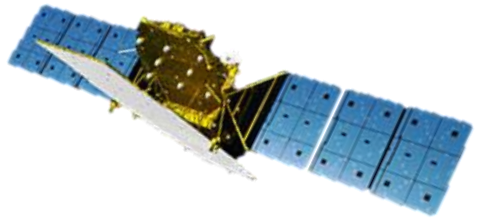
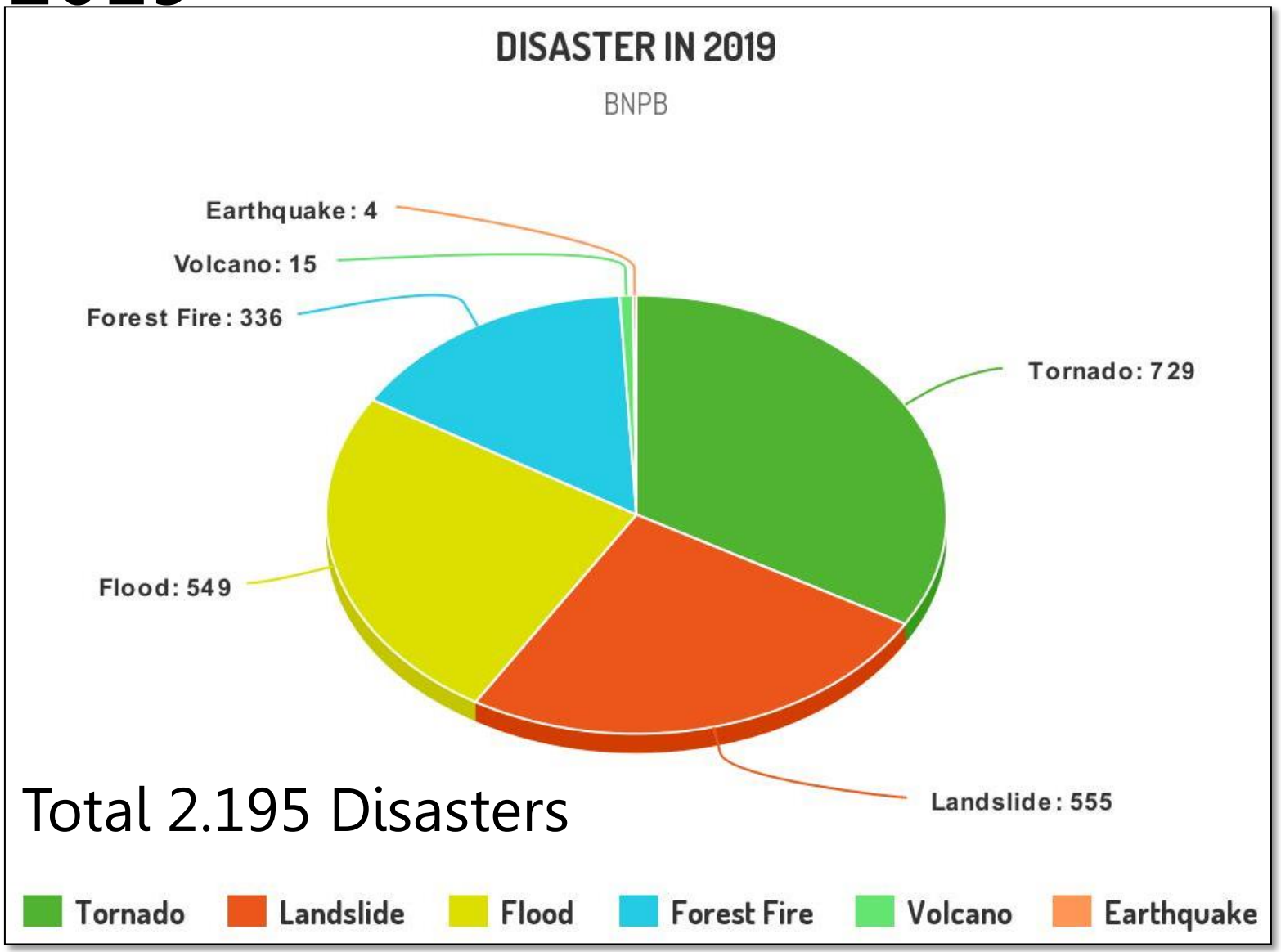


Indonesia's Good Practices With Sentinel Asia

Udhi Catur Nugroho
Indonesian National Institute of Aeronautics and Space (LAPAN)

Disasters in Indonesia in 2019



People

445 Died and Loss
1.433 Injuried
1.039.916 Affected and Evacuated

House

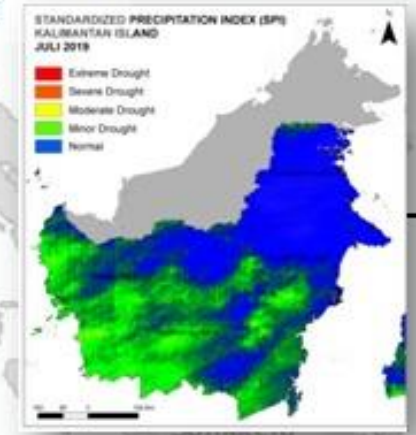
4.057 Totall damaged
4.189 Moderately Damaged
16.900 Lightly Damaged

Source: Disaster Mitigation National Agency (BNPB), 2019

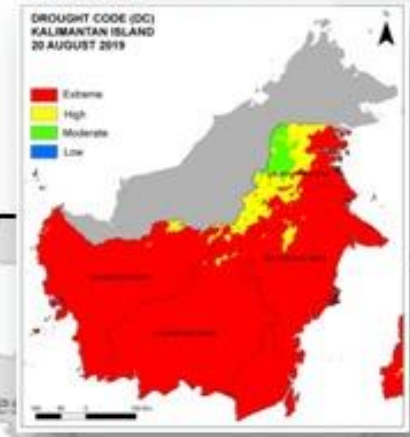
Space applications for achieving disaster resilience

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

SPI monitoring
July 2019



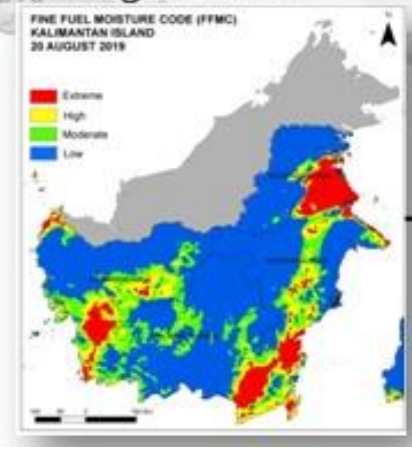
DC monitoring
20 August 2019



Fire hotspot monitoring
20 August 2019

EVI monitoring
July 2019

FFMC monitoring
20 August 2019

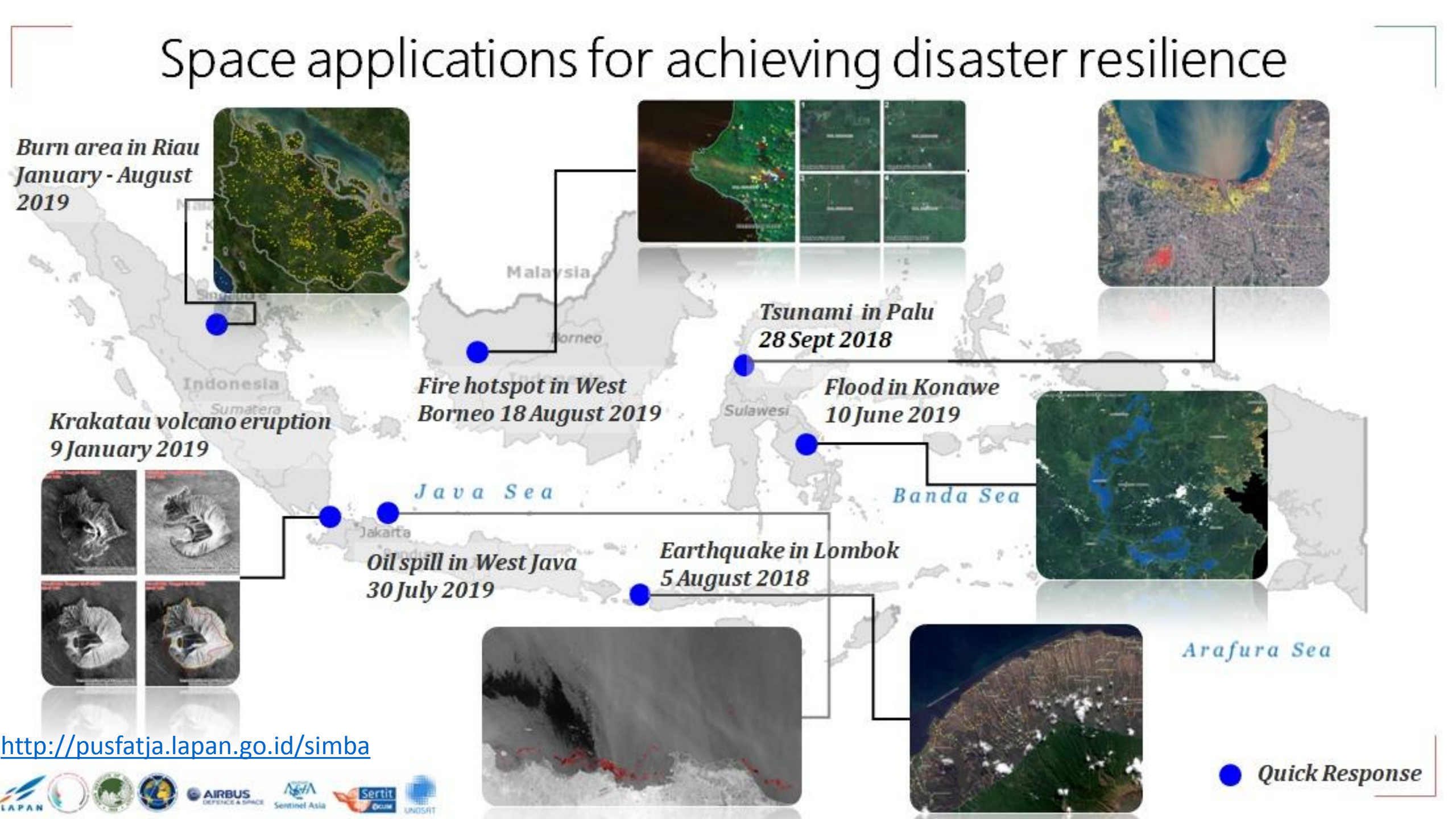


Potential flood monitoring
2 January 2019

Malaysia
Borneo
Sulawesi
Java Sea
Banda Sea
Arafura Sea
Jakarta
Bandung

● ***Monitoring***

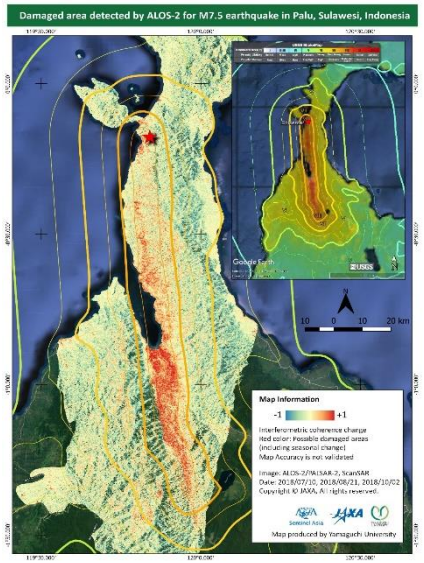
Space applications for achieving disaster resilience

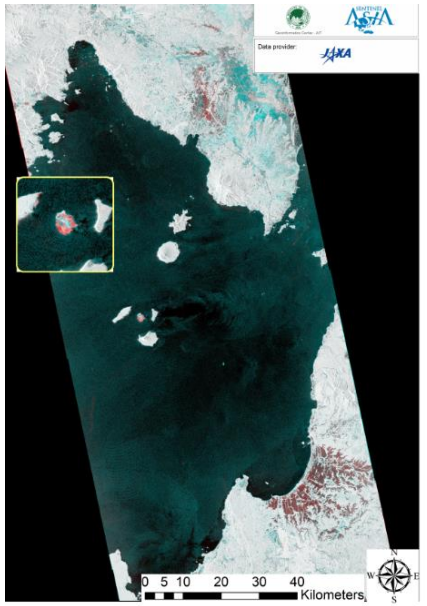


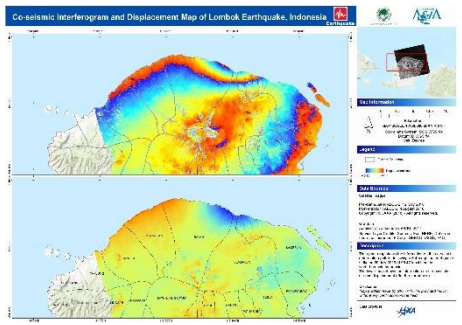
http://pusfatja.lapan.go.id/simba

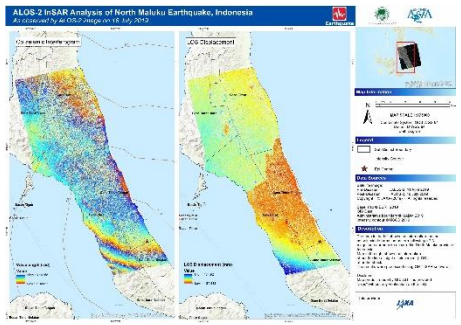
Disaster Activation on Sentinel Asia (2018-2019)

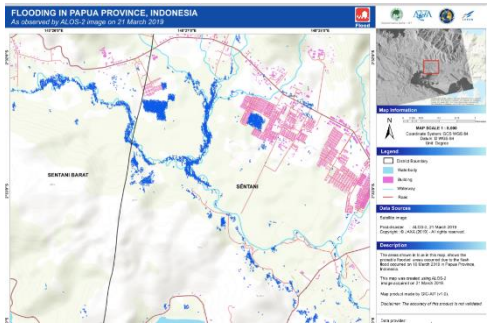
Date	Disaster Type	Location
14 July 2019	Earthquake	Ternate, Maluku Utara
16 March 2019	Flood	Sentani, Papua
22 December 2019	Tsunami	Anak Krakatau, Sunda Strait
28 September 2018	Earthquake	Palu, Sulawesi Tengah
05 August 2018	Earthquake	Lombok, Nusa Tenggara Barat
29 July 2018	Earthquake	Lombok, Nusa Tenggara Barat

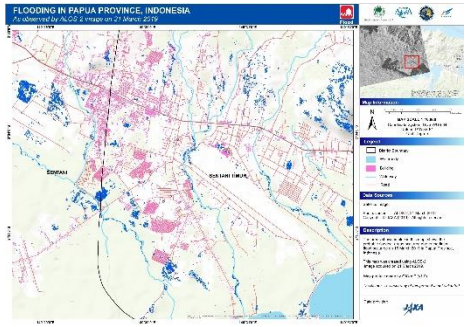












Who uses the products ?

Military

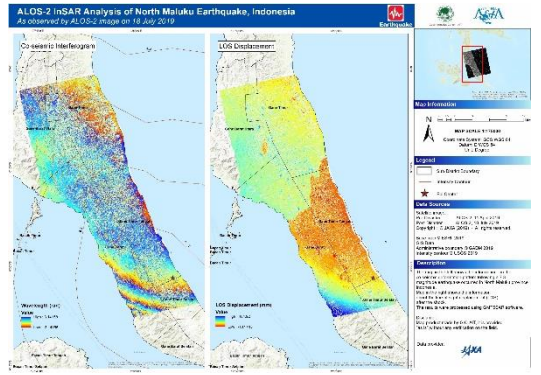
National Disaster Mitigation Agency

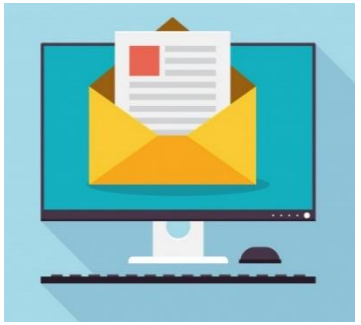
Other related institutions/ agencies

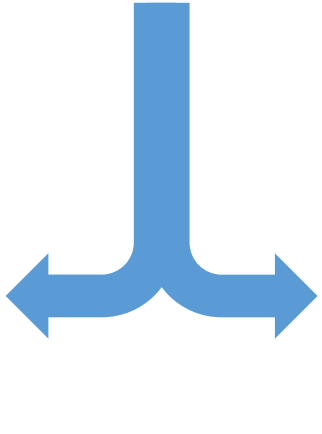
Local Governments

National Search and Rescue Agency

Information







Direct communication to institution:

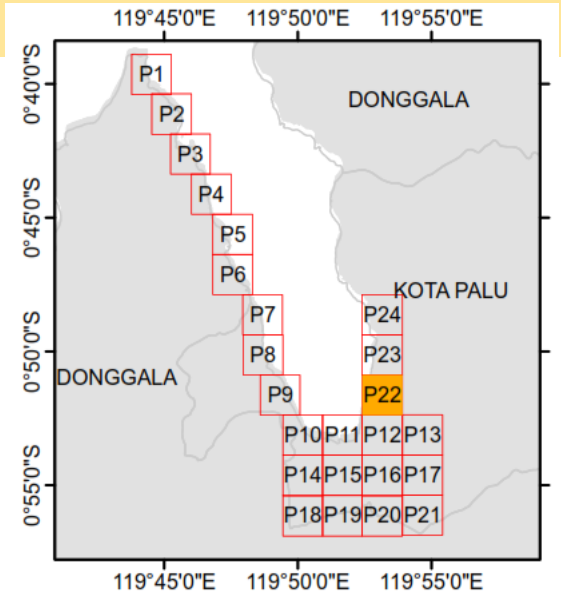
- Email
- Whatsapp

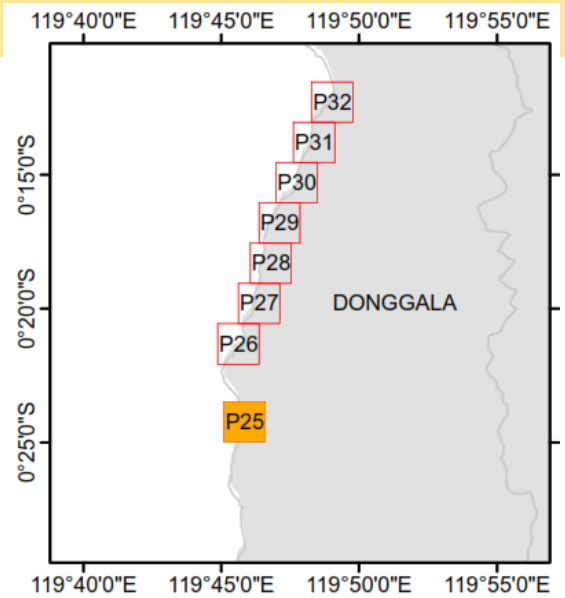
Public communication:

- Website
- Mobile application
- Official social media

Good Practices : Collaboration

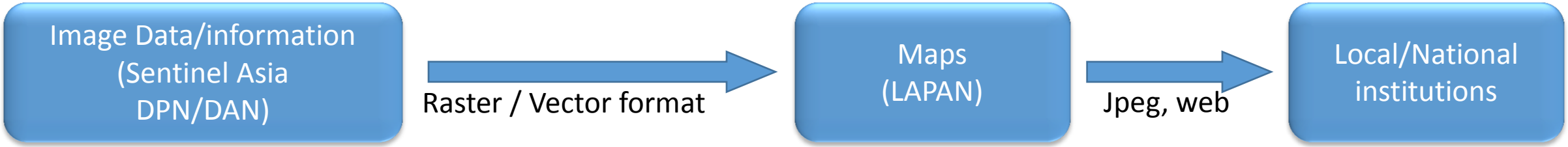
- Each institution could get access to image before disaster
- Damaged building identification divided into grids (32 grid), then distributed to LAPAN, AIT, and ITB
- Maps are published in one channel (LAPAN)
- More than 5000 damaged buildings were identified and verified in 3 days





Case: Palu earthquake, September 2018

Good Practices : GIS Format Information



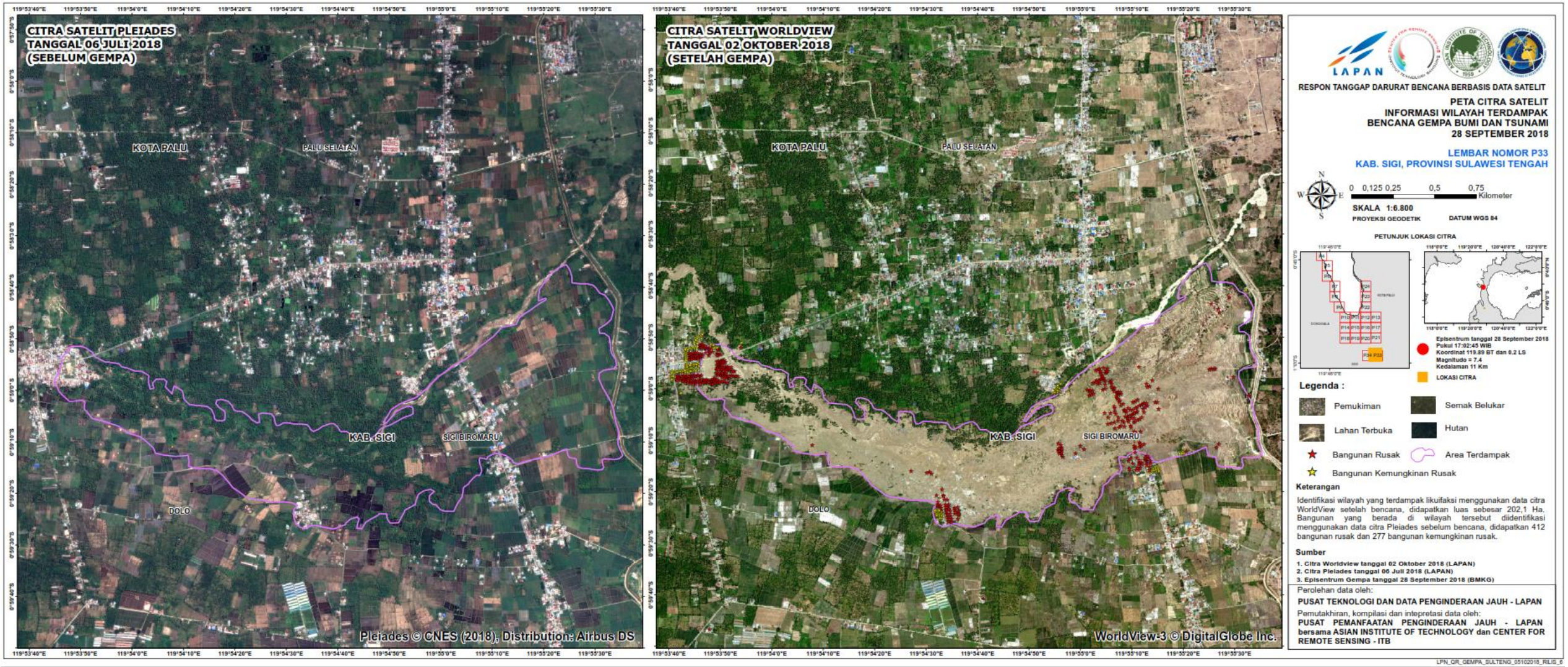
Producer maps should be from affected country (if possible), why ?

- No language barrier
- National institutions have local condition information
- Other institutions are more confidence with maps produced by their country

Should have:

- Good system to be able to send / download large data size (web services, Cloud, compressed data, etc)
- Capabilities to produce maps (human resources, infrastructure)

Before and after Palu earthquake (Sep 2018) map



How to be better practices ?

- How to share/get large size data fast, easily, safety?
  - Web services, Cloud computing
  - Collaborate more remote sensing satellite provider
- How to encourage member capacity?
  - Online training
  - Technical discussion group

How to be better practices ?

- How to manual identify / verify (damaged building, refugee tents, etc) from specific crowd sourcing ?
  - Digital platform
- How to collect field data from crowd sourcing?
  - Mobile application
  - Social media data mining
- How to encourage collaboration when disaster happen?
  - The collaborator to make clear who provide what

Thanks to all DPN and DAN members of Sentinel Asia