LEMBAGA PENERBANGAN DAN
ANTARIKSA NASIONAL

REMOTE SENSING SUPPORT ON DISASTER EMERGENCY RESPONSE IN INDONESIA (2007-2017)

23 January 2018

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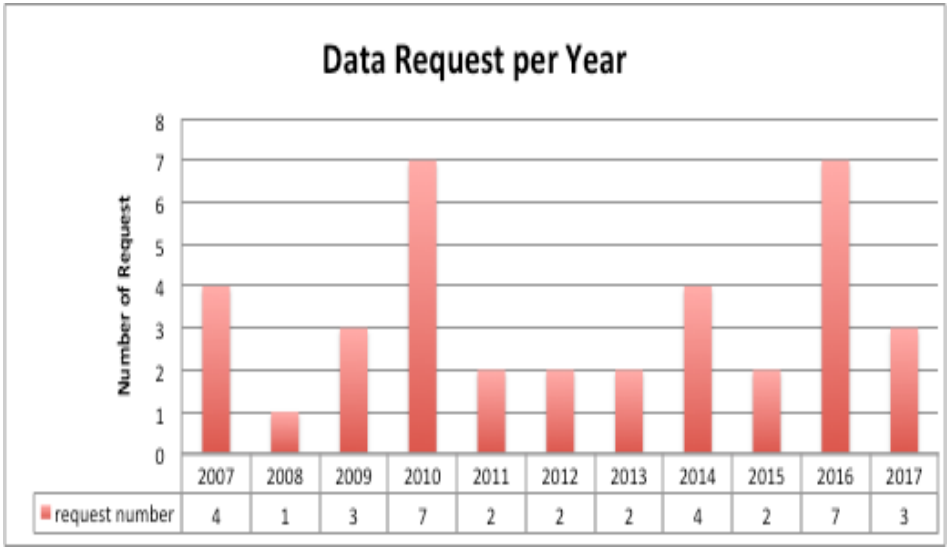
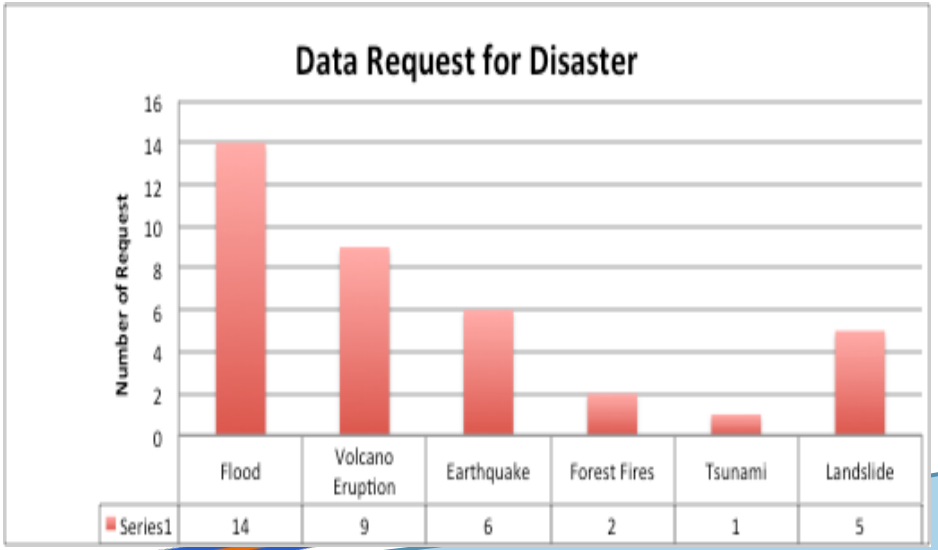
Outlines

- LAPAN As JPT Member
- Remote Sensing Data Availability
- Disaster Emergency Response Products
- How To Distribute The Products
- Report on WINDS Antenna
- Summary

LAPAN AS A JPT MEMBER

- As Data Analysis Node (Since 2010)
- Many requests to Sentinel Asia
- Ten years records





Remote Sensing Data Availability

Low Resolution Image, >250 m

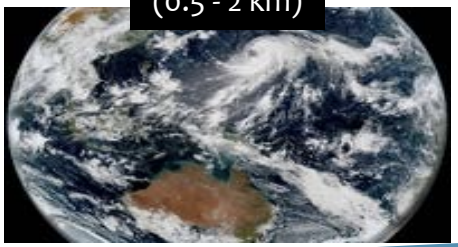
- Terra/Aqua
- SNPP
- NOAA-18/19
- MetOp
- Himawari-8

Medium Resolution Image, 15-30 m

- Landsat-7
- Landsat-8

High Resolution Image, < 1.5 m

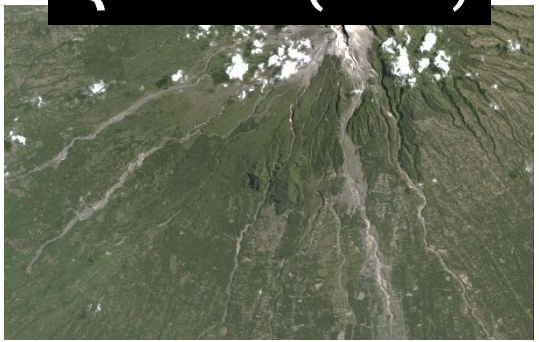
- SPOT-6
- SPOT-7



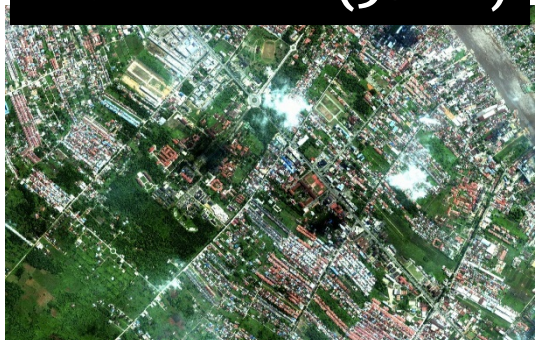
Remote Sensing Data Availability

Pleiades (50 cm)

QuickBird (61 cm)

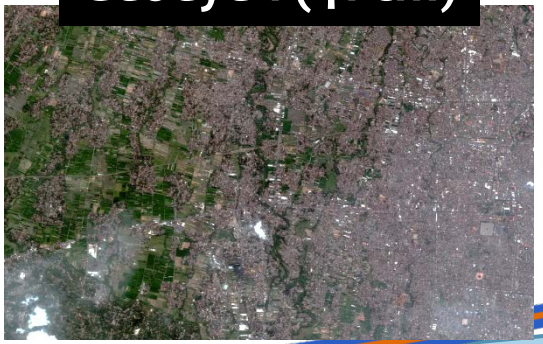


WorldView-2 (50 cm)



WorldView-3 (31 cm)

Geoeye-1 (41 cm)

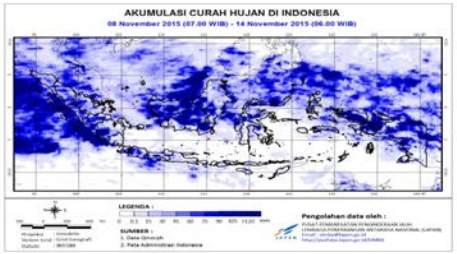


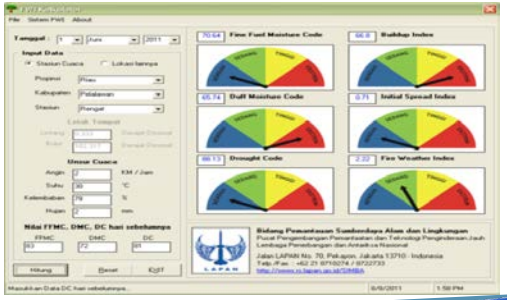
TerraSAR-X (3 m, 18 m)

Remote Sensing Product on Disaster Management

Before

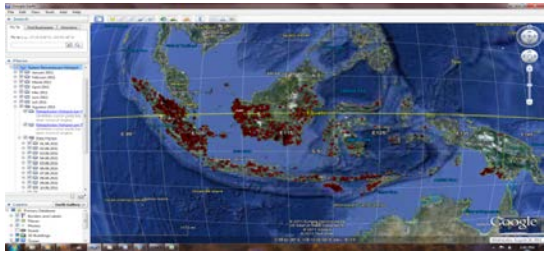
Early Warning

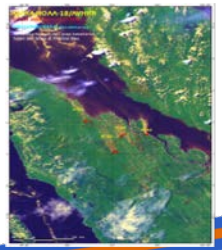


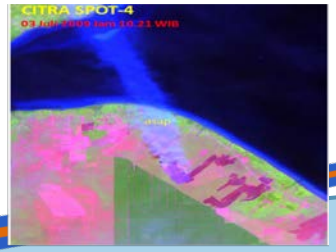


During

Monitoring

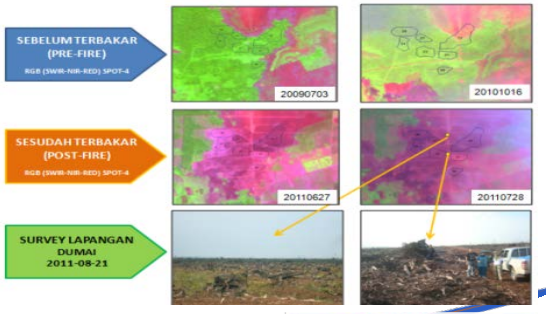


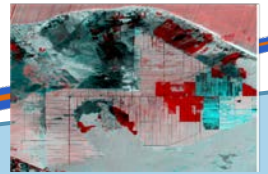


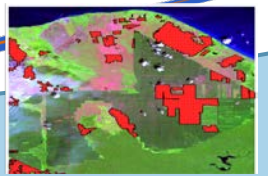


After

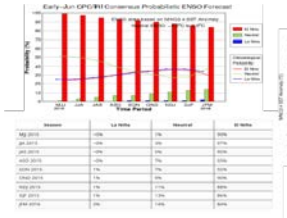
Mapping of
the affected Area

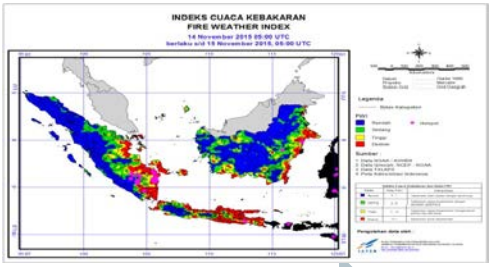






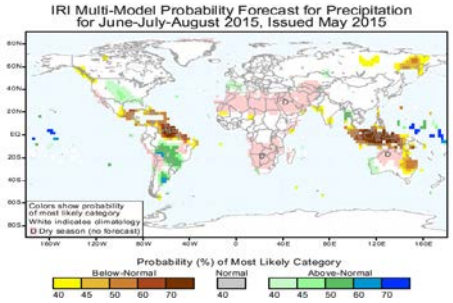
Example of Warning System for Hidrometeorological Disaster



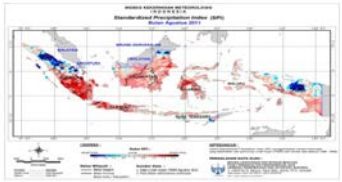


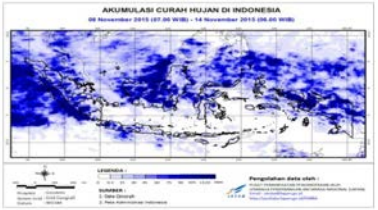
Seasonally

Weekly



Monthly



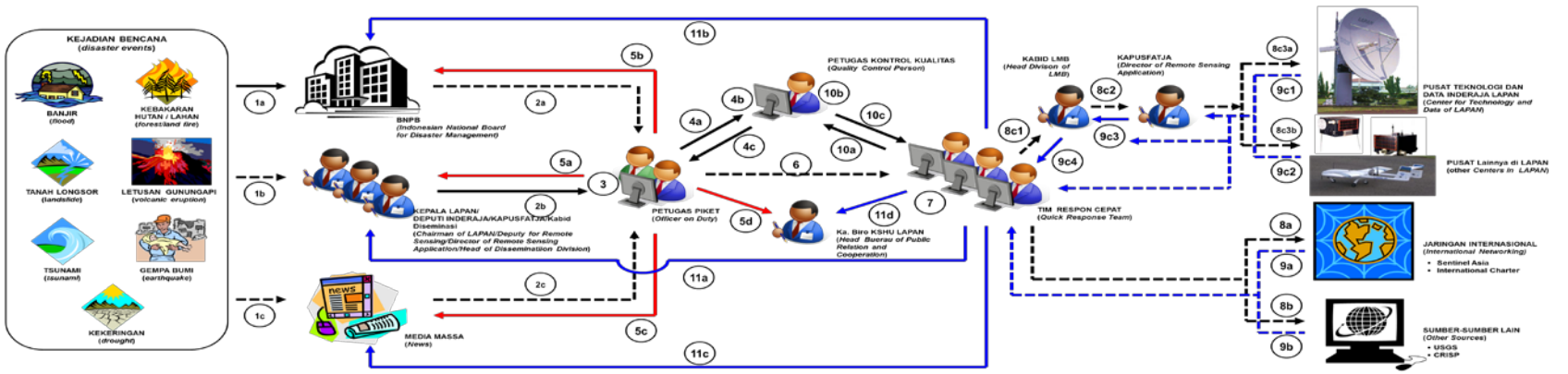


Daily

Emergency Response SOP

STANDAR OPERASIONAL PROSEDUR TANGGAP DARURAT BENCANA

STANDARD OPERATING PROCEDURES DISASTER EMERGENCY RESPONSE



1

INFORMASI KEJADIAN BENCANA SAMPAI KE:
a. BNPB
b. Pimpinan LAPAN
c. Media Massa (Televisi/Internet/Radio/Surat Kabar)

JENIS BENCANA ALAM MELIPUTI:
- Banjir
- Kebakaran Hutan/Lahan
- Tanah Longsor
- Letusan Gunungapi
- Tsunami
- Gempa Bumi
- Kekeringan

2

PETUGAS PIKET (OOD) MENERIMA INFORMASI KEJADIAN BENCANA DARI/MELALUI:
a. Koordinasi dengan BNPB
   - Via SMS
   - Via E-mail
   - Via Radio Komunikasi Kebencanaan
b. Instruksi Pimpinan LAPAN (Kepala LAPAN/De-Inderaja/Kapusfatja/Kabid LMB
c. Media Massa (Televisi/Internet/Radio/Surat Kabar)

OOD mencatat Laporan Kejadian Bencana (LKB) dalam Form LKB.
Diterimanya informasi dari 1c harus memenuhi Persyaratan S-01

3

OOD MELAKUKAN PENGOLAHAN DATA SECARA CEPAT UNTUK MENGHASILKAN INFORMASI RILIS PERTAMA (R-1).
Teknis pengolahan data untuk tiap-tiap jenis bencana mengacu pada Petunjuk Teknis:

• Banjir	(Juknis QR BJ-1)
• Kebakaran Hutan/Lahan	(Juknis QR KH-1)
• Tanah Longsor	(Juknis QR TL-1)
• Letusan Gunungapi	(Juknis QR GA-1)
• Tsunami	(Juknis QR TS-1)
• Gempa Bumi	(Juknis QR GB-1)
• Kekeringan	(Juknis QR KL-1)

4

KONTROL KUALITAS INFORMASI RILIS 1.
OOD MENYAMPAIKAN HASIL PENGOLAHAN DRAFT INFORMASI RILIS-1 (DQR-01) KE PETUGAS KONTROL KUALITAS (QUALITY CONTROL PERSON).
a. OOD menyampaikan DQR-01 ke Petugas Kontrol Kualitas (Quality Control Person/QCP).
b. QCP melakukan kontrol kualitas

OOD menerima dan meng-edit DQR-01 sesuai dengan arahan QCP.

5

OOD MENGIRIMKAN INFORMASI RILIS 1 YANG SUDAH DISETUJUI QCP (QR-01) KEPADA PIHAK-PIHAK:
a. Pimpinan LAPAN langsung (Kepala LAPAN/De-Inderaja/Kapusfatja/Kabid LMB)
b. BNPB cq.Kapusdatin dan Humas serta Kabid Data
c. Media Massa (melalui Web SIMBA).
d. Ka. Biro KSH LAPAN

OOD melakukan pencatatan hasil pengolahan, pengiriman serta backup data QR-01 pada Form LQR-01 yang mengacu pada Juknis BCQR-01.
QRT membuat Laporan pengolahan informasi rilis 2 yang mengacu pada Form LQR-01.

6

OOD MENERUSKAN TUGAS PENGOLAHAN UNTUK INFORMASI RILIS 2 KEPADA TIM RESPON CEPAT (QRT).

DILAKUKANNYA PENGOLAHAN DATA UNTUK MENGHASILKAN INFORMASI RILIS 2 (QR-02) HARUS MEMENUHI PERSYARATAN S-02.

7

TIM QRT MELAKUKAN PENGOLAHAN DATA UNTUK MENGHASILKAN INFORMASI RILIS 2.
Teknis pengolahan data untuk tiap-tiap jenis bencana mengacu pada Petunjuk Teknis:

• Banjir	(Juknis QR BJ-2)
• Kebakaran Hutan/Lahan	(Juknis QR KH-2)
• Tanah Longsor	(Juknis QR TL-2)
• Letusan Gunungapi	(Juknis QR GA-2)
• Tsunami	(Juknis QR TS-2)
• Gempa Bumi	(Juknis QR GB-2)
• Kekeringan	(Juknis QR KL-2)

LANGKAH KE-7 INI DAPAT DIIKUTI DENGAN LANGKAH KE-8 DAN KE-9 (DILAKUKAN DALAM RANGKA UNTUK MEMPEROLEH CITRA/DATA PENDUKUNG)

8a-b

TIM QRT MELAKUKAN PENCARIAN CITRA/DATA PENDUKUNG KE EKSTERNAL LAPAN:
a. Melalui mekanisme kerjasama dalam jaringan internasional yang sudah terjalin, seperti;
   - Sentinel Asia
   - International Charter
b. Melalui sumber-sumber yang tersedia di internet, seperti;
   - USGS
   - CRISP

Jenis data/citra yang diperlukan untuk dilakukan pencarian dicatat dalam Form LQC-2

8c-d-e

TIM QRT MELAKUKAN PENCARIAN CITRA/DATA PENDUKUNG DARI INTERNAL LAPAN:
a. Ke Pustekdata, dengan urutan permintaan: QRT→Kabid LMB → Kapusfatja→ Kapustekdata (Form DCI-TD)
b. Ke Kapustekbang, dengan urutan permintaani; QRT→Kabid LMB → Kapusfatja→ Kapustekbang (Form DCI-TB)

Jenis data/citra yang diperlukan untuk dilakukan pencarian dicatat dalam Form LDCI2

9

TIM QRT MENDAPATKAN CITRA/DATA PENDUKUNG DARI INTERNAL/EKSTERNAL LAPAN:
a. Dari mekanisme kerjasama dalam jaringan internasional yang sudah terjalin, seperti;
   - Sentinel Asia
   - International Charter
b. Dari sumber-sumber yang tersedia di internet, seperti;
   - USGS
   - CRISP
c. Dari Internal LAPAN:
   1) PUSTEKDATA
   2) PUSTEKBANG

Data/Citra yang diperoleh dari Eksternal LAPAN dicatat dalam Form DCE.
Data/Citra yang diperoleh dari Internal LAPAN dicatat dalam Form DCI.

10

KONTROL KUALITAS INFORMASI RILIS 2.
QRT MENYAMPAIKAN HASIL PENGOLAHAN DRAFT INFORMASI RILIS-2 (DQR-02) KE PETUGAS KONTROL KUALITAS (QUALITY CONTROL PERSON).
a. QRT menyampaikan DQR-02 ke Petugas Kontrol Kualitas (Quality Control Person/QCP).
b. QCP melakukan kontrol kualitas terhadap DQR-02

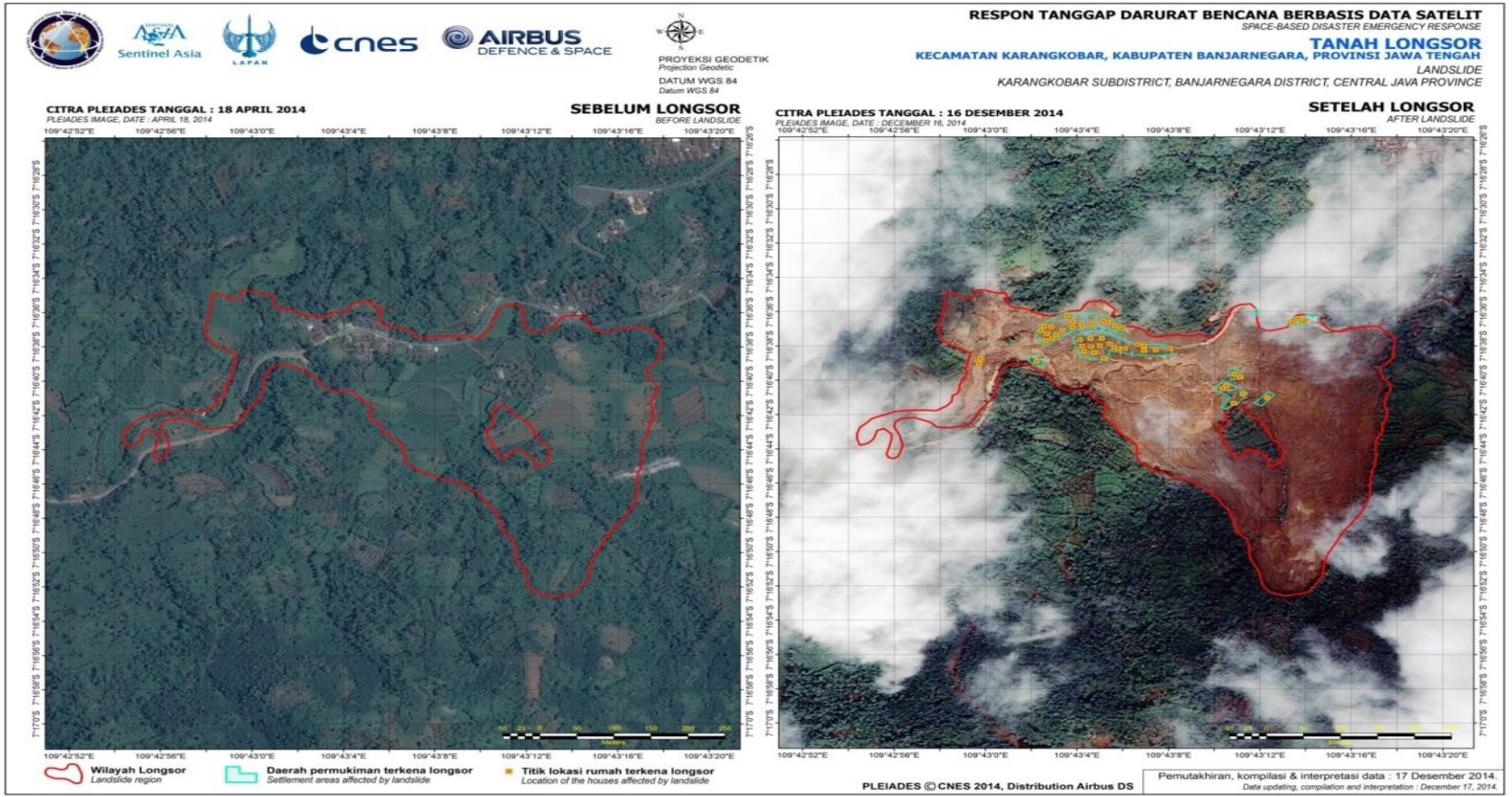
QRT menerima dan meng-edit DQR-02 sesuai dengan arahan QCP.

11

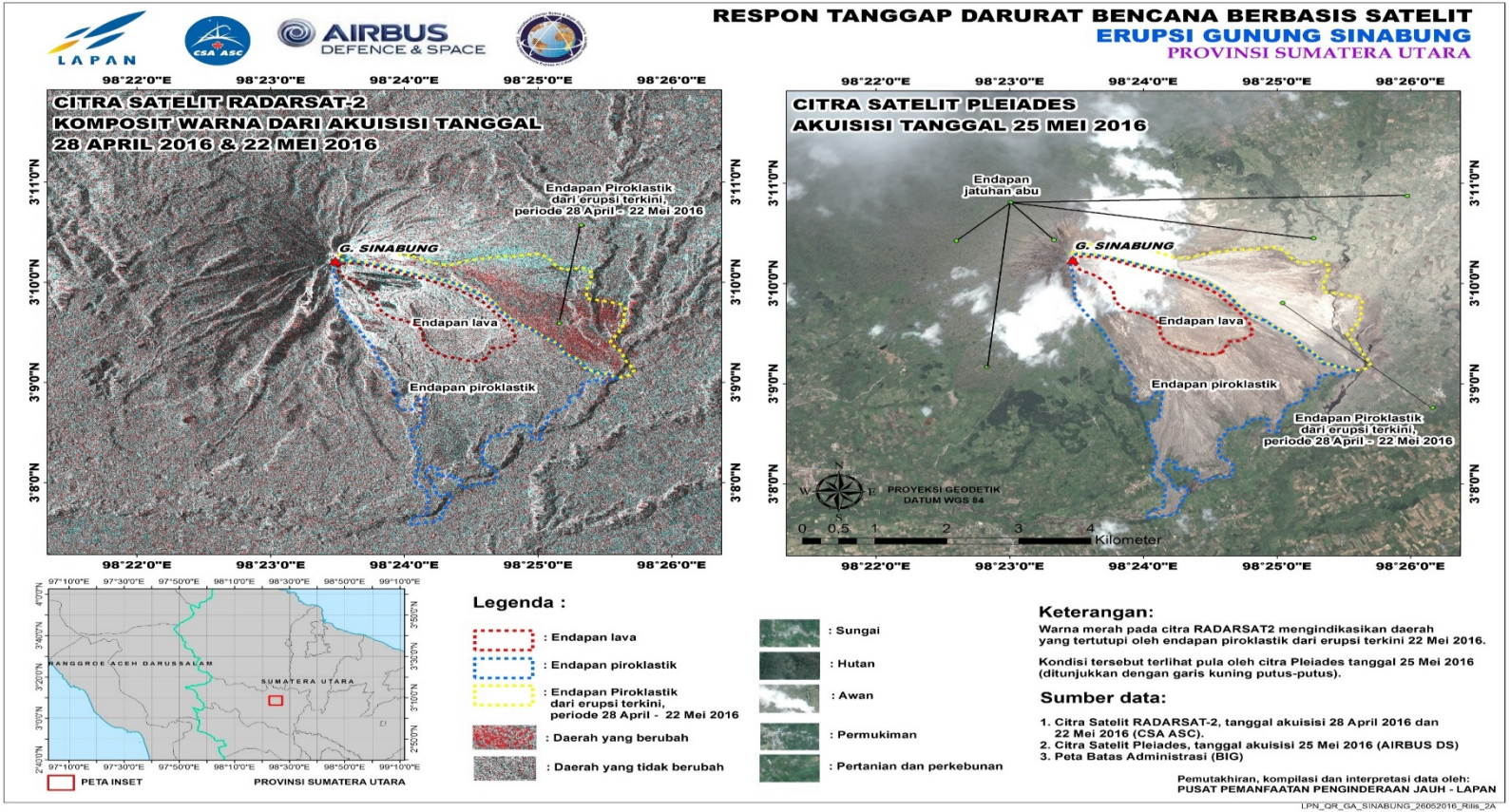
QRT MENGIRIMKAN INFORMASI RILIS 2 YANG SUDAH DISETUJUI QCP (QR-02) KEPADA PIHAK-PIHAK:
a. Pimpinan LAPAN langsung (Kepala LAPAN/De-Inderaja/Kapusfatja/Kabid LMB)
b. BNPB cq.Kapusdatin dan Humas serta Kabid Data
c. Media Massa (melalui Web SIMBA).
d. Ka. Biro KSH LAPAN

QRT melakukan pencatatan hasil pengolahan, pengiriman serta backup data QR-02 pada Form LQR-02 yang mengacu pada Juknis BCQR-02.
QRT membuat laporan pengolahan informasi rilis 2 yang mengacu pada Form LQR-02.

Example Product of Emergency Response



Example Product of Emergency Response



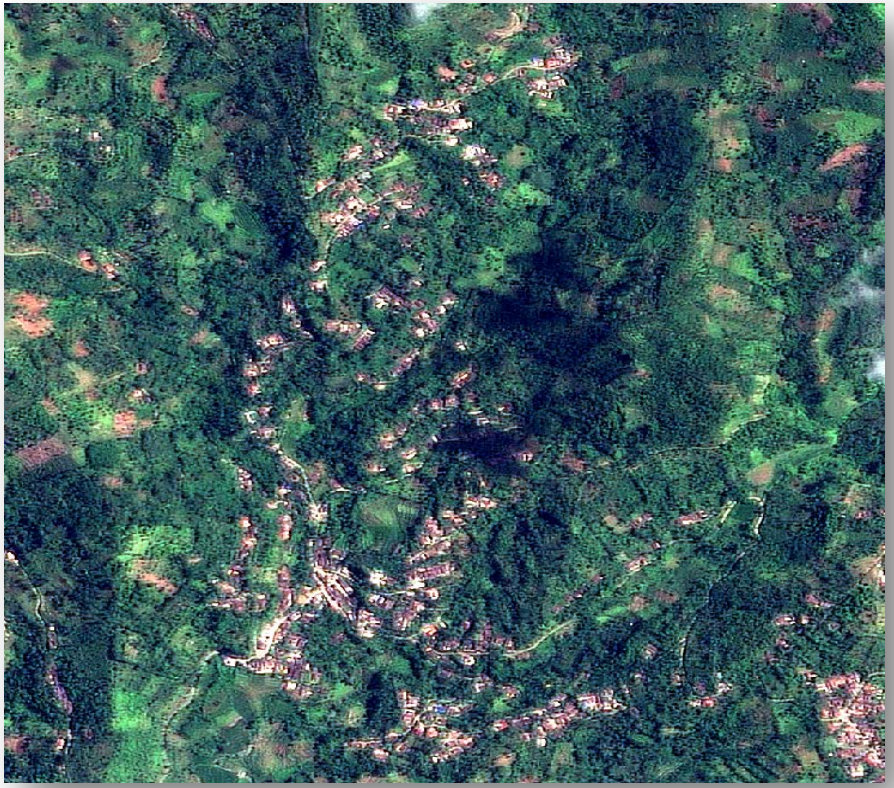
Example Product of Emergency Response

Pleiades (9 Jun 2014)

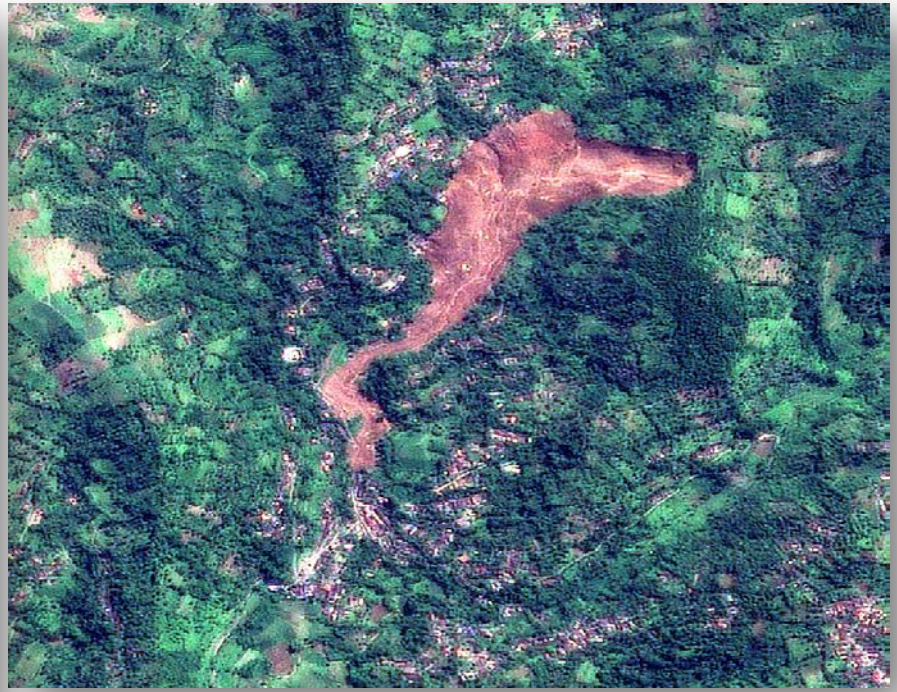
Pleiades (7 Okt 2016)

Example Product of Emergency Response

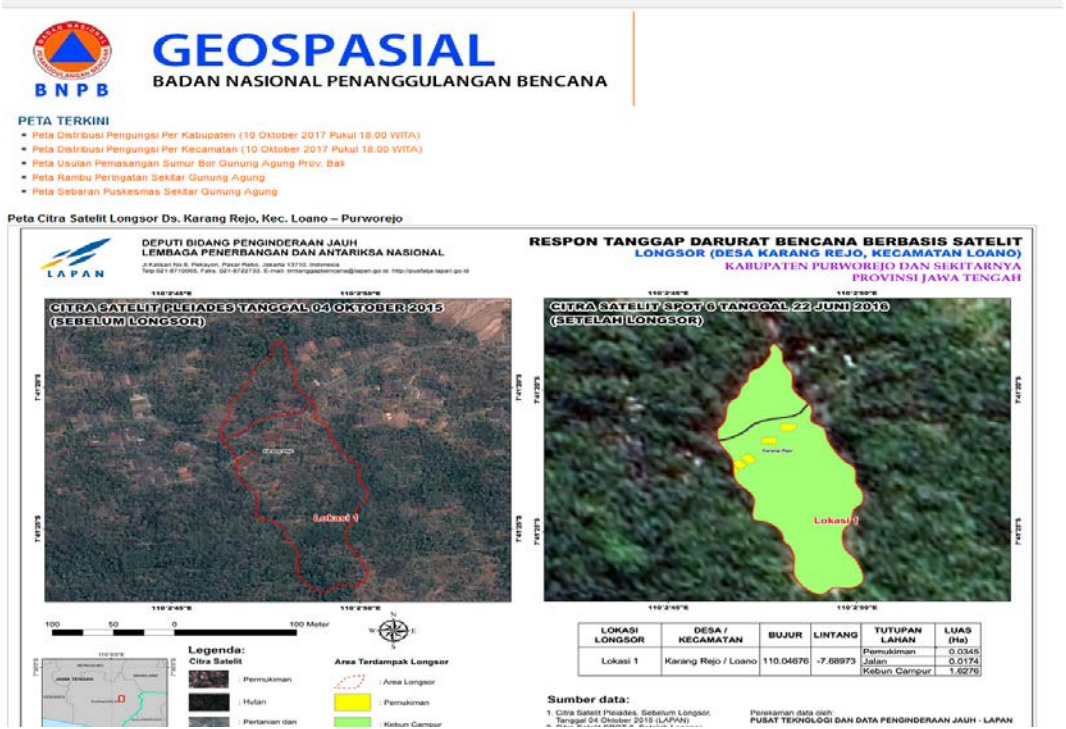
SPOT-6 (17 Maret 2015)

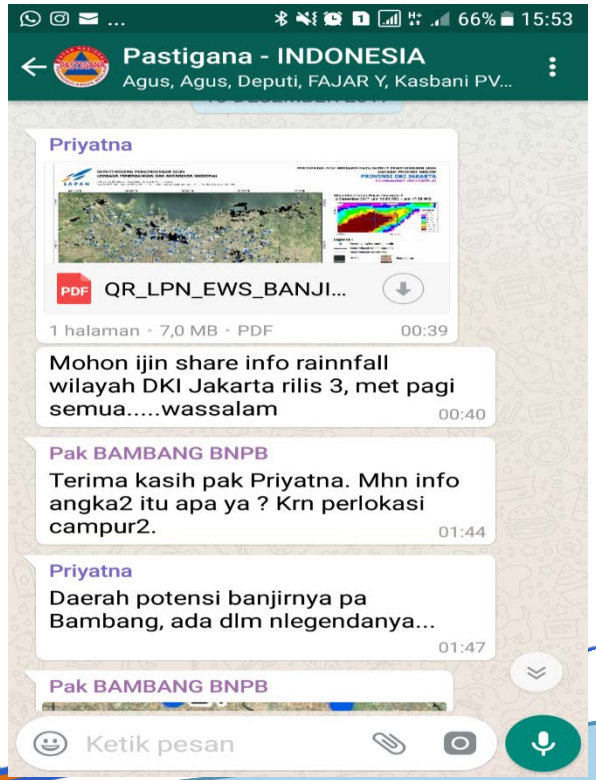


SPOT-6 (11 April 2017)



Point to Point Access





Android Accesss

Hotspot information is available:

- Within last 24 hours
- Within last 48 hours
- All Indonesia
- Each province
- All level of confidence (%)

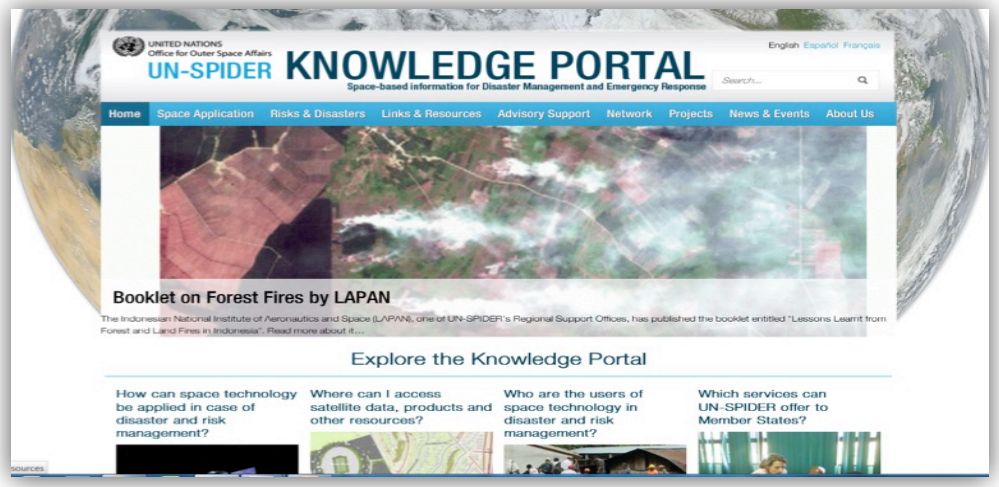
Information dissemination to the public

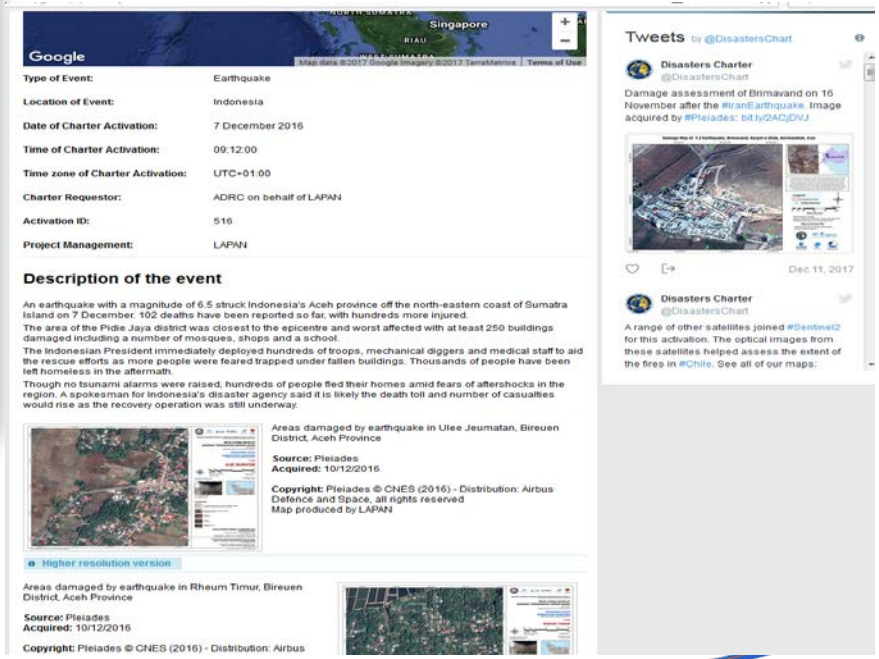
Newspaper (online & printed)

Press conference with BNPB

News on TV media

International Collaborations





Report on WINDS Antenna

No.	Unit Name	inspection date	inventory check		visual inspection		Remarks
			The number of units	Results ("OK" or "MISSING")	Results ("OK" or "NG")	Condition (If the result is "NG", Please write about the condition)	
1	1.8m Antenna	Nov. 20. 2015	1	OK	OK		Must be checking again, its OK or NG
2	BUC		1	OK	OK		Must be checking again, its OK or NG
3	LNC		1	OK	OK		Must be checking again, its OK or NG
4	IDU		1	MISSING	NG	Sign is still beep sound in RAM Memory	Must be checking again
5	Cable		1	OK	OK		Must be checking again, its OK or NG
6	Waveguide		1	OK	OK		Must be checking again, its OK or NG
7	IDU Monitor		1	OK	OK		Must be checking again, its OK or NG
8	IDU Keyboard		1	MISSING	NG	damaged due to weather conditions and the elderly are	Must be checking again
9	IDU Mouse		1	MISSING	NG	Sometime error, damaged due to weather conditions and the elderly are	Must be checking again

Summary

- LAPAN has many request on Data to Sentinel Asia
- As a DAN, Data Analysis have been done almost in Indonesia cases
- SOP on disaster emergency response has been implemented
- There are many strategies development for effective information distribution

LEMBAGA PENERBANGAN DAN
ANTARIKSA NASIONAL

Terima kasih atas perhatiannya

www.inderaja.lapan.go.id
www.pustekdata.lapan.go.id
www.pusfatja.lapan.go.id