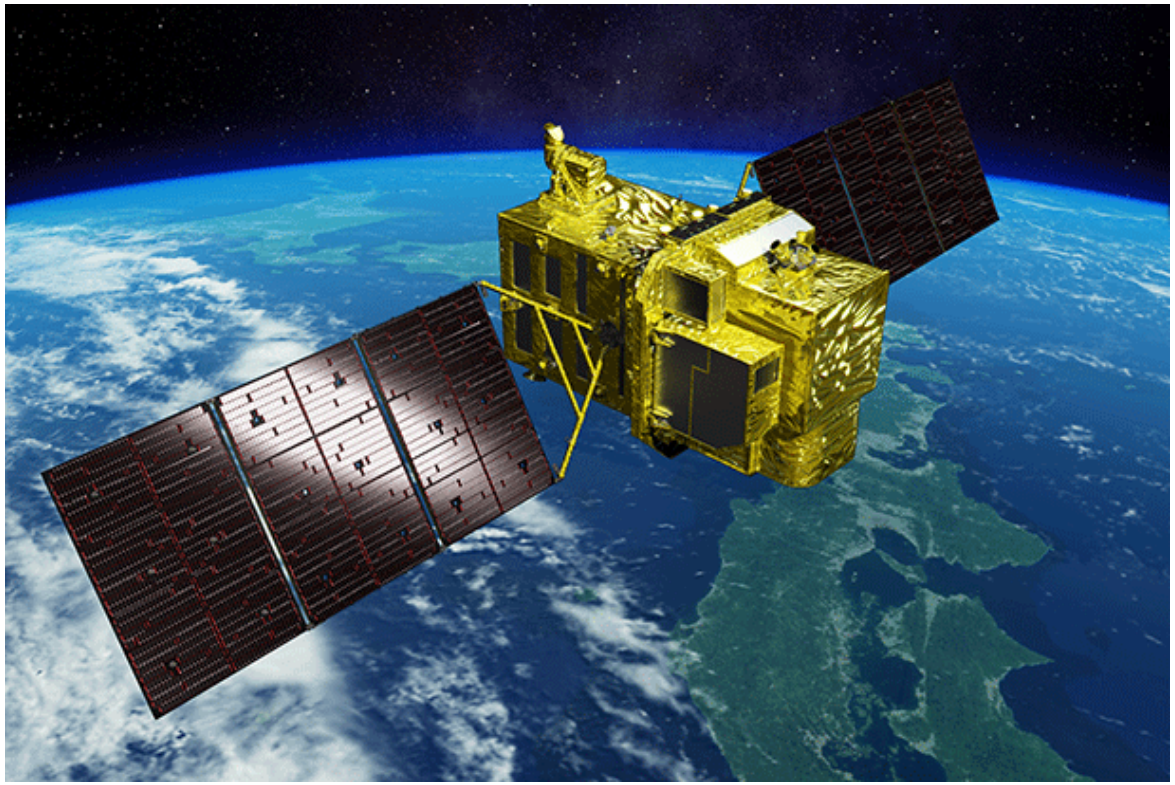
Advanced Land Observing Satellite (ALOS-3) Update

- Mission overview and current status -



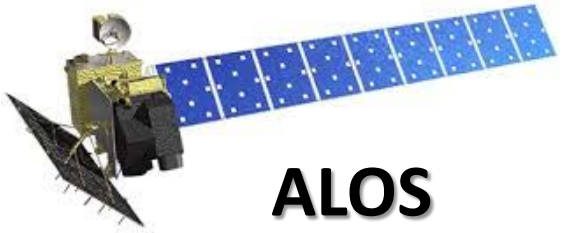
WATARAI, Hidenori

JAXA ALOS-3 Project Team

Mission Objectives of ALOS-3

ALOS-3 is an optical satellite for the successor to ALOS(2006-2011)

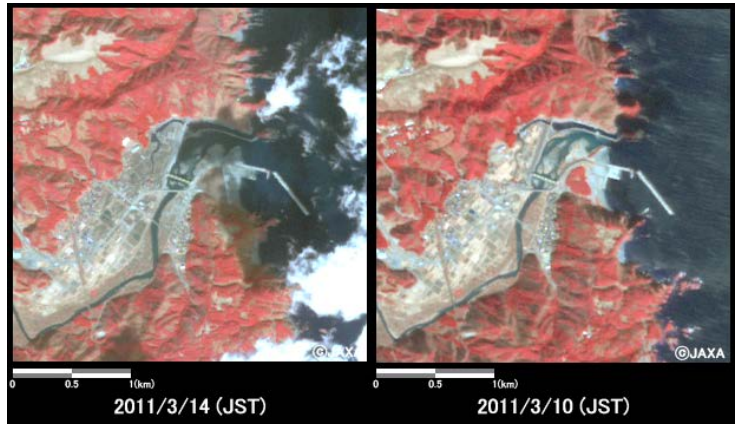
- ALOS-3 has capability of high GSD (0.8 m) and large field of view (> 70 km) simultaneously.
- ALOS-3 image data contributes to
  - Disaster monitoring and prevention
  - Maintenance and update of the high accuracy geospatial information.
- Incorporate the activities of private companies to meet the diverse social needs for high quality optical images.



ALOS

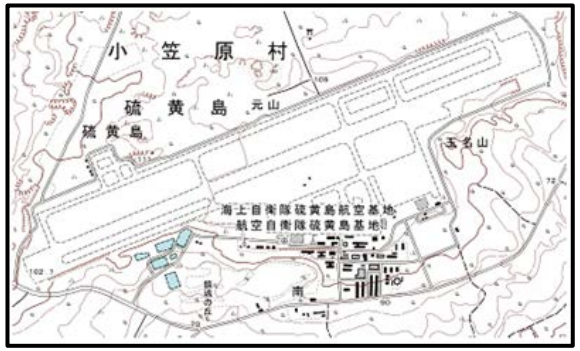
ALOS-3

Observation example of the Great East Japan Earthquake



提供：国土地理院
Geospatial Information Authority of Japan

e.g. Update the map of isolated island



Specifications

Items		Specifications
Orbit	Type	Sun-synchronous sub-recurrent
	Altitude	669 km at the equator
	Local Sun Time	10:30 am +/- 15 minutes at the descending node
	Revisit	35 days (Sub-cycle 3 days)
Mission Instrument		Wide-swath and high-resolution optical imager (WISH)
Bands	Panchromatic (Pa)	0.8m GSD, 70km swath @ nadir , 0.52 – 0.76μm
	Multi band (Mu)	3.2m GSD, 70km swath @ nadir Band1 0.40 – 0.45 μm, Band2 0.45 – 0.50μm, Band3 0.52 – 0.60μm Band4 0.61 – 0.69 μm, Band5 0.69 – 0.74μm, Bnad6 0.76 – 0.89μm
Quantization		11 bit / pixel
Mission data rate		Approx. 4 Gbps (after onboard data compression: 1/4 (Pa) and 1/3 (Mu))
Mission data downlink		- Direct Transmission: Ka and X-band via. the Optical Data Relay Satellite
Mass		Approx. 3 tons at launch
Size		5 m × 16 m × 3.6 m on orbit
Duty		10 min / path
Design life time		Over 7 years

ALOS-3
In-orbit
configuration

Wide-swath and high-resolution optical imager (WISH)

Additions, changes and improvements from ALOS are shown in red.

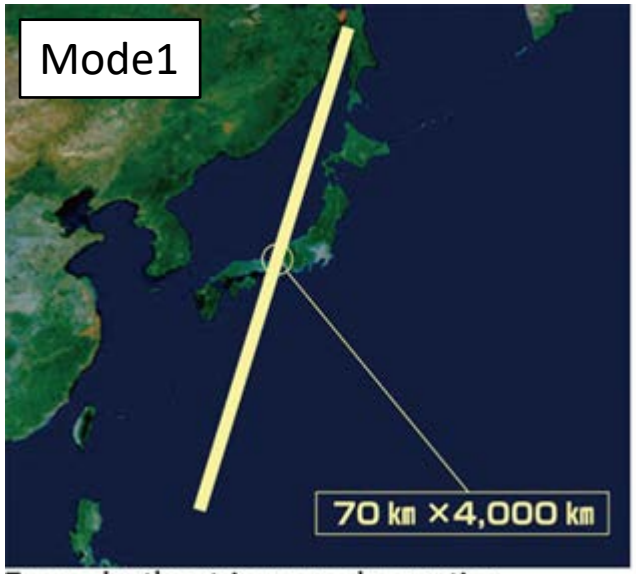
Observation Modes of ALOS-3

Modes

1	**Strip-map observation**
2	**Stereoscopic observation**
3	**Point observation**
4	**Observation direction changing**
5	**Wide-area observation**

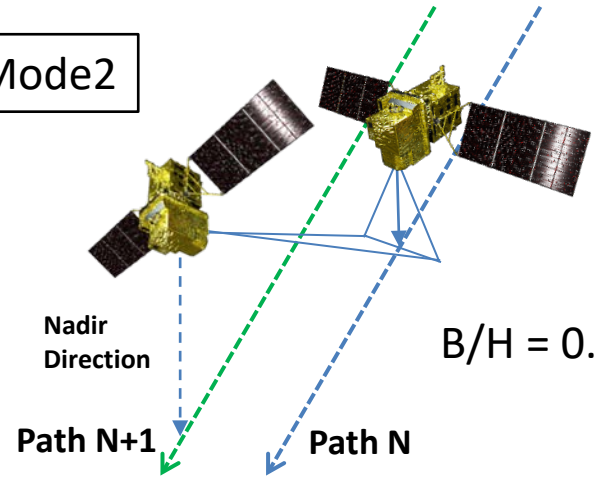
Modes 3 to 5 are for emergency observation only.

Mode1



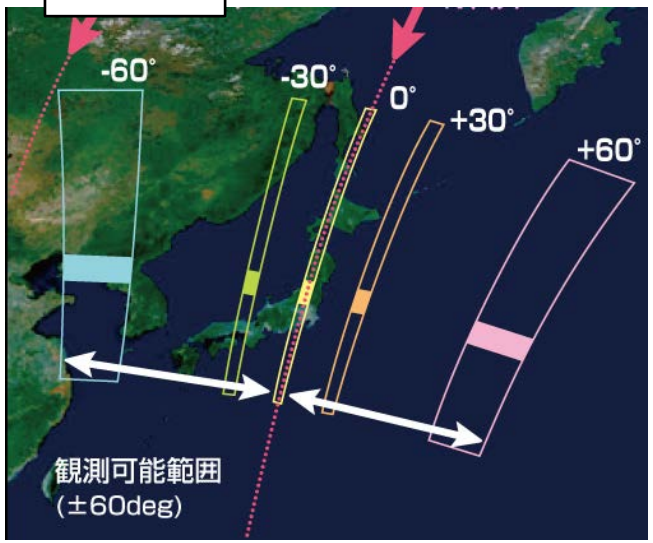
Example: the strip-map observation

Mode2

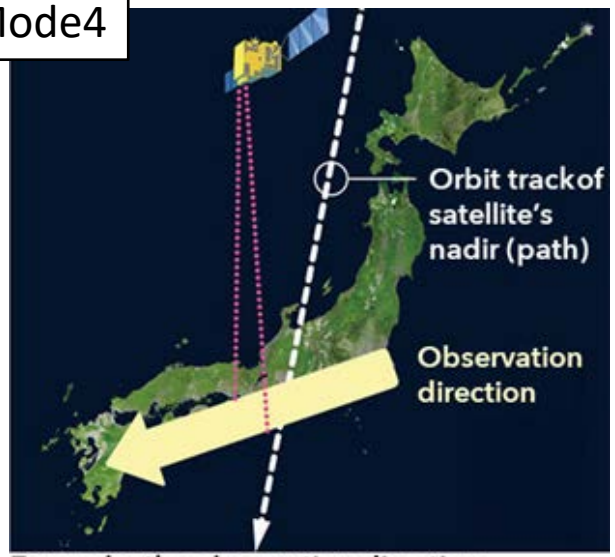


Roll and backward pitch pointing from the next path (3 days later = sub-cycle) to obtain stereoscopic images of the target area.

Mode3



Mode4



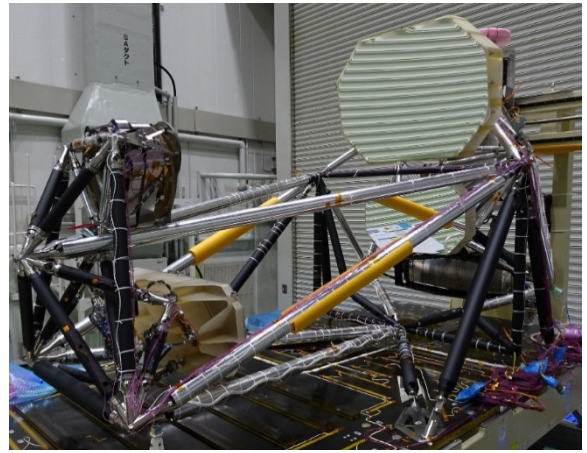
Example: the observation direction changing mode

Current Development Status

Important information and project progress since the last PI meeting.

- **The launch of ALOS-3 has been postponed to FY 2021 due to a change in the development plan for the H3 rocket, the launcher of ALOS-3.**

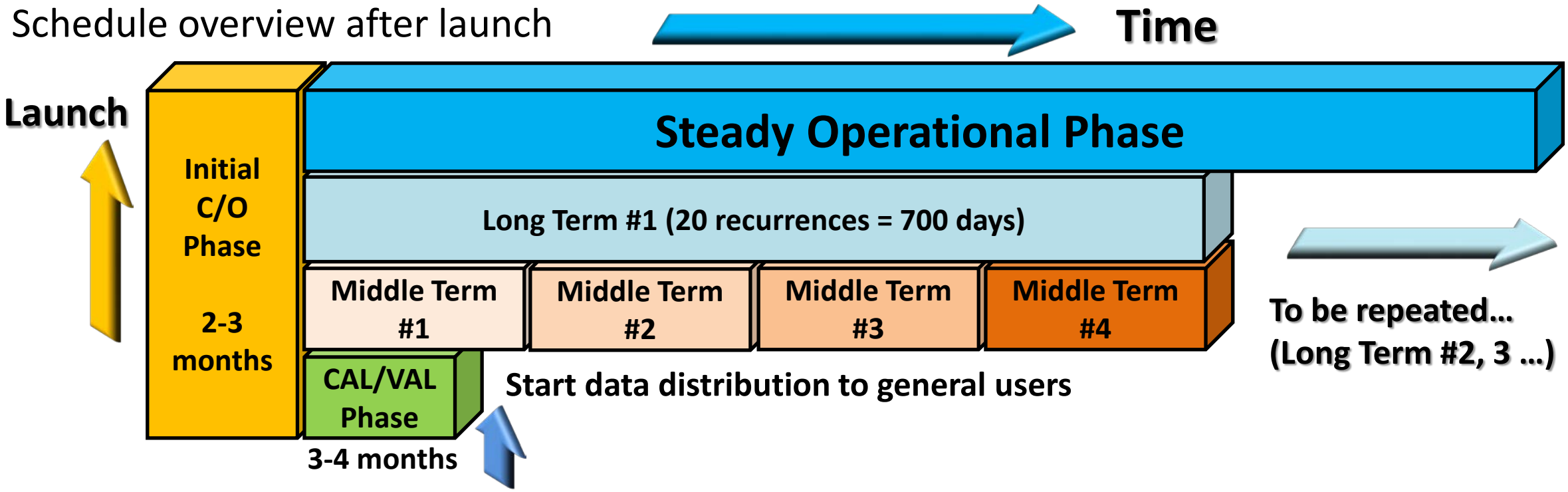
- Post qualification test review (PQR) of Wide-swath and high-resolution optical Imager (WISH) has completed (July 2020).
- The PFT of all flight components/subsystems has completed, too. The PFT of ALOS-3 satellite system is now underway.
- As mentioned above, ALOS-3 is currently scheduled for launch in FY 2021.



↑ Proto flight model of Wide-swath and high-resolution optical Imager (WISH).

Schedule after launch and "Basic Observation Plan"

■ Schedule overview after launch



■ Basic Observation Scenario

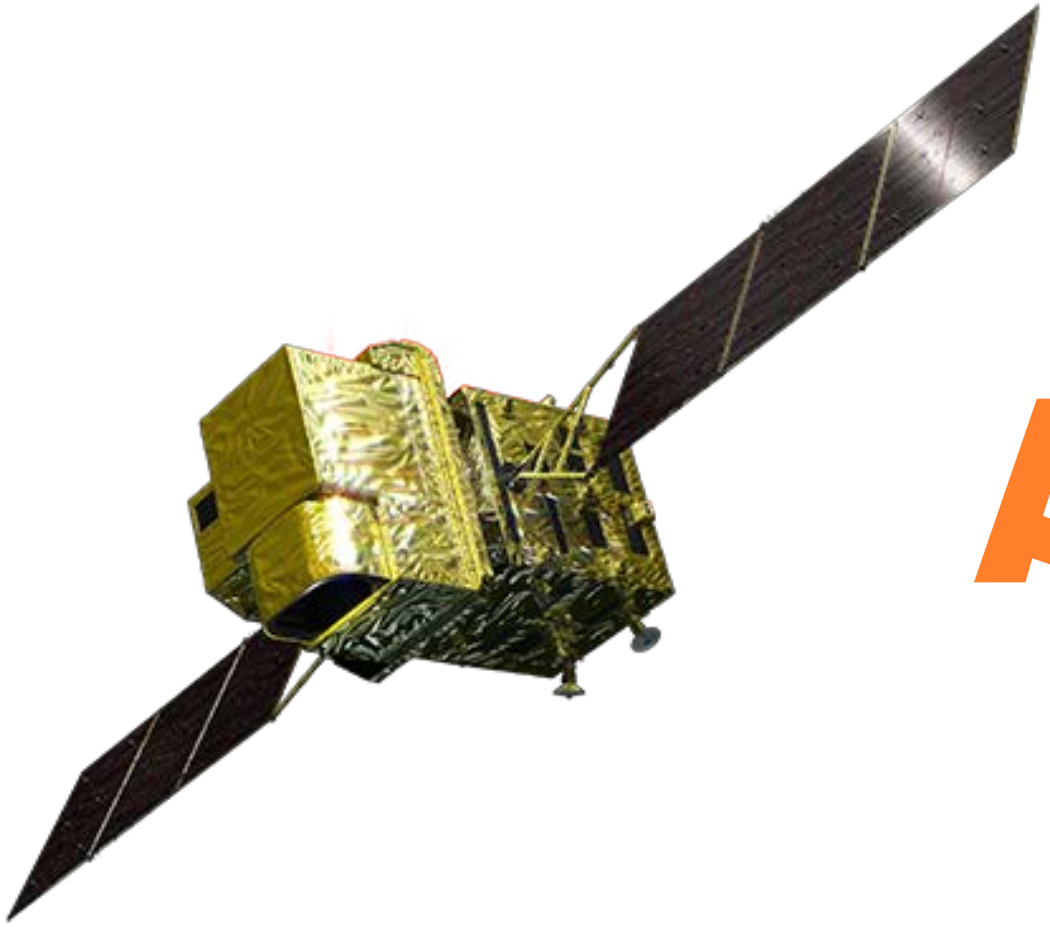
In normal times, ALOS-3 is dedicated to acquiring, maintaining, and updating the "Base-map images"*.

**Definition of Base-map images : GSD < 1.0m, Cloud coverage < 20%*

- *Japan land area (including isolated islands) within 3 years after launch*
- *Global land area (without Polar region) within 5 years after launch*

Summary

- The proto-flight test of ALOS-3 satellite system is underway.
- ALOS-3 launch is postponed and scheduled to FY 2021.



Thank you for your attention