



Sentinel Asia
Disaster Management Support System in the Asia-Pacific Region

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Emergency Observation and the Accomplishment of Sentinel Asia

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Asian Disaster Reduction Center (ADRC)

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Framework of Sentinel Asia

Space Community

APRSAF

Satellite Image

Promotion of Utilization

Capacity Building

International Community

UNESCAP, UNOOSA,
ASEAN, AIT etc.

International Cooperation

Sentinel Asia

Joint Project Team (JPT)
Join Project Team consists of total
59 organizations including 51
agencies from 20 countries and 8
international organizations as of
Sept. 2007.

Digital Asia

Web-GIS Platform

GIS Data
Satellite Image
Meta Data Management

ADRC, Disa agency

Disaster Information

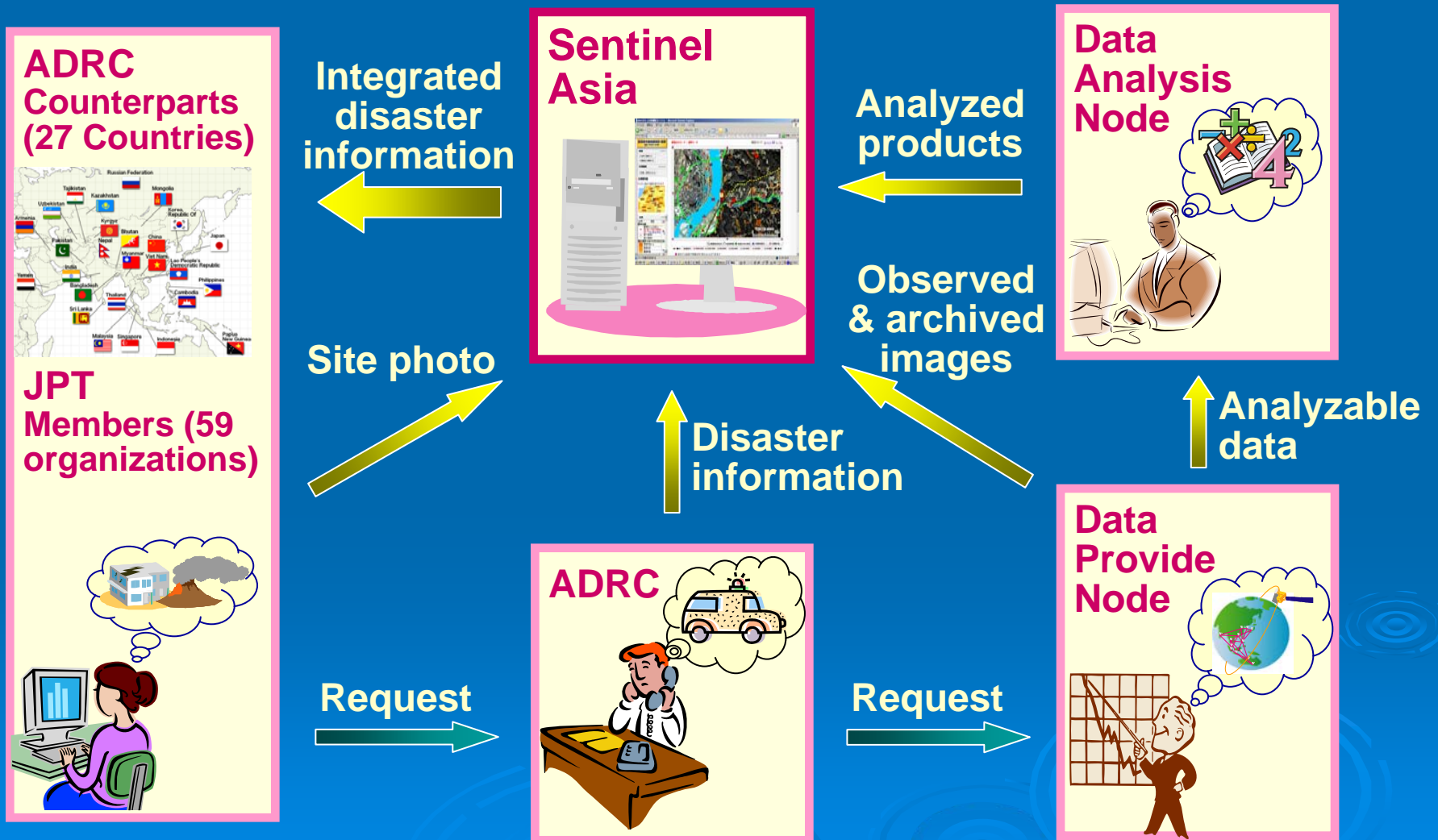
Utilization (User)

Web-GIS Community

ADRC

Disaster Reduction Community

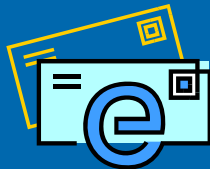
Emergency Observation Flow



Emergency Observation Request



<http://dmss.tksc.jaxa.jp/sentinel/index.php>



sarequest@adrc.or.jp



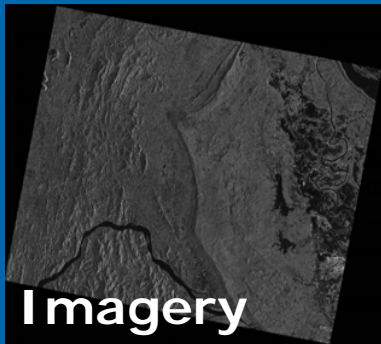
+81-78-262-5546



+81-78-262-5540

Information Provided by Sentinel Asia

- Data provide node: JAXA, ISRO (KARI, GISTDA)
- Variety of information : Imagery, Imagery with GIS, Analyzed imagery, Photo, View in Google Earth, etc.
- Related links: CRISP, GISTDA, AIT, DFO, etc.



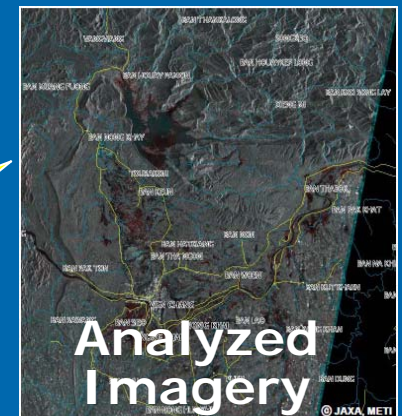
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Emergency Observation

Date	Country	Event	Image	Product	GIS	GoogleEarth	Photo	Disaster Information
2008/09/19	Nepal	Flood						ADRC
2008/09/08	Thailand	Flood		JAXA/SAPC1				ADRC
2008/08/18	Nepal	Flood		JAXA/SAPC1 JAXA/SAPC2				ADRC
2008/08/10	Lao P.D.R.	Flood		JAXA/SAPC1 JAXA/SAPC2 JAXA/SAPC3 JAXA/SAPC4 AIT1 Link AIT2 Link AIT3 WREA1				ADRC

This page is updated on:



Satellite Image

Imagery with GIS

Displayed and Overlaid Data

Map Data

- DCM (V-m-ud)
- GSI DM25000 (Japan_0nb)

Satellite Image (After Disaster)

- ALOS PALSAR/08/15 03.2
- ALOS PALSAR/08/15 03.2
- ALOS PALSAR/08/15 03.2
- ResourceSat-1 AVHRR/08/08.2
- ALOS PALSAR/08/20 03.0
- ALOS PALSAR/08/20 03.0

Satellite Image (Before Disaster)

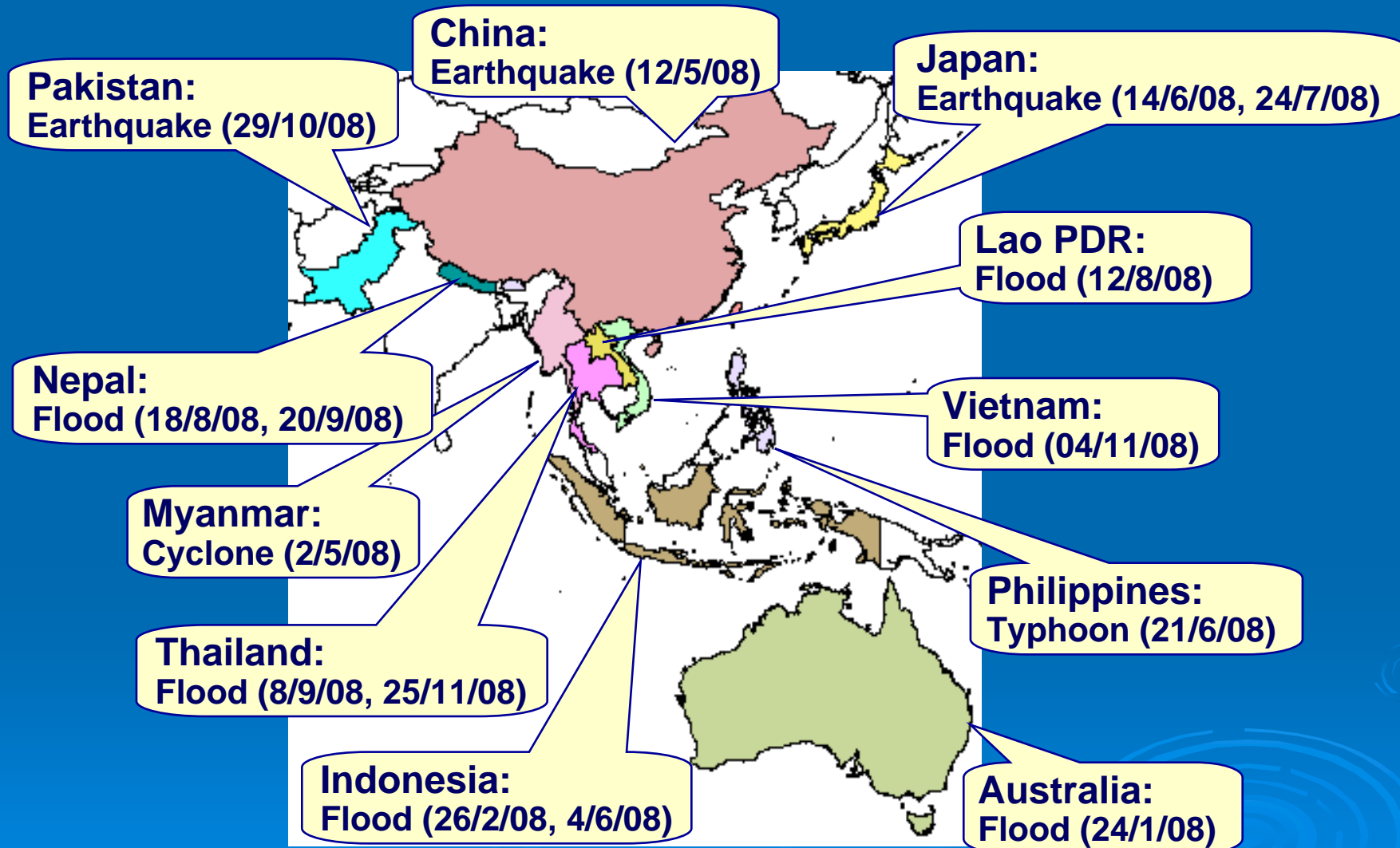
- LANGSAT2003/01/01 00.00
- LANGSAT2005/01/01 00.00
- ALOS PALSAR/08/18 03.3
- ALOS PALSAR/08/19 15.4
- ALOS PALSAR/08/19 15.4
- ALOS PALSAR/08/19 15.4
- ALOS AVNIR-2/08/08/13 03.4

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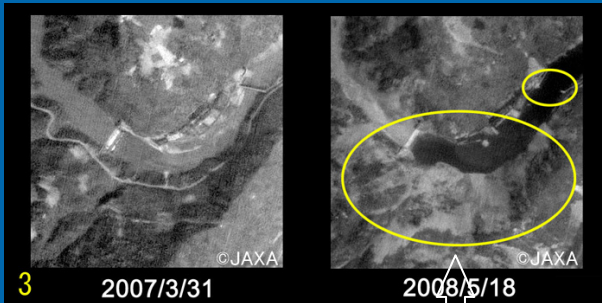


ADRC

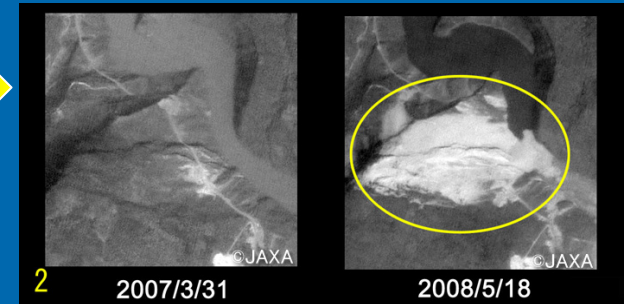
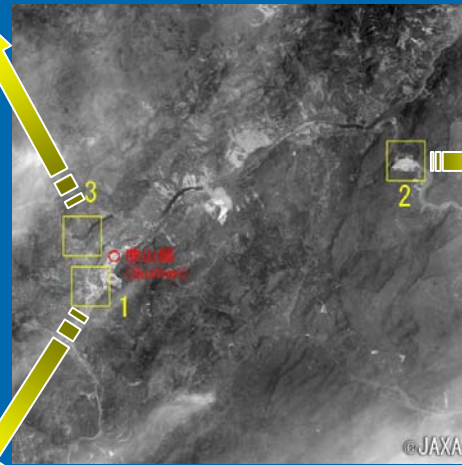
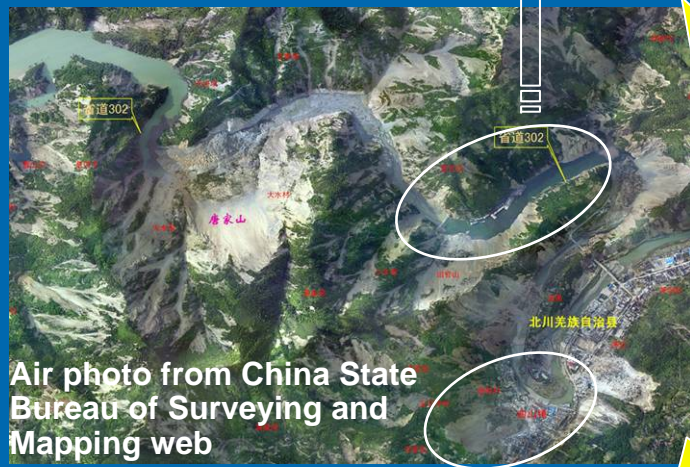
Activities of Emergency Observation (in Step 2, January 2008 -)



Case Report 1: (Earthquake, China, May 12, 2008)



Comparison of PRES M imageries before and after the event, from which the land slide, quake-formed lake, damages of bridge, road can be identified



JAXA provided a total of 18 imageries, from the sensors of PALSAR, AVNIR-2 and PRES M

Expectations and Challenges

The fact of the Wenchuan earthquake is the blocked road and severely damaged communication facilities made it difficult to have the damage information from the mountainous epicenter area immediately after the quake

Satellite images was thought indispensable in this time-critical situation. As a matter of fact, International Charter was triggered within several hours after the event

Besides, the consecutive rainfall after the quake made SAR data particularly useful, because the optical sensor is dependent on the weather

The satellite imageries was found effective to identify landslide and quake-formed lake, etc., but difficult to specify the structure or building damages

Case Report 2: (Flood, Laos, August 10, 2008)



Red colored area is deemed to be the flood affected area



A scene of flood, Aug. 15, courtesy of Ms. Virany Sengtianth

JAXA and ISRO provided 6 imageries and analyzed products for this flood

Follow-up Survey

JAXA and ADRC conducted a joint follow-up survey for the flood in Laos, including the visit of Remote Sensing Center, WREA, and a field survey

Date: 12-14 November, 2008

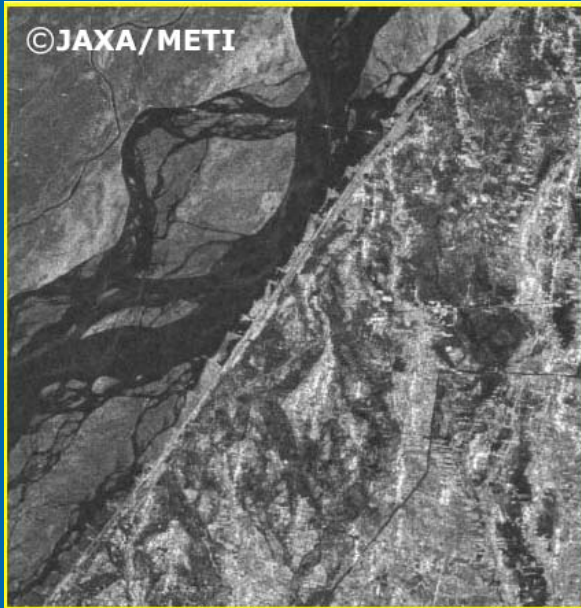
It is founded that:

- There is no difficulty for downloading satellite images
- Satellite imagery was used for identifying the inundation area and positioning sandbag bank
- The flood area identified from the satellite imageries coincided with the ground truth well in plain or rural area, while discrepancy happened in urban area due to strong reflection of buildings and trees

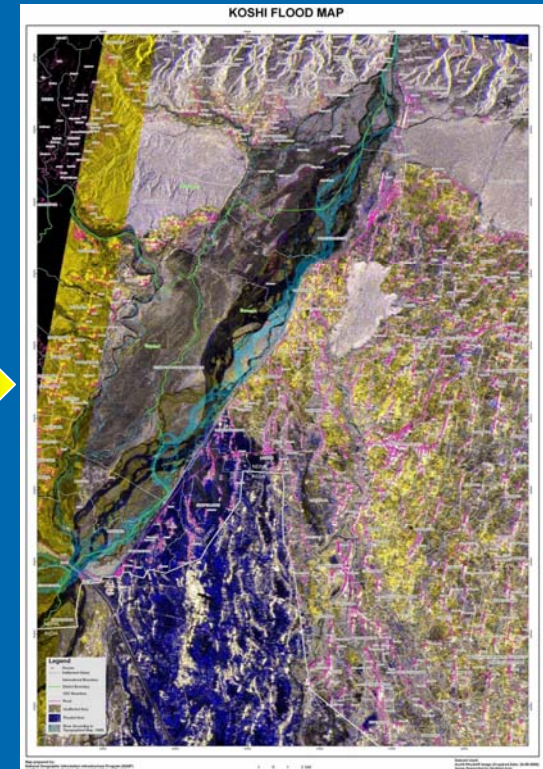
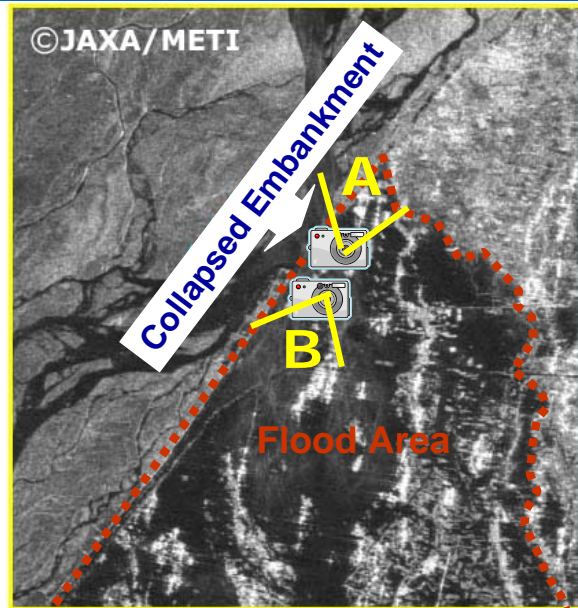


Case Report 3: (Flood, Nepal, Aug. 18, 2008)

2008/7/21 (pre-disaster)



2008/8/24 (post-disaster)



Follow-up Survey

Date: 2-5 December, 2008

Visited: Survey Department, Ministry of Home Affairs and flood affected area

Several kinds of images were produced by Survey Department and they were distributed to the disaster related authorities, such as: Prime Minister Office, Ministry of Home affairs, Ministry of Land Reform and Management, Police, National Planning Commission, etc.

The flood information from satellite imagery was used as the reference for both relief and recovery purposes

The satellite disaster information is necessary not only for the large scale but also for relatively small scale disasters

For a flood, which may recede in a few days, the timely information is very important

ADRC's Strategy for SA

1. Capacity Building

ASEAN Project: Strengthening the understanding and utilization of space technology for DRR. The training program will be conducted for 8 of ASEAN countries in collaboration with ASEAN-SCOSA, ACDM

SAARC Project: Feasibility study on making digitized vulnerability atlas for South Asia with space technology

2. Value-added Product

Damage assessment, associating satellite information with GIS data to develop value-added and user-friendly products for end user

3. Promotion of Utilization

ADRC, in cooperation with JAXA, promotes the utilization of Sentinel Asia through international and regional conferences, for example, Asian Conference on Disaster Reduction, Asian Ministerial Conference on Disaster Risk Reduction, etc.

Summary

A total of 11 countries triggered 15 emergency observations during Step 2 of Sentinel Asia started from January 2008

The satellite imagery was proved effective for flood, large scale landslide, while its use for specifying structural damages caused by earthquake remains a big challenge

The emergency observation results were helpful for decision making for emergency response. At the same time, high resolution imagery and near-real-time information are expected

ADRC will make its effort to promote the application of Sentinel Asia through needs identification, capacity building and providing value-added information

***Thank You very much
For Your Attention***