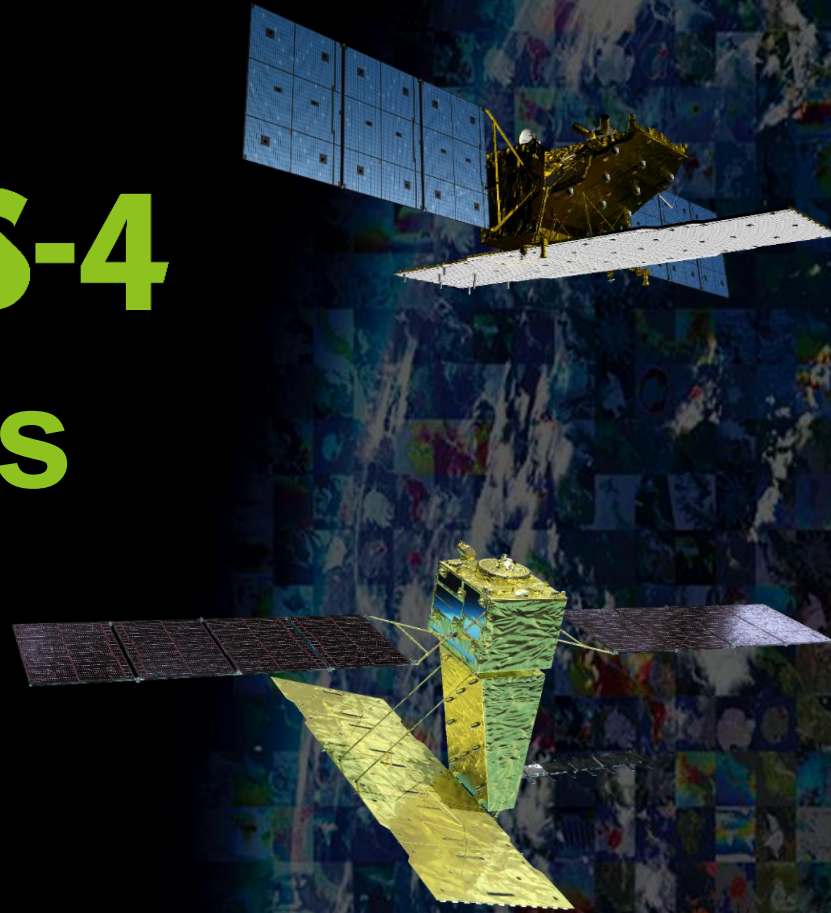
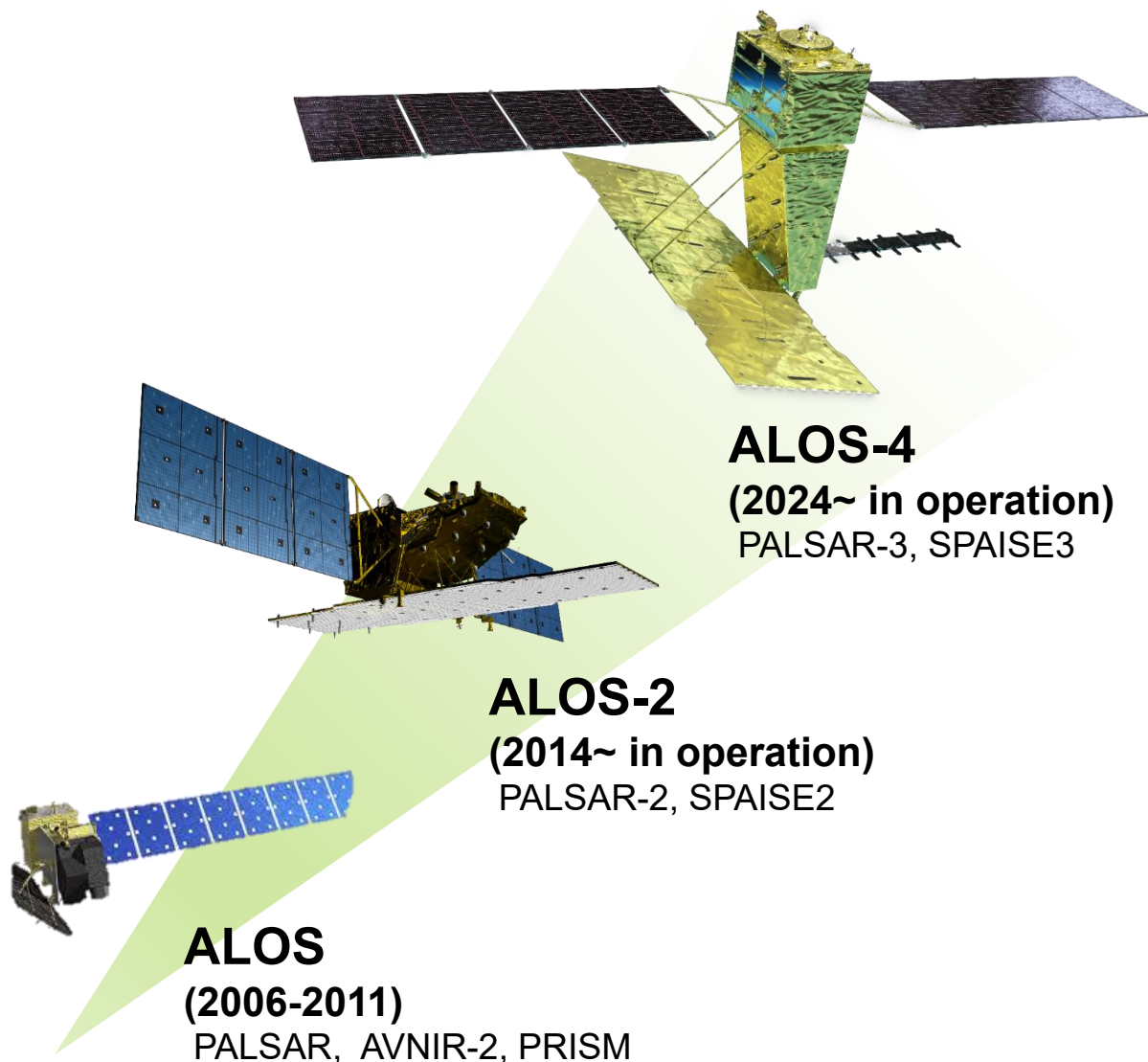


ALOS-2 ALOS-4

Mission status



JAXA ALOS-4 PROJECT TEAM



- The ALOS series satellites are continuously developed and operated by JAXA mainly for the purpose of land/ocean monitoring and technological development.
- L-band SAR has been developed in the ALOS series.

Mission objectives of ALOS series:

Disaster damage assessment

Flood, Landslides,
Building damage,
Typhoon, etc.

Land deformation

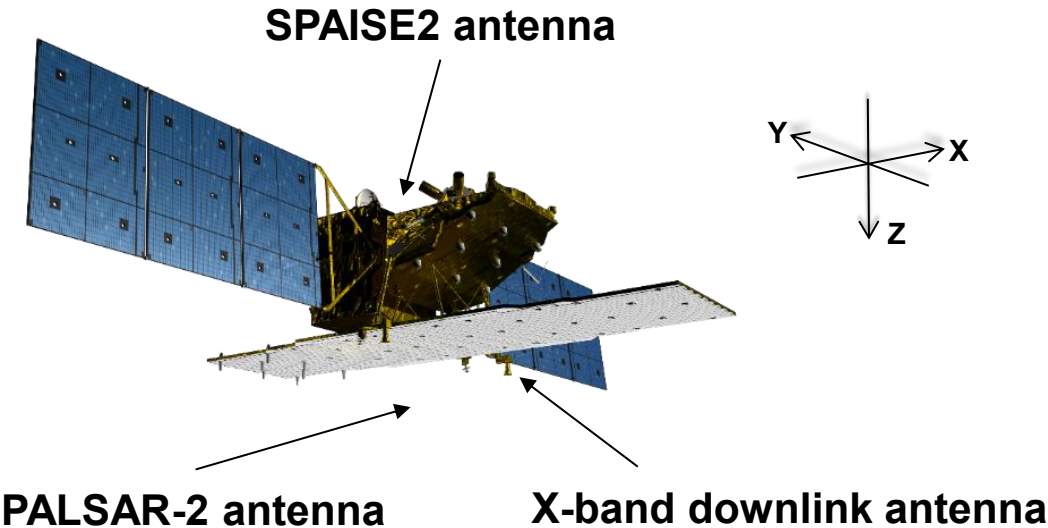
Volcano, Earthquakes,
Landslides, Land
subsidence, etc.

Maritime

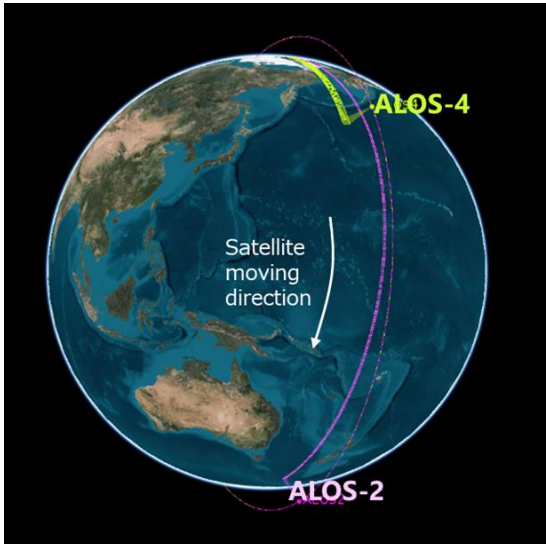
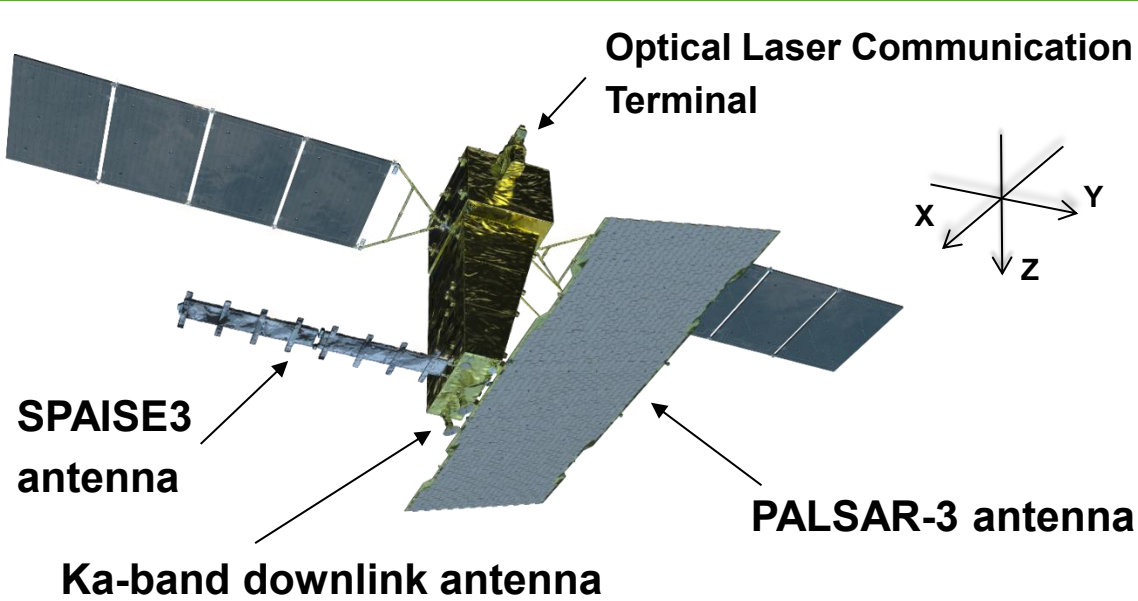
Vessels, Ocean wind,
Sea ice, etc.

Global environment

Deforestation, Glacier,
Agriculture, etc.



Lifetime		5 years(target: 7 years)
Mission Instruments		PALSAR-2 SPAlSE2
Size (X, Y, Z)		9.9m × 16.5m × 3.7m
Satellite Mass		Approx. 2,100 kg
Electrical Power	Solar cells	Approx. 5,300 W
	Battery	200 Ah
Data recorder		Approx. 128 Gbyte
Downlink		X-band: 800Mbps(16QAM) 400/200Mbps(QPSK)
Orbit	Type of orbits	Sun-synchronous sub-recurrent orbit
	Altitude	628 km
	Local sun time at descending	12:00 ± 15 min
	Revisit time	14 day
	Inclination angle	97.9 deg.



ALOS-4 flies on the same reference orbit as ALOS-2, enabling combined observations and data analysis.

Lifetime		7 years
Mission Instruments		PALSAR-3 SPAISE3
Size (X, Y, Z)		10.0 m × 20.0 m × 6.4 m
Satellite Mass		Approx. 3,000 kg
Electrical Power	Solar cells	Approx. 7,000 W
	Battery	380 Ah
Data recorder		Approx. 1 Tbyte
Downlink		3.6 Gbps (Ka-band) 1.8 Gbps (optical data relay)
Orbit (Same as ALOS-2)	Type of orbits	Sun-synchronous sub-recurrent orbit
	Altitude	628 km
	Local sun time at descending	12:00 ± 15 min
	Revisit time	14 day
	Inclination angle	97.9 deg.

ALOS-4 Mission data downlink



Ka-band direct transmission

- High-speed data transmission at 3.6 Gbps direct to the ground stations enables constant dual-polarization observation with HH and HV.

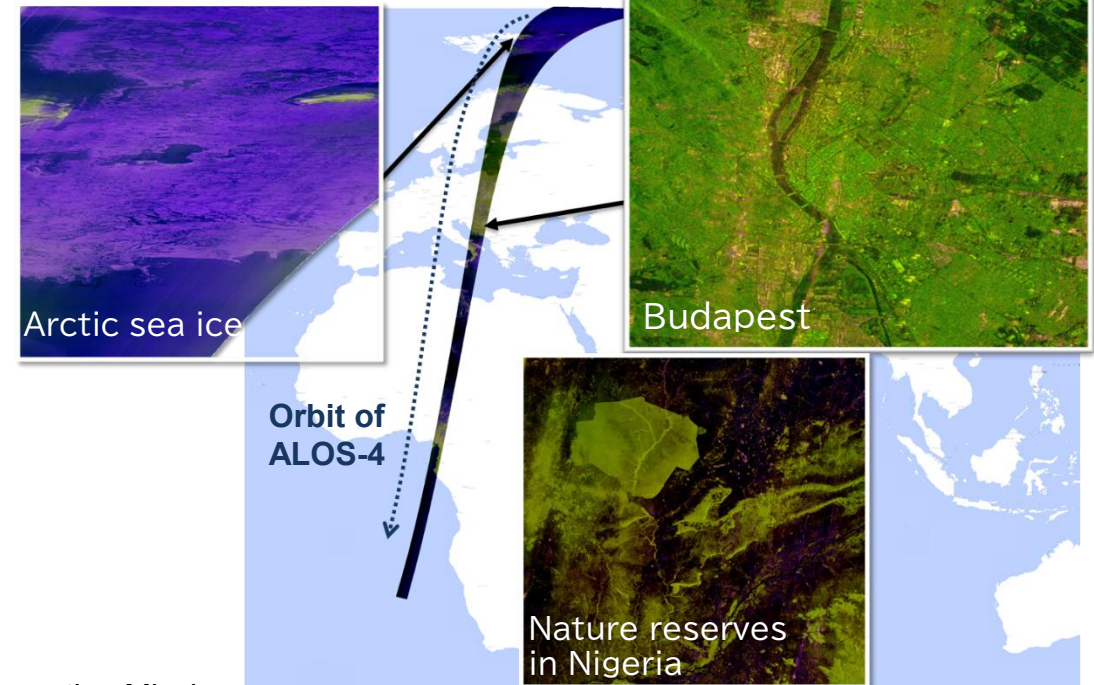
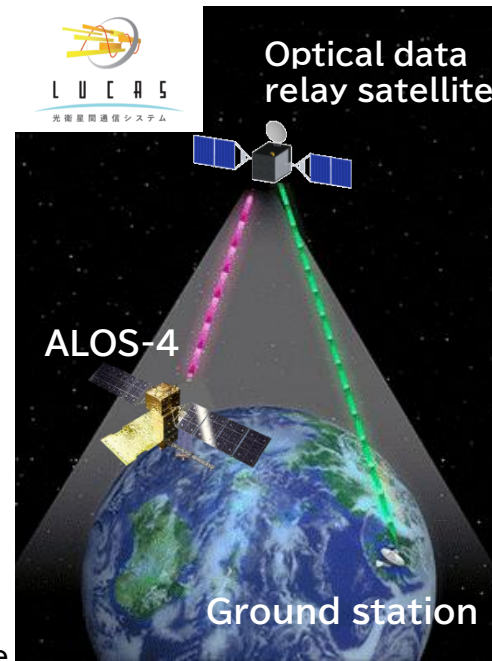
LUCAS (Laser Utilizing Communication System)

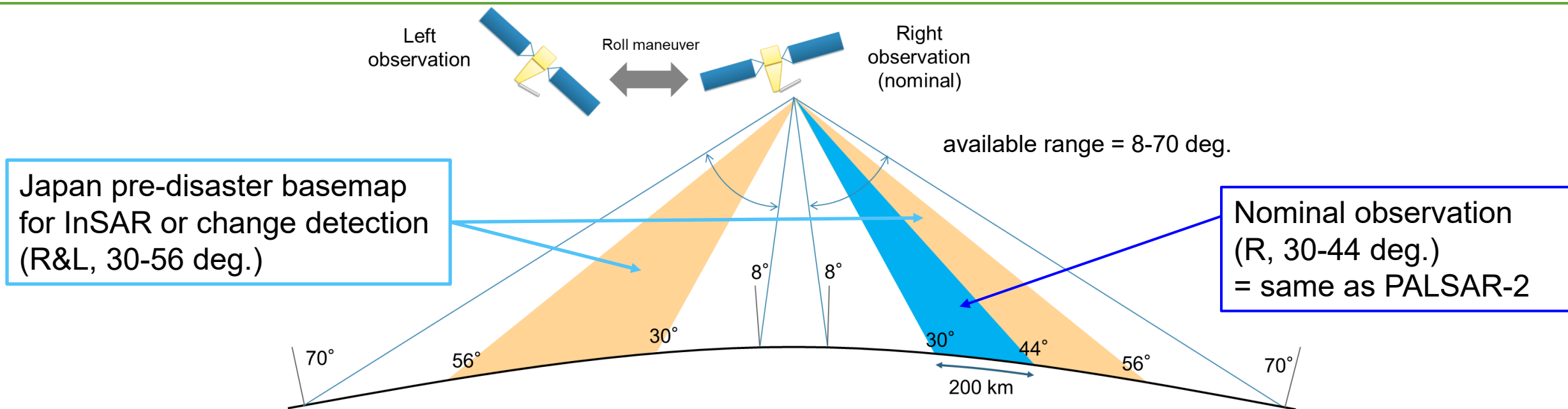
- LUCAS for optical data relay transmission provides efficient downlink of observation data
- Enabling high-capacity and low-latency data transmission.



Guinness World Record certified for 3.6 Gbps data transmission (December 19, 2024)

	Transfer rate
Ka-band direct transmission	1.8 Gbps or 3.6 Gbps
LUCAS	1.8 Gbps
X-band direct transmission (ALOS-2)	0.8 Gbps





InSAR capability between PALSAR-2 and PALSAR-3

InSAR pair		PALSAR-3		PALSAR-2	
		Stripmap100/200 km	ScanSAR700 km	Stripmap50/70 km	ScanSAR350/490 km
PALSAR-3	Stripmap 100/200 km	○	○	○	○
	ScanSAR 700 km	○	○	○	×

- ✓ ALOS-4 reference orbit is the same as ALOS-2
- ✓ Controlling accuracy is within +/- 500 m (= small baseline)

ALOS-2

Mission status

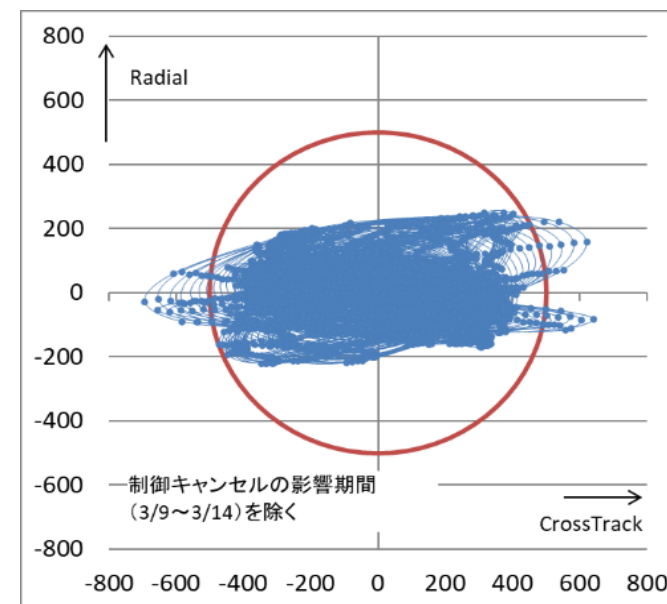


■ Orbit Maintenance Status (January 20, 2025 – July 20, 2025)

- Confirmed that the orbit has been maintained within the ± 500 m tube in general.
- On May 28, 2025, the 22nd out-of-plane autonomous orbit control maneuver was performed.

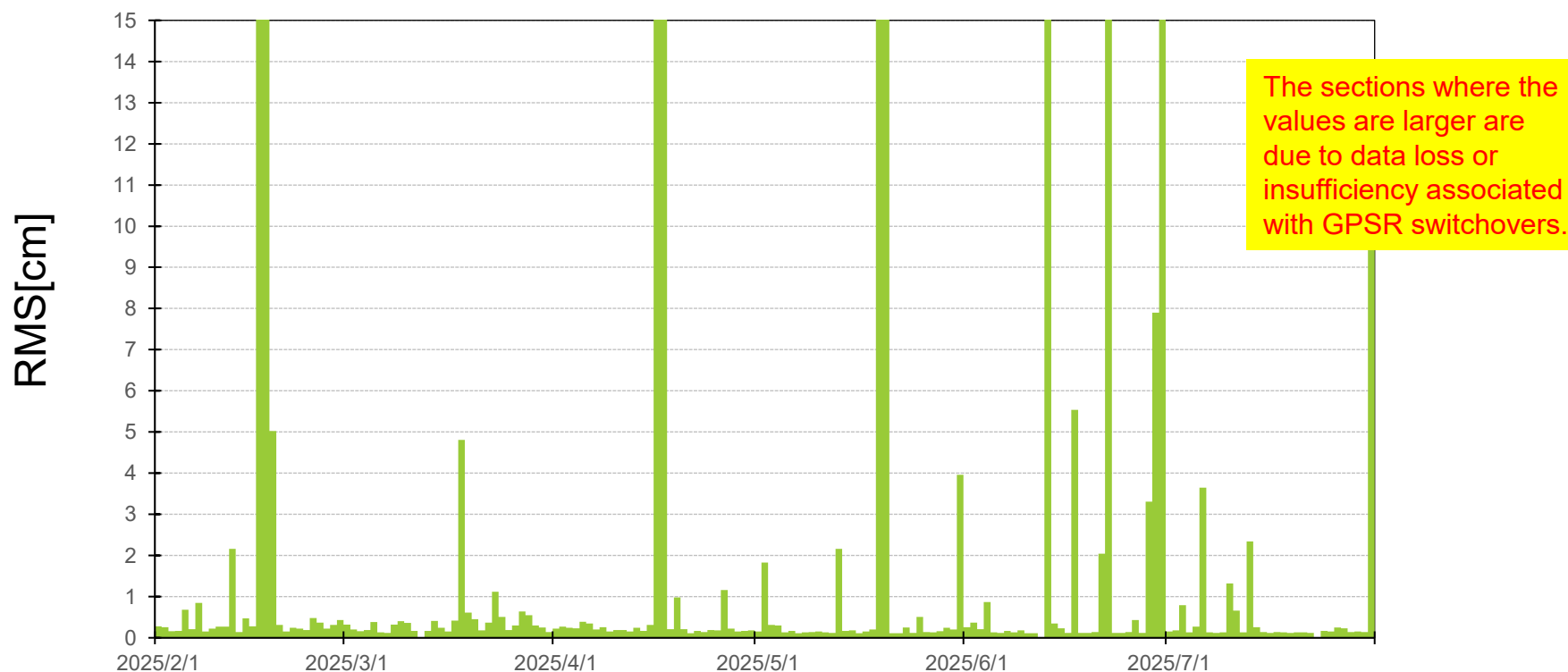
Probability of Maintaining Orbit Within ± 500 m Tube

Evaluation Period	Maintenance Pro. [%]
January 20, 2025 – July 20, 2025	99.6
[Reference] From the Operational Phase Onward to Present (August 2014 – July 2025)	98.9



Orbit Maintenance Status
(2025/1/20～2025/7/20)

- Orbit Determination Accuracy (January 20, 2025 – July 20, 2025)
 - High accuracy has been achieved for all periods, except during GPSR switchovers.

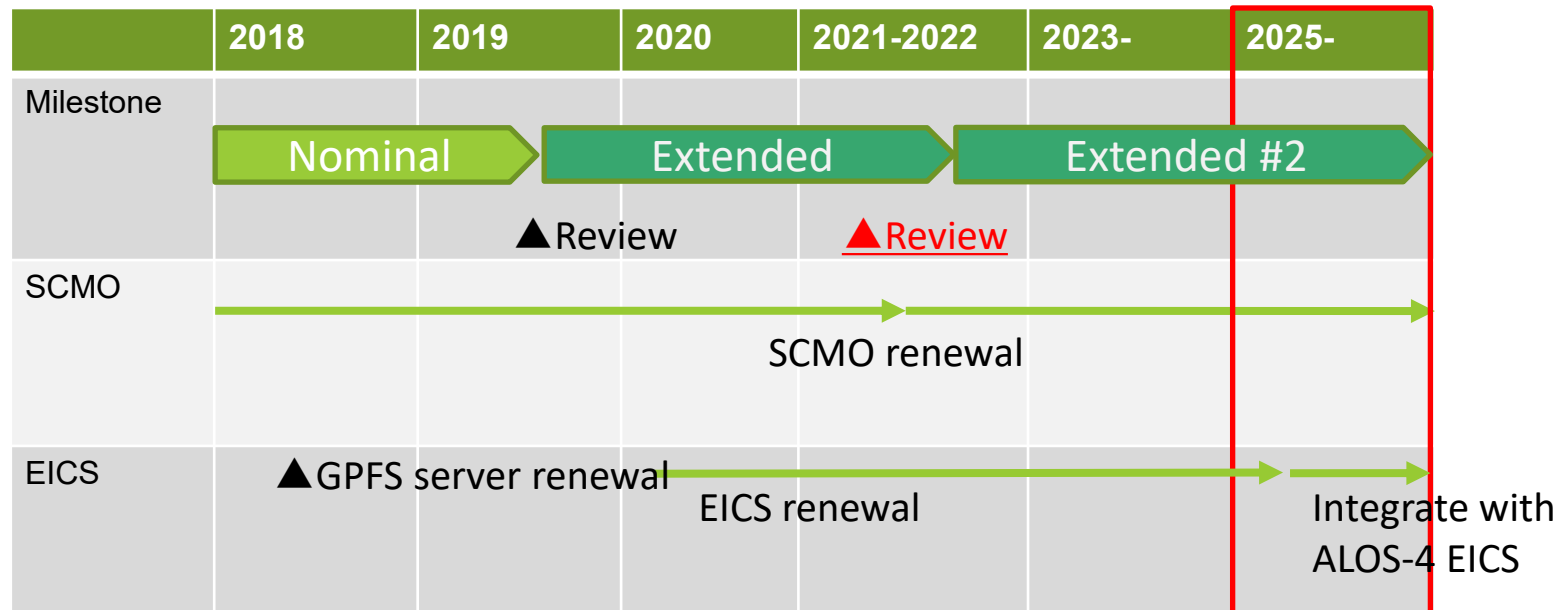


※Accuracy Evaluation Method:

- RMS evaluation was performed based on the distance differences at overlapping points between two orbit determination periods.

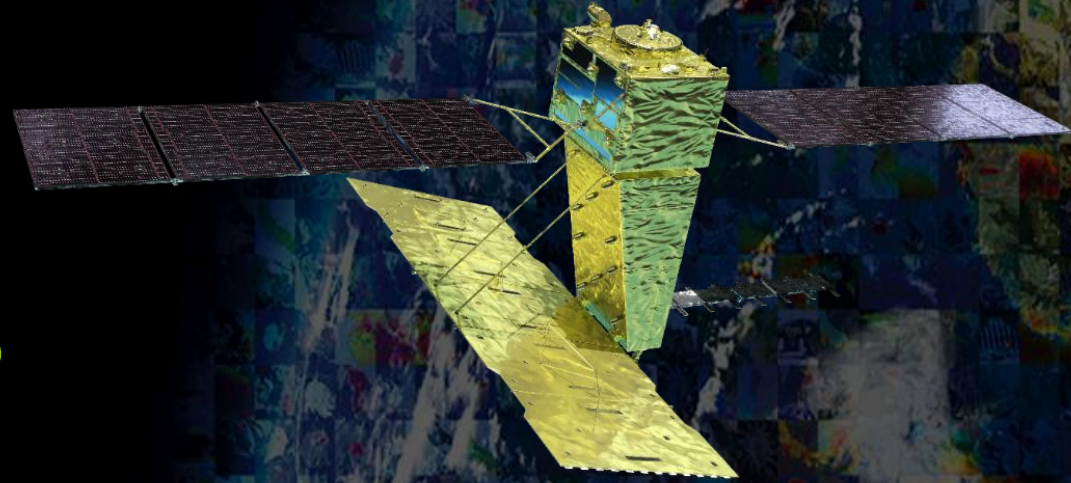
■ Target of ALOS-2 mission for 2025 operations

- Over 10 years continuous observation operations.
- Archive global and continuous SM3(Strip Map 10m) and WD1(Scan SAR 700km) observations with intensive time series observations in selected areas, including research and development to prepare ALOS-4 bi-weekly SM3 observations and promoting multi frequency observations in cooperation with ASI, CSA, ESA, NASA and other international partners.
- 2025 ALOS-2/4 constellation flight with high temporal or R/L observation in specific area



ALOS-4

Mission status

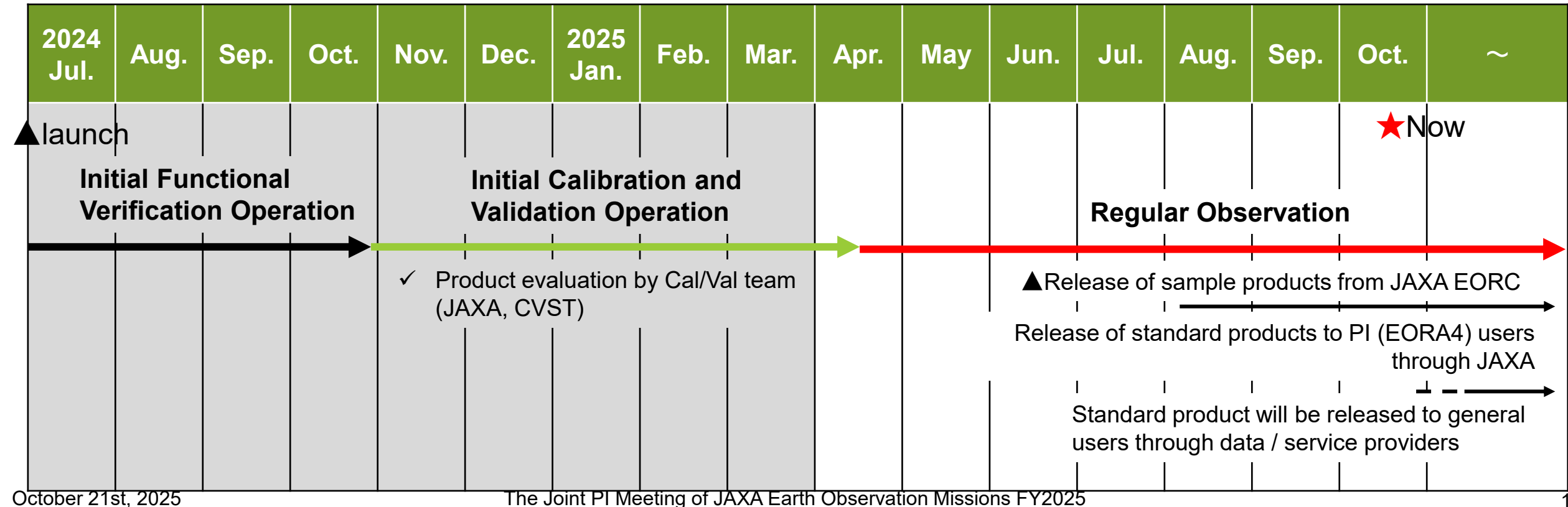


ALOS-4 Operation Status



- Regular observations based on BOS (Basic Observation Scenario) and provision of PALSAR-3 standard products started on April 1st, 2025.
- For further details, please visit the website below.

https://www.satnavi.jaxa.jp/ja/alos-4_palsar-3_dataservise/index.html



- For regular observations, PALSAR-3 observations will be performed according to the BOS. The BOS will be continuously updated based on user feedback during operation.
- Global observations incorporate full polarimetry observations and observations of selected regions for several topics (forest, agriculture, polar/ice, land deformation, etc.).

Area	Theme	Observation			
		Mode	Pol.	Direction	Frequency
Japan	Disaster basemap	Stripmap 3 m/200 km swath, ScanSAR	Dual	Right and Left	1 year (left 30-44 deg. only), 3 years (the others)
	Timeseries observations	Stripmap 3 m/200 km swath	Dual	Right	Around 20 times/year Reduced frequency is allowed during basemap acquisition.
Global	Global basemap	(Asc.) Stripmap 10 m/200 km swath (Des.) Stripmap 6 m/100 km swath	(Asc.) Dual (Des.) Full	Right	Annual (once a year)
	Disaster basemap	ScanSAR 700 km swath, Stripmap 10 m/200 km swath	Dual	Right	Once every 3 years
	Thematic observations	Depends on theme	Depends on theme	Right	Depends on theme

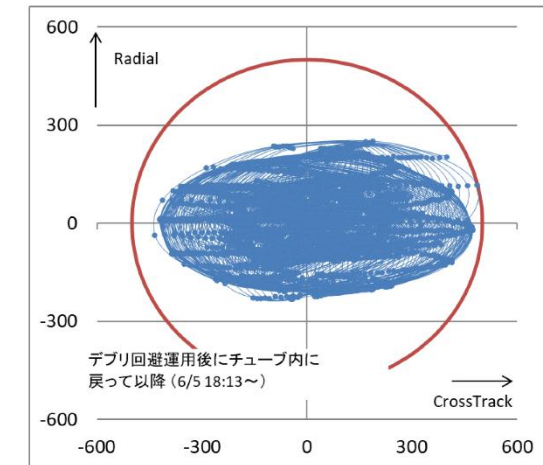
■ Orbit Determination Accuracy (January 20, 2025 – July 20, 2025)

- Confirmed that the orbit was maintained within the ± 500 m tube, except during debris avoidance operations and GPS navigational suspension periods.
 - ✓ Debris avoidance operation: May 31 – June 6, 2025
 - ✓ GPS navigation suspension periods: March 16 – March 26, 2025; July 6 – July 15, 2025
 - ✓ Autonomous orbit control cancellation: April 26 – April 28, 2025

Probability of Maintaining Orbit Within ± 500 m Tube

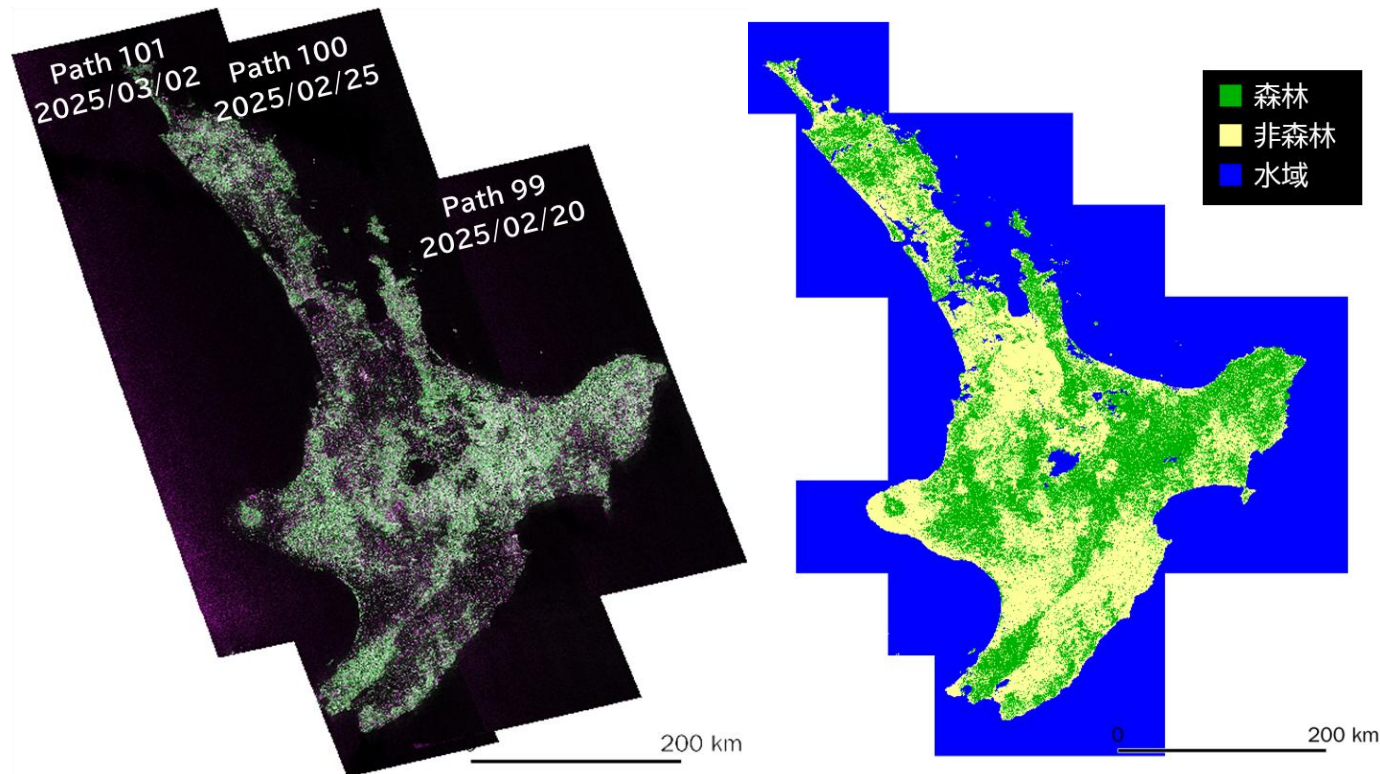
Evaluation Period	Maintenance Pro. [%]※
February 22, 2025 – July 30, 2025	100
[Reference] From the Operational Phase Onward to Present (October 2024 – July 2025)	100

※ Excluding debris avoidance operations, out-of-plane orbit control, and GPS navigation suspension periods

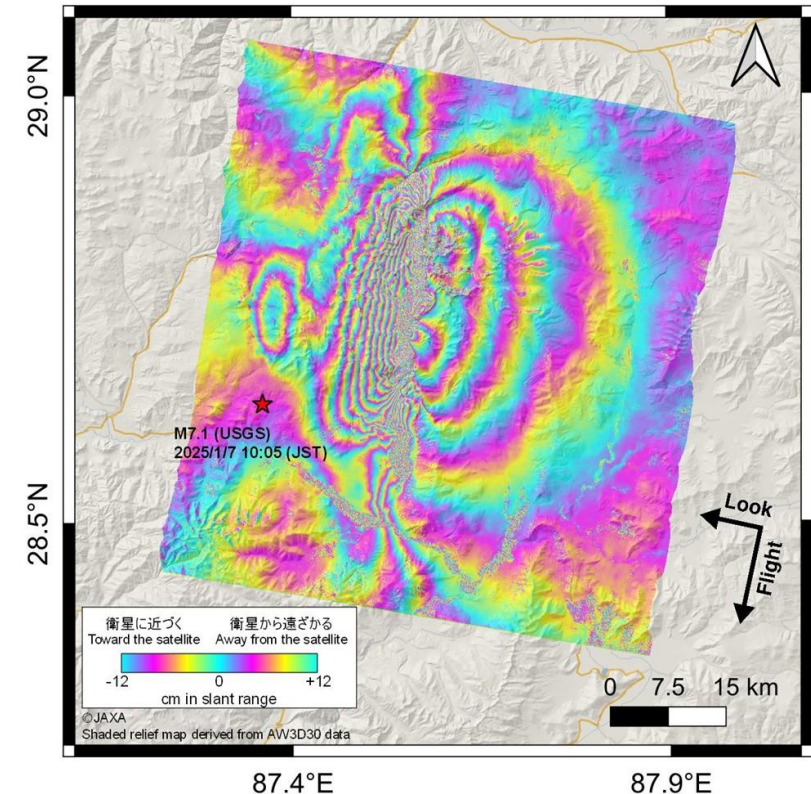


Orbit Maintenance Status
(2025/6/5 ~ 2025/6/30)

■ Mosaic and FNF map

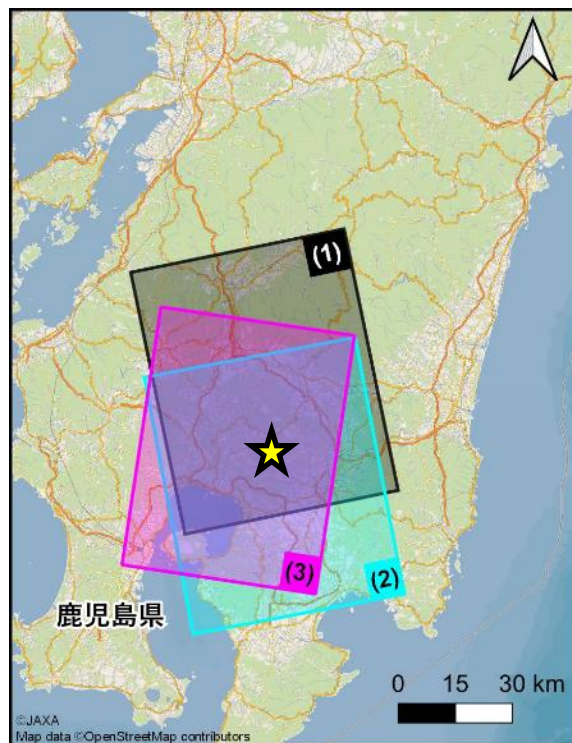


■ InSAR



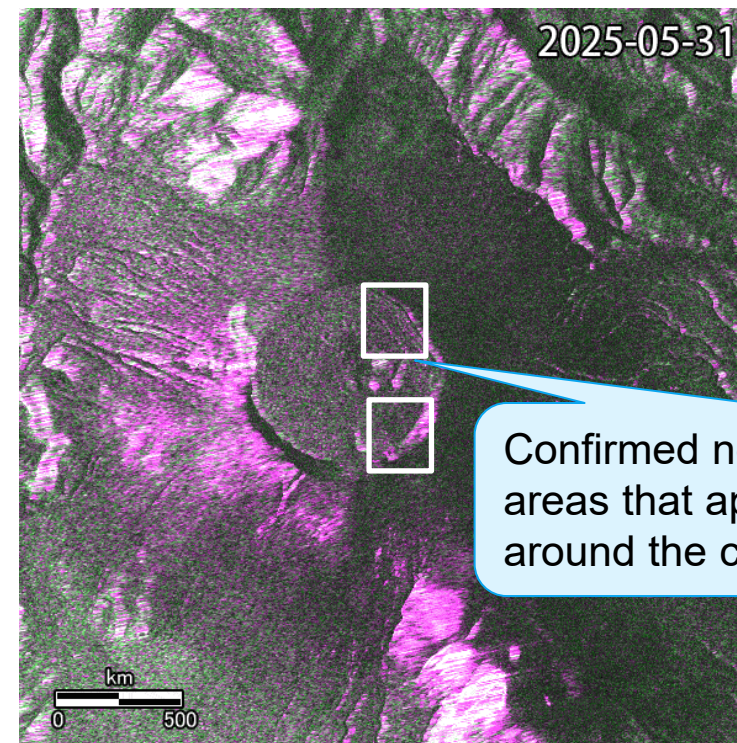
24/10/09 (ALOS-4) – 25/01/15 (ALOS-4)
2025 Southern Tibetan Plateau
Earthquake (M7.1, Jan. 7, 2025)

- Observed Kirishima Mountain(Shinmoedake), where volcanic activity has intensified.
 - Confirmed new fissures and areas that appear to be ejecta around the crater.



Observation Coverage by ALOS-2 and ALOS-4
June 28 – July 9, 2025

★: Shinmoedake



Animation of Images of Shinmoedake
Observed by ALOS-2 and ALOS-4

Confirmed new fissures and
areas that appear to be ejecta
around the crater.

- ALOS-4, launched in July 2024, has transitioned to regular operations. Currently, Earth observation is conducted using a two-satellite system consisting of ALOS-2/-4. ALOS-2 undergoes annual health checks, and as no particular issues have been identified at this time, it is scheduled to continue operations as planned.
- ALOS-4 data distribution to cooperative and joint research users has already started. For other general users, data will be distributed through designated data service providers.
- There are some issues such as missing data and false image noise in some standard product images from ALOS-4 PALSAR-3. We are currently investigating the causes and implementing countermeasures for these issues. Details will be updated on the JAXA EORC website as they become available.
- ALOS-2/-4 may experience temporary suspension of GPS navigation due to radio interference from the ground. As a countermeasure, observation restrictions in certain regions are currently under consideration.