

Disaster Monitoring Activities in JAPAN



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Contribution of satellites to the disaster monitoring

~ 3.11 The Great East Japan Earthquake ~

**The toughest and most difficult crisis for Japan
since the WW II**

- **Giant earthquake and tsunami**

The huge area along the Pacific ocean was devastated.
Tens of thousands of deaths, lost of houses, destructed social infrastructures, industries, agriculture and fishery.

- **Fukushima dai-ichi nuclear power station crisis**

The nuclear power station was destroyed by the tsunami and people around are suffered from radiation hazards, evacuation and electricity shortage.

***We are most grateful for world wide sympathy
and great help to Japan.***

Contribution of satellites to the disaster monitoring

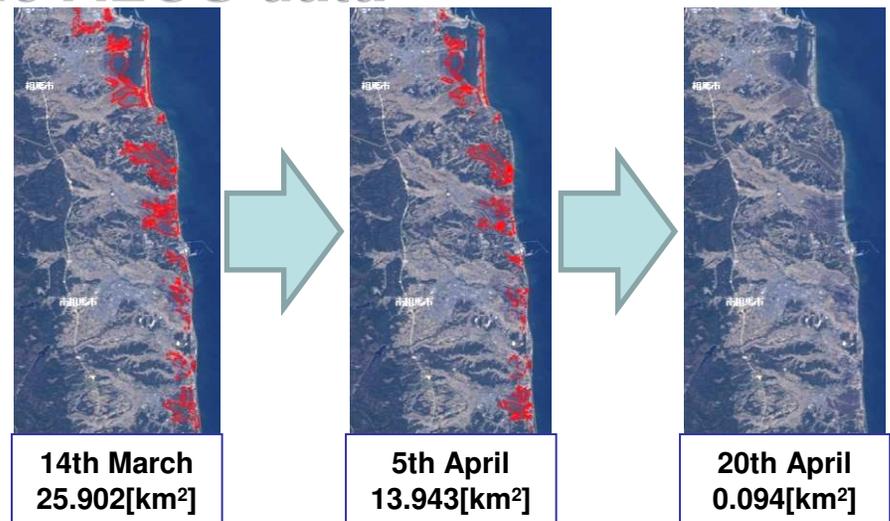
~ 3.11 The Great East Japan Earthquake ~

It was proved that the earth observation satellites were useful for disaster monitoring

- Utilization of the ALOS data -



Disaster management room in Iwate prefecture



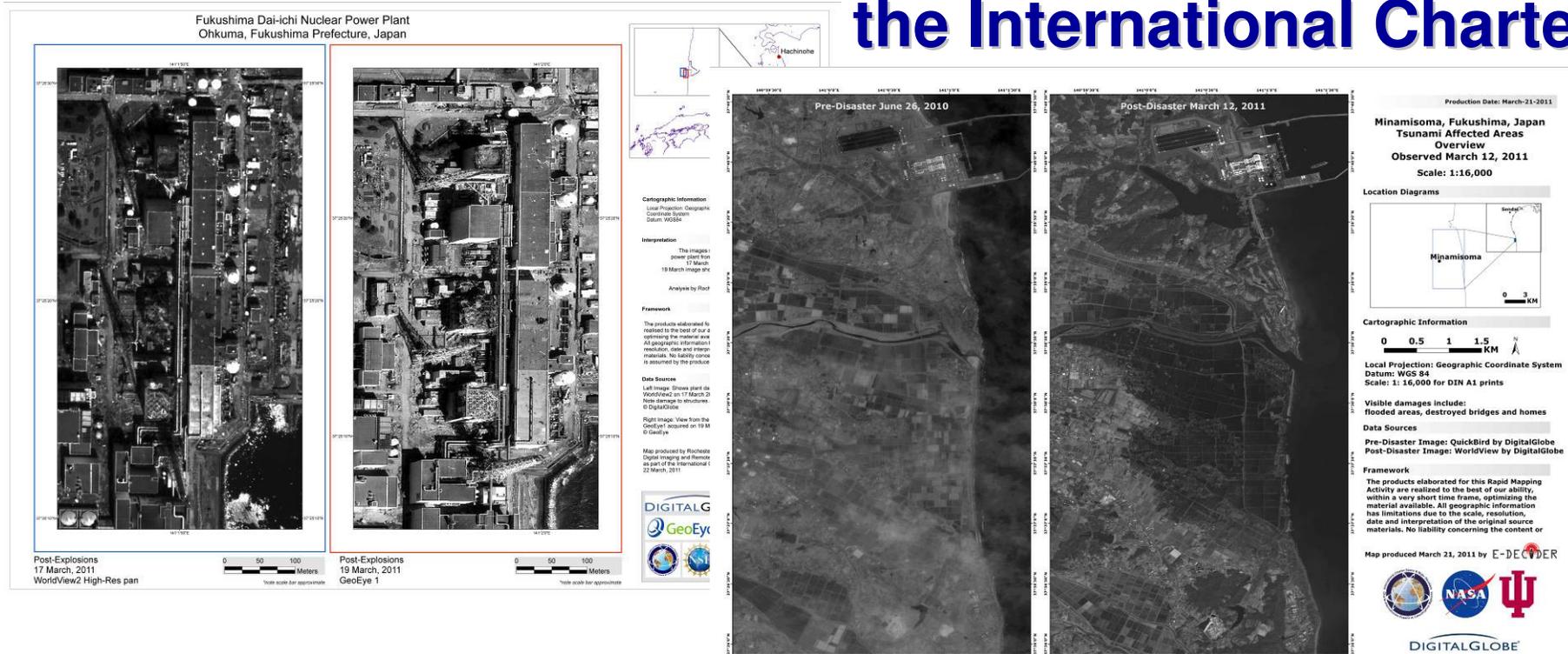
Monitoring the flooded area in Soma, Fukushima prefecture
(Red = flooded area)

Contribution of satellites to the disaster monitoring

~ 3.11 The Great East Japan Earthquake ~

Images ** delivered through

the International Charter



Fukushima dai-ichi nuclear power station (left: WorldView-2 right: GeoEye-1)

Flooded area, Minamisoma, Fukushima Prefecture (left: QuickBird right: WorldView)

Provision of satellite communication : KIKU-8

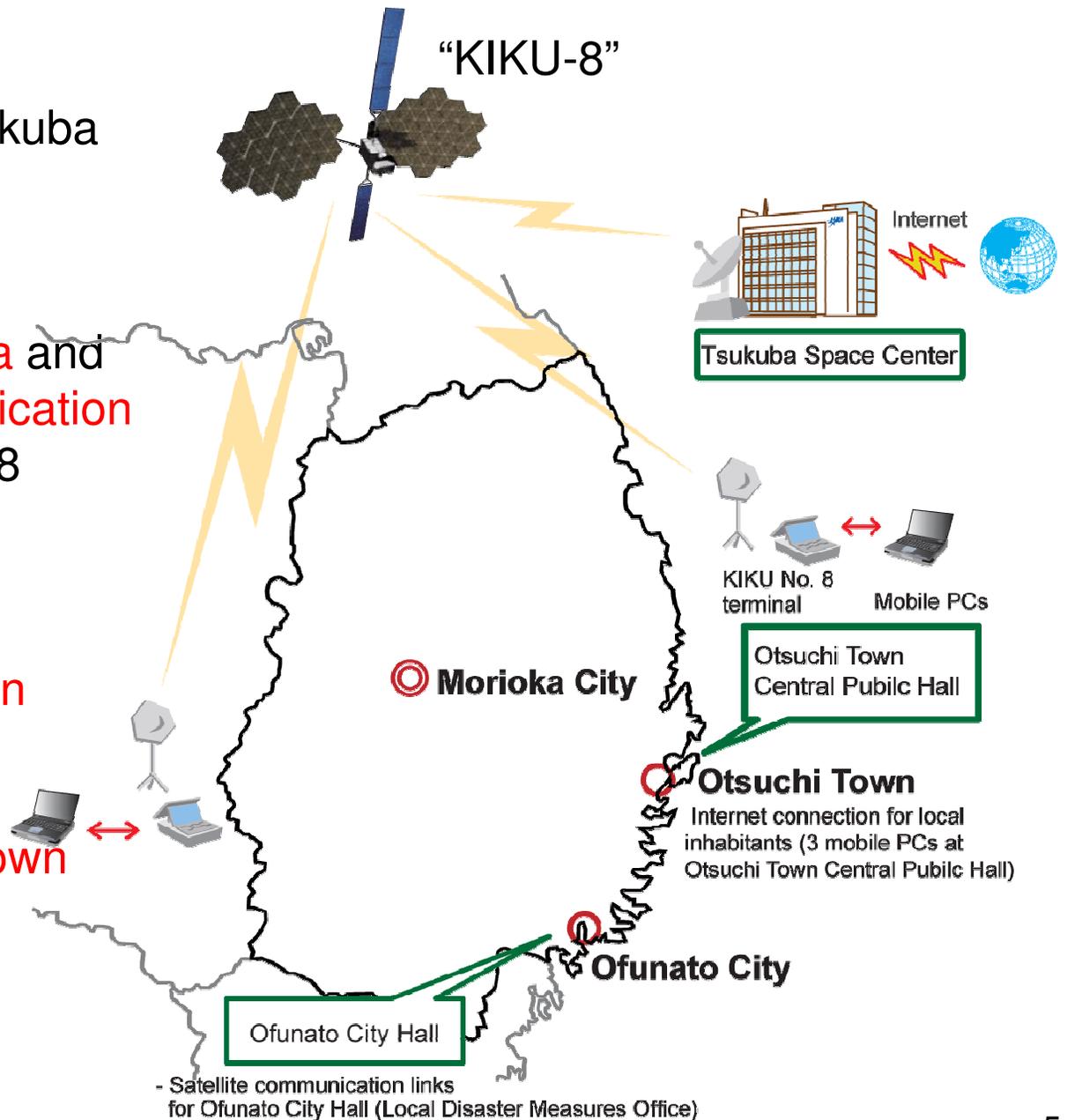
➤ 23 March:
Departure from JAXA Tsukuba
Space Center

➤ 24 March:
Setting up **ground antenna** and
the **movable test communication
terminal** for the KIKU No. 8
at **Ofunato City Hall**.

➤ 4 April :
Setting up at **Otsuchi Town**

➤ 26 April:
Setting up at **Onagawa Town**

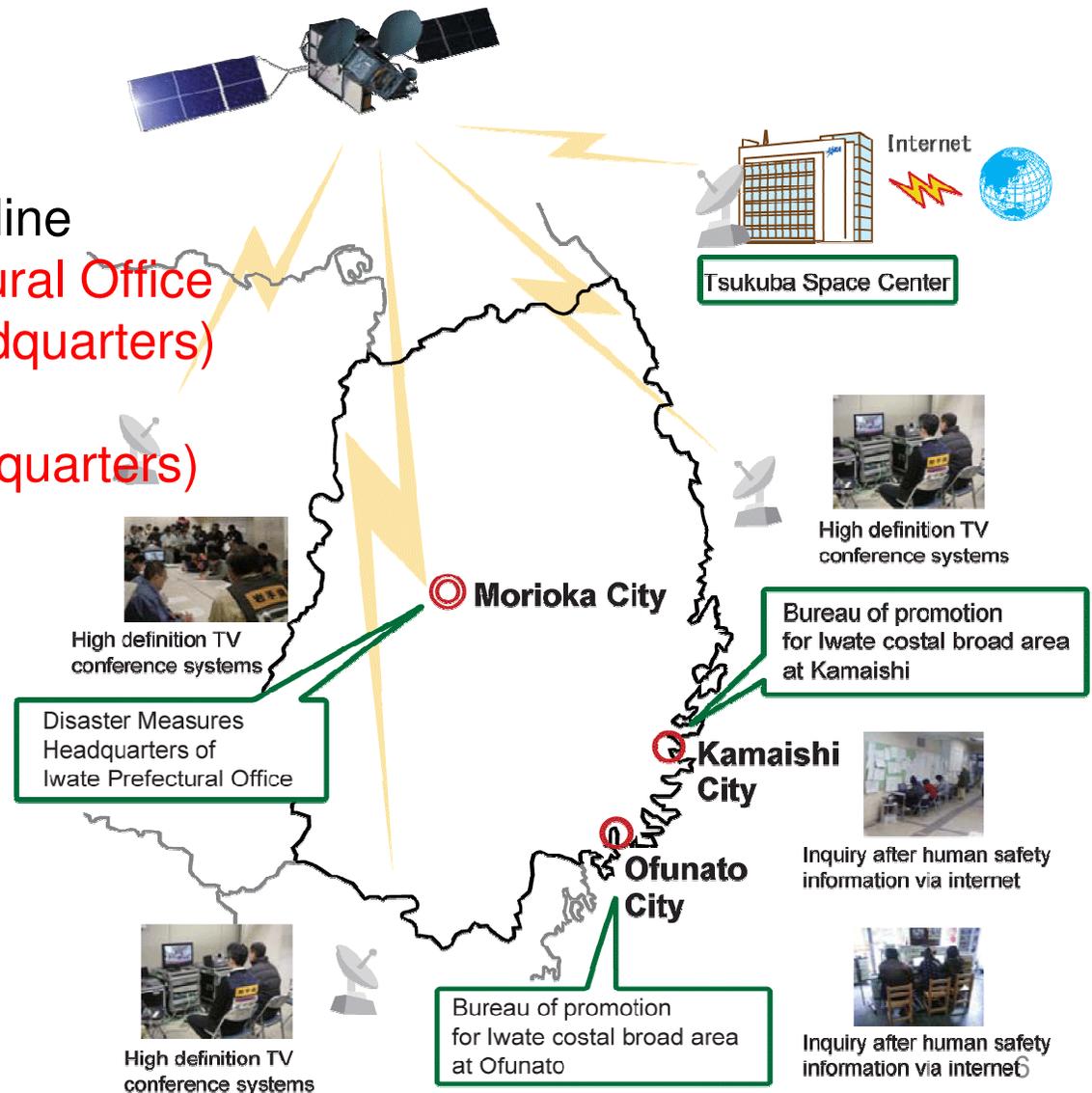
➤ 21 May 21:
Connection completed



Provision of satellite communication : KIZUNA

“KIZUNA”

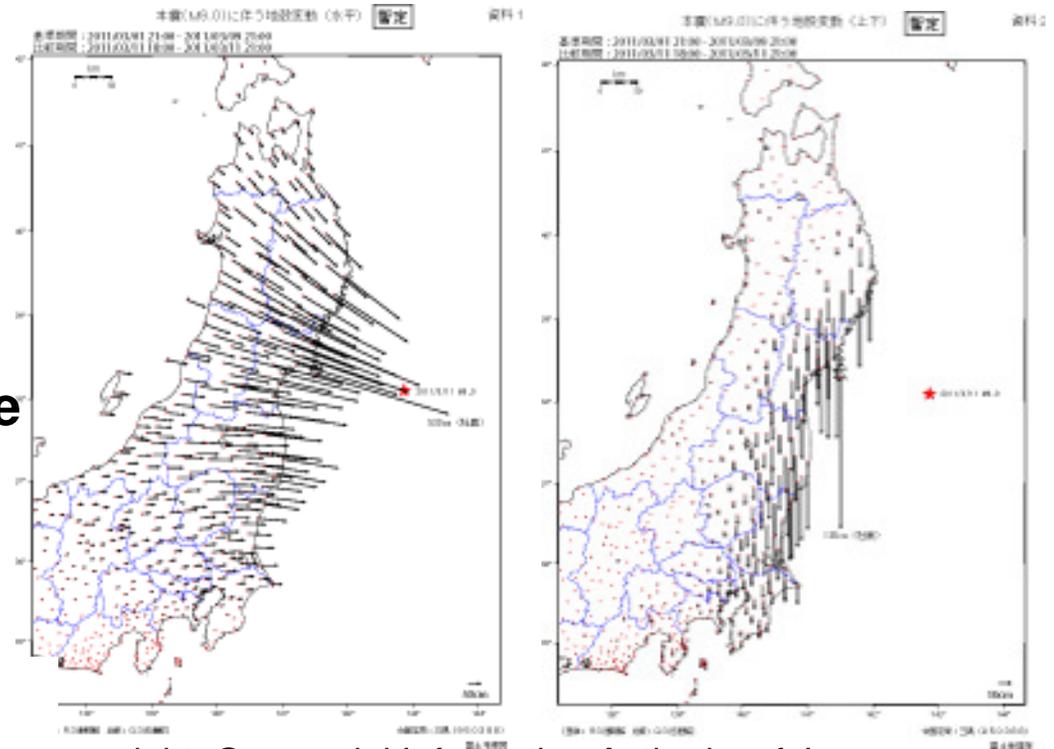
- 17 March:
Arrival at Iwate Pref. Office
- 20 March:
Setting up communication line
between **the Iwate Prefectural Office**
(emergency response headquarters)
and **Kamaishi City** (Local
emergency response headquarters)
- 24 March:
Setting up ground antenna
at **Ofunato City**, and
completing communication
lines **in three points**
- 24 April :
Connection completed



Utilization of GPS

➤ Crustal Deformation of GPS-based Control Station

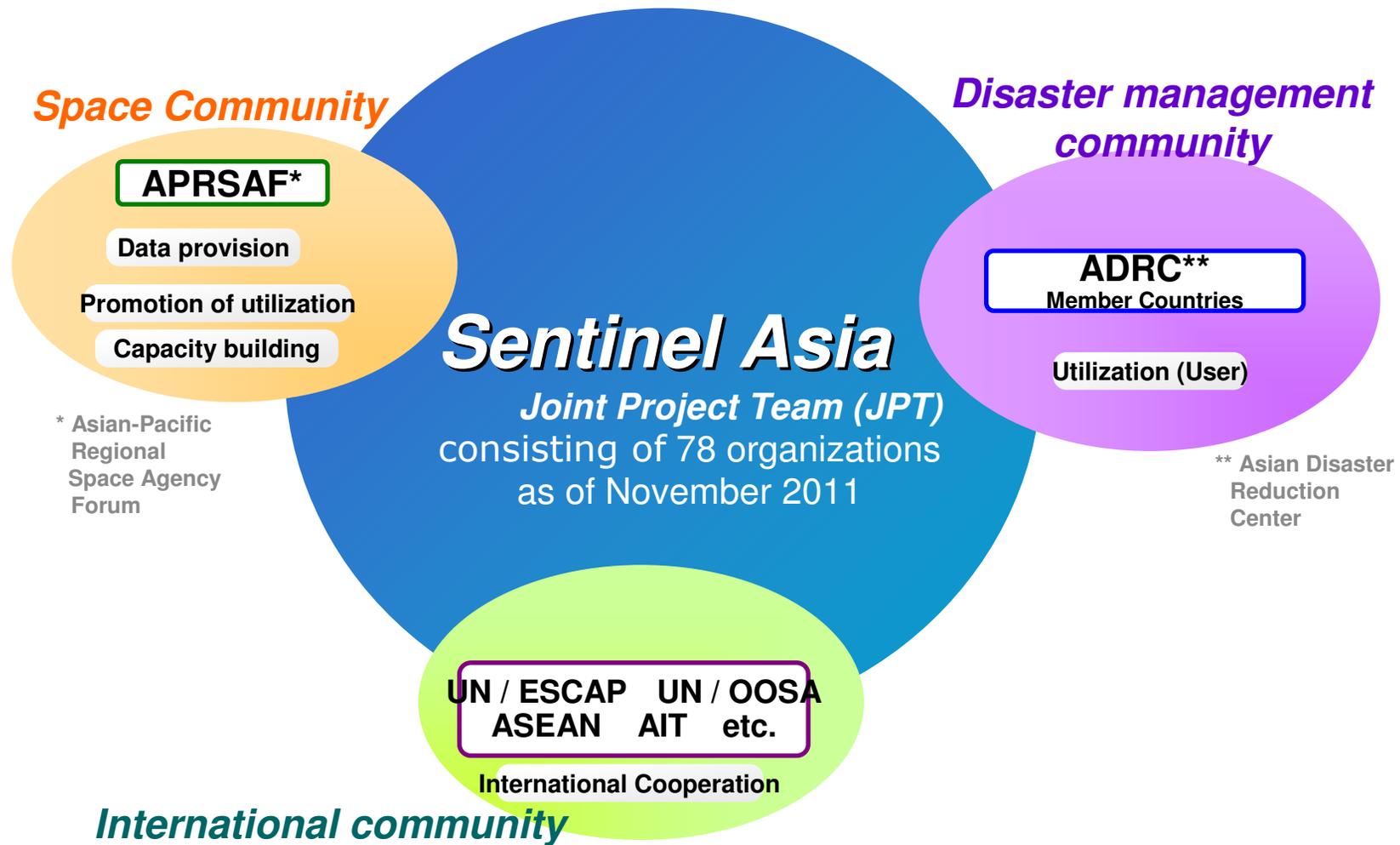
- According to the analysis of Geospatial Information Authority of Japan, the Oshika Peninsula shifted **east-southeast about 5.3 m** and **subsided about 1.2 m** due to the earthquake.
- Wave shape observed by GPS wave recorder.
- According to the analysis of Port and Research Institute, there were **seven big waves** and its maximum height was over 6m at the first wave.



copyright: Geospatial Information Authority of Japan

Overview of Sentinel Asia(1/5)

= Structure =



Overview of Sentinel Asia(2/5)

= **Concept** =

Wideband InterNetworking engineering test
and Demonstration Satellite "KIZUNA" (WINDS)

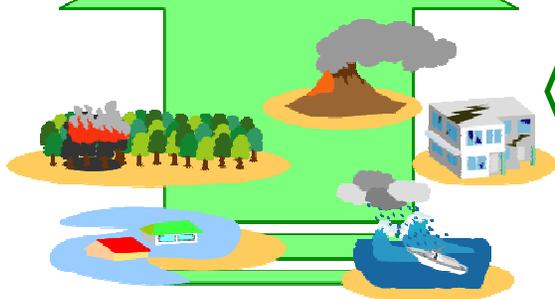
Observation

Space Agency

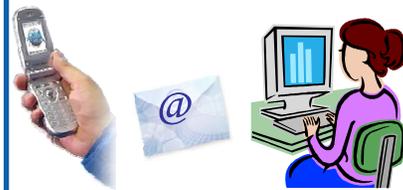
Earth Observation Satellites



Disaster Information



Transmission



Sharing (Web)



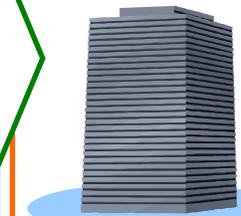
Utilization

Disaster Management Organization

User Expansion

Governmental Organization (ADRC members)

Local Governmental Organization



End User



Human Network

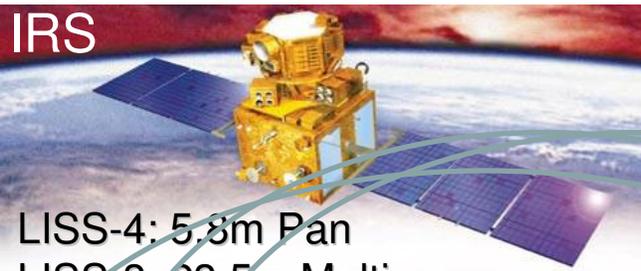
Capacity Building, Outreach

Overview of Sentinel Asia(3/5)

= Data provider node =

ISRO

IRS



LISS-4: 5.8m Pan
LISS-3: 23.5m Multi
AWiFS: 56m Multi

GISTDA



PAN: 2m
Multi: 15m

JAXA

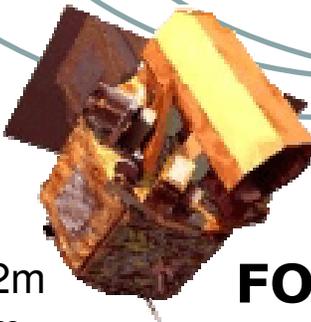


ALOS

PRISM: 2.5m Pan
AVNIR-1: 10m Multi
PALSAR: 10-100m L-Band

**Sentinel Asia
Constellation**

NARL



PAN: 2m
MS: 8m

FORMOSAT-2

KARI

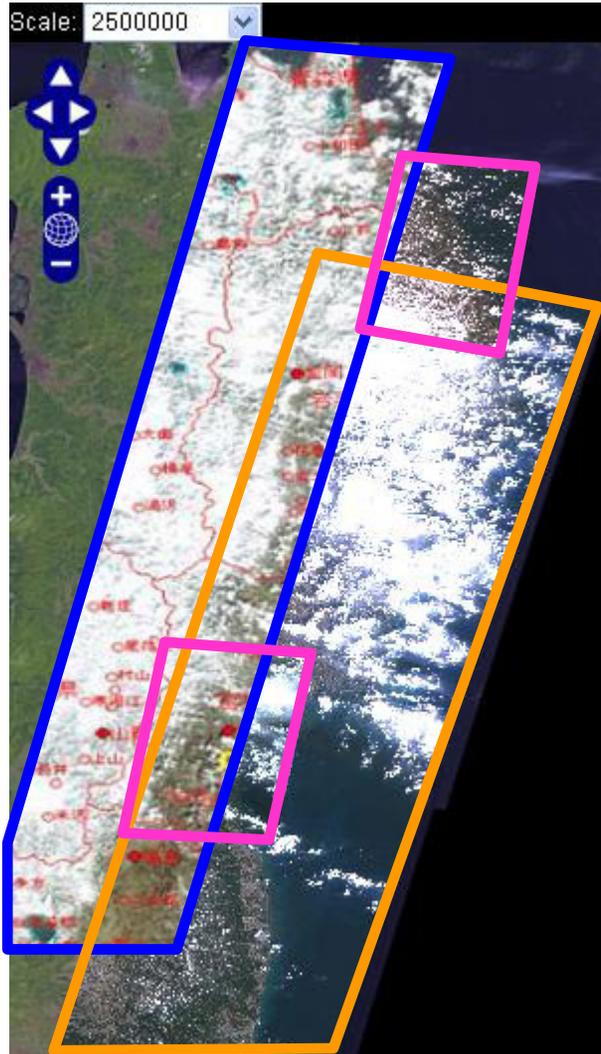


KOMPSAT-1

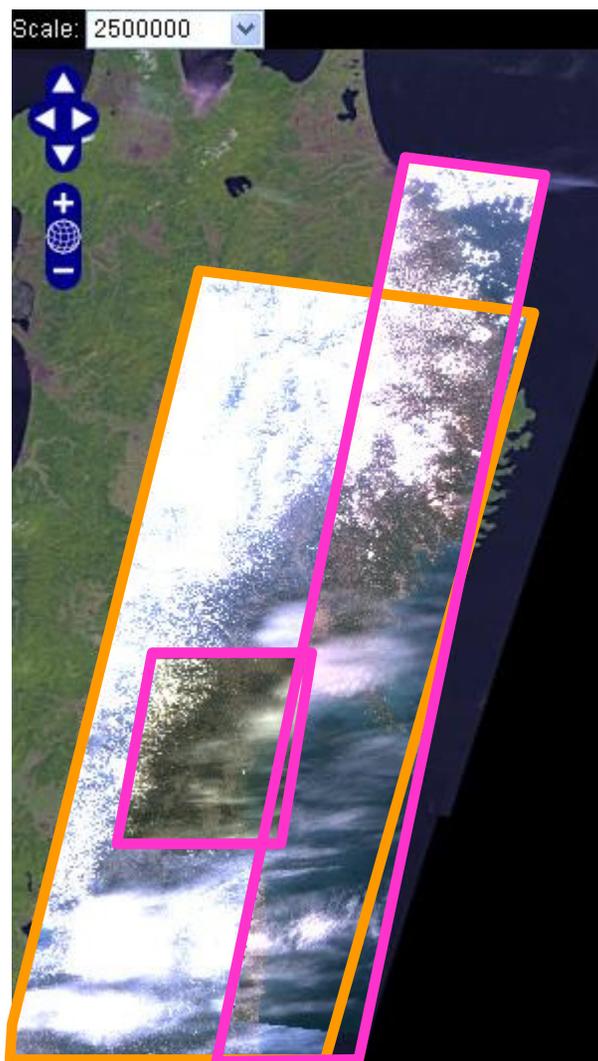
EOC: 6.6m
OSMI: 1km

Overview of Sentinel Asia(4/5)

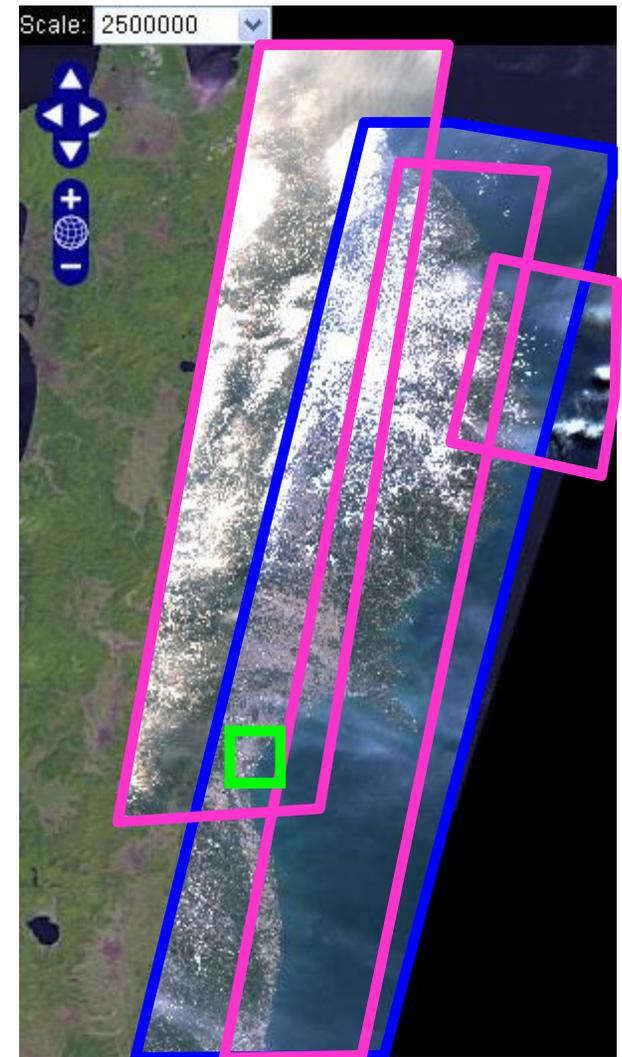
= 3.11 The Great East Japan Earthquake =



12 March 2011



13 March



14 March

ALOS

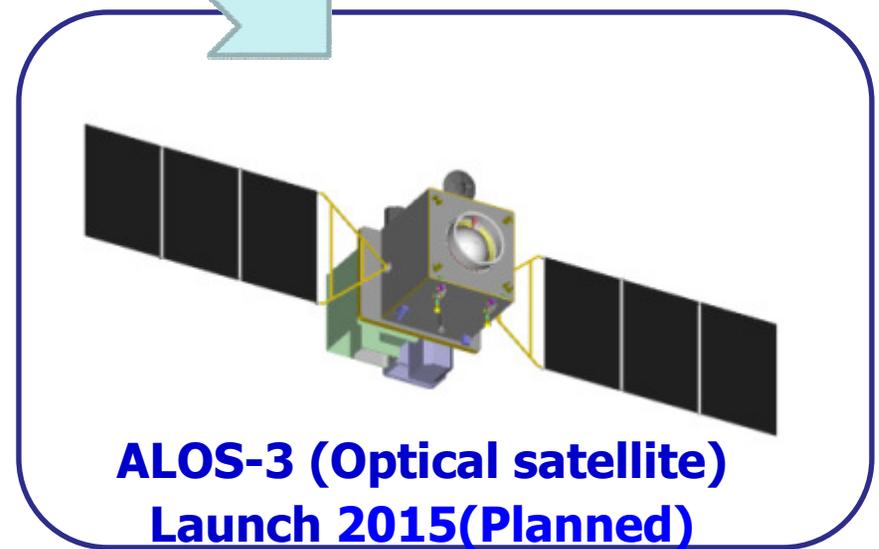
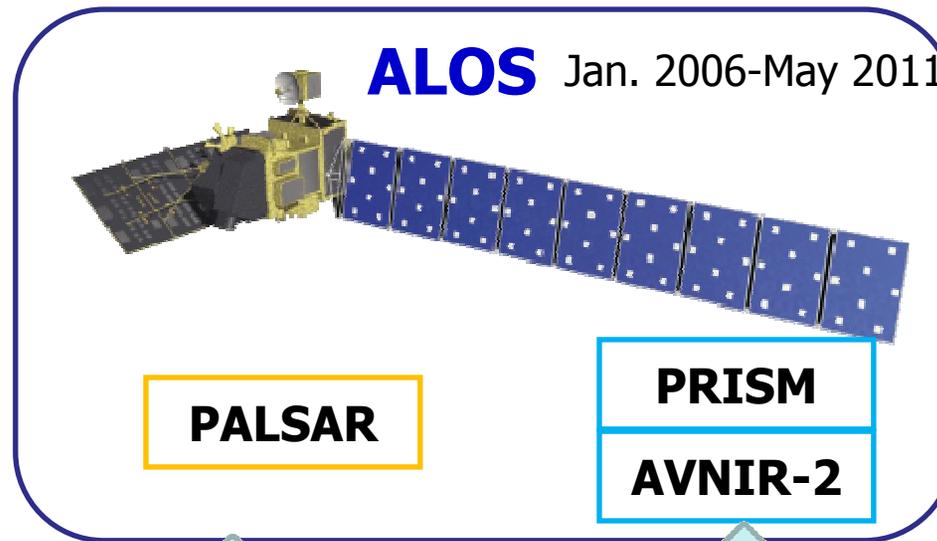
THEOS

FORMOSAT-2

CARTOSAT-2

R&D for Disaster monitoring satellite system

ALOS to ALOS-2 and ALOS-3





Japan is now recovering from the huge disaster of Great East Japan Earthquake.

We sincerely appreciate great supports from all over the world!

Thank you for your attention.

International Disasters Charter

	LANDSAT-5,-7 EO-1 KONOS GeoEye Quickbird-2 Worldview-1,-2
	Cartosat-2
	ENVISAT
	RADARSAT-2
	KOMPSAT-2
	HJ
	TerraSAR-X, RapidEye
	SPOT-4,5

Sentinel Asia

	THEOS
	FORMOSAT-2

Individual offer

	COSMO-SkyMed
	DEIMOS-1
	DubaiSAT
	Resurs-DK