



# Emergency Observation Request Activities by LAPAN

**S u w a r s o n o**

**REMOTE SENSING APPLICATION CENTER  
INDONESIAN NATIONAL INSTITUTE OF AERONAUTICS AND SPACE  
(LAPAN)**

Presented on 3<sup>rd</sup> Joint Project Team Meeting for Sentinel Asia STEP-3 (JPTM2016)  
19-20 January 2016, Colombo, Sri Lanka



# Outlines

- LAPAN – At Glances**
- Emergency Observation Request**
- Dissemination of Data and Informations**
- Challenges**
- Closing Remarks**





# LAPAN Authorities

**LAPAN (Indonesian National Institute of Aeronautics and Space) is Indonesian Government who has authorities on:**

- 1) Space science**
- 2) Remote sensing**
- 3) Space technology mastery**
- 4) Platform Launching, and**
- 5) Space commercial activities**

**In the field of remote sensing**

**LAPAN responsible for:**

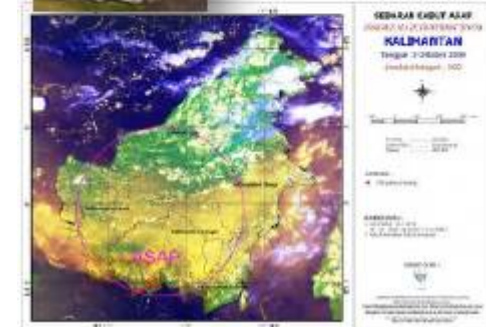
- 1) Data acquisition**
- 2) Data processing**
- 3) Data storage and distribution**
- 4) The use of data**
- 5) Dissemination of information**





# LAPAN's roles in Disaster Management

- Dealing with Disaster, LAPAN committed to provide the space-based information especially in the context of preparedness and emergency response.
- In order to support space-based disaster information, LAPAN coordinates with the Indonesian National Board for Disaster Management (BNPB) and another stakeholder agencies.
- LAPAN has been implementing several projects in the field of disaster management and emergency response.
- In 2005, LAPAN join in project initiative of Sentinel Asia and become DAN since 2010.
- LAPAN was established as Regional Support Office of UNSPIDER since 2013.



# Data Acquisition – Ground Station



# Current Status of Data Acquisition

A

Low res

- Terra/Aqua
- NPP
- NOAA-18/19
- Metop
- MTSAT-1R



B

Mod.res

- Landsat-7
- Landsat-8

C

High res

- SPOT-5
- SPOT-6
- SPOT-7



# Types of Disaster in Indonesia



FLOOD



LANDSLIDE



FOREST/LAND FIRE



DROUGHT



EPIDEMIC



TECHNOLOGY FAILURE



EARTHQUAKE



TSUNAMI

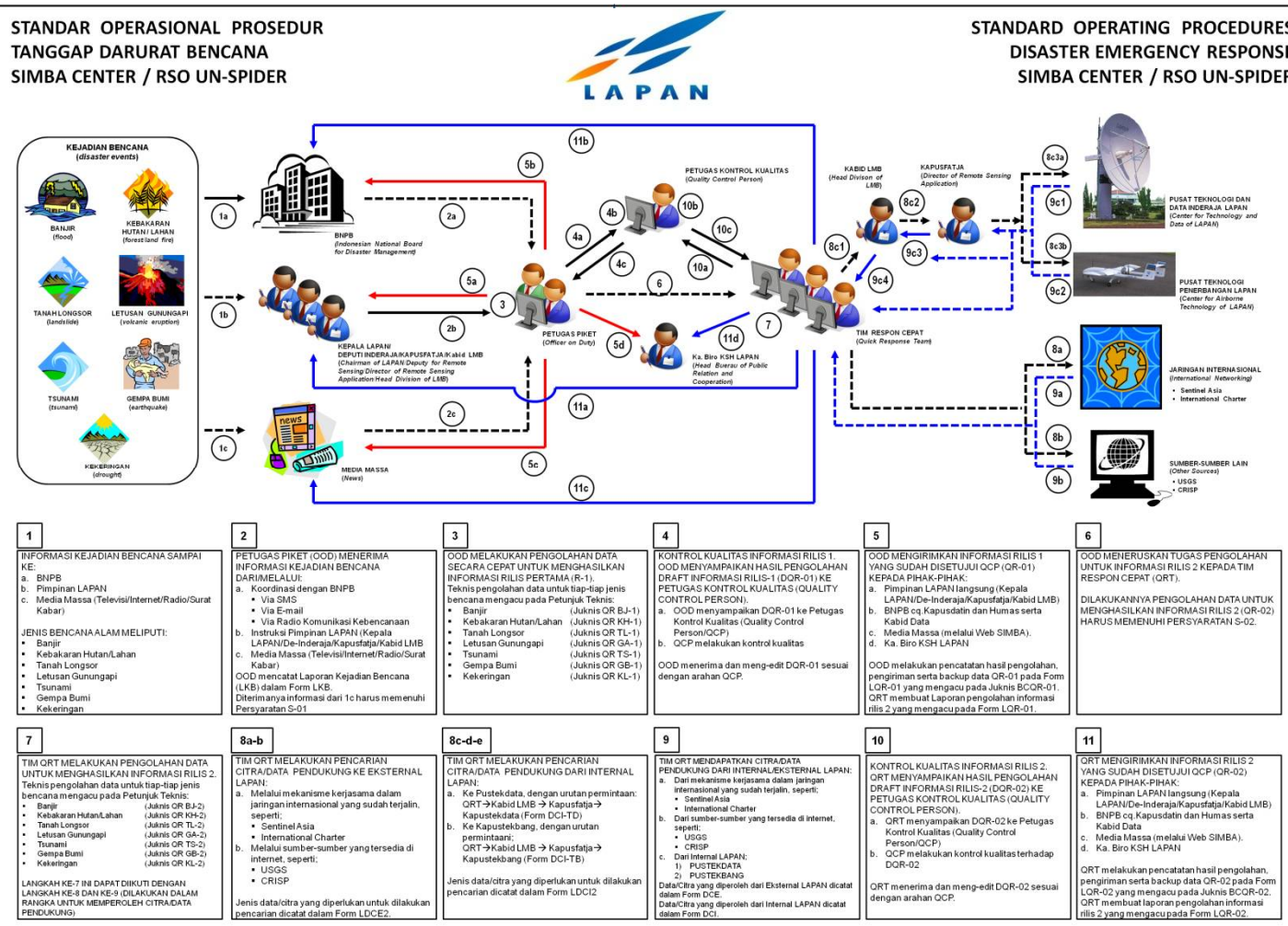


VOLCANIC



SOCIAL CONFLICT

# Standard Operating Procedure of Space-based Disaster Emergency Response







# Emergency Observation Request

EO.ID	OCCURRENCE	TYPE	REGION
ERADRC000037	02/Jan/2015	Forest Fire	Sumatera & Kalimantan
ERADRC000024	09/Feb/2015	Flood	Jakarta
ERADRC000023	12/Dec/2014	Lanslide	Central Java



# Landslide in Banjarnegara- Central Java

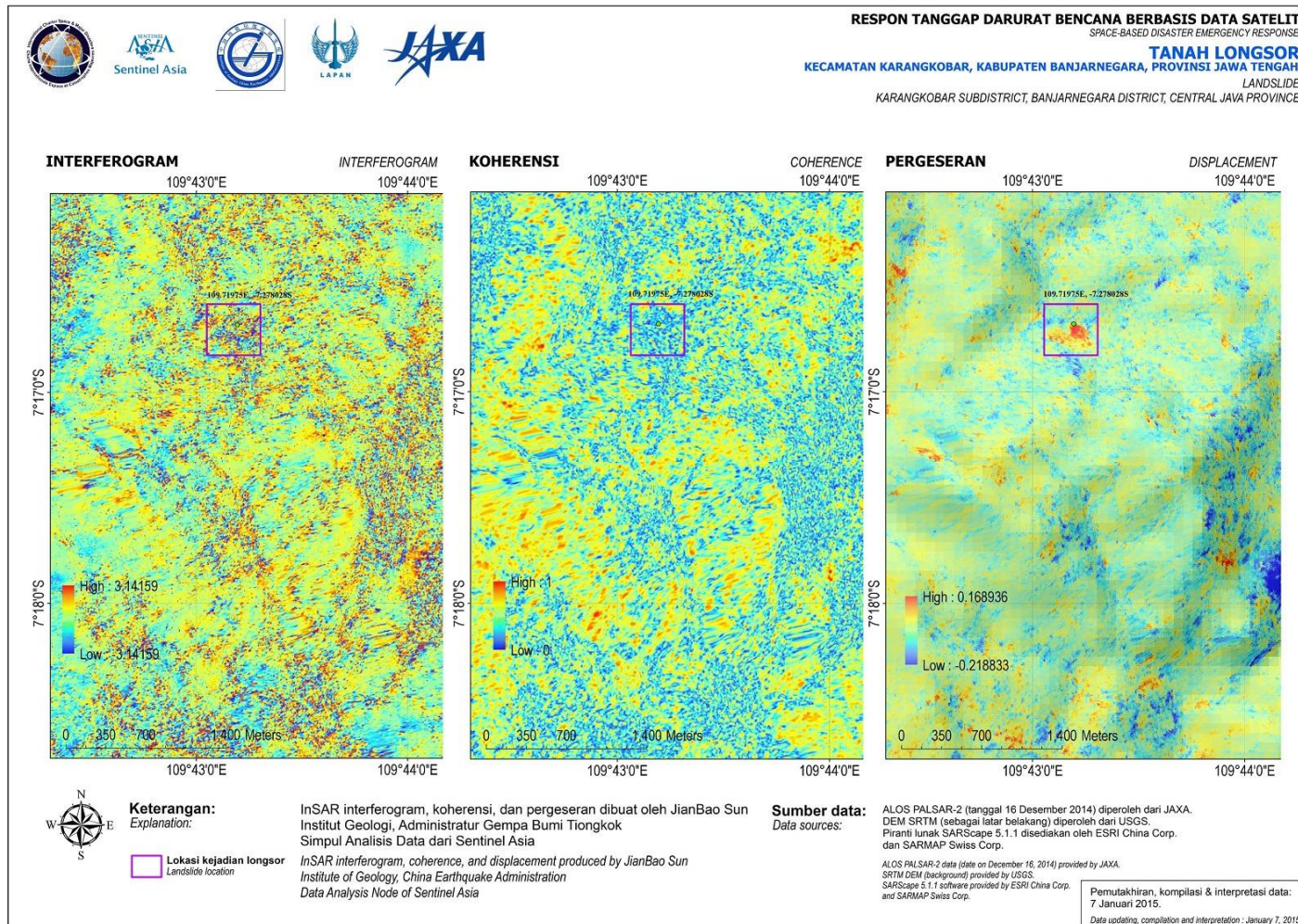
## Central Java; December 12, 2014



<http://berita.suaramerdeka.com/konten/uploads/2014/12/longsor-2.jpg>

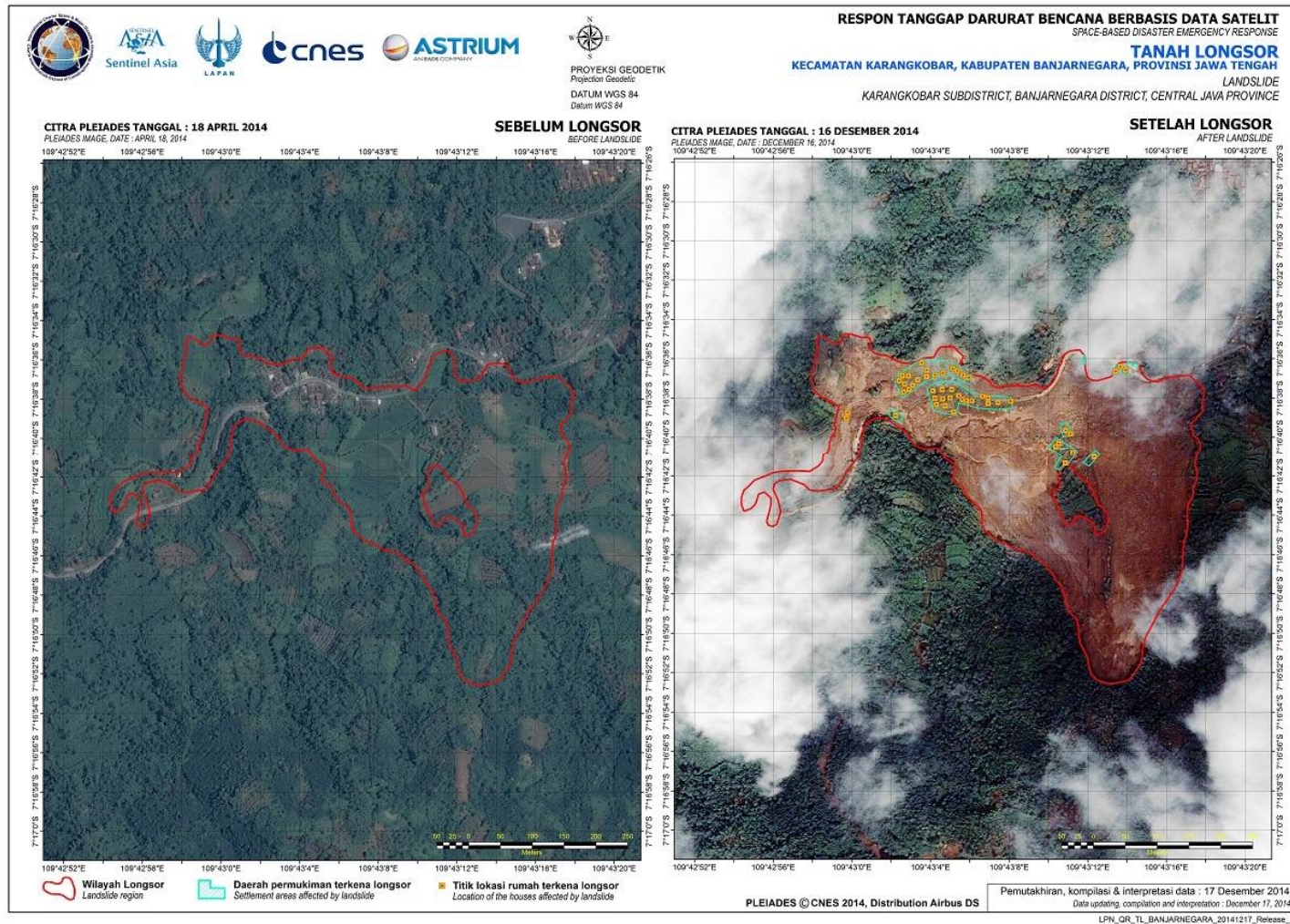


# Landslide detected from ALOS2 PALSAR Central Java; December 16, 2014





# Landslide detected from SPOT-5 & PLEIADES Central Java; December 17, 2014





# Flood in Jakarta

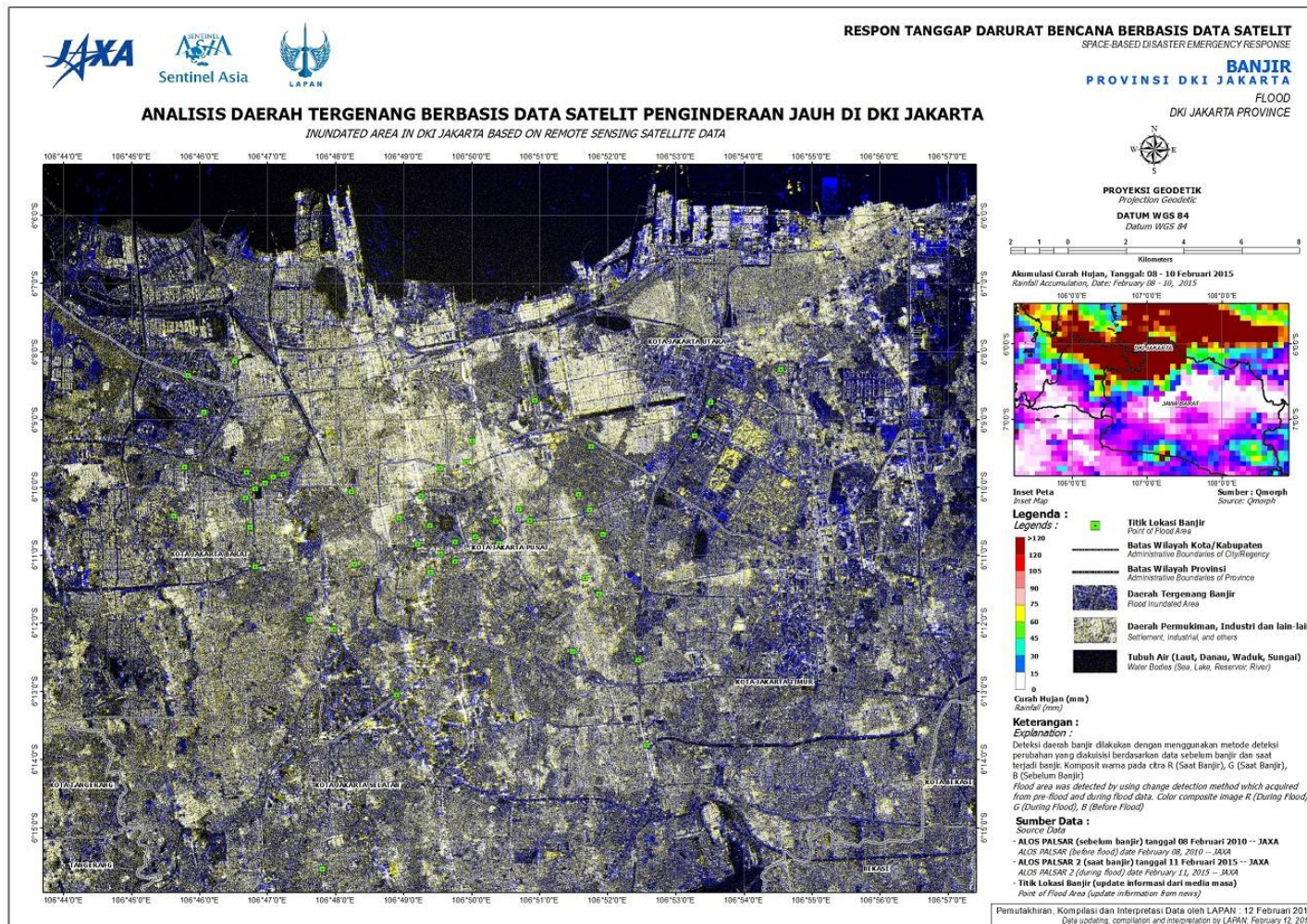
## (Jakarta; 9 February 2015)



<http://megapolitan.kompas.com/read/2015/02/10/06094561/Ini.Sejumlah.Titik.Banjir.di.Jakarta>



# Flood detected from ALOS2 PALSAR (Jakarta; 11 February 2015)





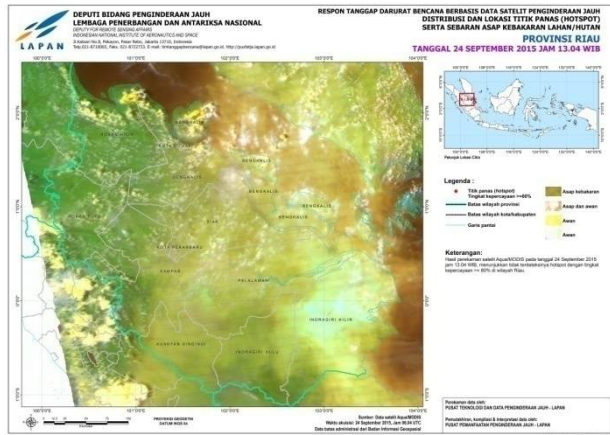
# Strong EL Nino Triggers Land/forest Fires in Indonesia (August – November 2015)



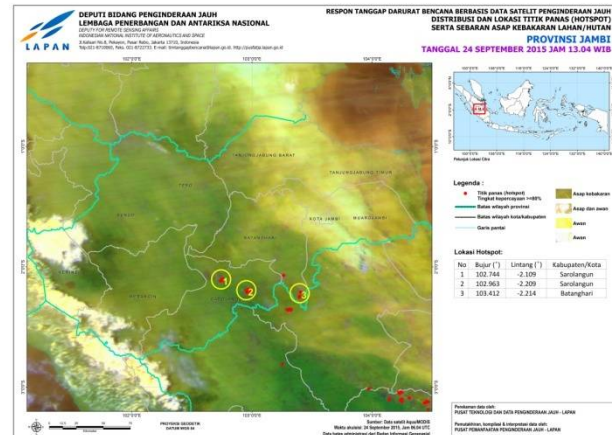
[http://www.bbc.com/indonesia/berita\\_indonesia/2015/10/151026\\_indonesia\\_kabutasap](http://www.bbc.com/indonesia/berita_indonesia/2015/10/151026_indonesia_kabutasap)



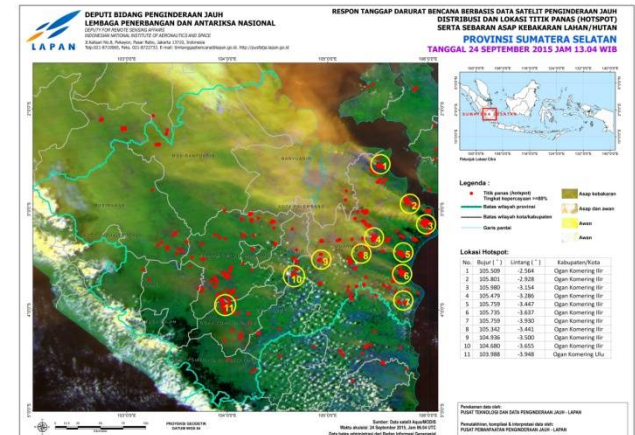
# Land/forest Fires: Sumatera, Kalimantan & Papua (from MODIS; 24 Sept 2015)



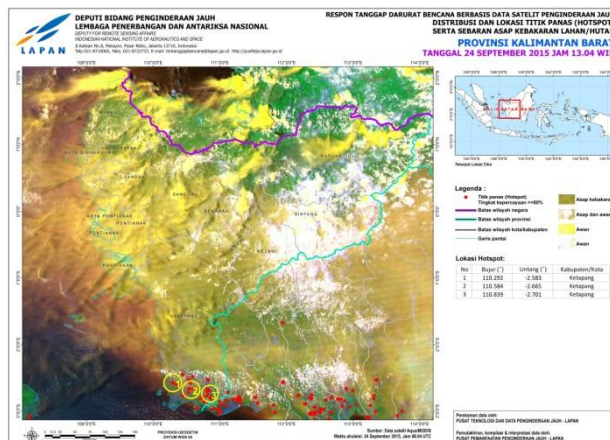
Riau



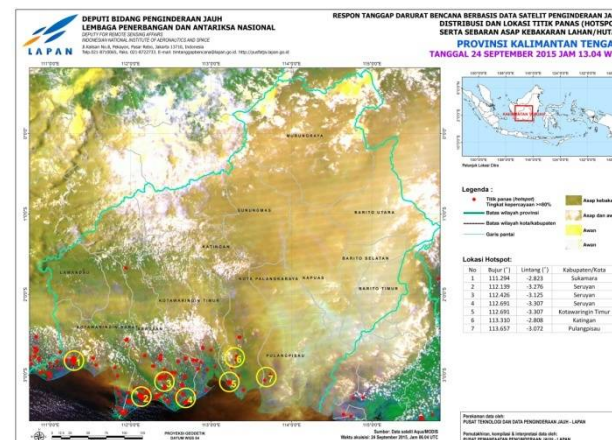
Jambi



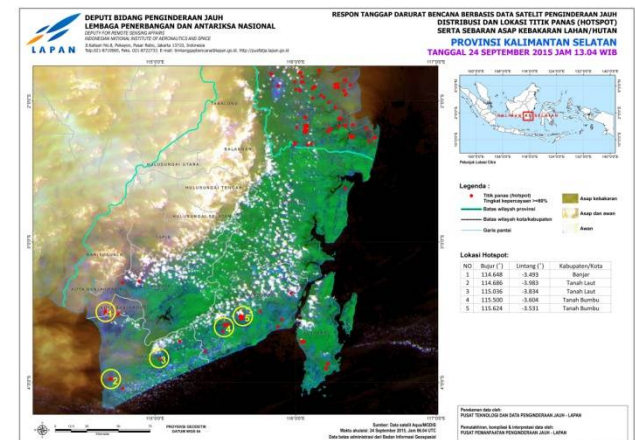
South Sumatera



West Kalimantan



Central Kalimantan



South Kalimantan





# Land/forest Fires: Sumatera

(from Landsat-8, time series)



07 Sep 2015



23 Sep 2015



09 Okt 2015

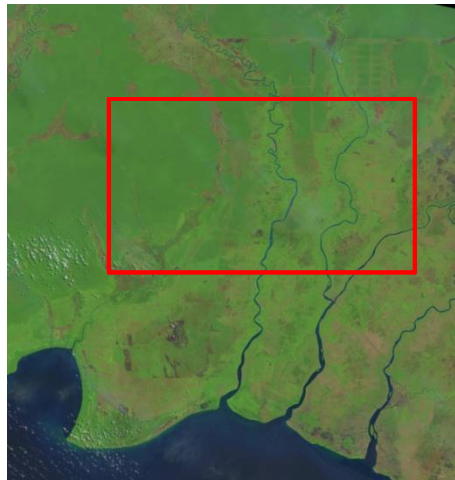


10 Nov 2015

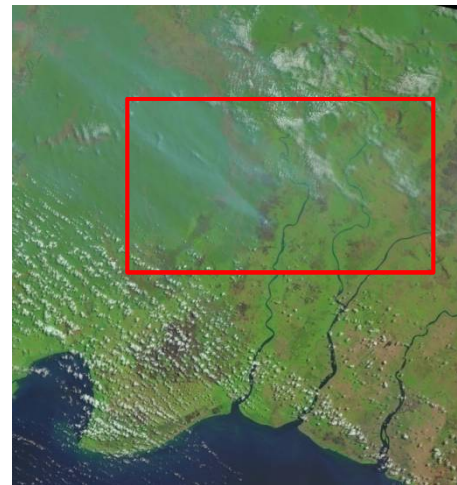


# Land/forest Fires: Kalimantan

(from Landsat-8, time series)



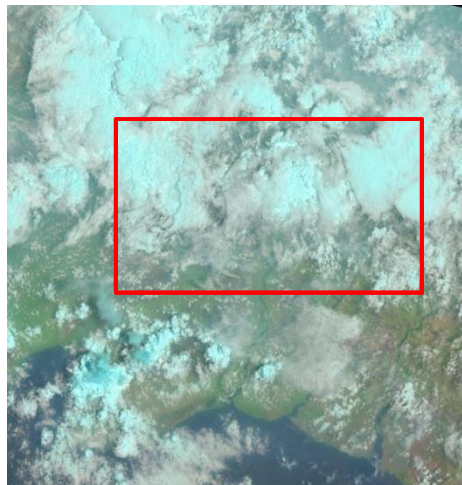
19 Aug 2015



4 Sep 2015



20 Sep 2015



06 Oct 2015



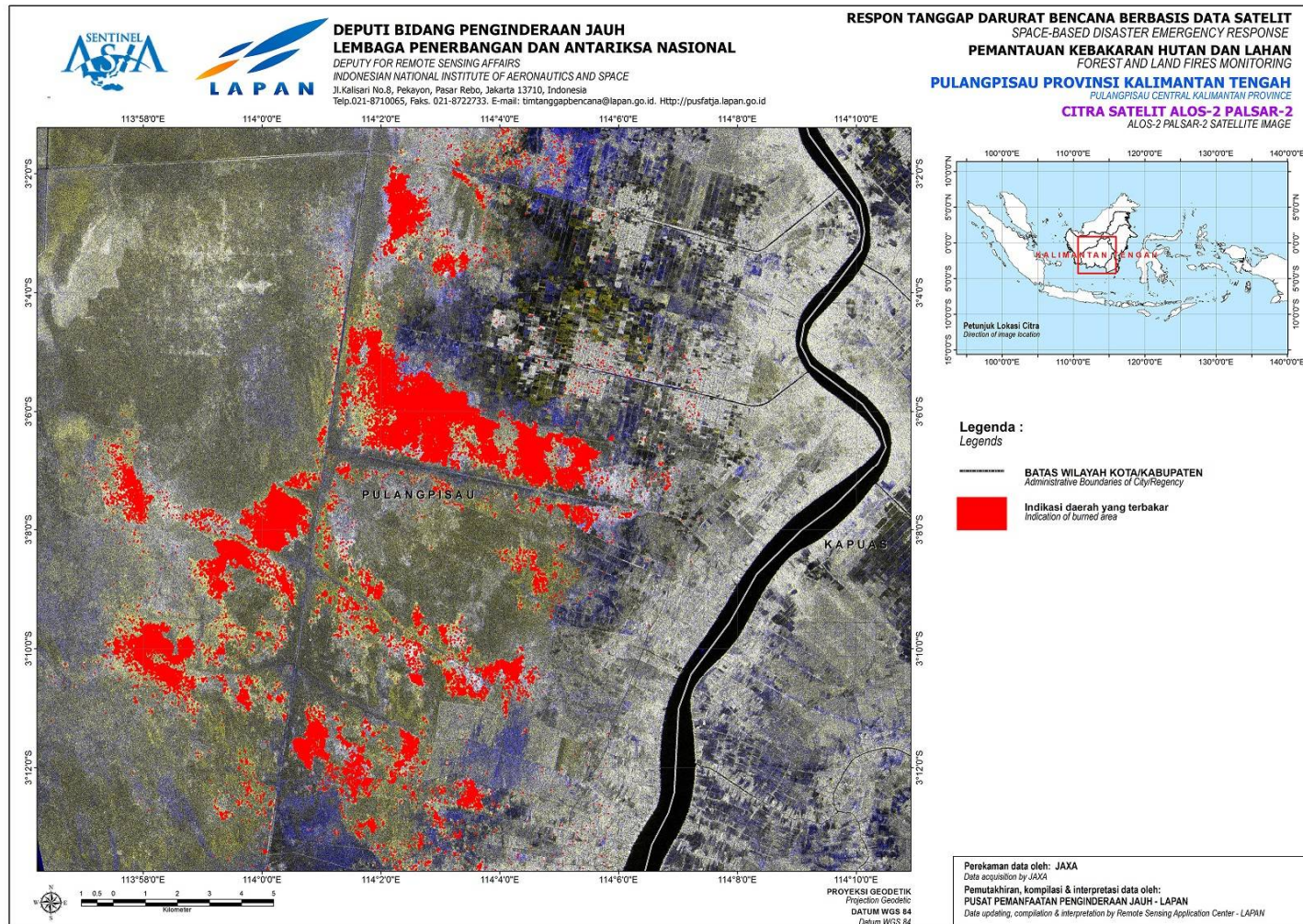
22 Oct 2015



23 Nov 2015

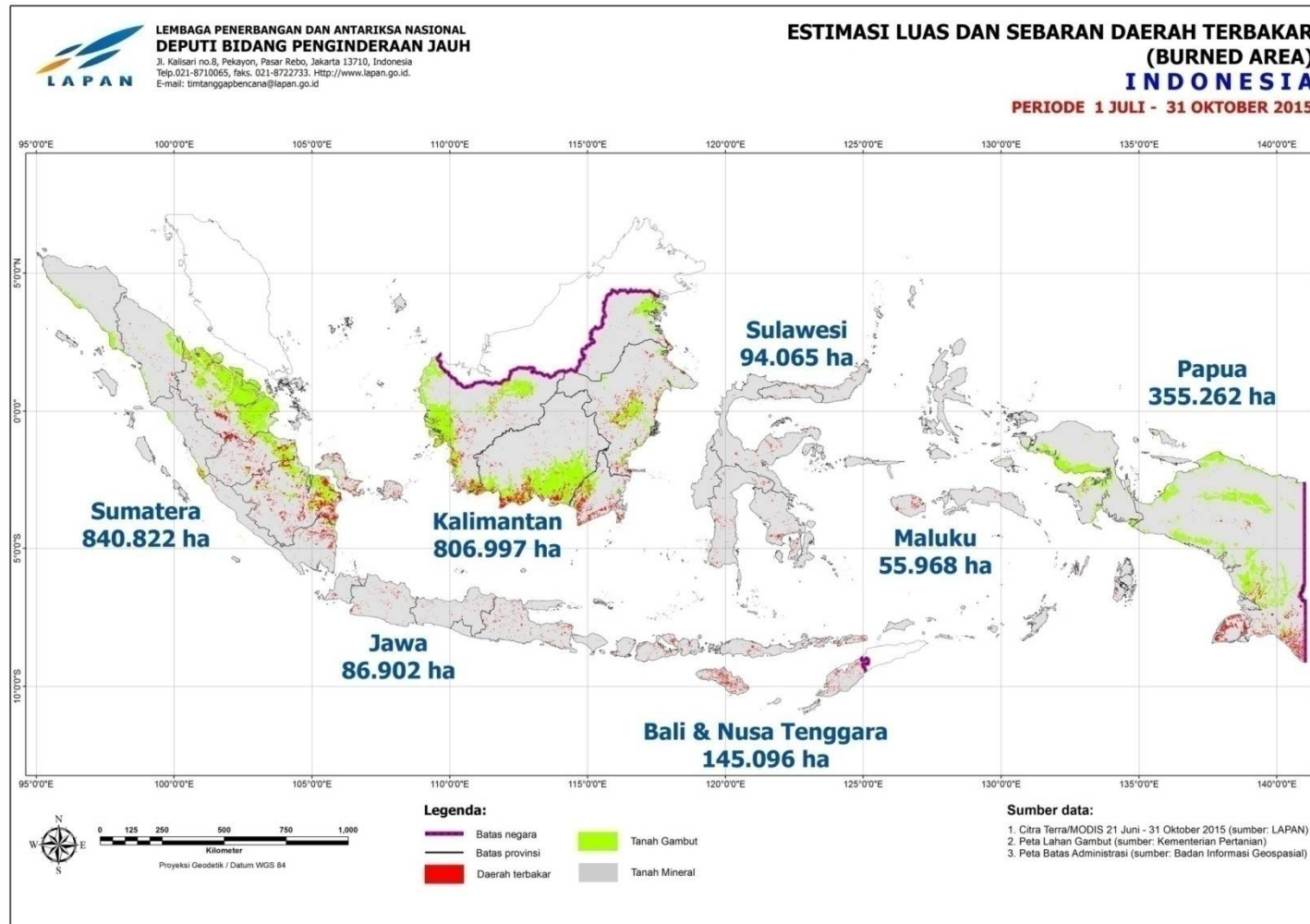


# Burned area mapping from ALOS2 Palsar (Central Kalimantan; 8 Oct 2015)





# Burned area mapping from MODIS (Indonesia, Juli – October 2015)





---

# **Dissemination of Data and Informations**

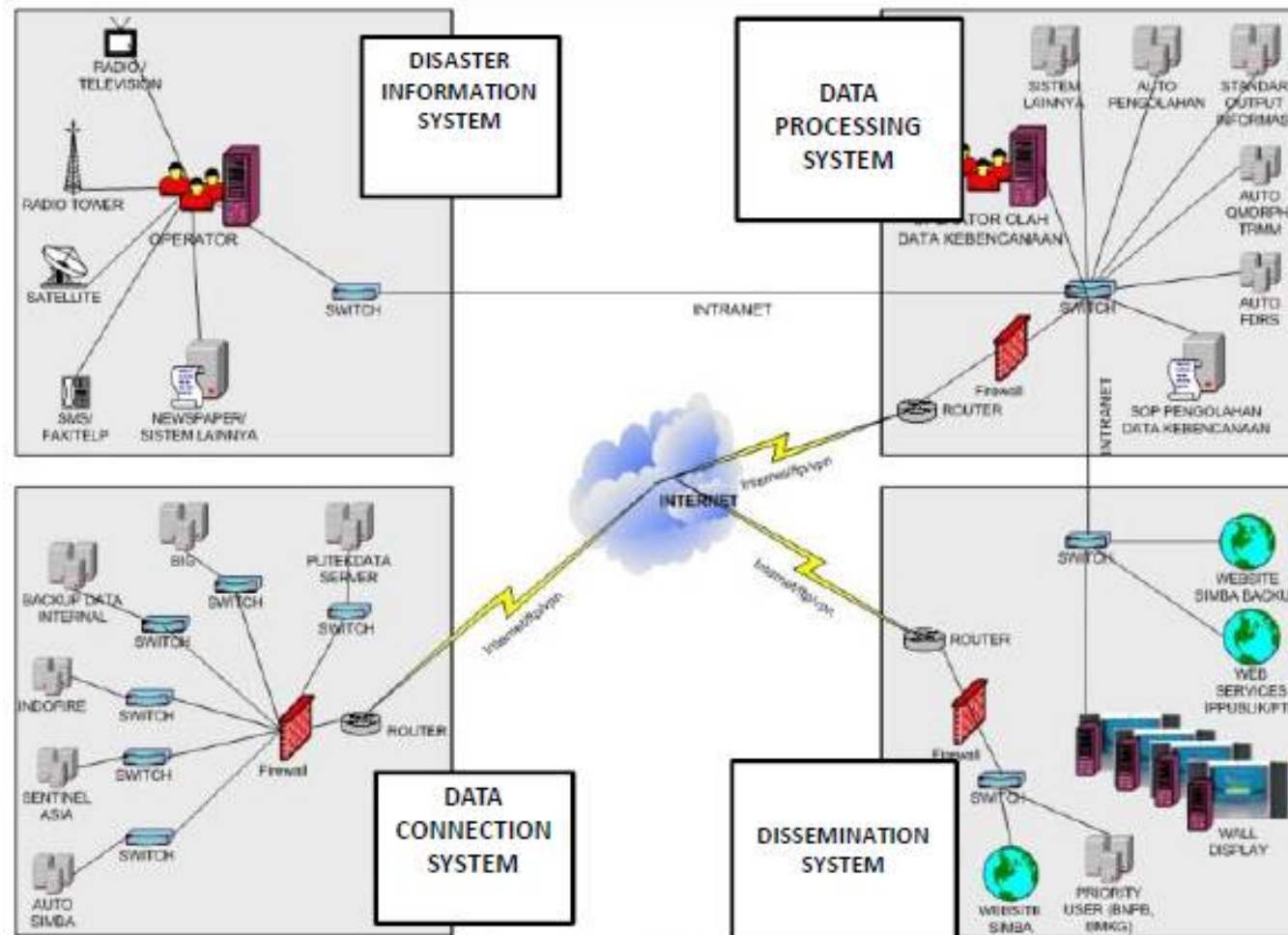
---



# Simba Center - LAPAN

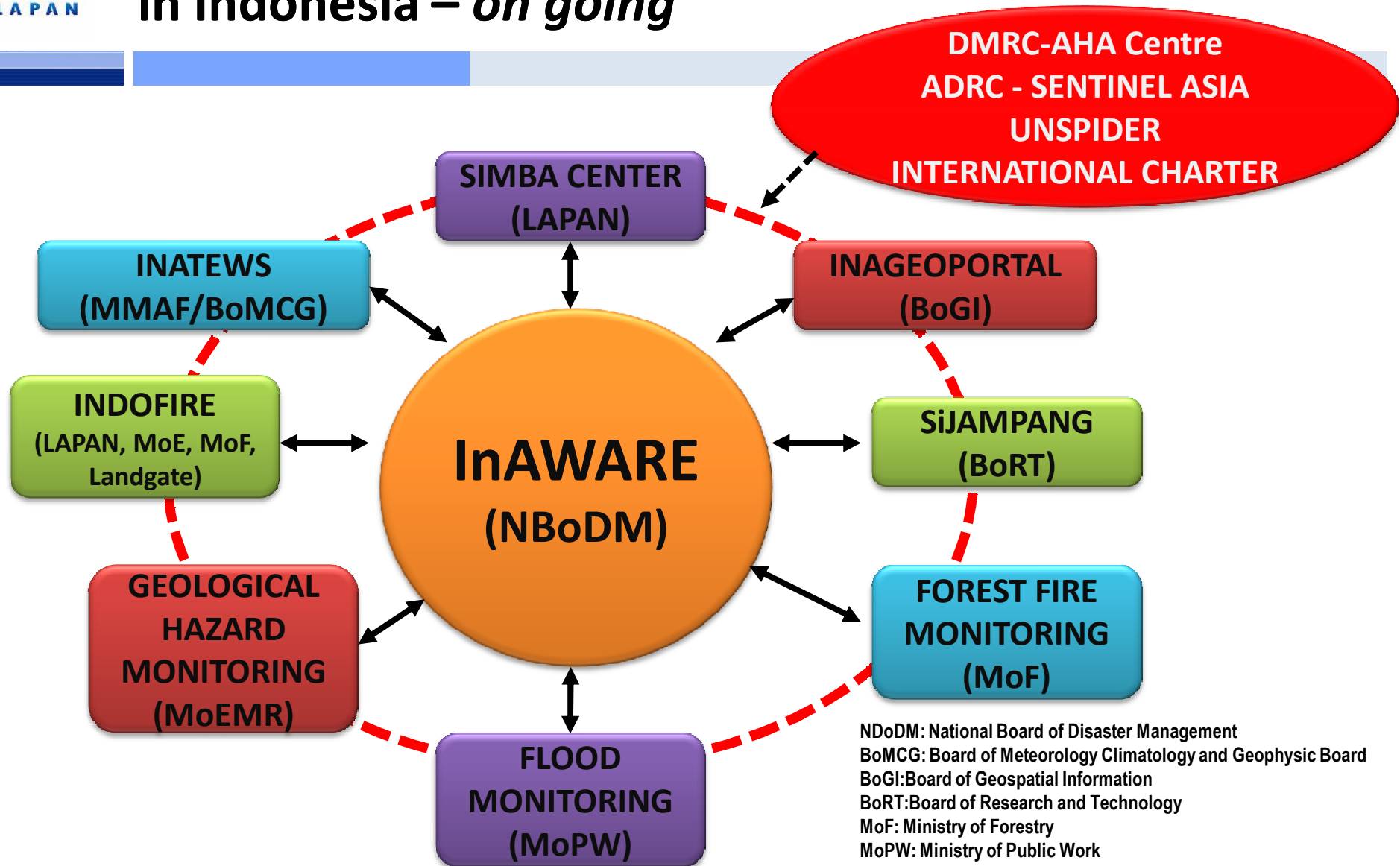
## (Information System for Disaster Mitigation)

### DESIGN OF SIMBA CENTER





# Integrated Disaster Information System in Indonesia – *on going*



NBoDM: National Board of Disaster Management  
BoMCG: Board of Meteorology Climatology and Geophysic Board  
BoGI: Board of Geospatial Information  
BoRT: Board of Research and Technology  
MoF: Ministry of Forestry  
MoPW: Ministry of Public Work  
MoMER: Ministry of Energy and Mineral Resources  
Ministry of Marine Affairs and Fishery  
AHA Centre: ASEAN Humanitarian Assistance



# Dissemination for Public

## News (online & printed)

**Pikiran Rakyat ONLINE**

PERSIB BANDUNG RAYA JAWA BARAT NASIONAL POLITIK LUAR NEGERI

Jumat, 27 November 2015 - 18:42

**Lapan: 2,08 Juta Hektare Hutan dan Lahan Terbakar**

NASIONAL

30 Oktober 2015 - 17:06

**Nasional**

AGUS IBU, KEPALA Kepala Di soal ketu

**Lapan: Tahun Ini, Dua Juta Hektar Hutan Hangus Terbakar**

Jumat, 30 Oktober 2015 | 13:07 WIB

Seorang anggota Komunitas Pecinta Alam Karekeliang sedang membantu memadamkan kebakaran hutan dan lahan di Kabupaten Kepulauan Talaud.

JAKARTA, KOMPAS.com — Lembaga Penerbangan dan

## Press conference



## News on TV media







# http://pusfatja.lapan.go.id/simba/

The screenshot shows a web browser window displaying the SIMBA website. The browser's address bar shows the URL `pusfatja.lapan.go.id/simba/`. The website header includes the LAPAN logo and the text "Pusat Pemanfaatan Penginderaan Jauh Remote Sensing Applications Center". A navigation menu contains links for Beranda, Litbangyasa, Profil, SIMBA, SIDA, Publikasi, Agenda, Peta situs, and Kontak. The main content area features a "Sistem Informasi untuk Mitigasi Bencana (SIMBA)" section with a description and a list of services. A sidebar on the left lists various services like "Pedoman Klasifikasi Hutan" and "Basis Data Hasil Litbang". The bottom of the browser window shows a Windows taskbar with the system clock at 12:12 PM on 11/17/2015.

**Pusat Pemanfaatan Penginderaan Jauh**  
Remote Sensing Applications Center

**Sistem Informasi untuk Mitigasi Bencana (SIMBA)**  
Selamat Datang

**Fokus Layanan**

- Sistem Informasi untuk Mitigasi Bencana Alam
- Sistem Informasi Sumber Daya Alam dan Lingkungan

**Layanan Informasi**

- Pedoman Klasifikasi Hutan
- Basis Data Hasil Litbang
- Tanggap Darurat Bencana
- Publikasi Ilmiah Populer

**Sistem Informasi untuk Mitigasi Bencana (SIMBA)**

adalah layanan informasi peringatan dini dan tanggap darurat bencana berbasis data penginderaan jauh. Informasi ini ditujukan sebagai bahan masukan bagi para pemangku kepentingan (di antaranya: Kementerian Lingkungan dan Kehutanan, Badan Nasional Penanggulangan Bencana, pemerintah daerah dll) baik di tingkat pusat maupun di tingkat daerah terkait kondisi sebelum, pada saat, dan sesudah terjadinya bencana.

Jenis informasi yang disajikan diantaranya :

1. Kondisi liputan awan dan curah hujan dari data satelit
2. Sistem Peringkat Bahaya Kebakaran (SPBK)
3. Pemantauan kondisi titik panas (hotspot)
4. Kabut asap kebakaran, dan informasi bekas lahan terbakar
5. Informasi potensi banjir
6. Informasi potensi banjir/kekeringan di wilayah pertanian padi
7. Informasi letusan gunung berapi

Periode waktu informasi yang diberikan diperbaharui secara periodik harian, 8-harian, atau bulanan. Data utama yang digunakan adalah data satelit Terra/Aqua MODIS, NOAA AVHRR, MTSAT-1R, QMorph, dan TRMM. Data satelit resolusi menengah dan tinggi digunakan untuk memberikan informasi tanggap darurat bencana saat dan sesudah kejadian bencana.

**Titik Panas (Hotspot) dan Lahan Bekas Terbakar**



# Provincial and Local Meetings



South Sumatera,  
23 August 2015



Central Kalimantan  
29 Feb 2015



West Kalimantan  
16 Sep 2015



Jambi, 16 Oct 2015



Riau, 27 August 2014



South Sumatera,  
23 August 2015



# National Meetings



Ministrial meeting



MoU between LAPAN and local government

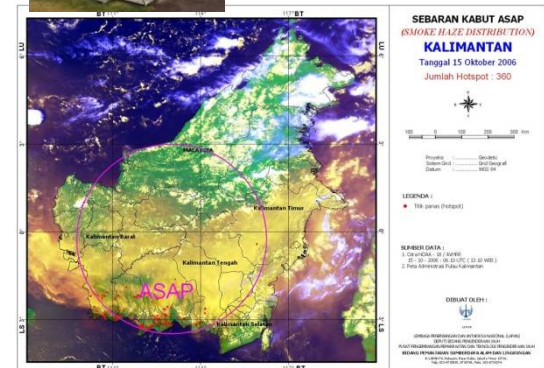


# Feed backs and Challenges

- How can the process of identification, analysis, interpretation and delivery of disaster information can be done in an effective, efficient, accurate and fast, so that people in the danger zone of disaster can anticipate the disasters.**
- How do the results of the process of high tech remote sensing can be easily understood by the various levels of society? The need for proper education process and comprehensively to various level of communities.**

# Conclusion Remarks

- Space-based disaster emergency response system conducted by Sentinel Asia is very beneficial in supporting disaster management efforts in Indonesia.
- Availability of SAR data, especially ALOS2 PALSAR, are needed immediately during disaster events.
- It is necessary to increase the capacity of infrastructure and human resources in the next activities.





Thank You  
Terima Kasih

මයාට ස්තූතියි  
oyāṭa stūtiyi

**REMOTE SENSING APPLICATION CENTER**  
Indonesian National Institute of Aeronautics and Space (LAPAN)

Jl. Kalisari No.8, Pekayon, Pasar Rebo, Jakarta – INDONESIA

Telp. +62-21-8710065 / Facs. +62-21-8722733

E-mail: [timtanggapbencana@lapan.go.id](mailto:timtanggapbencana@lapan.go.id)