



Post – Disaster Analysis of Banjarnegara Landslide

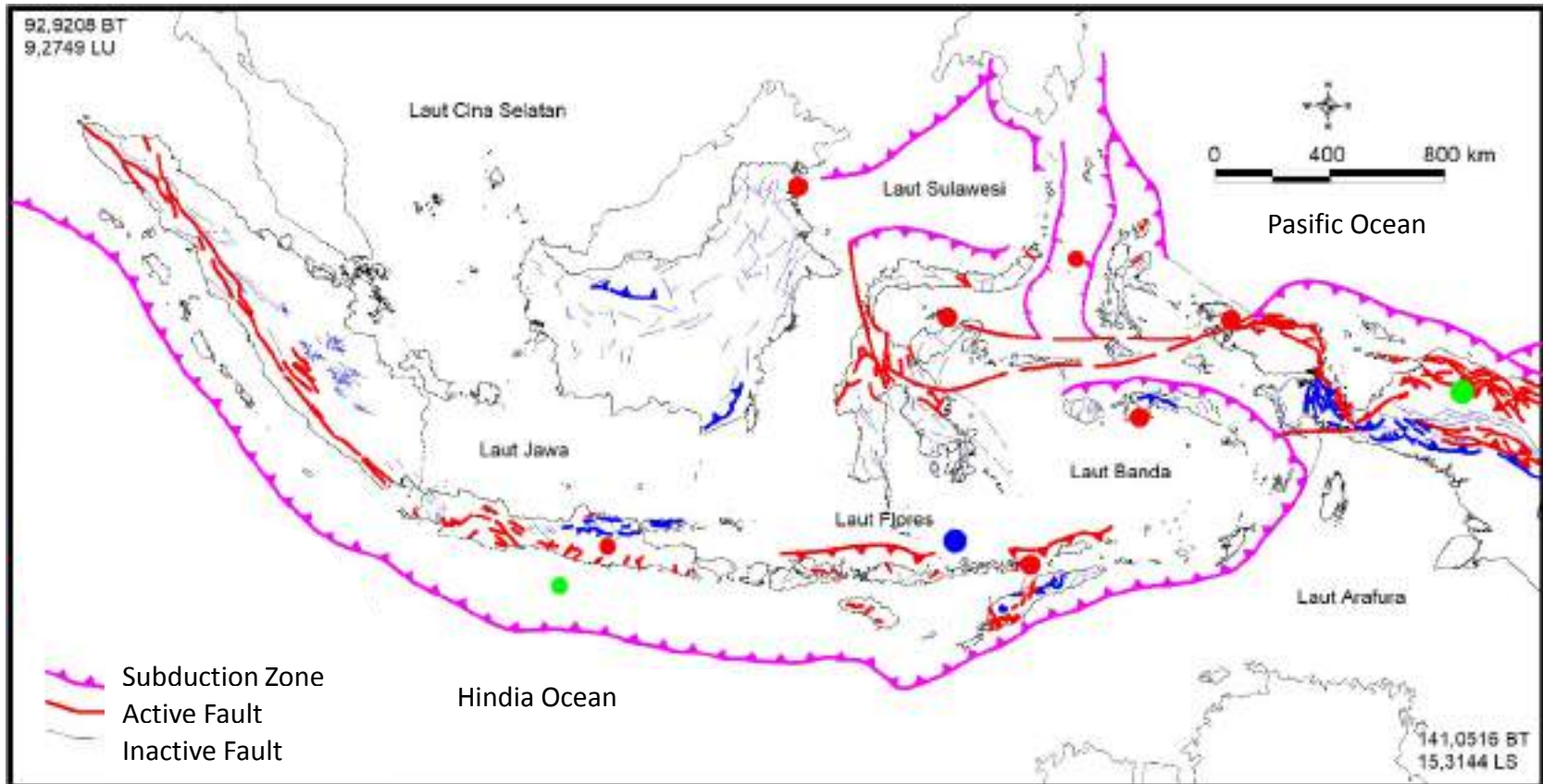
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**REMOTE SENSING APPLICATIONS CENTER
INDONESIAN NATIONAL INSTITUTE OF AERONAUTICS AND SPACE (LAPAN)**

Beijing, 23 Oktober 2017

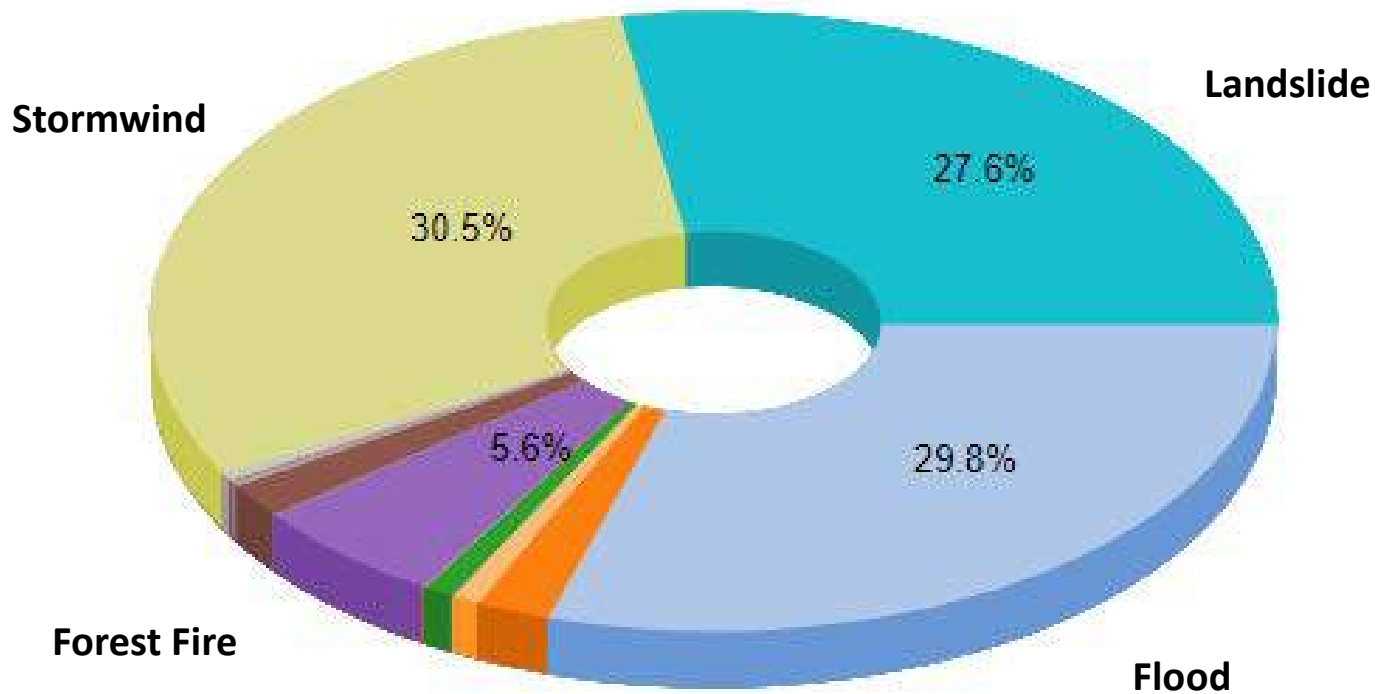
- Introduction
- Emergency Response
- Disaster Analysis
- Conclusion

INTRODUCTION



- Indonesia is market of hazard
- Geological hazard, Hydro-meteorological hazard

Disaster Database 2014 - 2016



- Total : 5.765 disaster
- Victim : 1.458 dead, 463 lost, 3.268 injured, 1.332.016 evacuated

Banjarnegara Landslide



- Occurred at 2014 December 12, about 05.00 pm
- Victim : 99 deads, 11 lost, 24 injured, 2.038 evacuated

EMERGENCY RESPONSE



Disaster Mitigation National Agency
(Leader / Coordinator)



LAPAN
(Support Remote Sensing Data)



Geological Agency
(Support Landslide Risk Map)

Other Government Agency
NGO
Volunteer Group

- 12 December : Disaster
- 13 December : LAPAN Quick Response Team Activated => Collected Remote Sensing Data, Coordinated with BNPB
- 14 December : Request to Airbus to acquisition Pleiades, First image release (landsat)
- 15 December – 16 December : Pleiades and Spot 5 release



PROYEKSI GEODETIK
Polar Stereoid
DATUM WGS 84
Datum WGS84

RESPON TANGGAP DARURAT BENCANA BERBASIS DATA SATELIT

SATellite-BASED DISASTER EMERGENCY RESPONSE

TANAH LONGSOR
KECAMATAN KARANGKOBAR, KABUPATEN BANJARNEGARA, PROVINSI JAWA TENGAH

LANDSLIDE

KARANGKOBAR SUBDISTRICT, BANJARNEGARA DISTRICT, CENTRAL JAWA PROVINCE

CITRA PLEIADES TANGGAL : 10 APRIL 2014

PLEIADES IMAGE DATE : APRIL 10, 2014

SEBELUM LONGSOR

BEFORE LANDSLIDE



Wilayah Longsor
Landslide region

Daerah permukiman terkena longsor
Settlement areas affected by landslide

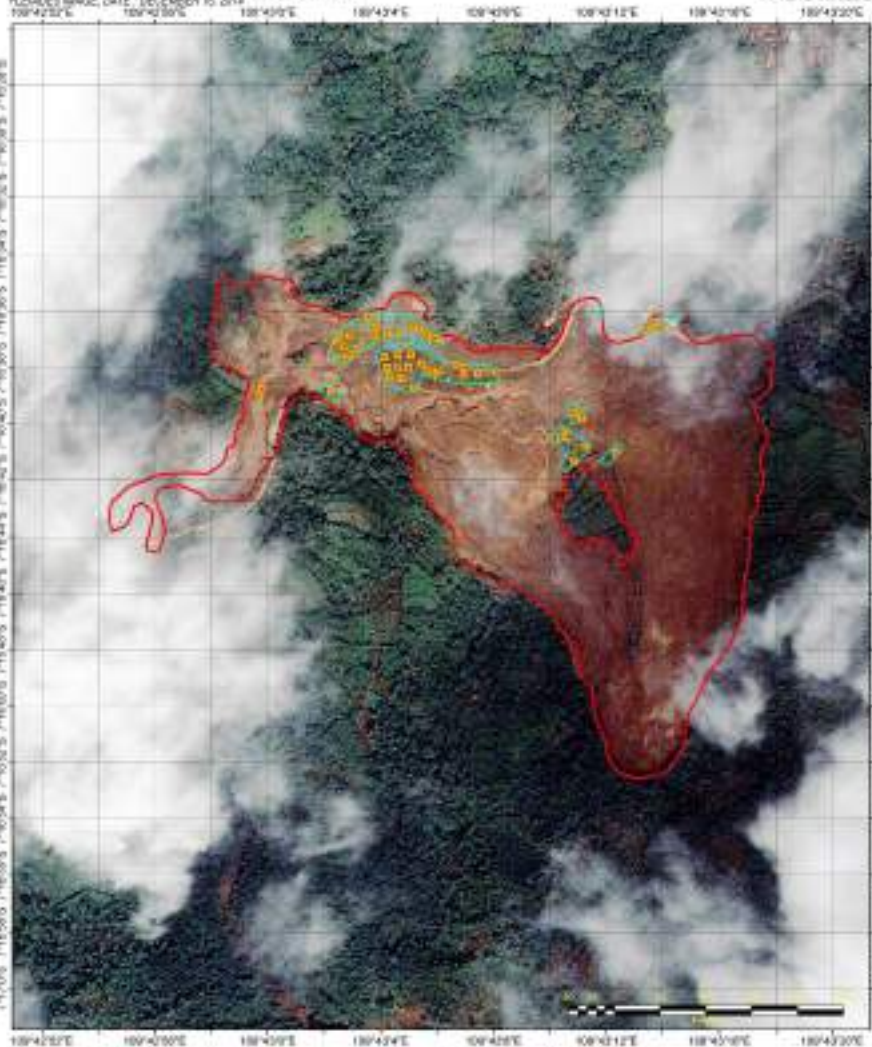
Titik lokasi rumah terkena longsor
Location of the houses affected by landslide

CITRA PLEIADES TANGGAL : 16 DESEMBER 2014

PLEIADES IMAGE DATE : DECEMBER 16, 2014

SETELAH LONGSOR

AFTER LANDSLIDE

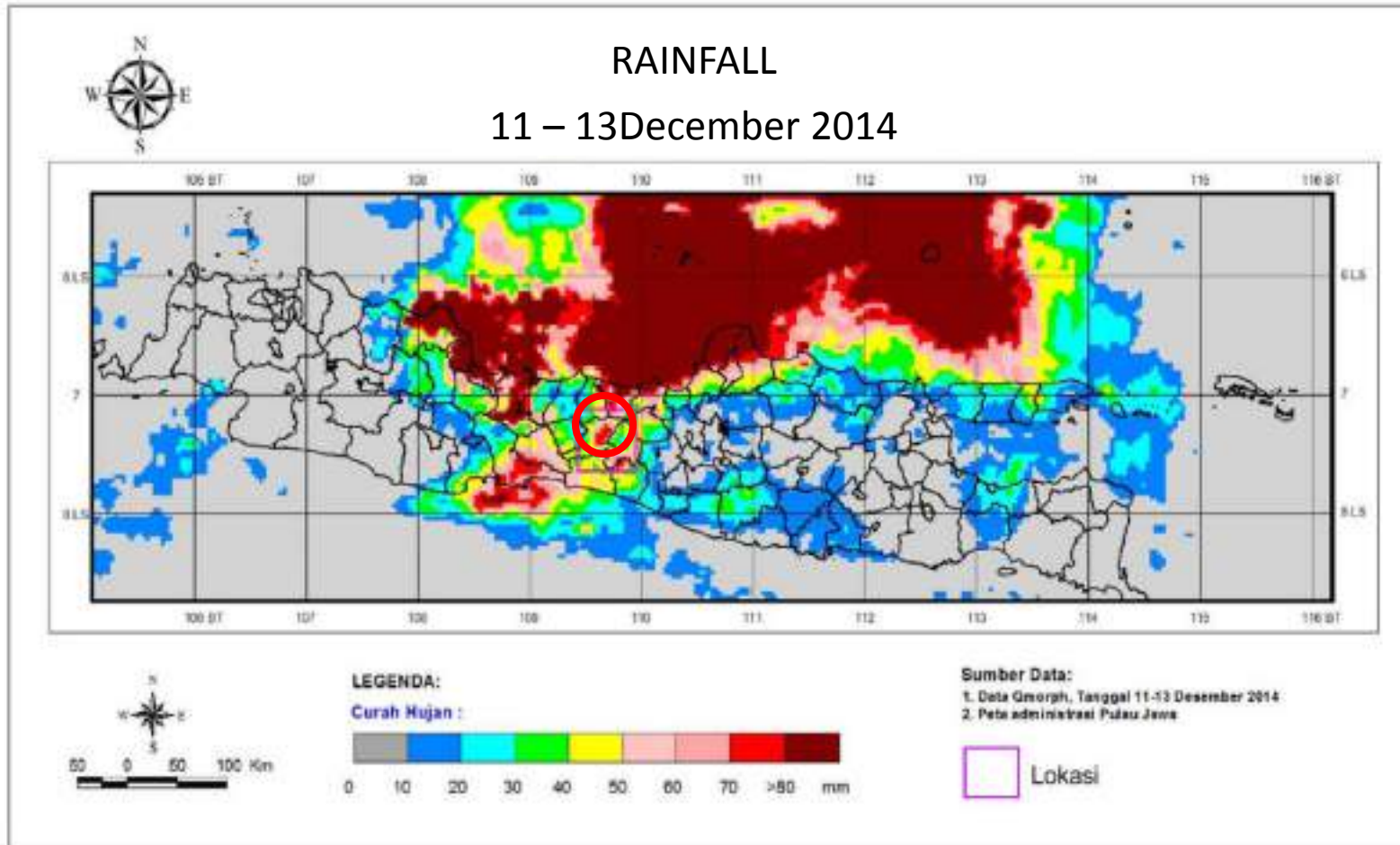


PLEIADES © CNES 2014, Distribution Airbus DS

Pemutakhiran, kompilasi & interpretasi data : 17 Desember 2014
Data updating, compilation and interpretation : December 17, 2014

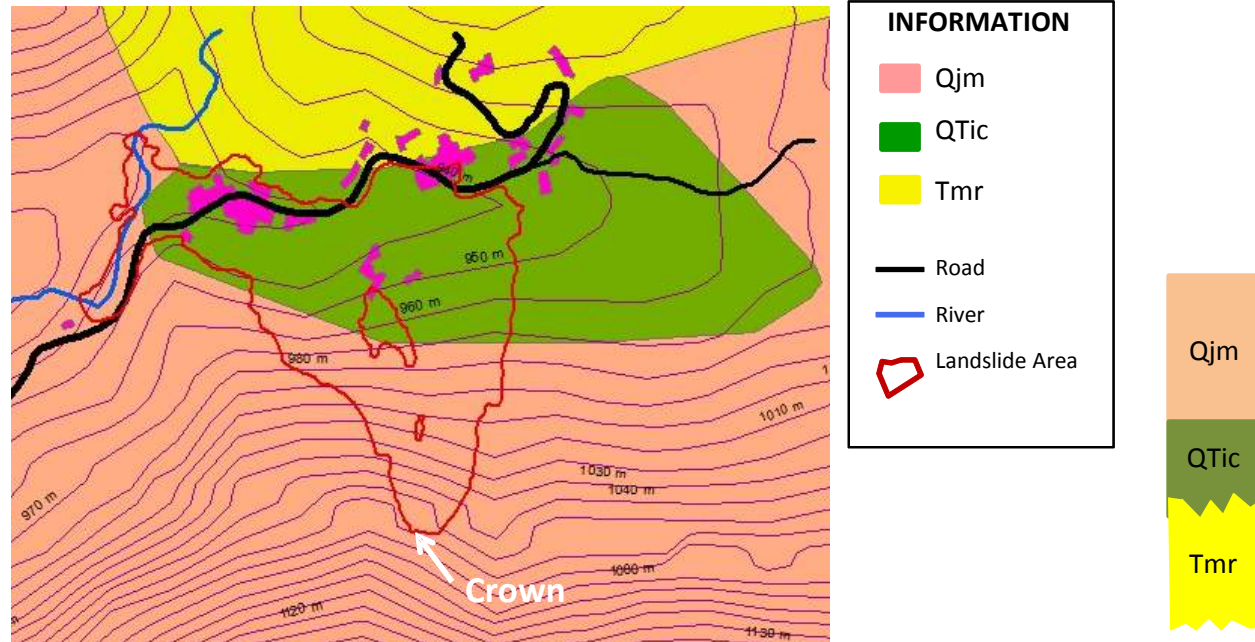
LPIR_CR_TL_BANJARNEGARA_20141017_Release_JH
LPIR_CR_TL_BANJARNEGARA_20141017_Release_JH

POST – DISASTER ANALYSYS



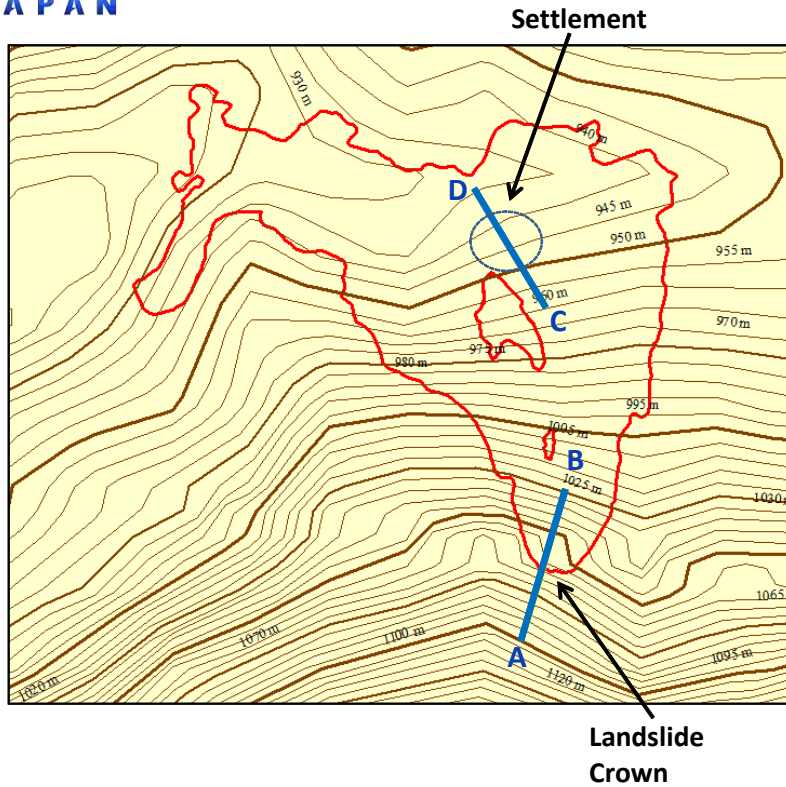
- The local weather station noted that rainfall reaching 112.7 mm on 11 December 2014

Geological Data

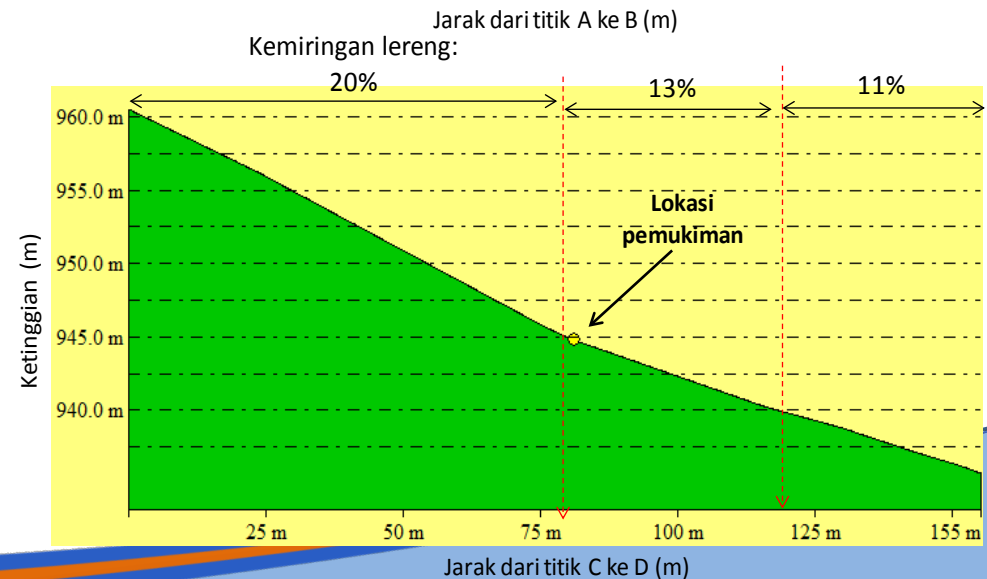
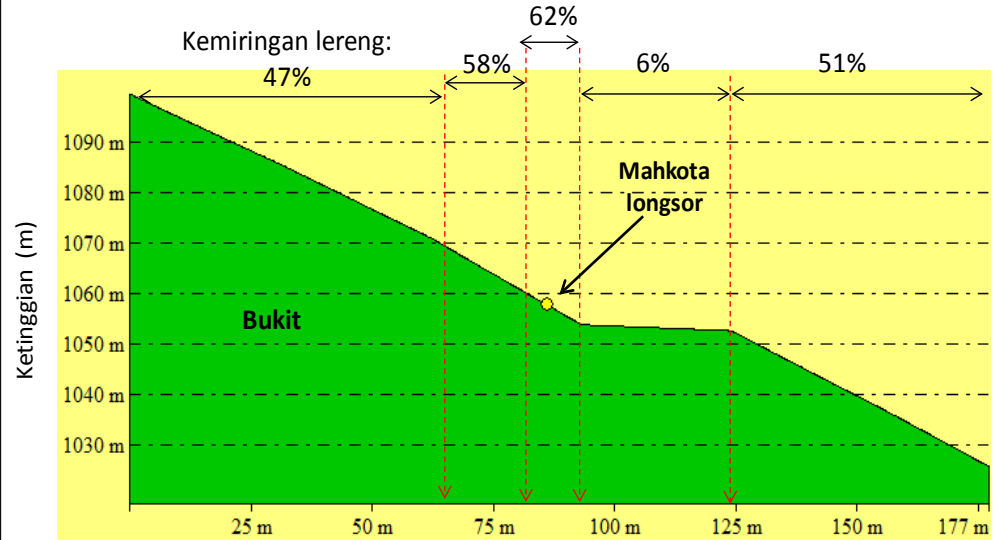


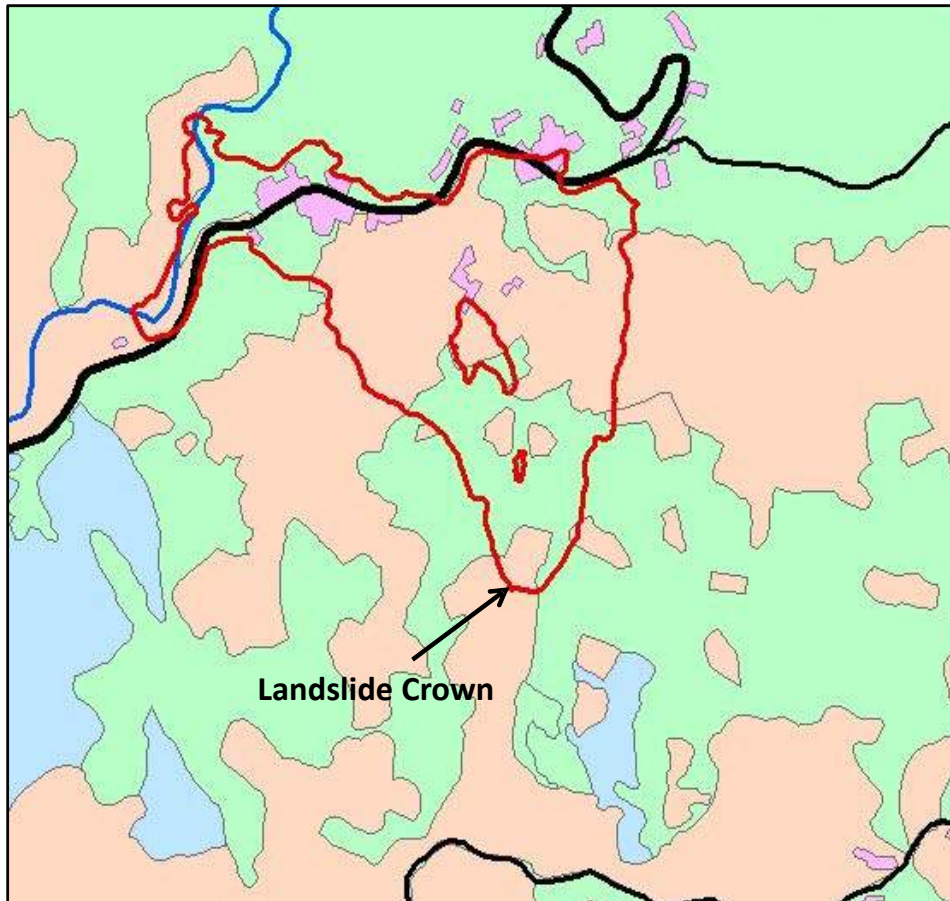
- The landslide area located in 3 geological rock formation : Weathered Volcanic Rock, Aluvium Deposit (Qjm), Clay and Tuff phyroclastic (QTic) and shale, carbonate sand (Tmr).
- Clay and shale on the Qtic and Tmr formation have a low permeability and high porosity. This sedimentation layers absord a lot of rain water and keep it until saturated. This layers will expand and become slick. It cause the weathered volcanic rock unconsolidated

Slope Analysis



- Contour Map extracted from InSAR ALOS – 1 combine with SRTM
- The landslide crown located in 47 – 62% slope
- Settlement located in 13 – 20 % slope





INFORMATION

- Woody Plantation
- Agriculture (pady, Vegetable)
- Settlement
- shrubs
- Road
- River
- Landslide Area

- Landuse digitized from Pleiades data (before disaster)
- Agriculture landuse on the slope and top of hill create the instability

- The main cause of this landslide is the geological condition (rock and slope), and triggered by rainfall
- The land cover that doesn't appropriate will cause landslide more easily
- The post disaster analysis is useful for emergency response, the evaluation of land cover suitability, disaster mitigation, as input for hazard vulnerability map (expert weighted method, statistical method).

LAPAN Disaster Monitoring (Remote Sensing Based) Website

- <http://pusfatja.lapan.go.id/simba/index.php/home>



The screenshot shows the homepage of the LAPAN Disaster Monitoring website. The header features the LAPAN logo and the text "Pusat Pemanfaatan Penginderaan Jauh Remote Sensing Applications Center". A search bar is located on the right. A navigation menu includes links for Home, Profile, Litbangyasa, SIMBA, SIPANDA, Publication, Agenda, Site Map, and Contact. The date "Tuesday, 24-10-2017" is displayed on the right. The main content area is titled "Sistem Informasi untuk Mitigasi Bencana (SIMBA)" and includes a "Selamat Datang" message. Below this, there are three images: a map of Indonesia, a satellite image of a forest fire, and a satellite image of a river. The "Focused Services" section lists two services: "Sistem Informasi untuk Mitigasi Bencana Alam" and "Sistem Informasi Sumber Daya Alam dan Lingkungan". The "Sistem Informasi untuk Mitigasi Bencana (SIMBA)" section provides a description of the service and a list of information types.

Pusat Pemanfaatan Penginderaan Jauh
Remote Sensing Applications Center

Searching...

Home Profile Litbangyasa SIMBA SIPANDA Publication Agenda Site Map Contact Ind - Eng

Welcome to Website of Remote Sensing Applications Center Tuesday, 24-10-2017

Sistem Informasi untuk Mitigasi Bencana (SIMBA)
Selamat Datang

Focused Services

Sistem Informasi untuk Mitigasi Bencana Alam

Sistem Informasi Sumber Daya Alam dan Lingkungan

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 (diantaranya: 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. Sistem Peringat Bahaya Kebakaran (SPBK) (Informasi: [jpeg](#), [WebGIS](#))
2. Pemantauan kondisi titik panas (hotspot) (Informasi: [WebGIS](#))
3. Informasi potensi banjir (Informasi: [jpeg](#), [WebGIS](#))
4. Informasi potensi banjir/kekeringan di wilayah pertanian padi (Informasi: [jpeg](#))
5. Informasi letusan gunung berapi (Informasi: [jpeg](#))
6. Kabut asap kebakaran, dan informasi bekas lahan terbakar (Pedoman: [pdf](#); Informasi: [jpeg](#))

- <http://pusfatja.lapan.go.id/index.php/tanggapbencana>



The screenshot shows the homepage of the LAPAN Disaster Emergency Response website. The header features the LAPAN logo and the text "Pusat Pemanfaatan Penginderaan Jauh Remote Sensing Applications Center". A search bar is located on the right side of the header. Below the header is a navigation menu with links: Beranda, Profil, Litbangyasa, SIMBA, SIPANDA, Publikasi, Agenda, Peta situs, Kontak, and a language selector (Ind - Eng). The main content area is divided into two columns. The left column has a "Fokus Layanan" section with two links: "Sistem Informasi untuk Mitigasi Bencana Alam" and "Sistem Informasi Sumber Daya Alam dan Lingkungan". Below this is a "Berita" section with two news items. The right column features three news items, each with a thumbnail image and a title. The first two news items are about disaster response based on satellite data for Papua, and the third is about the eruption of Mount Agung in Bali.

Pusat Pemanfaatan Penginderaan Jauh
Remote Sensing Applications Center

Pencarian...

Beranda Profil Litbangyasa SIMBA SIPANDA Publikasi Agenda Peta situs Kontak Ind - Eng

Fokus Layanan

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

Berita

SEMINAR NASIONAL PENGINDERAAN JAUH KE-4 TAHUN 2017
17-10-2017

DEPUTI BIDANG PENGINDERAAN JAUH LAPAN MELAKSANAKAN BIMBINGAN TEKNIS UNTUK MENINGKATKAN KEMAMPUAN DALAM MENGOLAH DATA PENGINDERAAN JAUH BAGI STAF KEMENTERIAN/LEMBAGA DAN PEMERINTAH DAERAH GELOMBANG VII
02-10-2017

Respon Tanggap Darurat Bencana Berbasis Data Satelit (Sebaran Asap dan Lokasi HotSpot Provinsi Papua)
Terkait kejadian Sebaran Asap di Provinsi Papua, berikut merupakan informasi sebaran asap dan lokasi titik panas (hotspot) berbasis data satelit penginderaan jauh tanggal 4 Oktober 2017.

Respon Tanggap Darurat Bencana Berbasis Data Satelit (Sebaran Asap dan Lokasi HotSpot Provinsi Papua)
Terkait kejadian Sebaran Asap di Provinsi Papua, berikut merupakan informasi sebaran asap dan lokasi titik panas (hotspot) berbasis data satelit penginderaan jauh tanggal 3 Oktober 2017.

Informasi Tanggap Darurat Bencana Erupsi Gunungapi Agung Provinsi Bali
Terkait kejadian erupsi gunungapi Agung provinsi Bali, berikut merupakan informasi estimasi jumlah bangunan pemukiman pada Kawasan Rawan Bencana (KRB) gunungapi Agung.



Thanks