



# OUTLINE OF THE ADVANCED LAND OBSERVING SATELLITE (ALOS) PROGRAM

ALOS Deputy Program Manager

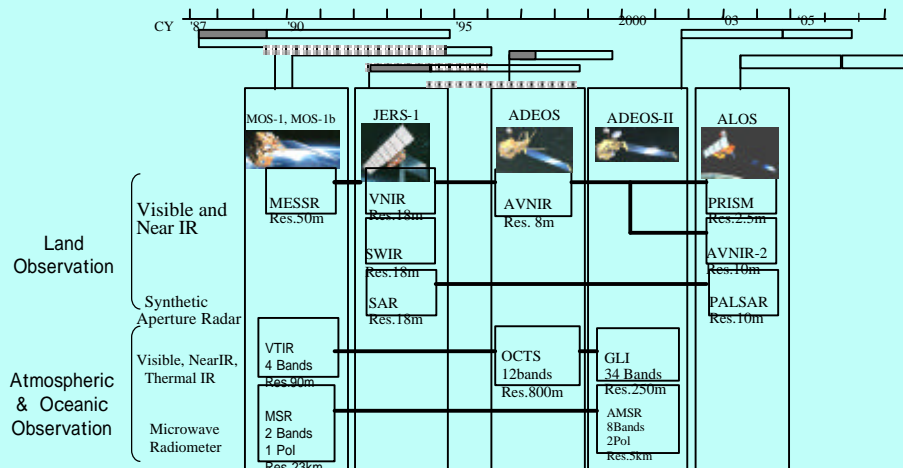
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## Japan's Earth Observation Satellite Program



## ALOS Mission Objectives (1)



- **Land Observation Technology Development**
  - High resolution optics (2.5m, triplet optics)
  - L-band SAR
    - Variable Off-Nadir angle, Full polarimetry
  - High speed mission data handling
    - Over 1Gbps handling
  - High accuracy position and attitude determination
    - Mapping without Ground Control Points

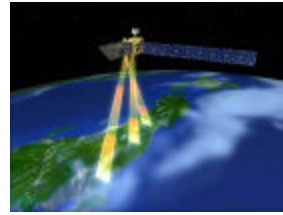
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## ALOS Mission Objectives (2)



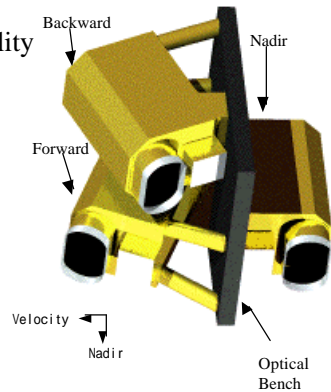
- **Contribution to following fields of applications**
  - **Cartography**
    - 1/25,000 scale map, 3 to 5m accuracy Digital Elevation Model
    - 2.5m resolution panchromatic data
    - Mapping with less or no Ground Control Points
  - **Regional Environmental Monitoring**
    - Multi-Spectral & Multi-Polarization Observation
    - Same Area/ Simultaneous Observation with Optics & SAR
    - Wide Swath Width and Frequent Observation (Seasonal Changes)
  - **Disaster Monitoring**
    - Observation within 48 hours (on the equator) or 24 hours (at 60deg latitude)
  - **Earth Resources Survey**

# PRISM



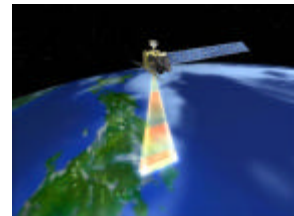
- Panchromatic Remote Sensing Instruments for Stereo Mapping (PRISM)
- Unique Combination of High Resolution(2.5m) and Wide Swath Width (35km or 70km)
- Along Track Triplet Stereo Mapping Capability

Number of Optics	3
Wave Length	0.52-0.77 $\mu$ m
Base/Height Ratio	1.0
I FOV	2.5m
Swath Width	70km(Nadir) 35km(Fore Nadir & Aft)
S/N	>70
MTF	>0.2 (Optics>0.5)



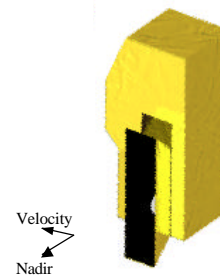
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# AVNIR-2



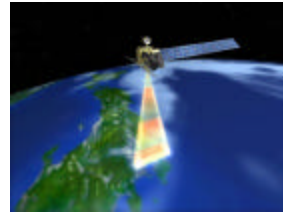
- Advanced Visible and Near Infrared Radiometer type 2 (AVNIR-2)
- Improved version of ADEOS/AVNIR (Multi:16m/Pan:8m)
- Cross Track Pointing Capability

Wave Length	Band1: 0.42-0.50 $\mu$ m Band2: 0.52-0.60 $\mu$ m Band3: 0.61-0.69 $\mu$ m Band4: 0.76-0.89 $\mu$ m
Resolution	10m
Swath Width	70km
Pointing Angle	$\pm$ 44deg
S/N	200
MTF	Band1-3: 0.25 Band4 : 0.20



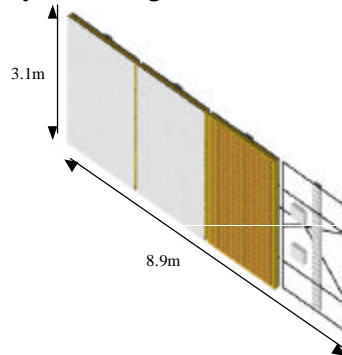
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# PALSAR



- Phased Array type L-band Synthetic Aperture Radar (PALSAR)
- Same Area /Simultaneous Observation with AVNIR-2 and PALSAR
- Joint development with Ministry of Economy, Trade and Industry (METI) / Japan Resources Observation System Organization(JAROS)

Mode	High Res.	ScanSAR
Frequency	1270 ± 14MHz	
Polarization	HH,VV,HH&HV,VV&VH	
Resolution	10m	100m
No. of Looks	2	8
Swath Width	70km	250-350km
Off-Nadir Angle	10 - 51 deg	
Ne <sub>0</sub>	-23dB	
S/A	23dB	



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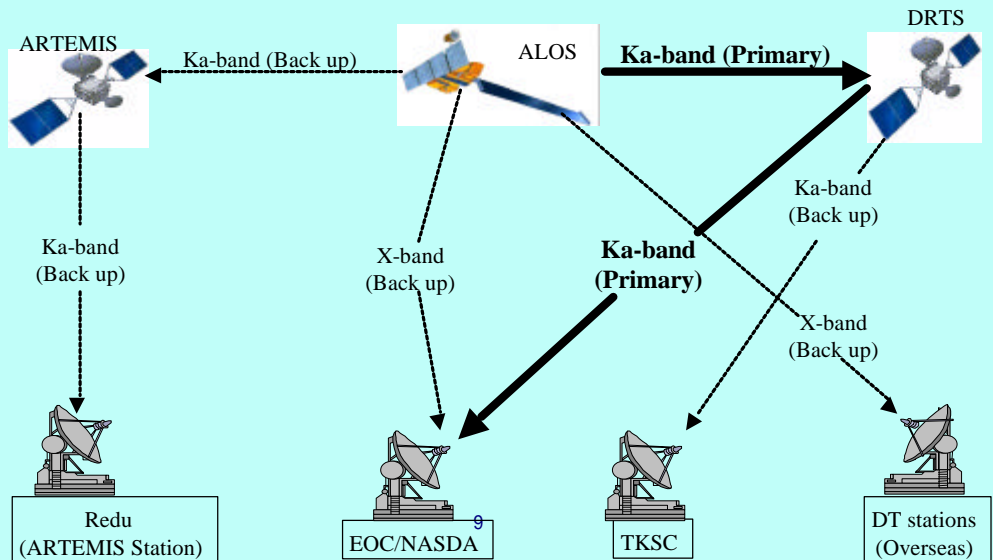
# ALOS Satellite System



Launch Date	June 2003
Launch Vehicle	H-11A
Spacecraft Mass	4,000kg
Generated Power	7kW
Orbit	691.65km
	Sun Synchronous
Repeat Cycle (Sub-Cycle)	46 days (2-days)

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# ALOS Mission Data Flow

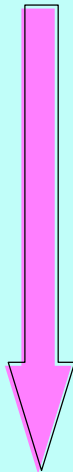


# ALOS Operation Mode



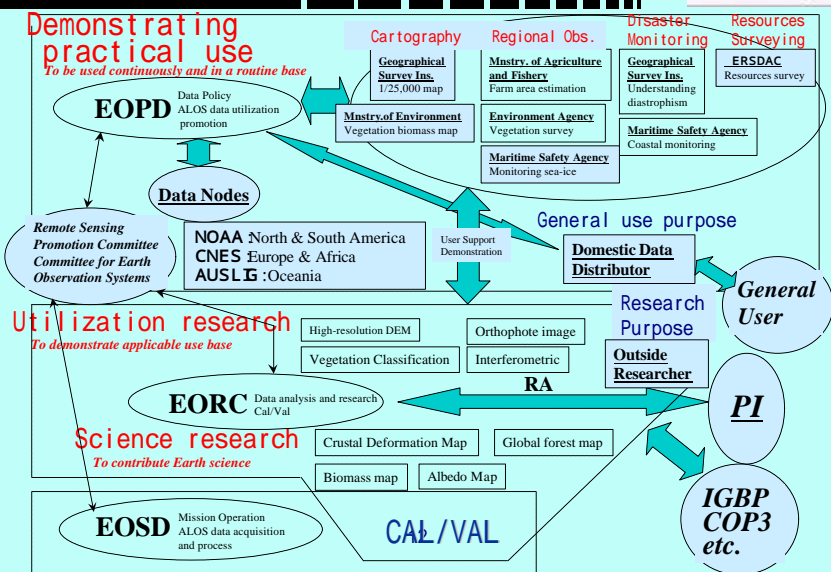
- Daytime
  - PRISM & AVNIR-2, Simultaneously.
- Nighttime
  - PALSAR
- AVNIR-2 & PALSAR will be able to operate simultaneously.  
(ALOS is the first satellite to obtain optical and SAR data of the **SAME AREA** at the **SAME TIME**.)

# Priorities of Mission Operation



- Emergency Operation of the Satellite
- House-Keeping
- Catastrophic disaster monitoring
- Calibration / Validation
- Operation for the public purpose and scientific purpose under the agreement with NASDA
- Others (General use and requests from ALOS Data Nodes)

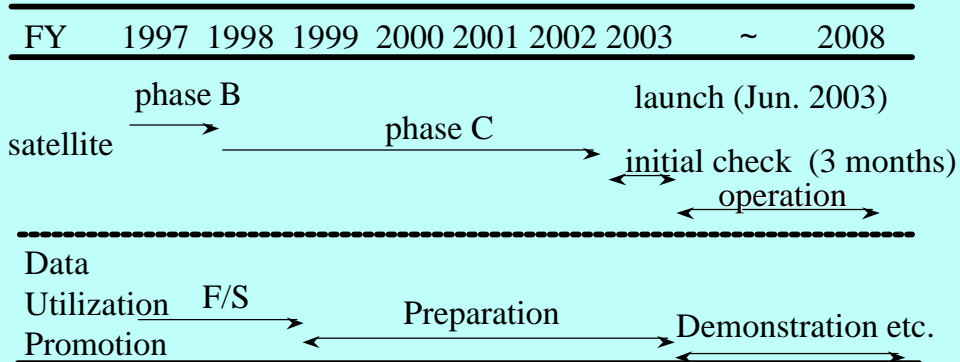
# ALOS Data Utilization Promotion Plan Overview



# ALOS Data Utilization Promotion Schedule



## Schedule

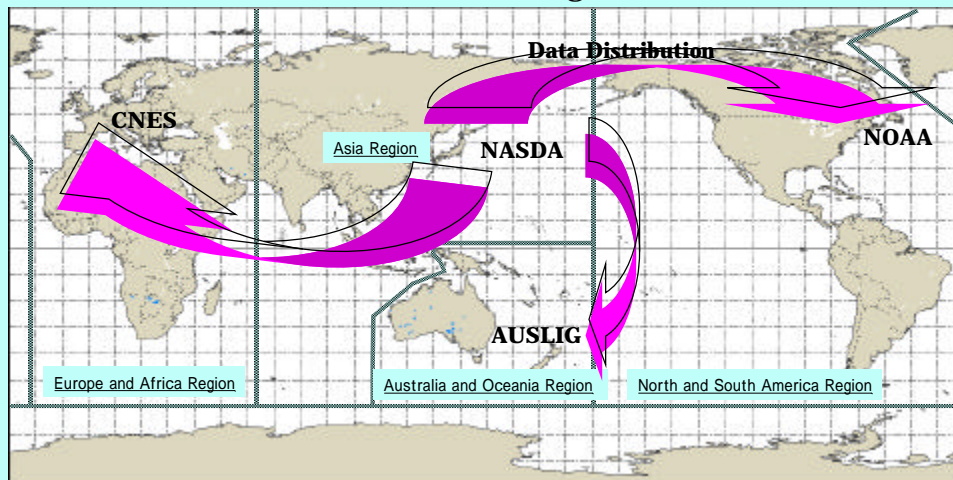


# Overview of the ALOS Data Node



NASDA acquire all ALOS data.

ALOS Data Node receive the regional data from NASDA.



## Priorities of process & distribution



### Catastrophic disaster monitoring

Speedy operation for emergency observation

repeat cycle **within 48 hours**.

After observation

distribution of **quick-look image within 60 minutes** and **browse image within 180 minutes** on the web.

Operation for the public and research purpose under the agreement with NASDA

Others (General use and requests from ALOS Data Nodes)

Data will be distributed by NASDA after **eight months from launch**.

For quick data distribution, data will be shipped **within 7 days** from order. (in other regions, depending on capacity of regional data node.)

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## Promotion of ALOS Data



### ALOS Home Page

[http://www.nasda.go.jp/Home/Earth\\_Obs/](http://www.nasda.go.jp/Home/Earth_Obs/)

<http://alos.nasda.go.jp>

<http://www.eorc.nasda.go.jp/ALOS/>





***Gazing into Earth's Expression***



**Advanced Land Observing Satellite**

***E N D***