# JAXA Plan for follow-on mission

Masanobu Shimada
Earth Observation Research Center
Japan Aerospace Exploration Agency



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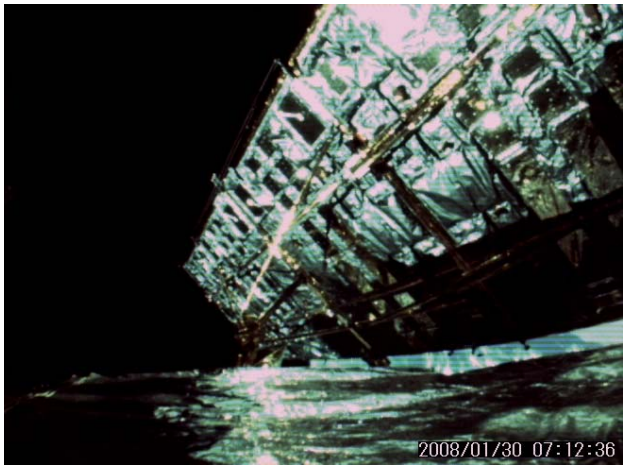
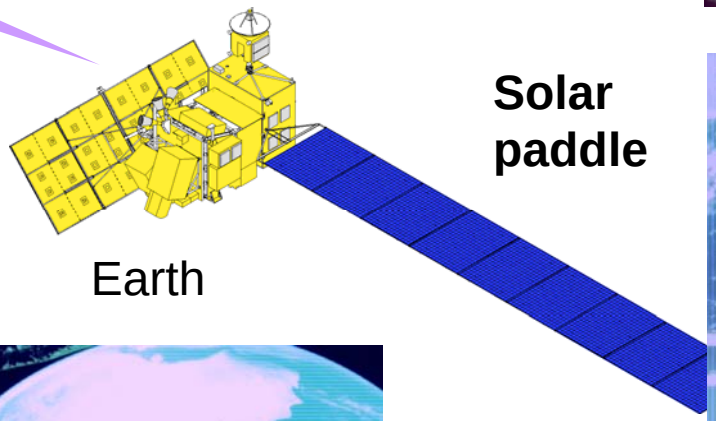
# ALOS and its pictures




**PALSAR Antenna backside**

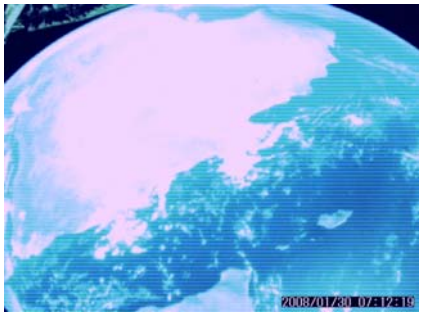
**Jan. 30 2008**

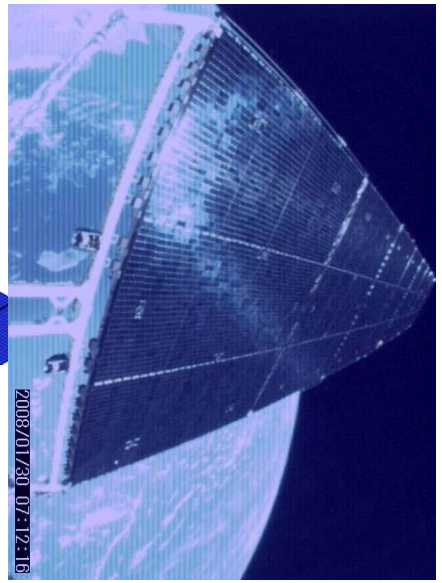

Antenna for Inter satellite communication



**Solar paddle**

Earth





# Amazon Deforest Watch (Mato Grosso) JERS-1 & ALOS

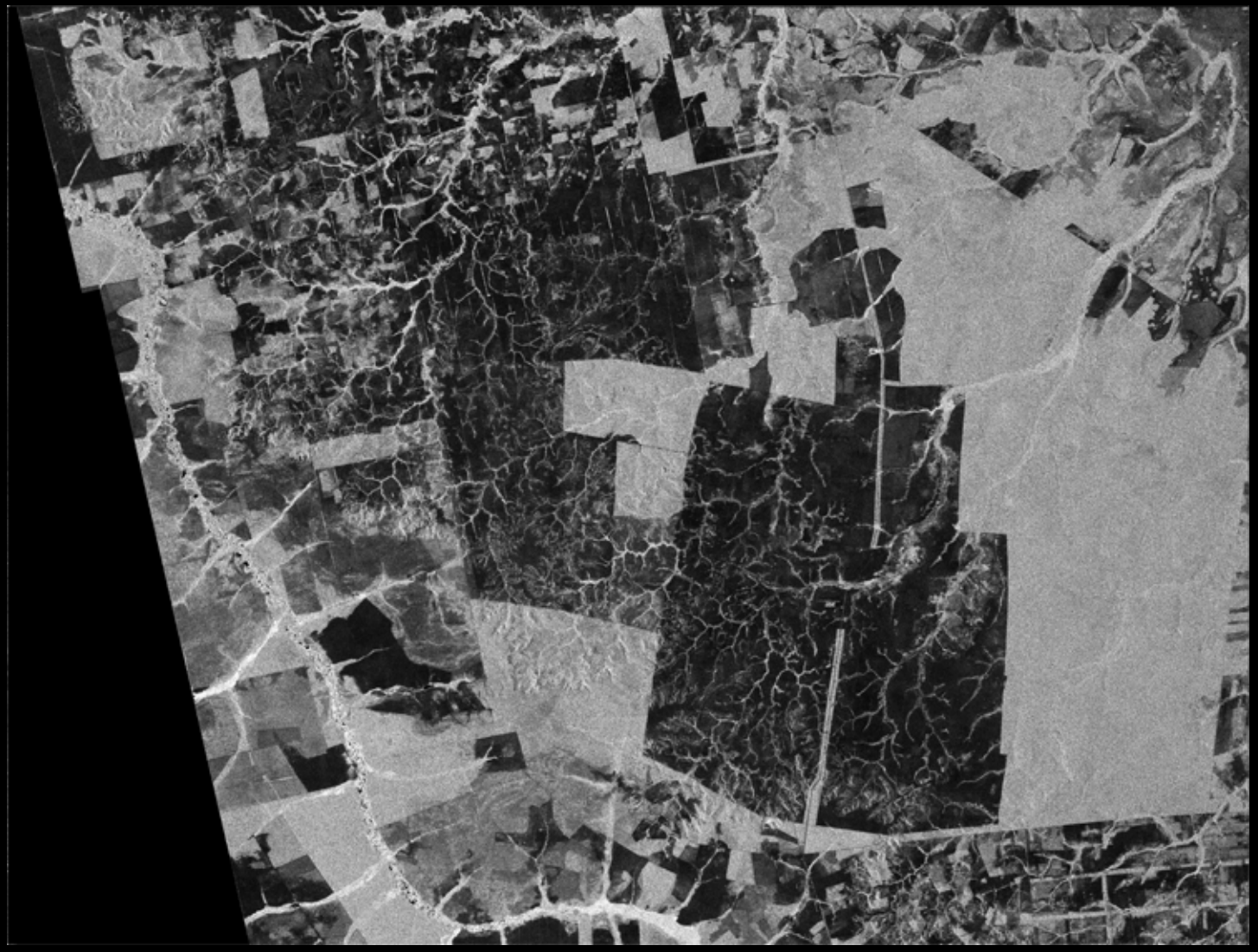
**Acquisition Term**

**1992/11/9**
**～2007/6/25**

JERS-1
- 1992/11/9
- 1992/11/10
- 1996/5/8
- 1996/5/9

ALOS
- 2006/8/12
- 2007/6/25

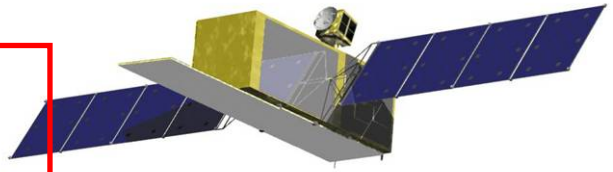
Lat : S 2° 34’
Lon : W 54° 45’

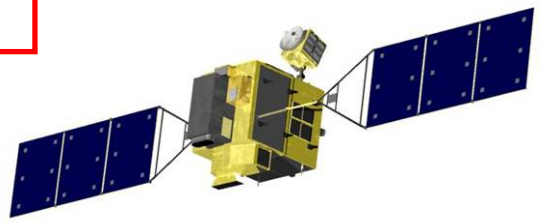


# Disaster Monitoring System

# Core System (2 SAR + 2 OPT)

- **Satellite**
  - SAR satellite
    - GSD: 3m (strip map), 3m*1m (spotlight
    - Swath: 50km
    - L-band
  - Optical satellite
    - GSD: 1m (Pan), 4m (Multi-spectral)
    - Swath: 50km
  - First satellite: launch target JFY2012





- **Ground System**
  - Quick response
    - Quick tasking (less than 1 hour)
    - Quick data processing and analysis (less than 1 hour for standard proc.)
  - Compatible with the existing information systems of Japanese governmental users

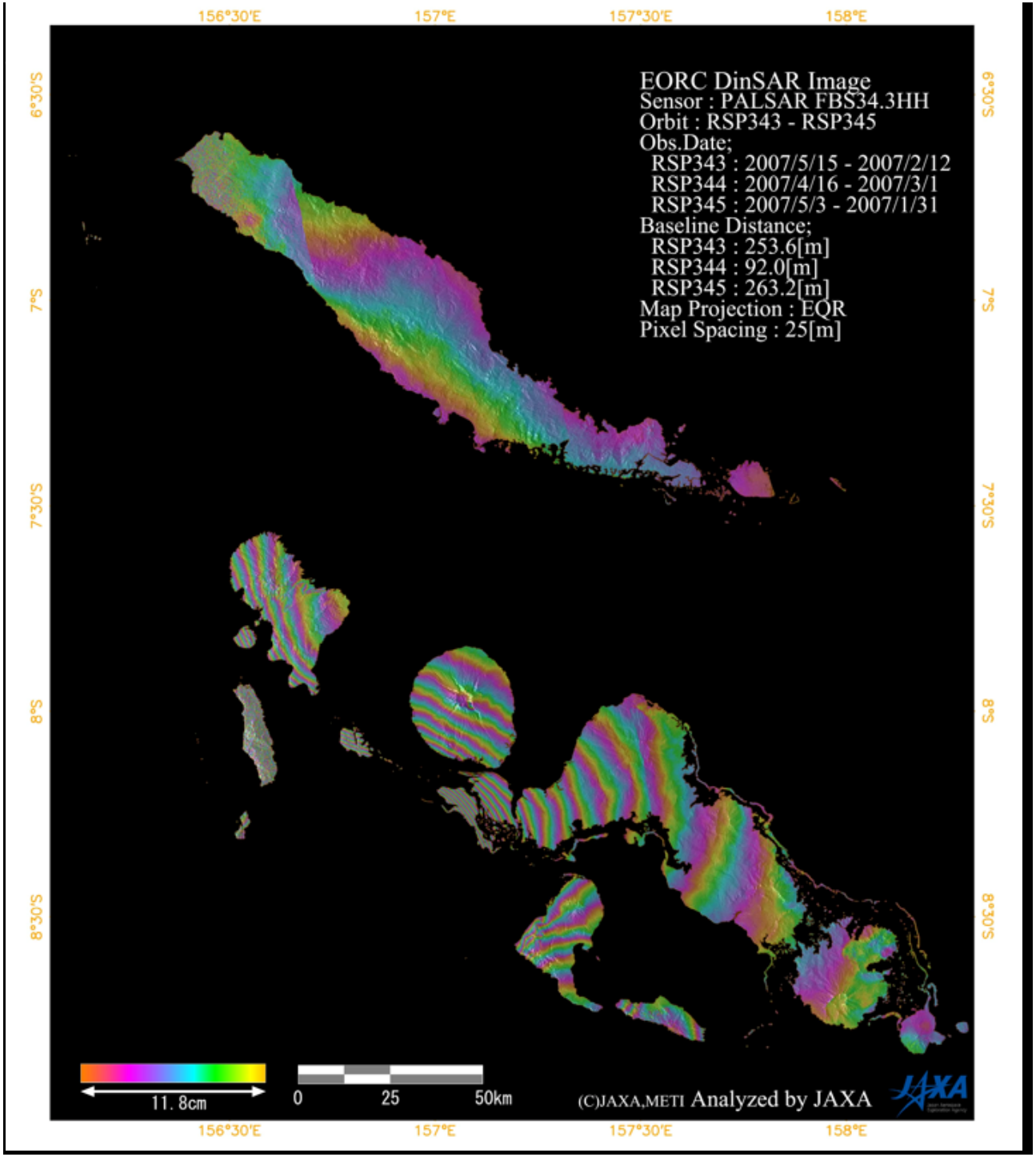
Solomon Earthquake

M8.1
April 2 2007

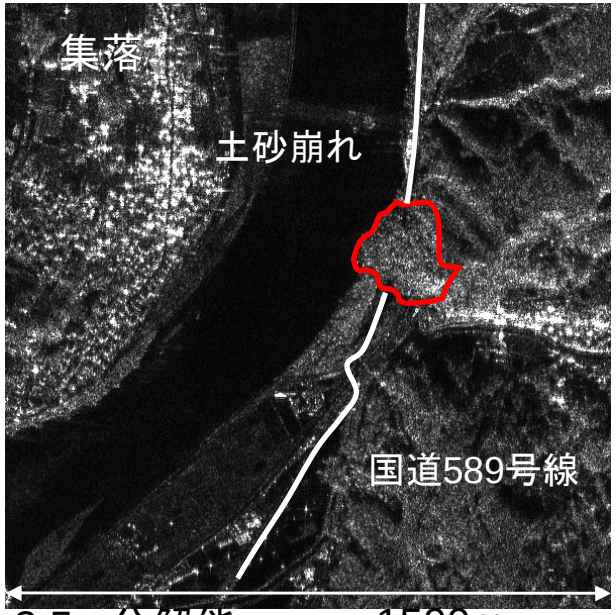
Three DinSAR
344:4/10-2/23
345:5/3-1/31
343:5/10-2/12

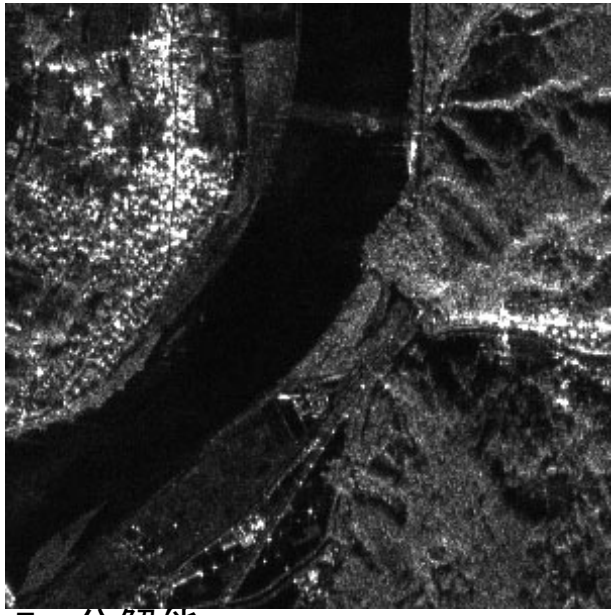
FBS343HH

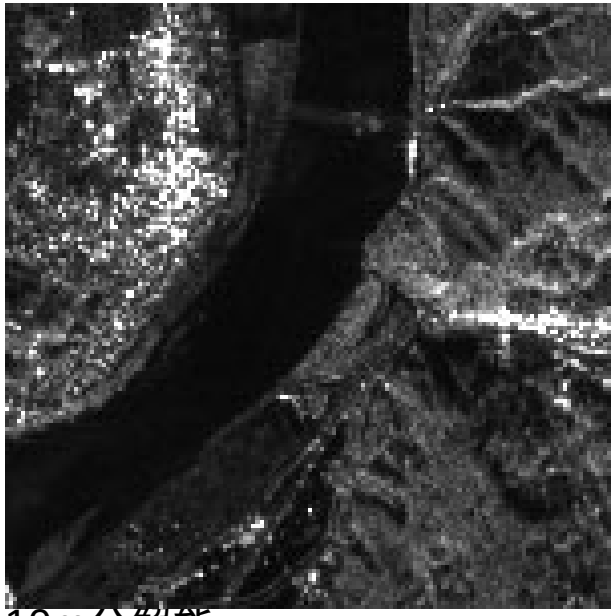
No orbit tuned.
No further corrected.
Three paths overlaid.

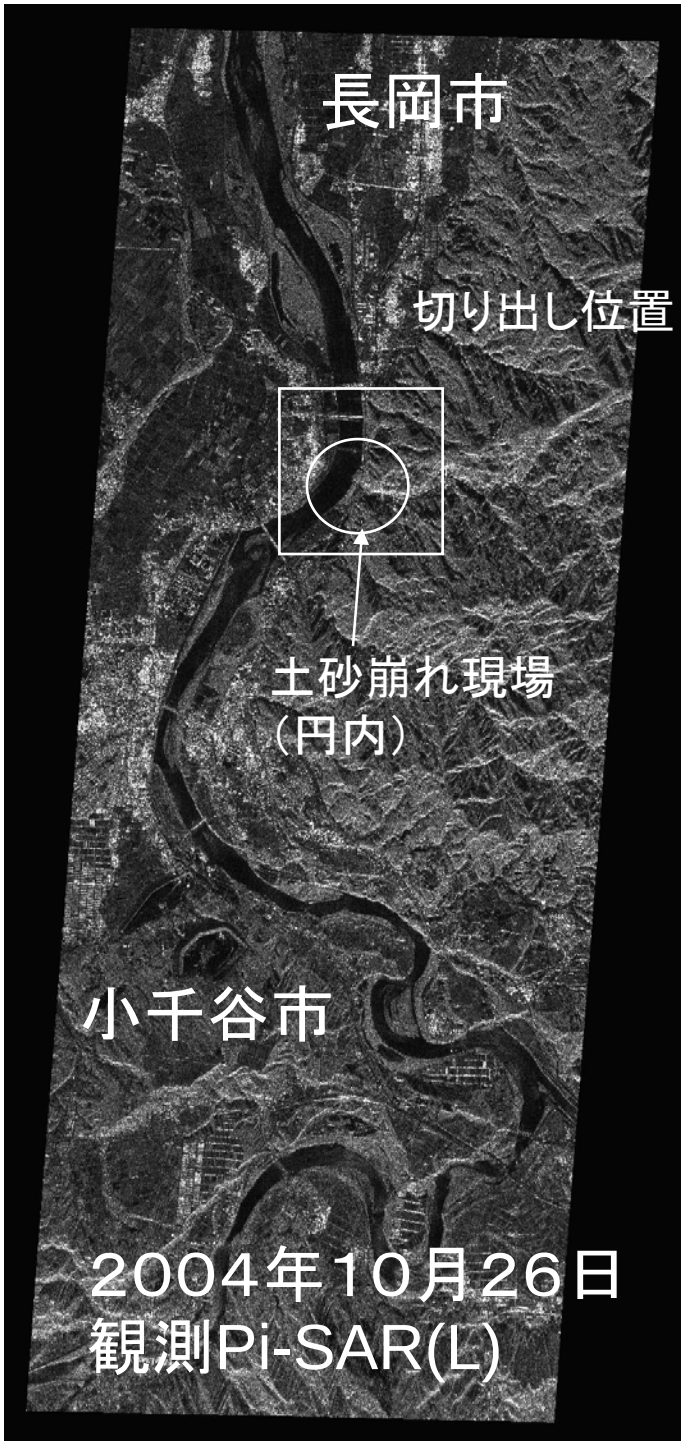


# Land slide of Chuetsu Earthquake 2004



# Requirements to the SAR missions

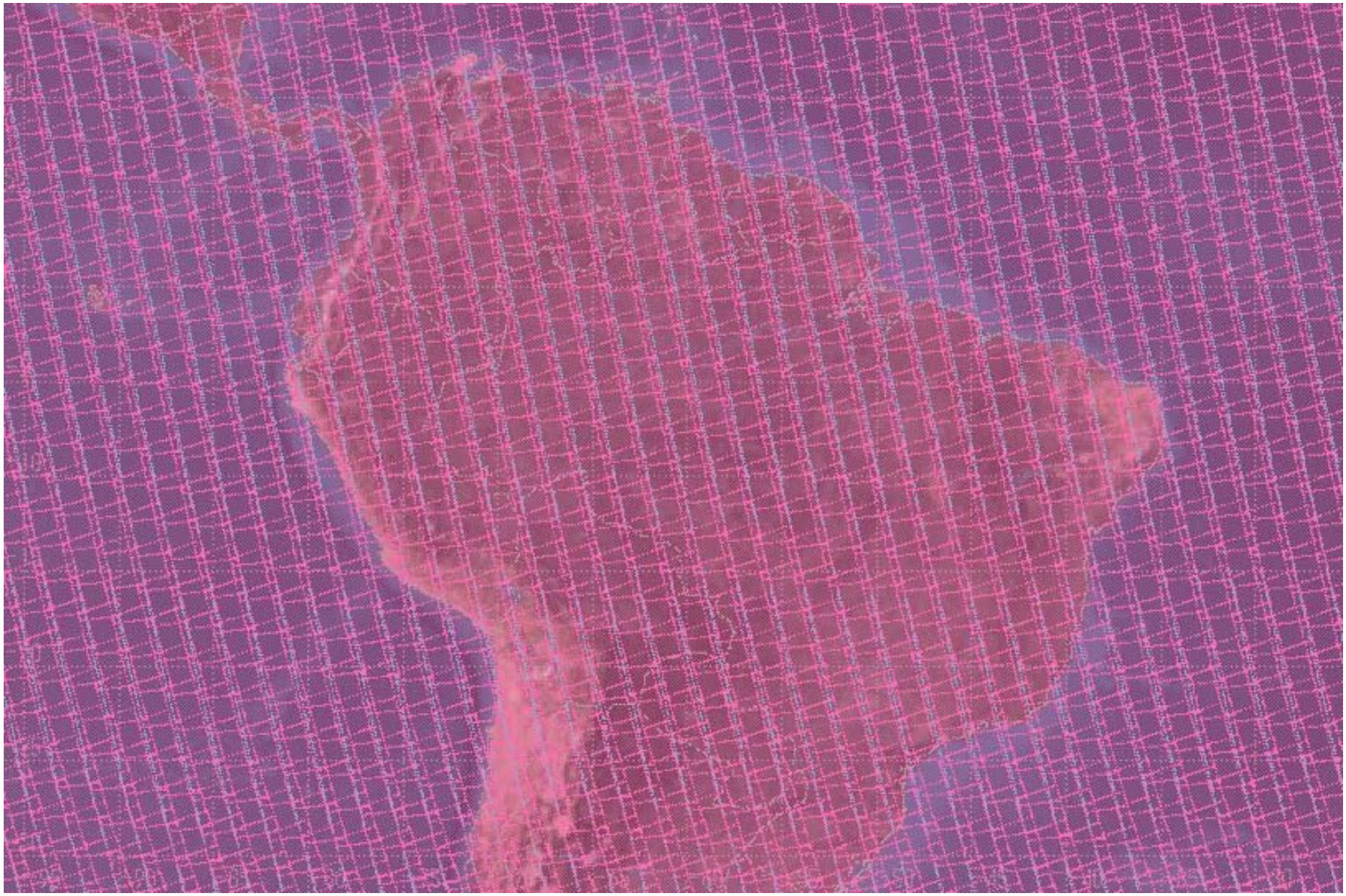
•Change detections
•InSAR - Orbital maintenance (500m tube and frequent inclination maintenance)
- coherence amplitude / phase change
•Polarizations

•First Target
Deformation, flooding, volcano, land slide, subsiding, forest fire, etc.
-> High resolution, good NESZ -> High quality SAR

•Second target
Forest and wetland
-> PALSAR performance + adding HV -> Mid-quality but wide swath SAR

# SAR Parameters (Under discussion)

| | | |
|---|---|---|
| Frequency | : | L band |
| BW | : | <85MHz, 42MHz, 28 MHz |
| Modes | : | Spot light, Strip, SCANSAR |
| Pr | : | <6Kw |
| Swath | : | 50 km ~ 70 km, 300km(SCAN) |
| Pol. | : | HH, HH+HV, HH+HV+VH+VV |
| Resolution | : | 1m, 3m, ~PALSAR(5m), 1 look |
| Data rate | : | < 800 Mbps |
| Orbit revisit | : | 14 days, 628 km (14+3/14) |
| Bit | : | 4 bit I&Q, 2 bit I&Q(BASQ) |
| Incidence | : | 7 deg. ~ 70 deg. (30 ~ 45 deg. for forest) |
| DRTS | : | TBD (under discussion) |
| NESZ | : | <-28 dB (20~40 degrees) |
| Amb (Rg, Az): | | >23 dB |
| Dual beams | : | Yes ( 1, 3 meter size) |
| Look dir. | : | Right and Left |



Amazon mapping in ascending (each swath 30~45 deg.)

Conclusions

1) Forest monitoring using the PALSAR is ongoing.
PALSAR is in good condition.
More than 10 years life (fuel) expected.

2) ALOS follow-on satellite system is under designing.
Missions:
+)Disaster mitigation(flooding, deformation, earthquake, volcanoes,,)
+) Forest and wetland monitoring

3) L-band SARs (JERS-1, PALSAR, ALOS follow-on) will contribute the change detection for the forest.

JERS-1 : 568 km, 44 days
ALOS : 691.5 km height: 46 days revisit
ALOS follow-on:628 km height, 14 days revisit

Harmonization of the disaster and the forest

Orbital parameters
Incidence angle variation:PALSAR similar mode
500km, 12 days, 4 beams/ orbit -> 25 ~ 42 degrees

800km, 12 days, 4 beams/orbit -> 27(?) ~ 40 (?)
Losing the NESZ

Future task
To include the forest and wetland as the mission objectives
SAR parameterization harmonization with the Forest monitoring (being finished).