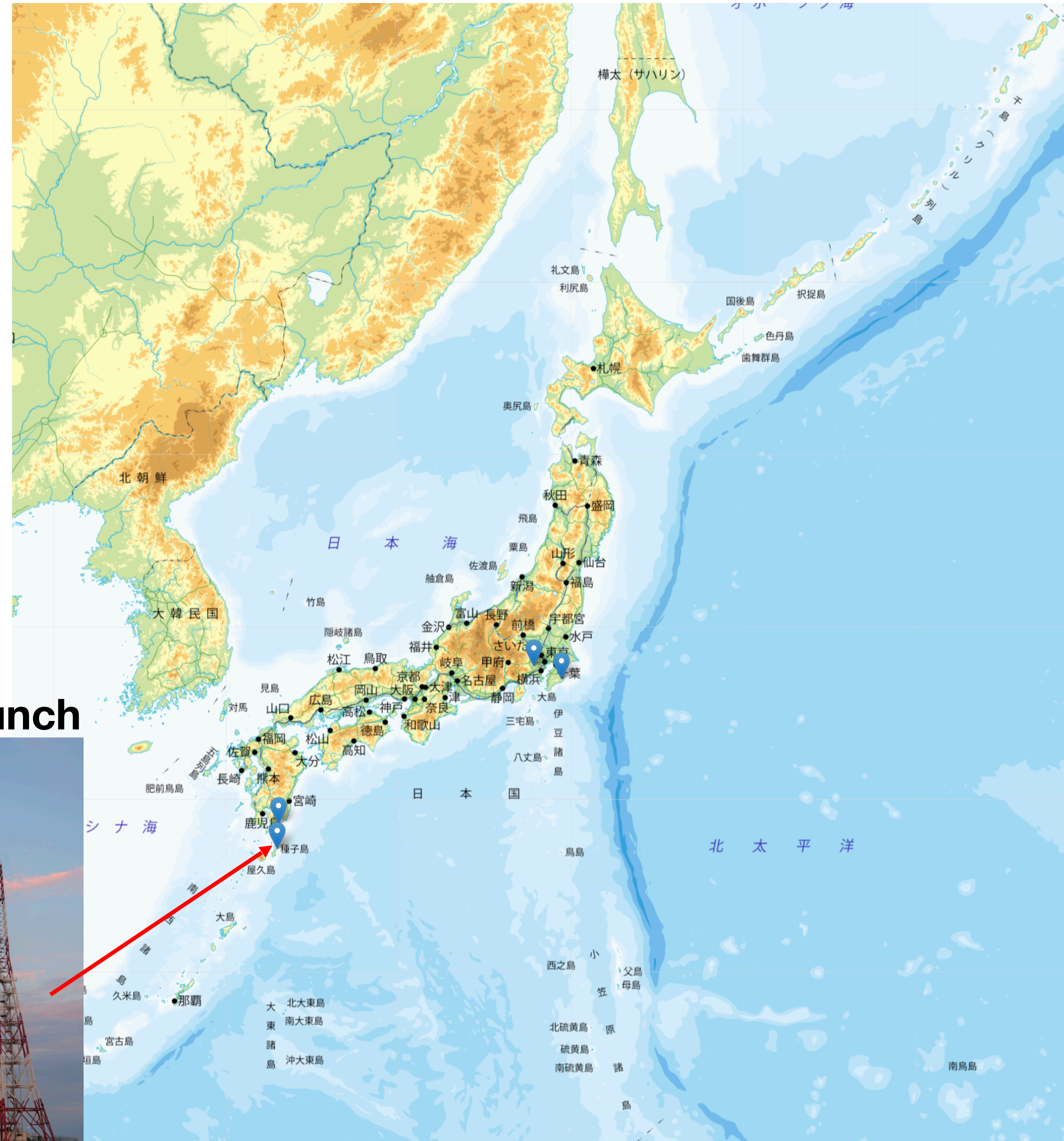


- ❖ Tasks are covered by SOC (JAXA), SDC (NASA), and ESAC (ESA)
- ❖ In Japan, MOPT prepared the science operations and mission operations
- ❖ MOPT became SOC and MOT (JAXA), respectively after launch.

JAXA Facilities



JAXA facilities



Tanegashima: launch



JAXA

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



Tanegashima: launch



JAXA facilities

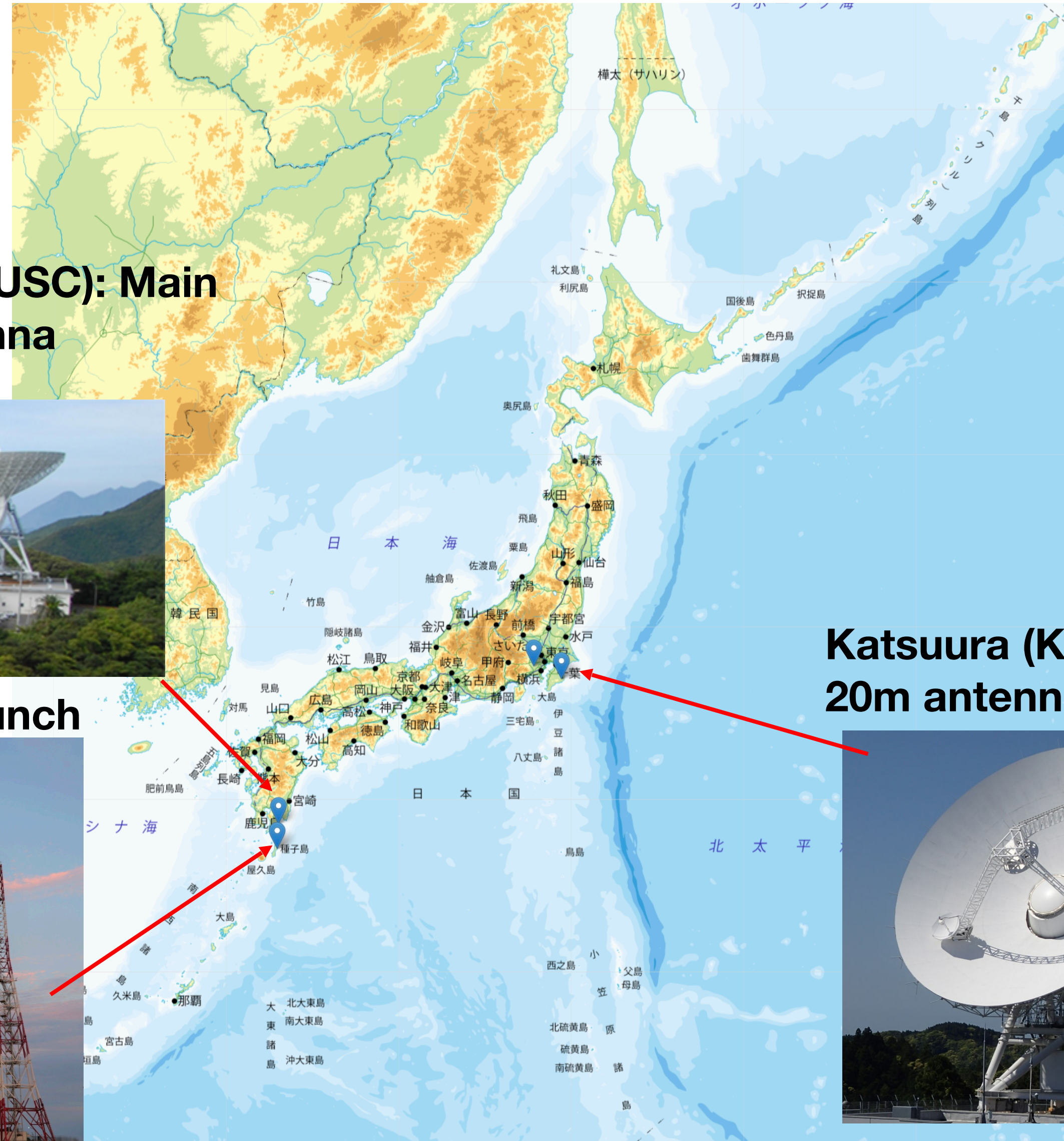
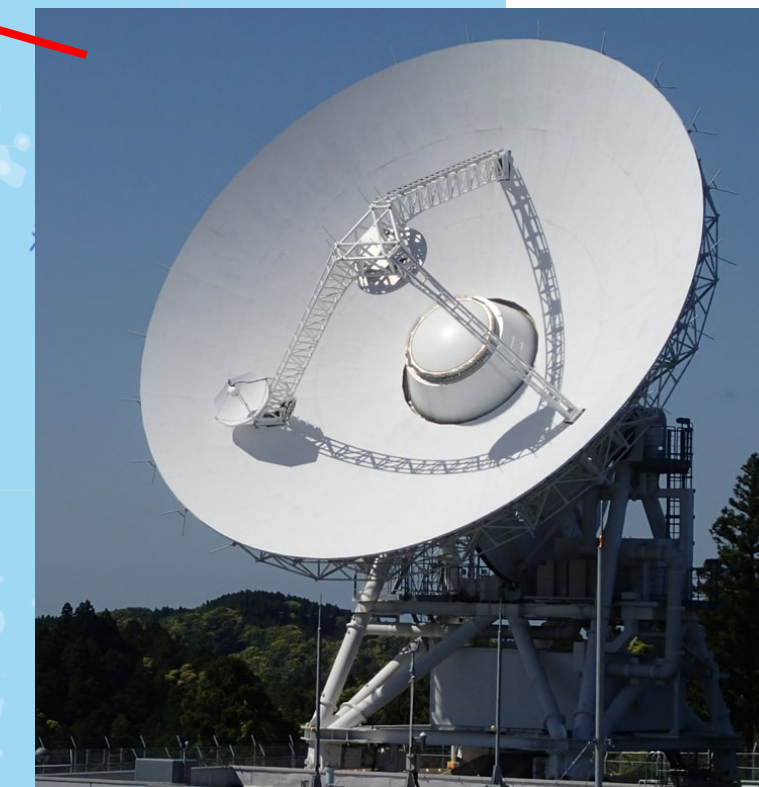
**Uchinoura (=USC): Main
34/20m antenna**



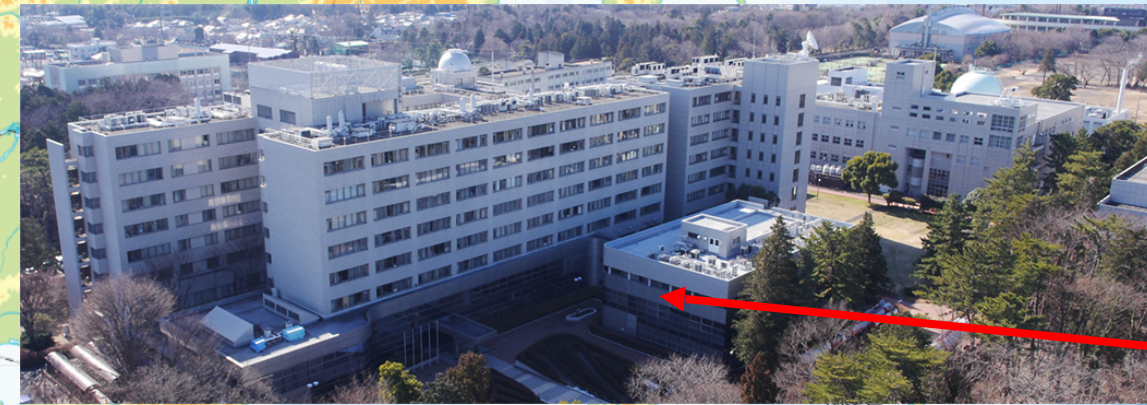
Tanegashima: launch



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



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



ISAS News No.511:
https://www.isas.jaxa.jp/outreach/isas_news/files/ISASnews511.pdf

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

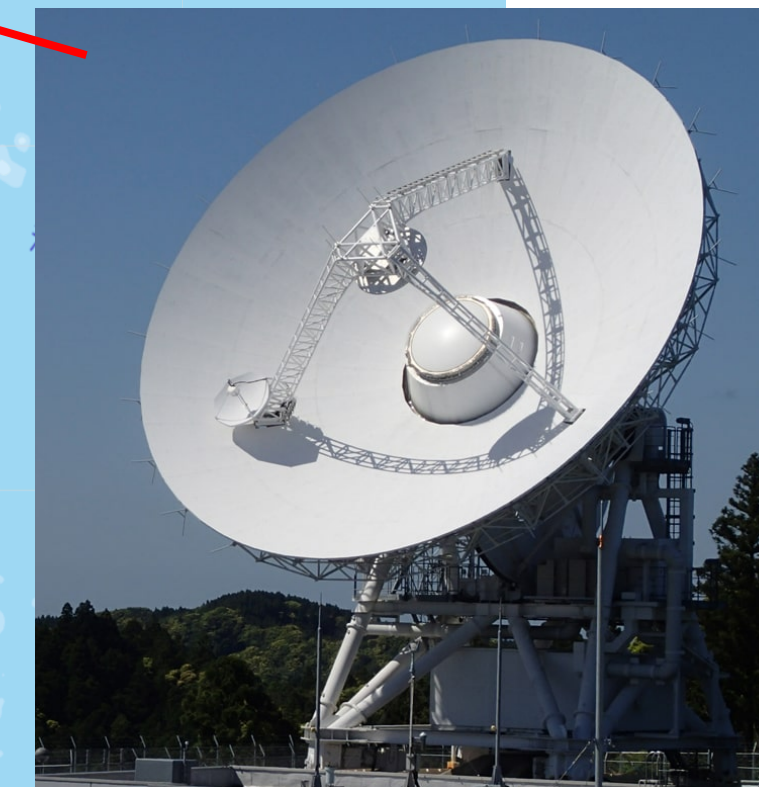


Tanegashima: launch



JAXA

**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



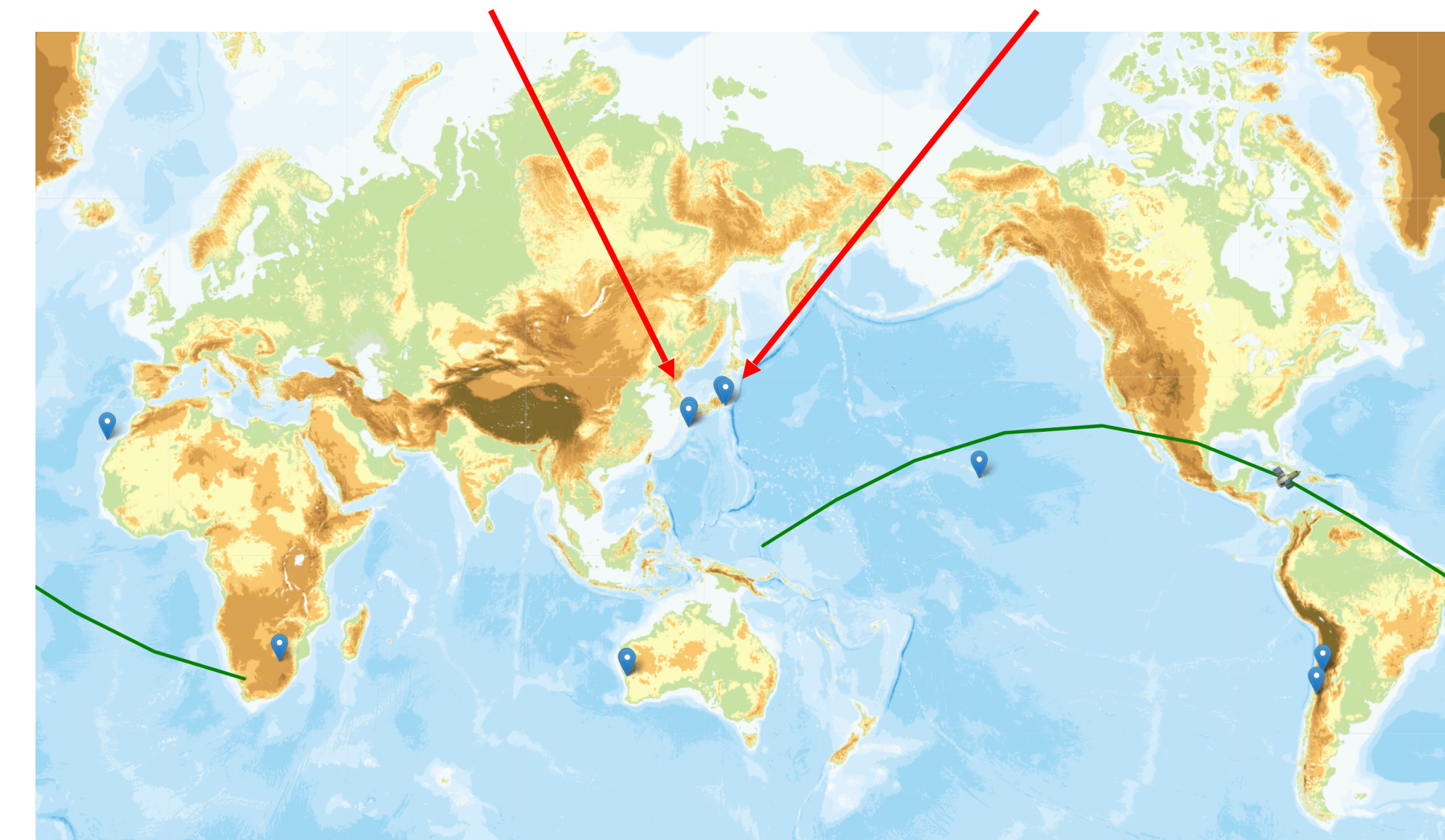
USC



KTU

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

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





Home

News & Announcements

About XRISM

Proposer

Observers

Analysis

Helpdesk

Useful links

Observation Plan

[Long term Observation plan](#)

[Short term observation plan](#)

Operation log

[Observation log\(link to DARTS\)](#)

[Resolve operation log\(under construction\)](#)

[Xtend operation log\(under construction\)](#)

[satellite system operation log\(under construction\)](#)

Long/Short-term schedule

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

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

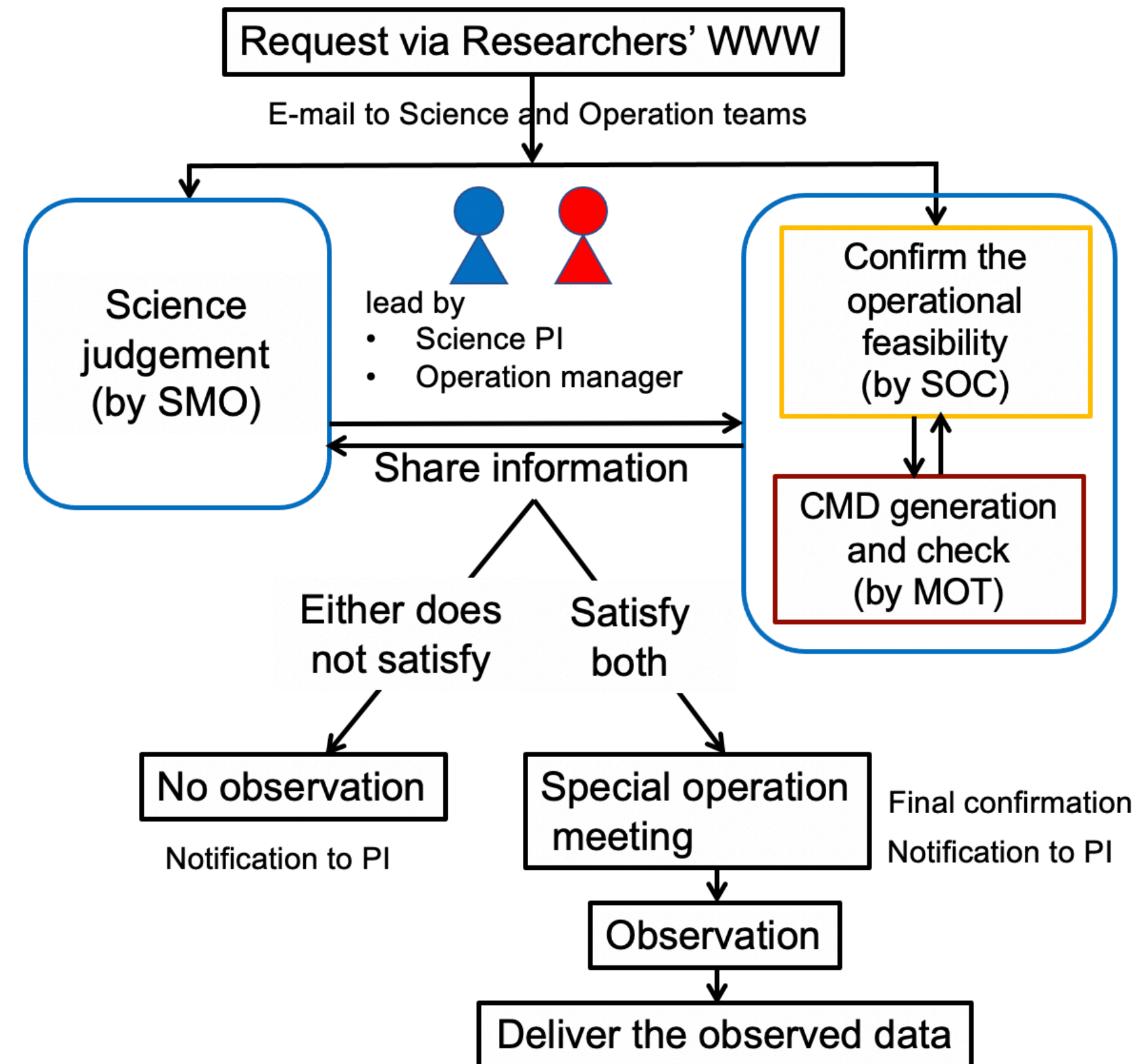


[Home](#) > [Proposer](#)

Home *:under construction	Proposer
About XRISM	* Current AO announcement
Proposer	* Current AO ARK/RPS page
Useful links	<u>Planning Observation</u>
	* Generic TOO request
	<u>Approved Target List</u>

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

- ✿ ToO request from JAXA web page
- ✿ ToO request form is not available now



- ❖ Start of ToO observation may take up to 2 days (weekday) or 3 days (weekend)
 - ← Judgement, cmd generation, command uplink only Uchinoura, no cmd generation on Sunday
- ❖ Maneuver takes up to ~1 hour for 180 deg

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																		
①	Time after request																Time after request																Time after request																		
・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	Time after request																Time after request																Time after request																		
・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	Time after request																Time after request																Time after request																		
・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	Time after request																Time after request																Time after request																		
・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																																																			

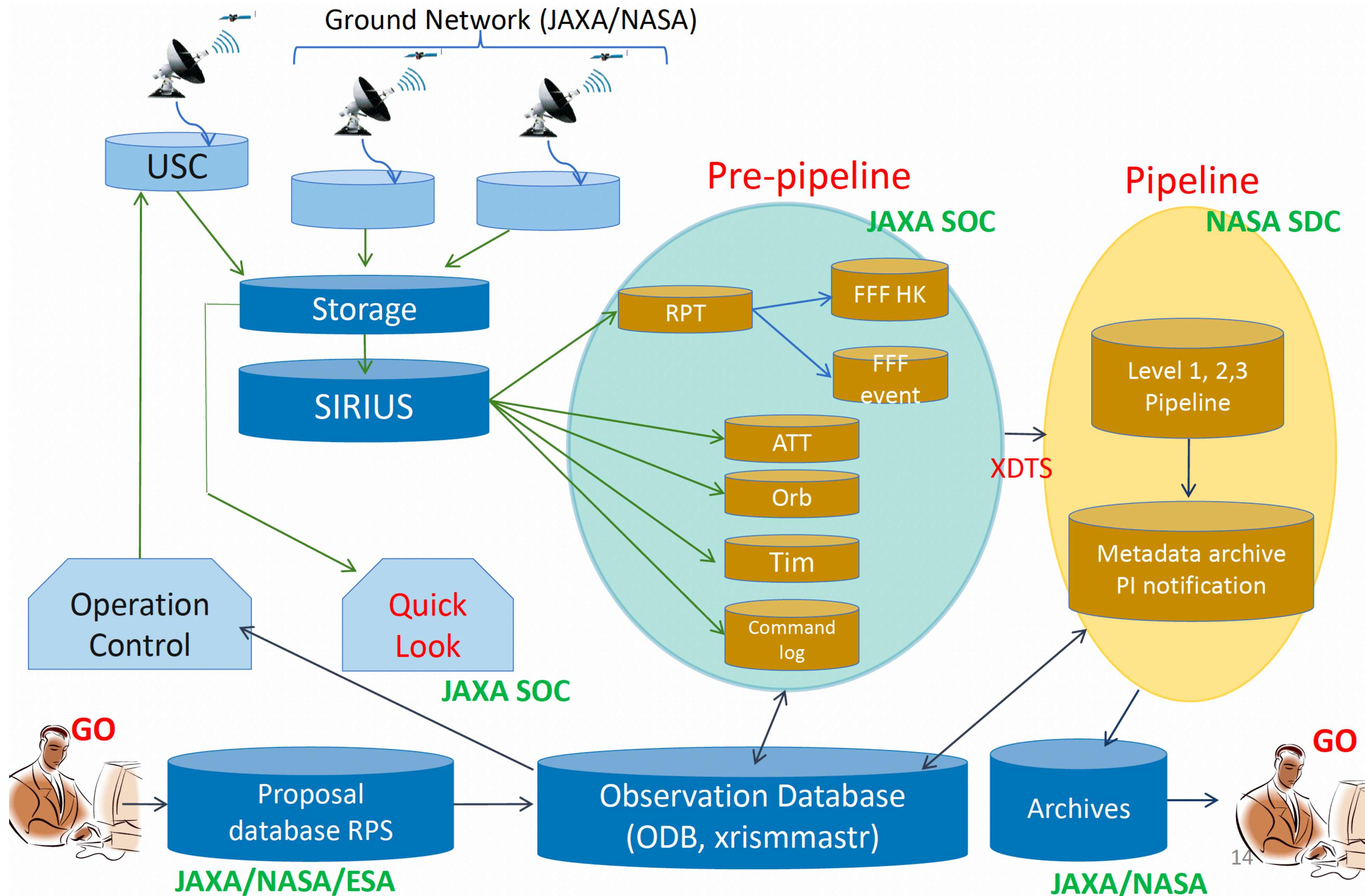
- ❁ Commands are generated during the daytime on Mon-Sat in Japan time
- ❁ If you request ToO during the daytime and the request are approved before next USC passes, the observation will start next USC passes

ToO Timeline

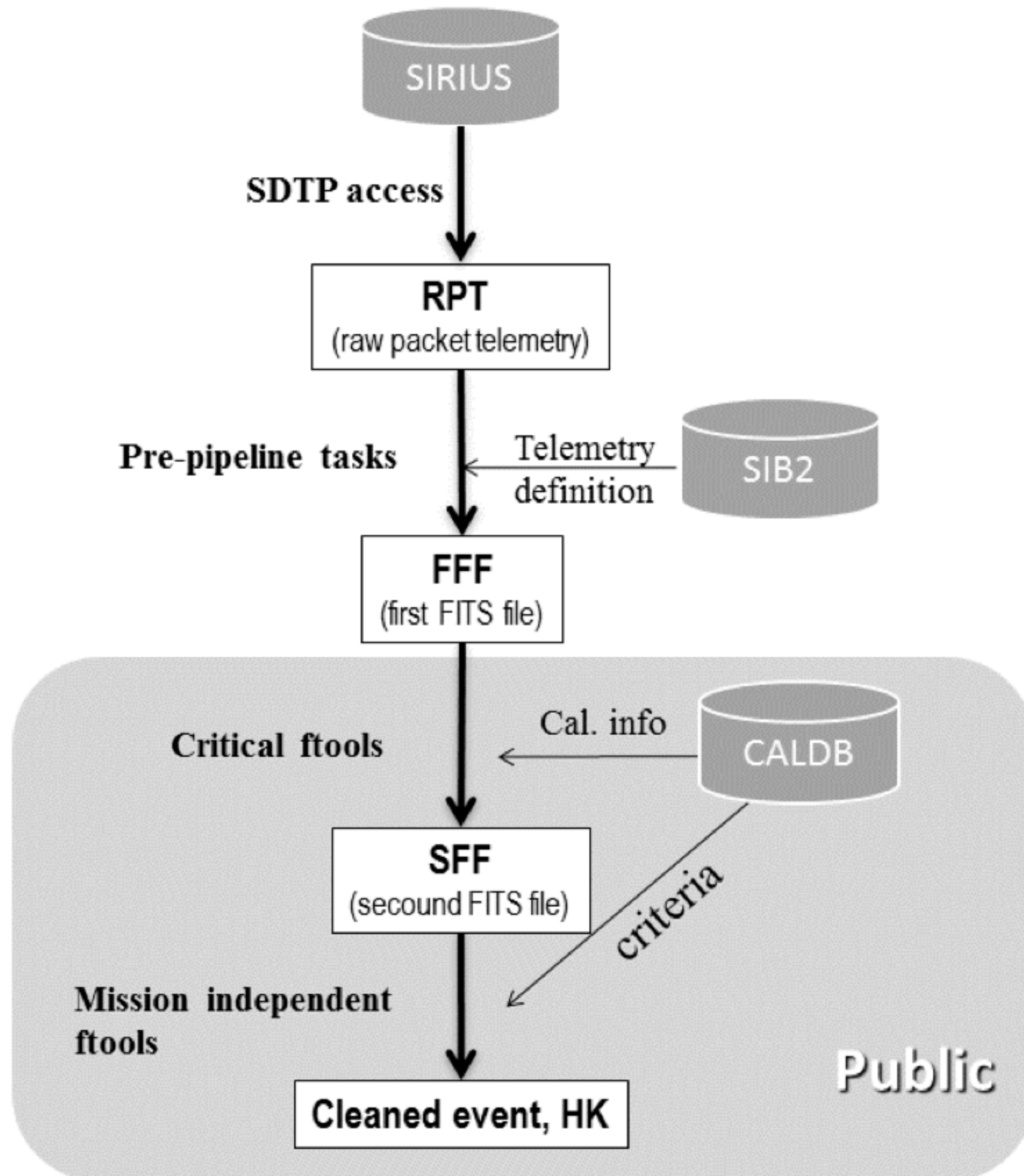
	N日 (土曜) / N day (Sat.)	N+1日 (日曜) / N+1 day (Sun.)	N+2日 (月曜) / N+2 day (Mon.)	N+3日 (火曜) / N+3 day (Tue.)
JST	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0 1	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0 1	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0 1	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0 1
UTC	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
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 ・ToO観測がNOGOの場合、N+1日、N+2日にTLを更新しないことを許容 Allow TL not to be updated on N+1 and N+2 days if ToO is NOGO.	request science judge SSOC (day shift) JST09:30-17:45 USC pass group (5 pass; ~6 h) CMD creation 3.5 h CMD creation 3.5 h ToO(N+1) ToO(N+2)	MNV → USC pass group (5 pass; ~6 h) NOGOの場合、TLは更新しない In case of NOGO, TL does not update	SSOC (day shift) JST09:30-17:45 USC pass group (5 pass; ~6 h) CMD creation 3.5 h Nominal(N+3) or ToO(N+3) NOGOの場合、TLは更新しない In case of NOGO, TL does not update	SSOC (day shift) JST09:30-17:45 USC pass group (5 pass; ~6 h) CMD creation 3.5 h Nominal(N+4) or ToO(N+4)
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	request SSOC (day shift) JST09:30-17:45 USC pass group (5 pass; ~6 h) CMD creation 3.5 h CMD creation 3.5 h Nominal(N+1) Nominal(N+2)	USC pass group (5 pass; ~6 h)	science judge SSOC (day shift) JST09:30-17:45 USC pass group (5 pass; ~6 h) CMD creation 3.5 h CMD creation 3.5 h ToO(N+3) Nominal(N+3)	MNV → SSOC (day shift) JST09:30-17:45 USC pass group (5 pass; ~6 h) CMD creation 3.5 h Nominal(N+4) or ToO(N+4)
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	request SSOC (day shift) JST09:30-17:45 USC pass group (5 pass; ~6 h) CMD creation 3.5 h CMD creation 3.5 h Nominal(N+1) Nominal(N+2)	USC pass group (5 pass; ~6 h)	science judge SSOC (day shift) JST09:30-17:45 USC pass group (5 pass; ~6 h) CMD creation 3.5 h CMD creation 3.5 h ToO(N+2) ToO(N+3)	MNV → SSOC (day shift) JST09:30-17:45 USC pass group (5 pass; ~6 h) CMD creation 3.5 h CMD creation 3.5 h (Nominal(N+3)) Nominal(N+4) or ToO(N+4)
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	request SSOC (day shift) JST09:30-17:45 USC pass group (5 pass; ~6 h) CMD creation 3.5 h CMD creation 3.5 h Nominal(N+1) Nominal(N+2)	USC pass group (5 pass; ~6 h)	science judge SSOC (day shift) JST09:30-17:45 USC pass group (5 pass; ~6 h) CMD creation 3.5 h CMD creation 3.5 h ToO(N+2) ToO(N+3)	MNV → SSOC (day shift) JST09:30-17:45 USC pass group (5 pass; ~6 h) CMD creation 3.5 h CMD creation 3.5 h (Nominal(N+3)) Nominal(N+4) or ToO(N+4)

- ❁ 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

Data Process/Distribution



Data Type/Format



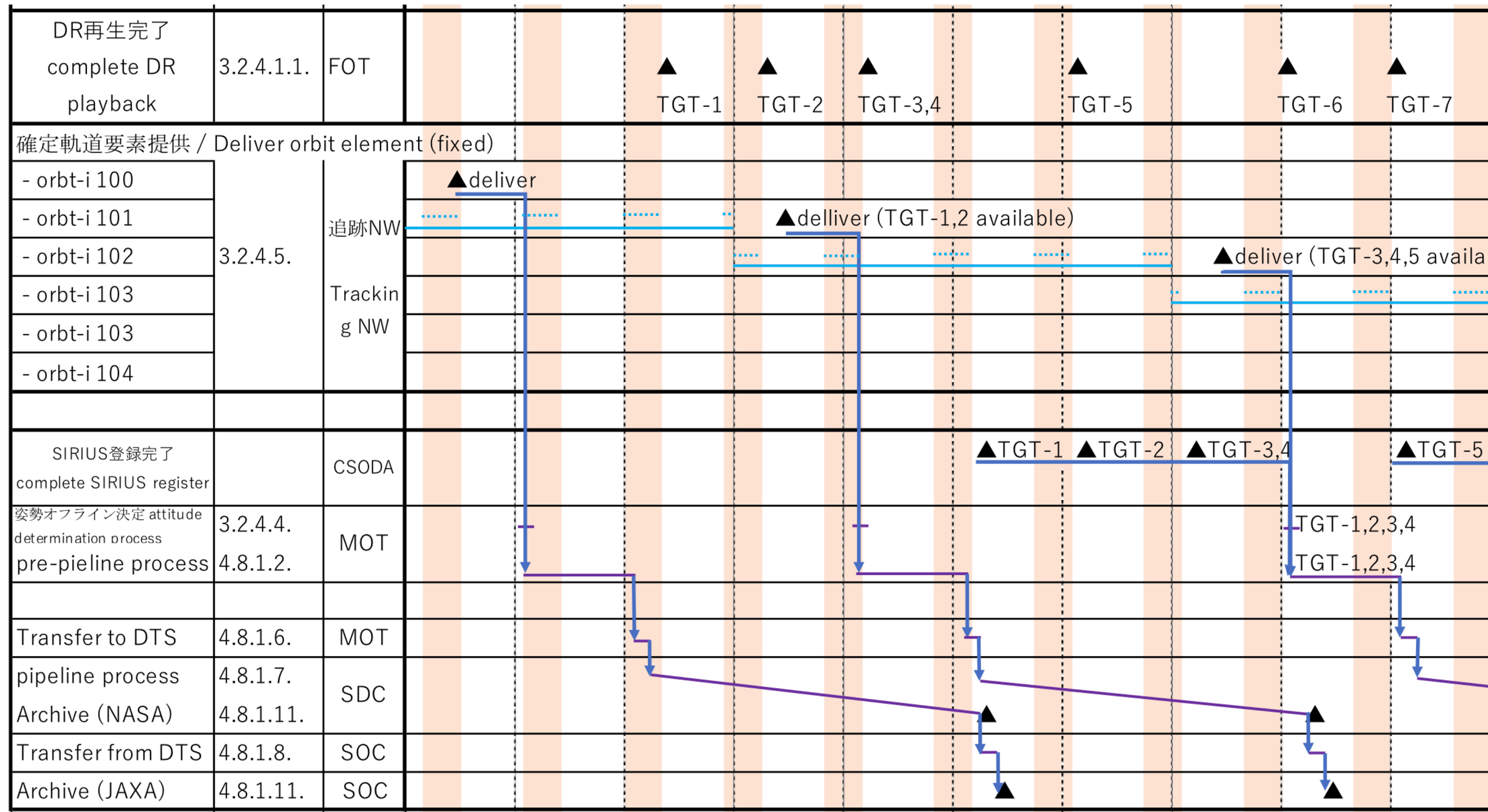
Pre-pipeline

- ❖ 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 1-2 weeks after observation.

- ✿ Pre-pipeline + attitude process is performed after Orbit determined 2 times/week (by Tsukuba)
- ✿ Data is stored in ~3 days + Pre-pipeline: ~1 day + Pipeline: ~2 days

User Support

JAXA web page

- ✿ Maintenance
- ✿ Announcements

Help Desk

- ✿ Opening Help Desk for Japan
- ✿ Handling questions from guest observers



Home
News & Announcements
About XRISM
Proposer
Observers
Analysis
Helpdesk
Useful links

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

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

Home
News & Announcements
About XRISM
Proposer
Observers
Analysis
Helpdesk
Useful links

Help Desk

[FAQ](#)

[all questions to the help desk and their status](#)

[manuals](#)

[form for question](#)

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

▼ **Target Form(s)**

▼ **Target: 1**

Do you want to delete this target?

Target Name

Target Position, J2000 Equinox — Use our [Coordinate Converter](#) to convert positions or look up positions in SIMBAD or NED.

R.A.

Dec.

Total Observation Time ksec

Number of Observations

Resolve Count Rate counts/sec — Use [WebPIMMS](#) to estimate count rate.

Resolve Filter

Xtend Count Rate counts/sec — Use [WebPIMMS](#) to estimate count rate.

Xtend Option

Xtend Transient Search Do you agree to Xtend Transient Search by the XRISM team?

If Yes, do you want to be a co-author of the telegram?

(Even if you are to be a co-author, XRISM team will not contact you prior to AteI and/or GCN submission, for rapid circulation.)

Feel free to add any comments about Xtend Transient Search.

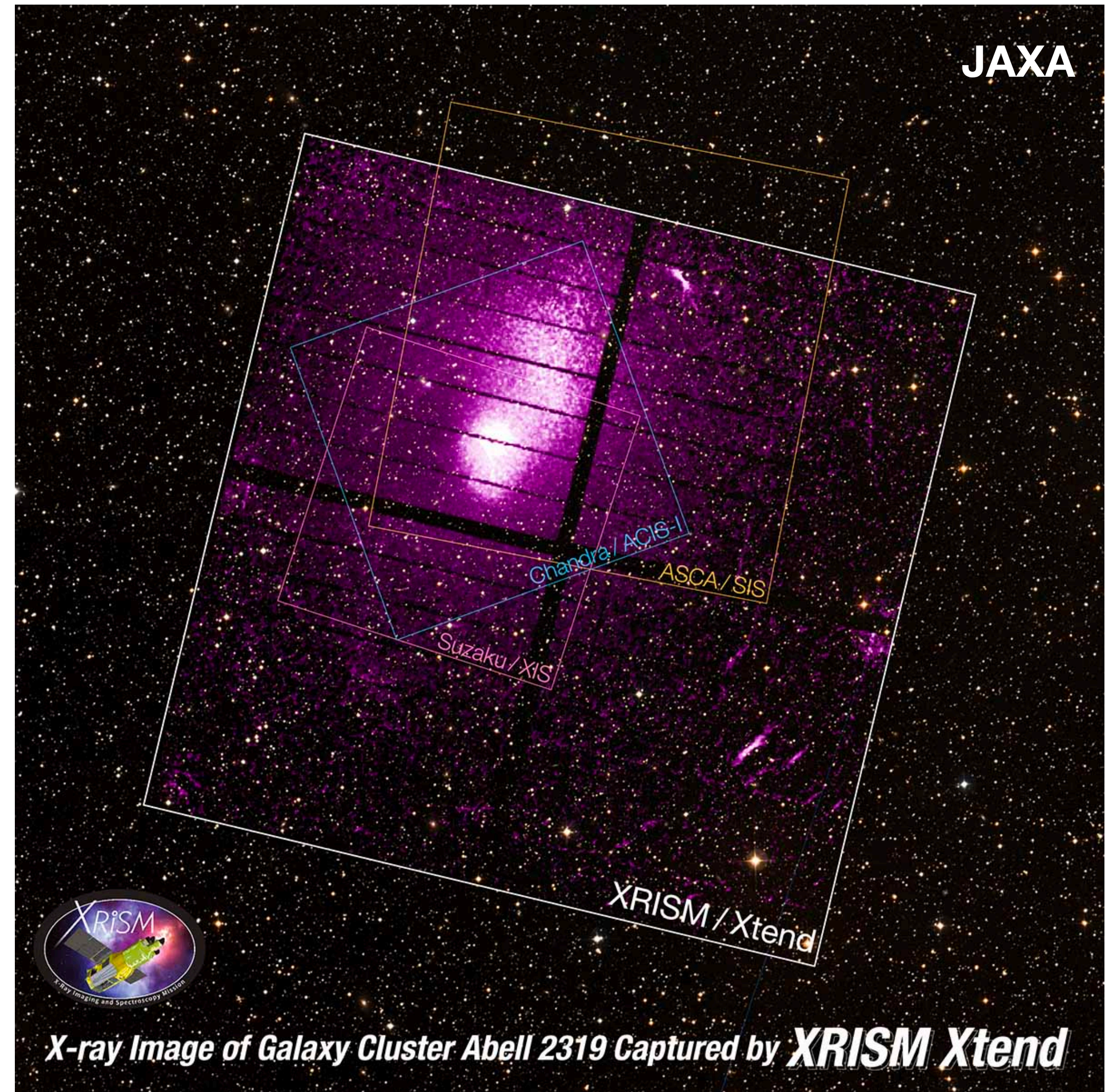
Coordinated Observation? Yes

Observatory

Description

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).
- ❁ Please check “YES” for Xtend transient search.



▼ Target Form(s)

▼ Target: 1

Do you want to delete this target?

Target Name

Target Position, J2000 Equinox — Use our [Coordinate Converter](#) to convert positions or look up positions in SIMBAD or NED.

R.A.

Dec.

Total Observation Time ksec

Number of Observations

Resolve Count Rate counts/sec — Use [WebPIMMS](#) to estimate count rate.

Resolve Filter

Xtend Count Rate counts/sec — Use [WebPIMMS](#) to estimate count rate.

Xtend Option

Xtend Transient Search Do you agree to Xtend Transient Search by the XRISM team?

If Yes, do you want to be a co-author of the telegram?

(Even if you are to be a co-author, XRISM team will not contact you prior to Atel and/or GCN submission, for rapid circulation.)

Xtend Transient Search Do you agree to Xtend Transient Search by the XRISM team?

If Yes, do you want to be a co-author of the telegram?

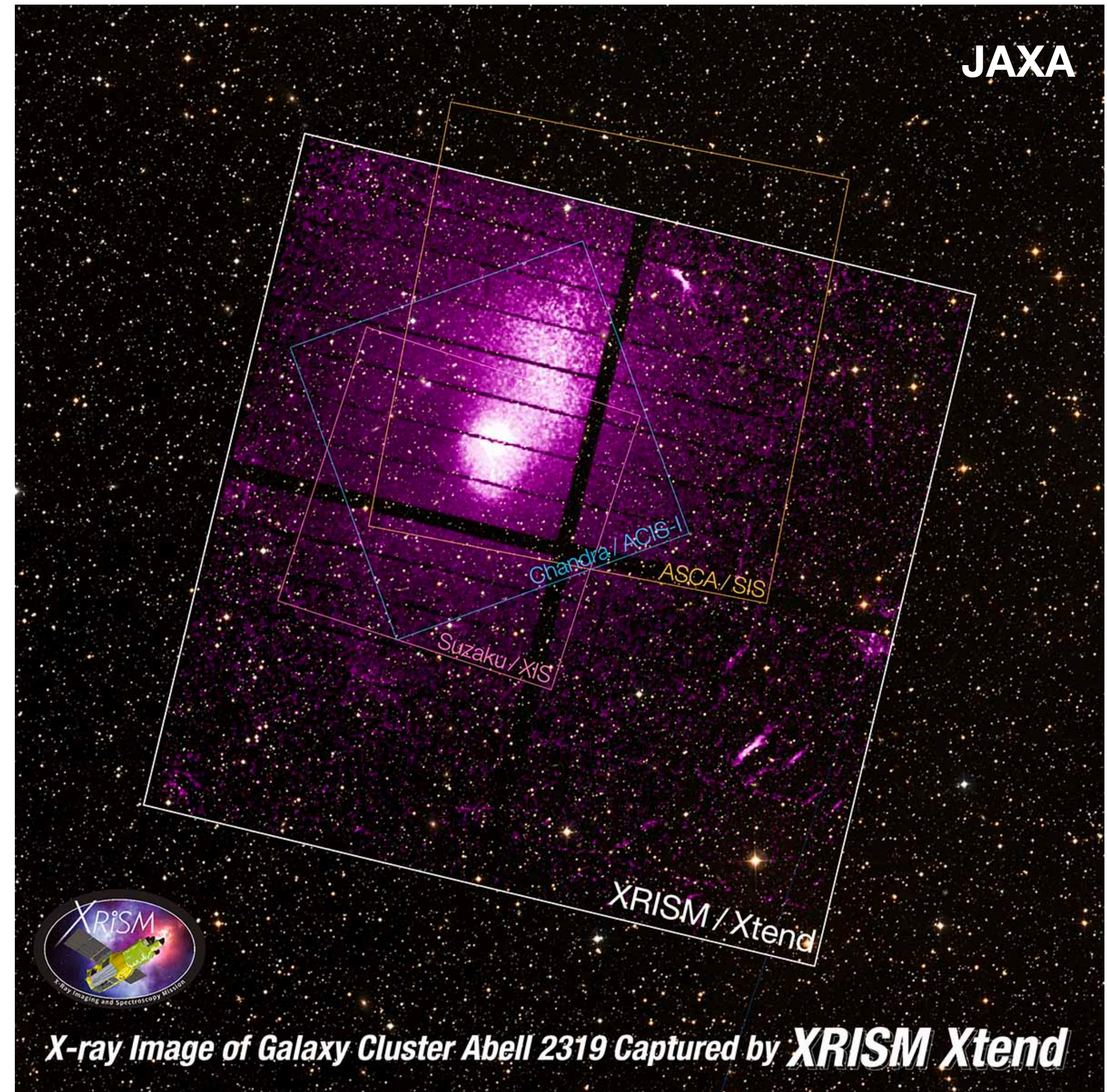
Coordinated Observation? Yes

Observatory

Description

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)
- ❁ Please check “YES” for Xtend transient search



Science Operation Team = SOC (JAXA) + SDC (GSFC)

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

JAXA facilities

- ❖ Command uplink/Data downlink are performed everyday from USC/KTU

Operation timeline

- ❖ ToO observation takes 2-3 days

Data process/distribution

- ❖ takes 1-2 weeks

User Support

- ❖ Help Desk is opened

Xtend transient search

- ❖ Please check “YES” for Xtend transient search in your proposal

