



Midterm Report; Emergency Observation and Research for Utilization of Satellite Image in Asia-Pacific countries

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The structure of presentation

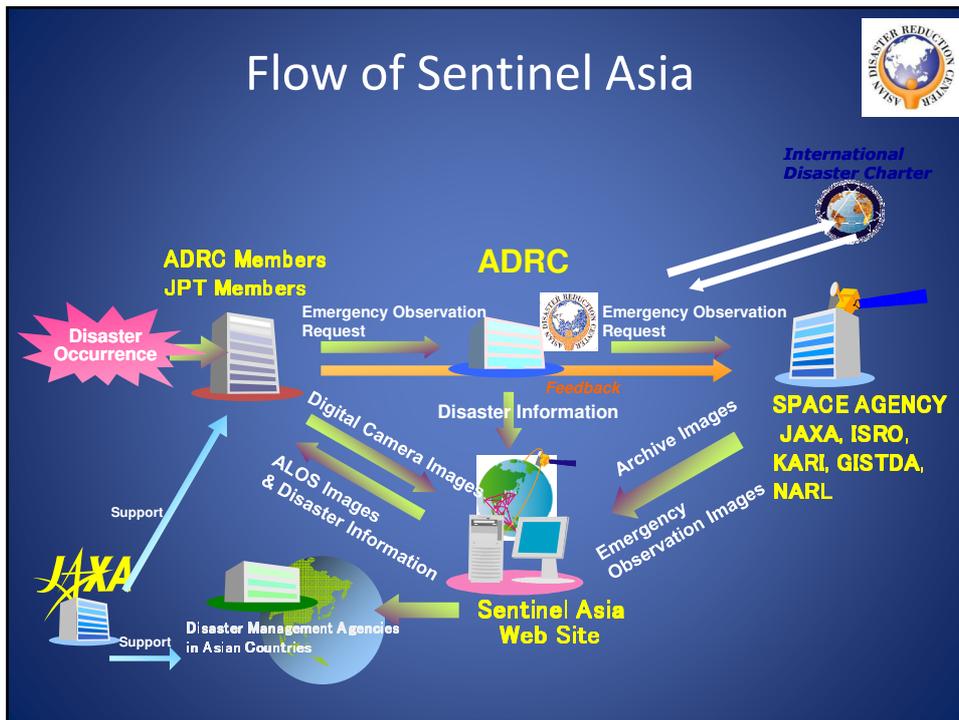
The status of implementation of
emergency observation

Report of the need survey in the
Great East Japan Earthquake

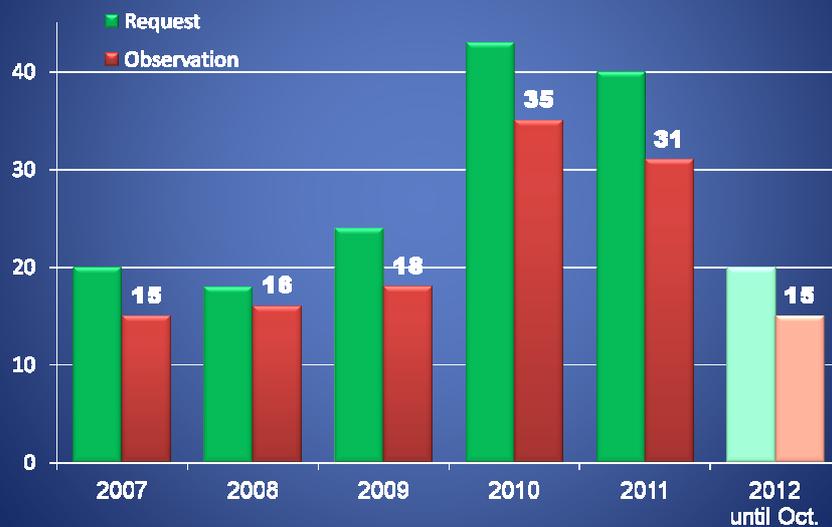
Midterm Report; Research for
Utilization of Satellite Image in Asia-
Pacific countries



Flow of Sentinel Asia

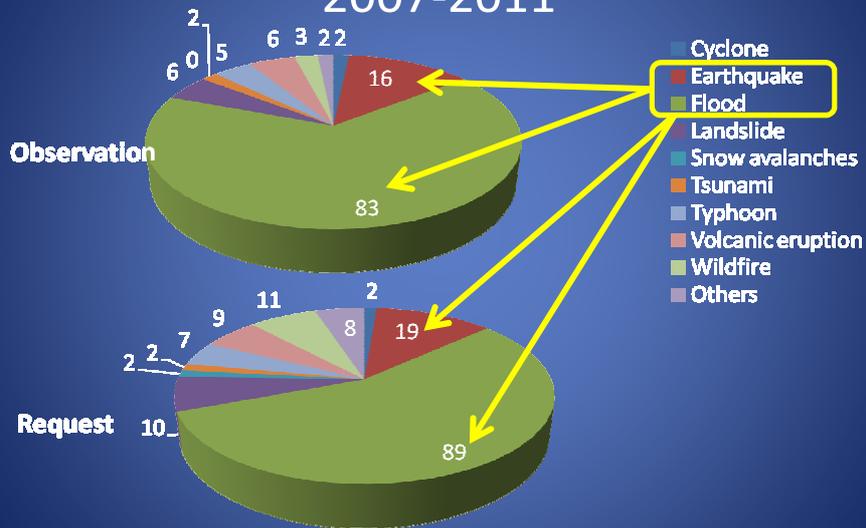


Changes in the number of emergency observation 2007-2012

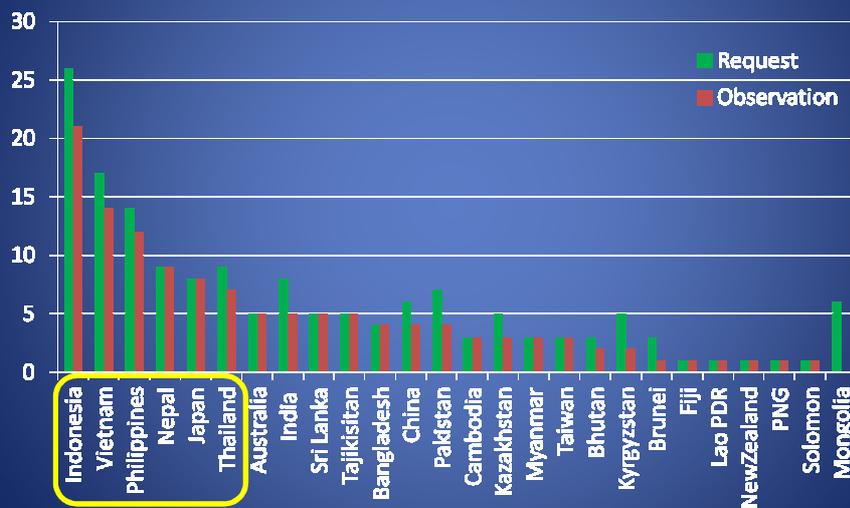




Breakdown by type of disaster 2007-2011



The status of implementation of emergency observation for each country 2007-2011





Implementation frequency of emergency observation in 2011, 2012

Year	Request	Implementation	Non-implementation	International Disaster Charter
Cf. 2010	43	35	8	2
2011	40	31	9	4
2012 until Oct.	20	15	5	1



The structure of presentation

The status of implementation of emergency observation

Report of the need survey in the Great East Japan Earthquake

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Report of the need survey in the Great East Japan Earthquake

- After this disaster, JAXA provided a lot of satellite images for various organizations.
- JAXA and ADRC investigated those use conditions, and try to utilize them for the improvement of future.



Miyako city (Taro district)



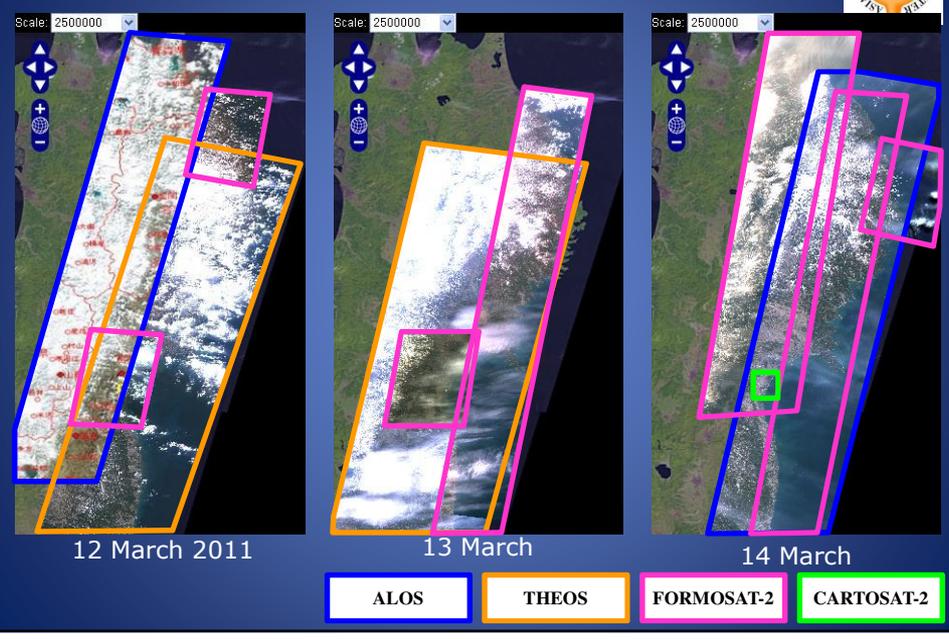
Utilization of satellite images

Interviewed from 31 organizations

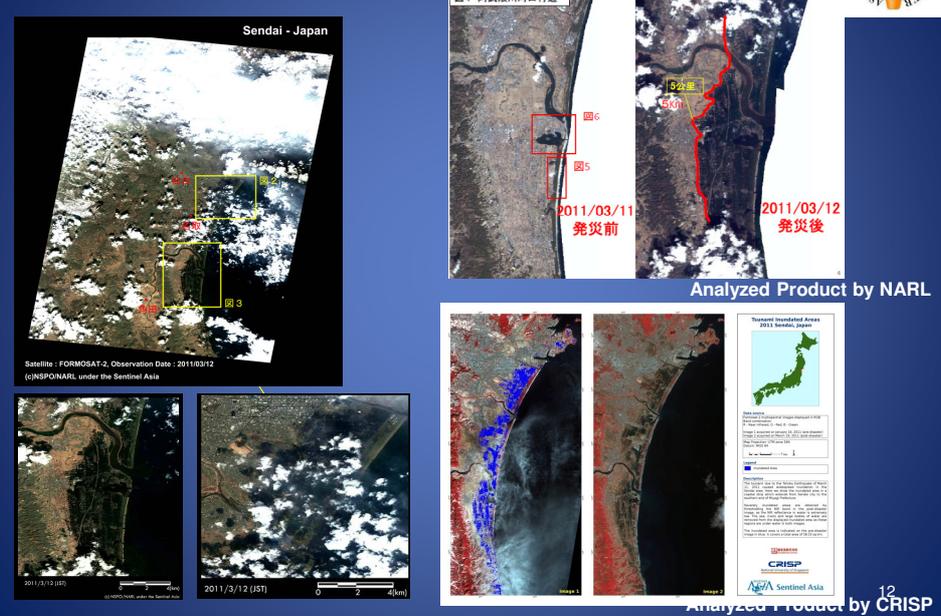
Purpose of use	Ratio %
To understand the damage of facilities	16.1
To understand the whole damage	35.5
To understand the obstruction of road traffic	6.5
To understand evacuation sites	6.5
To understand Tsunami affected areas	35.5
To understand landslides	16.1
Others	16.1



Great East Japan Earthquake observed by Sentinel Asia Constellation



FORMOSAT-2 Imagery on 12 March 2011



THEOS Imagery on 14 March 2011 (right) and ALOS Pre-disaster Imagery (left)



Observation Image from 「Daichi」(ALOS)
Before the Earthquake
Dec.4.2008

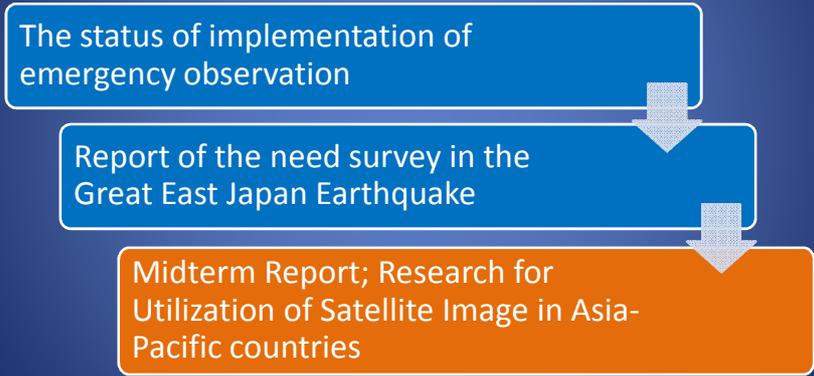
Observation Image from 「THEOS」
After the Earthquake
Mar 14.2011

Benefits and desires by using satellite imageries

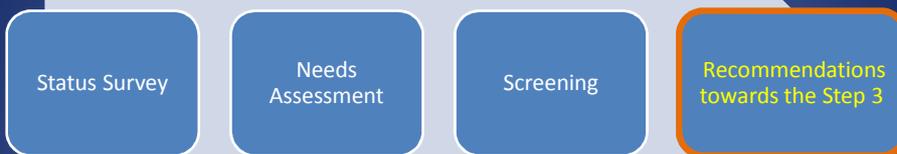
- Challenges and Demands
 - Higher Resolution
 - Faster time to provide images to users
 - **Awareness of emergency observation to local governments**
 - **Training in how to use satellite images**
 - **Using in the process of recovery and reconstruction**



The structure of presentation



Research for Utilization of Satellite Image in Asia-Pacific countries



1	Republic of Korea	NEMA: National Emergency Management Agency
2	China	National Disaster Reduction Center of China
3	Mongolia	NEMA: National Emergency Management Agency
4	Indonesia	National Disaster Management Agency: BNPB
5	Philippines	OCD: Office of Civil Defence, Department of National Defence
6	Thailand	DDPM: Department of Disaster Prevention and Mitigation
7	Malaysia	National Security Division, Prime Minister's Department
8	Lao PDR	National Disaster Management Office, Ministry of Labour and Social Welfare
9	Myanmar	Relief and Resettlement Department, Ministry of Social Welfare
10	Singapore	SCDF: Singapore Civil Defence Force
11	Viet Nam	Dept. of Dike Management & Flood & Storm Control
12	Cambodia	NCDM: National Committee for Disaster Management
13	Burmei	National Disaster Management Center
14	India	Ministry of Home Affairs
15	Sri Lanka	DMC: Disaster Management Centre
16	Nepal	Ministry of Home Affairs
17	Bangladesh	MoFDM: Ministry of Food and Disaster Management
18	Pakistan	National Disaster Management Authority
19	Bhutan	Ministry of Home and Cultural Affairs
20	Maldives	National Disaster Management Center
21	Kazakhstan	Ministry of Emergency Situations
22	Kyrgyz Republic	Ministry of Emergency Situations
23	Uzbekistan	
24	Azerbaijan	Ministry of Emergency Situations
25	Yemen	Ministry of Water and Environment
26	Armenia	NSSP: National Survey for Seismic Protection
27	Papua New Guinea	Department of Provincial and Local Government Affairs

Country: **Vietnam** 

Organization: Disaster Management Center, Ministry of Agriculture and Rural Development

Date: 14 Nov 2012

Contents of Discussion:

- Various natural disaster occur in Vietnam
- **Resource as GIS/RS expert is limited (Needs for Training)**
- Free satellite image are collected via website (USGS, National Center for Hydrometeorology)
- **Needs of satellite image on pre-disaster phase**
- Basic GIS data such as river/road/elevation were already developed
- Strengthen of information satellite for disaster mitigation

Country: **Uzbekistan**



Organization: Institute of hydrogeology and engineering geology

Date: 12 Dec 2012



Contents of Discussion:

- A deep interesting for Sentinel Asia but knowledge and experience was limited
- Many experts of GIS/RS are working for this institution
- A lot of output such as hazard map including satellite image are published
- Strong hope for join in Sentinel Asia project as Data Analysis Node
- Needs for training workshop for Russian people

Country: **Kazakhstan**



Organization: Ministry for Emergency Situation

Date: 14 Dec 2012



Contents of Discussion:

- A deep interesting for Sentinel Asia but knowledge and experience was limited
- Monitoring system of fire and flood are already launched
- GLOF is one of biggest issue in Kazakhstan
- Needs for training workshop for Russian people
- Needs of satellite image on pre-disaster phase for disaster mitigation activity

Country: India



Organization:
Ministry of Home Affairs, Disaster Management Section

Date: 18 Dec 2012

Contents of Discussion:

- Strong interest in Capacity Building Activity
- Much knowledge of space technology but limited understanding of the Sentinel Asia Project
- There are 2 sites as web GIS system are already launched, named BHUVAN and WRIS (Water Resources Information System of India)

BHUVAN

WRIS

India-WRIS WebGIS
Water Resources Information System of India

Basin Name - drishmani and Barahi Basin - SW Monsoon Rainfall (mm)

Year	Rainfall (mm)
1996	1000
1997	1000
1998	1000
1999	1000
2000	1000
2001	1000
2002	1000
2003	1000
2004	1000
2005	1000
2006	1000

Temperature (1° Grid)
Rainfall (5° Grid)
Average Annual Rainfall (1996-2006): 1428.40 mm
SW Monsoon - Average Rainfall: 1125.25 mm
Annual Rainfall: 1464.00 mm
Number of Rainy Days: 88 days
Daily Rainfall: 0.86 mm

Country: **Nepal**



Organization:
Ministry of Home Affairs,
Disaster Management Section



Date: 20 Dec 2012

Contents of Discussion:

- **Strong interest in GLOF working**
- Limited knowledge in the space technology field
- **Needs for Capacity Building activity**
- Website for disaster mitigation, named "SAHANA" is already launched
- Needs for pre-disaster activity in Sentinel Asia Project

Country: **Sri Lanka**



Organization:
Disaster Management Center



Date: 15 Jan 2013

Contents of Discussion:

- **High motivation for utilization of satellite images for disaster mitigation activity**
- Open Web GIS System will be launch in near future. Users can analysis and download several data via this system
- Internet connection is not so fine due to regional server issue
- **Needs for pre-disaster activity as step 3**

Country: **Maldives**



Organization:
National Disaster Management Center
& Maldives Land and Survey Authority



Date: 16 Jan 2013

Contents of Discussion:

- Maldives Land and Survey Authority is responsible for GIS and Remote Sensing for disaster mitigation activity but human resource is quite limited
- National Disaster Management Center is as main conductor in multi disaster phases
- Erosion and Flooding are quite big issue in Maldives

Conclusion



Needs of Capacity Building

- Human resource is still limited
- Especially strong needs in Central Asia and Caucasia

Potential DAN (Data Analysis Node)

- There are un-participated public GIS/RS institution in Asia countries
- Original data and system are already developed

Strong interest in STEP 3 ACT

- Needs of satellite data for pre-disaster
- Needs of each working group activity

Thank You For Your Attention

