DISASTER-RELATED SATELLITE INFORMATION IN INDONESIA WITHIN THE FRAMEWORK OF SENTINEL ASIA

Orbita Roswintiarti
Natural Resources and Environmental Monitoring Division
Indonesian National Institute of Aeronautics and Space (LAPAN)
http://www.rs.lapan.go.id/SIMBA

Presented at “The 3rd Sentinel Asia JPT Meeting” (Singapore, 13-15 March 2007)
Background

- **The 1\textsuperscript{st} SA JPT meeting (Hanoi, 14-15 Feb 2006):**
  - LAPAN: one of the data provider nodes
  - BAKORNAS PB (National Coordinating Board for Disaster Management): one of the user nodes

- **The 2\textsuperscript{nd} SA JPT meeting (Bangkok, 27-28 Jun 2006):**
  - LAPAN: the member of the Wild Fire Working Group
  - LAPAN received a UNIX server

- **The SA Wild Fire Working Group meeting (Jakarta, 20-21 Sep 2006):**
  - LAPAN: one of the data providers for “The 1996 Hotspot Detection Algorithm Validation Campaign in Central Kalimantan”
Background (Cont.)

- APRSAF-13 “Earth Observation Working Group Meeting” (Jakarta, 5-7 Dec 2006):
  - Strengthen the SA activities and improve the operation of the existing systems
  - Extend the scope of the project to cover various types of disasters

- The GEOSS AP Symposium (Tokyo, 11-12 Jan 2007):
  - LAPAN: one of the data providers for “The 1997 Hotspot Detection Algorithm Validation Campaign in Central Kalimantan”

Mt. Merapi volcano, Indonesia observed by AVNIR-2 onboard “Daichi” (ALOS)

May 16, 2006 (30.1 deg. off-nadir angle)

April 29, 2006 (33.5 deg. off-nadir angle)
Earthquake – Yogyakarta, 27 May 2006

Disaster area in Yogyakarta Observed by “Daichi”

Yogyakarta downtown was observed by AVNIR-2 on May 28th (left) and May 16th (right). The right down images are enlarged images around Yogyakarta Airport.
Earthquake – Yogyakarta, 27 May 2006
Forest/Land Fires – Sumatera and Kalimantan, July to November 2006

Number of Hotspot in Sumatera Island, Indonesia in 2006

Number of Hotspot in Kalimantan, Indonesia in 2006

Legend:
- Red: Hotspot
- Blue: Water
- Green: Vegetation

Source:
MODIS (LAPAN), MODIS (UMD, >=80%)
Floods – Jakarta, 1-8 February 2007

- Heavy rainfall has begun since the end of Jan 2007, and floods occurred mainly in the first week of Feb 2007.
- On 6 Feb 2007, LAPAN sent a formal request of ALOS-PALSAR data to ADRC for emergency observation over Jakarta area.
- On 7 Feb 2007, LAPAN received the ALOS-PALSAR imagery.
- On 8 Feb 2007, LAPAN disseminated softcopy and hardcopy of the imagery to the related institutions/organizations.
Floods – Jakarta, 1-8 February 2007
ALOS-PALSAR - 20070205 (R)_20070205(G)_20060620(B)
ALOS-PALSAR Imagery Dissemination

- LAPAN website: [http://www.rs.lapan.go.id/SIMBA](http://www.rs.lapan.go.id/SIMBA)
  - 1027 hit counters within two weeks

- Government institutions and universities:
  - Parliament
  - National Coordinating Board for Disaster Management
  - Min. of Research and Technology
  - Min. of Environment
  - Dep. of Public Works
  - Indonesian Institute of Science
  - Bandung Institute of Technology

- Mass media:
  - TEMPO magazine
  - TEMPO newspaper
  - KOMPAS newspaper
  - METRO TV
  - ANTV
  - Trans 7
Earthquake – West Sumatera, 6 March 2007

- On 6 March 2007 at 10:49 AM, an earthquake with magnitude of 6.3 struck West Sumatera at 0.536°S; 100.498°E (source: USGS): at least 66 people killed, 600 people injured, and 20,000 houses damaged.

- On 6 March 2007, LAPAN sent a request of ALOS data to ADRC over West Sumatera → on 7 March 2007 night, the ALOS/AVNIR-2 data of 7 March 2007 were available.

- On 7 March 2007, LAPAN also sent a request of any high resolution imagery to CRISP, MACRES, and GITSDA (SCOSA members) → on 8 March 2007, CRISP informed that the IKONOS data of 8 March 2007 was available.

- All data are being processed and will be sent to the related institutions in the central and local levels.
Summary and Future Plan

- **In summary:**
  - Indonesia has actively participated in the Sentinel Asia Project: as the data and user nodes and the member of the Wild Fire working group.
  - Through Sentinel Asia, the emergency observations of recent major disasters in Indonesia have been distributed quickly to related institutions.

- **The use of disaster-related satellite information in Indonesia will be enhanced by improving:**
  - Existing acquisition (receiving and processing) and information management systems.
  - Methodologies of climate prediction, hotspot algorithms, ground-truth validation, etc.
  - National and international collaborations.
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