GNSS and Remote Sensing for Disaster Management & Earth's Environment Monitoring in Indonesia

Scientific and Technical Subcommittee
UN Committee of Peaceful Uses of Outer Space
Forty-Seventh Session
Vienna, February 8-19 , 2010

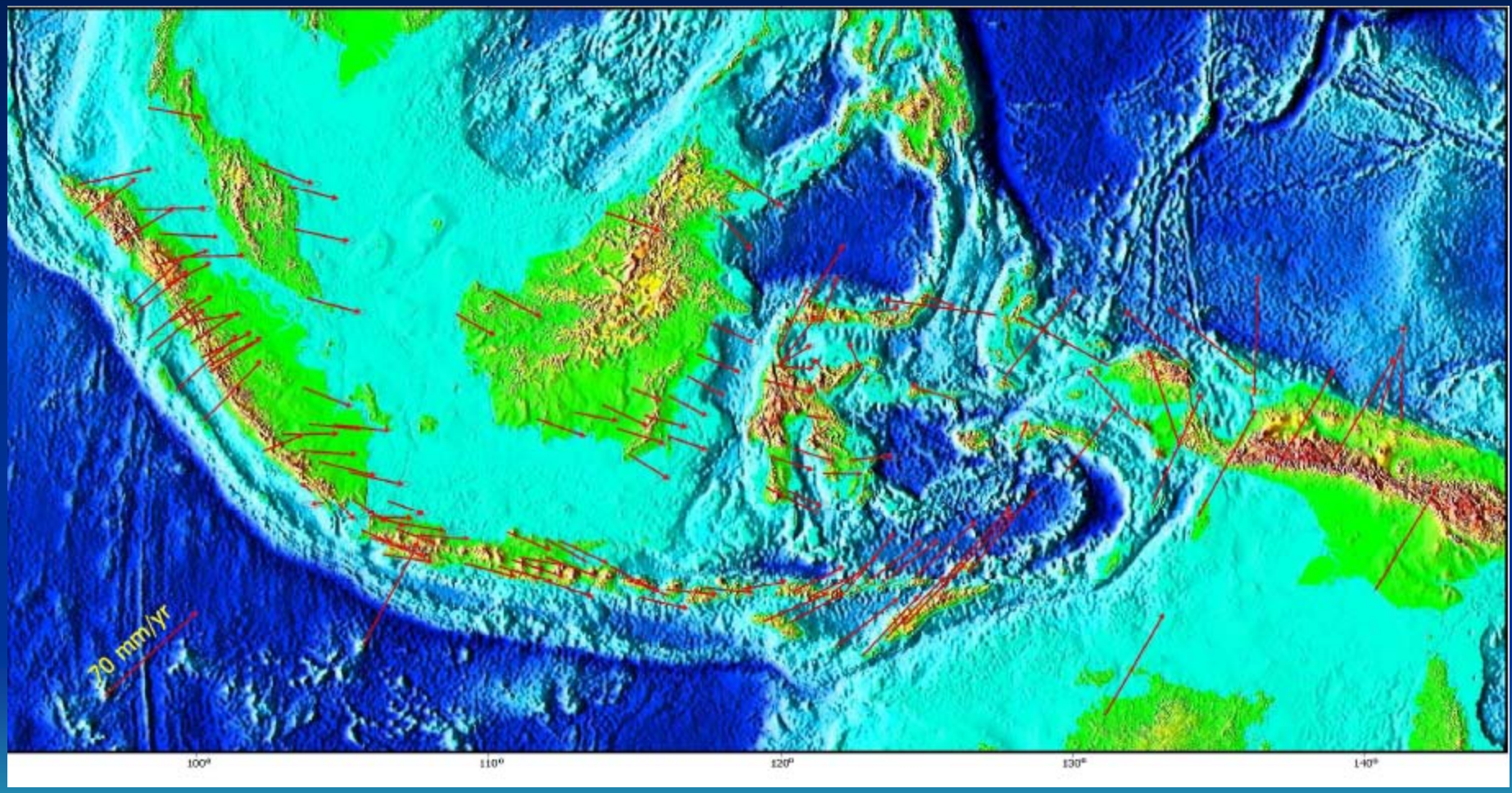
Disaster Management

- Mitigation
  - GNSS for monitoring of earth crustal motion
  - RS for Climate Change Studies (GHG, SLR)
  - RS for Disaster Preparadness & Early Warning
- Quick Response
  - RS for Disaster Information
  - RS for Impact Analysis of Earthquake, Volcano, Flood, Forestfire, etc.
  - GNSS for Optimation of Search & Rescue.

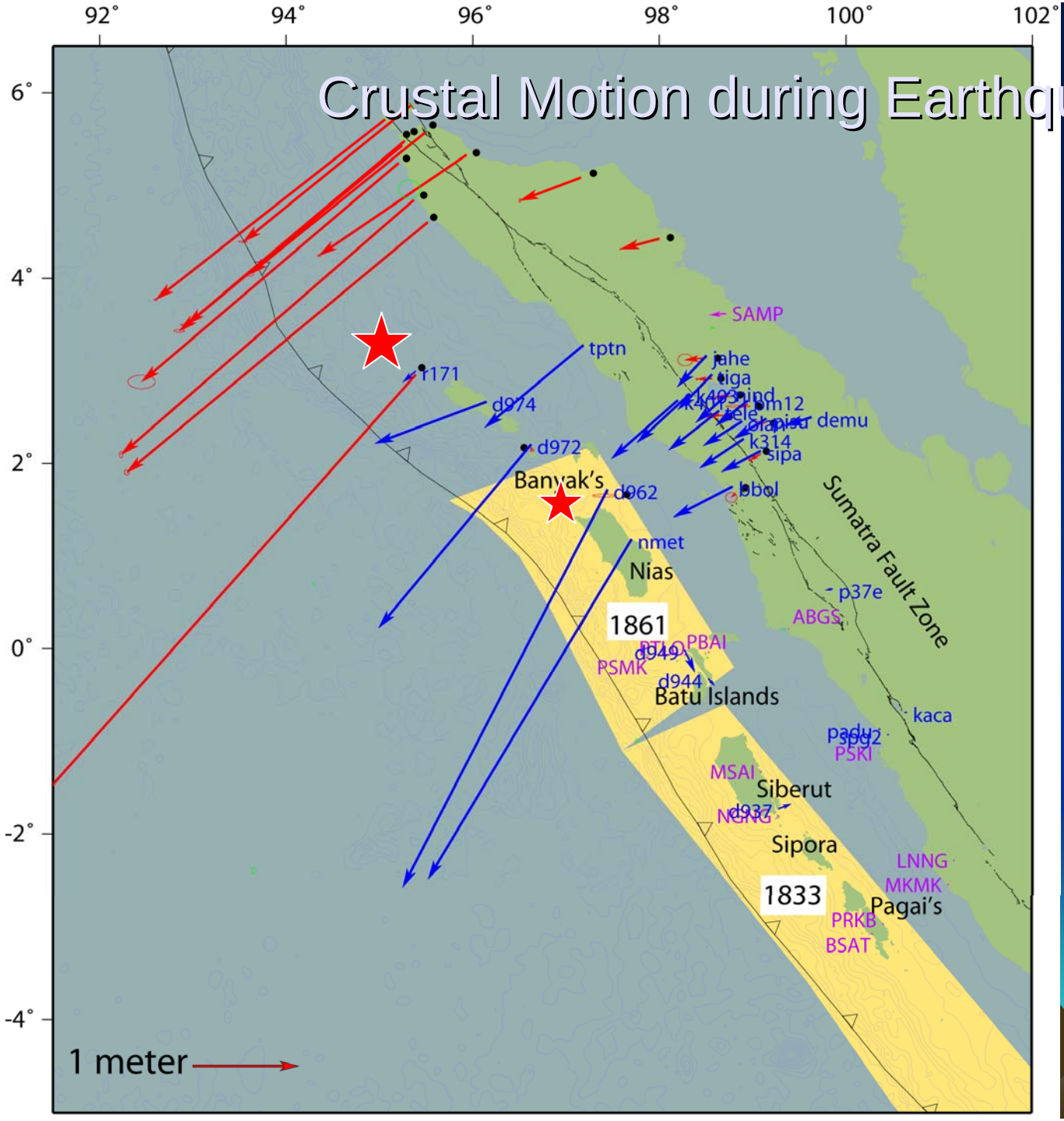
Mitigation

1. GNSS for monitoring of earth crustal motion
2. Remote Sensing for Climate Change Studies
3. RS for Disaster Preparadness & Early Warning

Monitoring of Earth Crustal Motion using GNSS integrated in Tsunamy Early Warning System

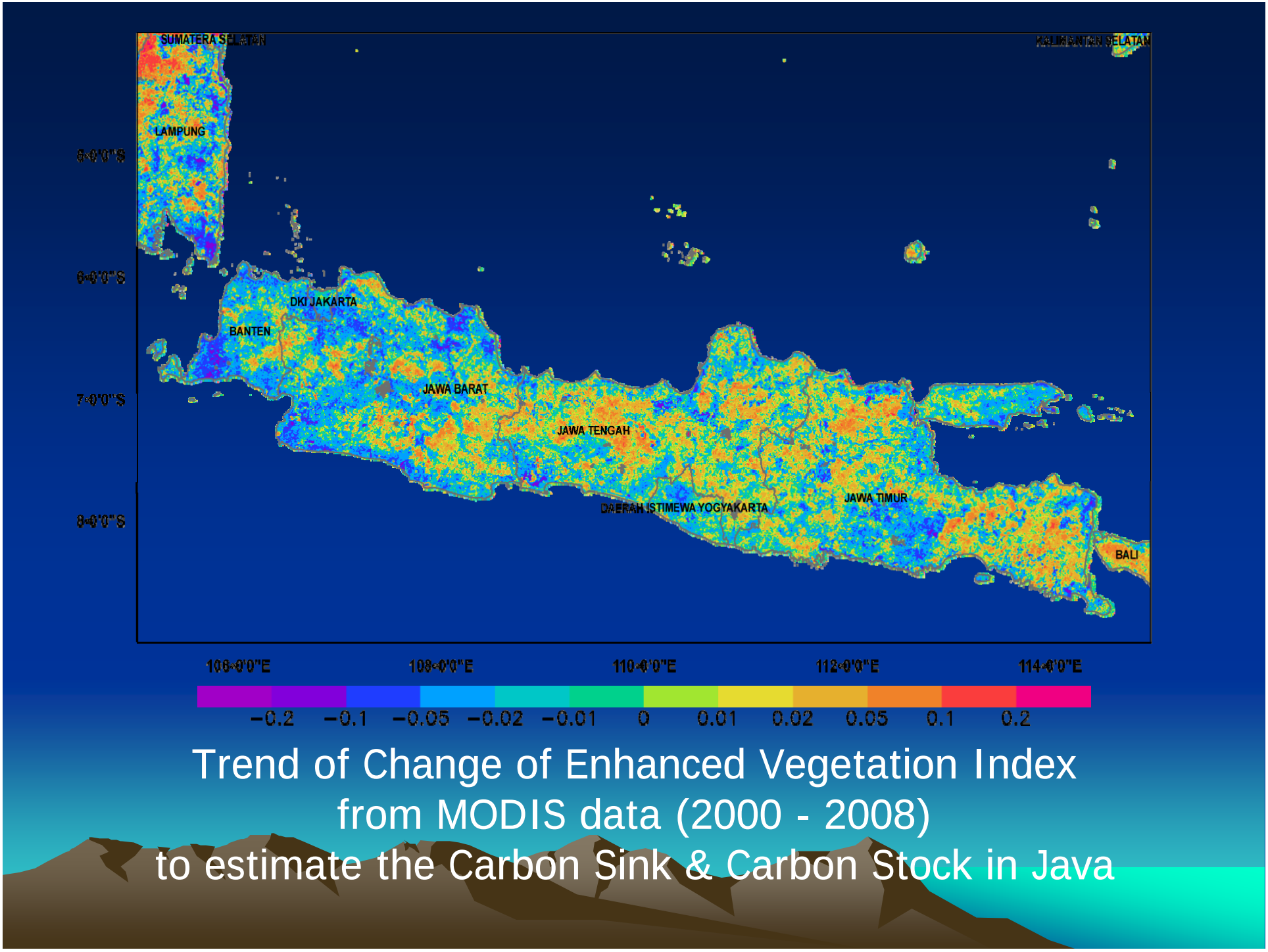


(Subarya, 2004)



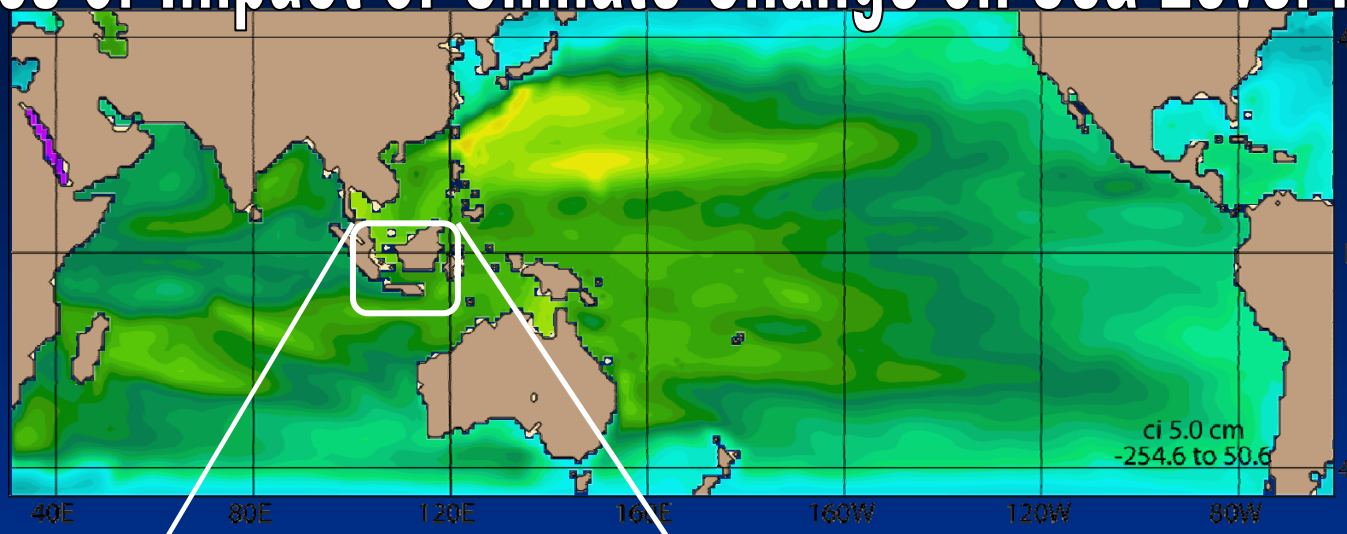
Survey mode GPS coseismic displacements – Dec 26th 2004 and March 28 2005 Earthquake

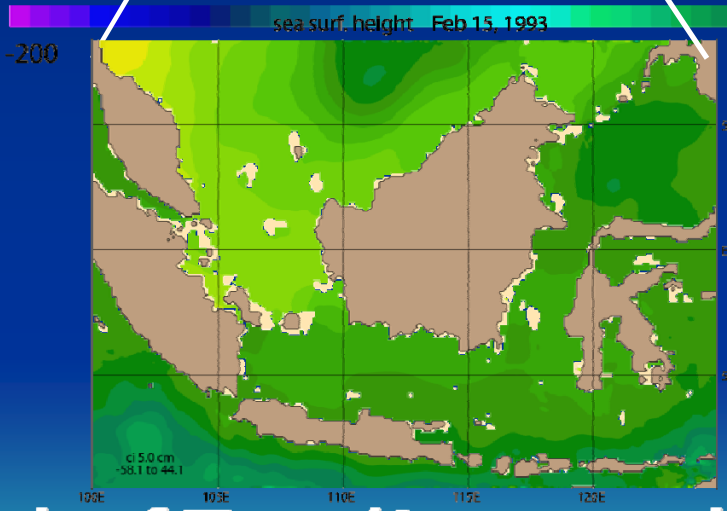
csubarya@bakosurtanal.go.id



Trend of Change of Enhanced Vegetation Index from MODIS data (2000 - 2008) to estimate the Carbon Sink & Carbon Stock in Java

Studies of Impact of Climate Change on Sea Level Rising





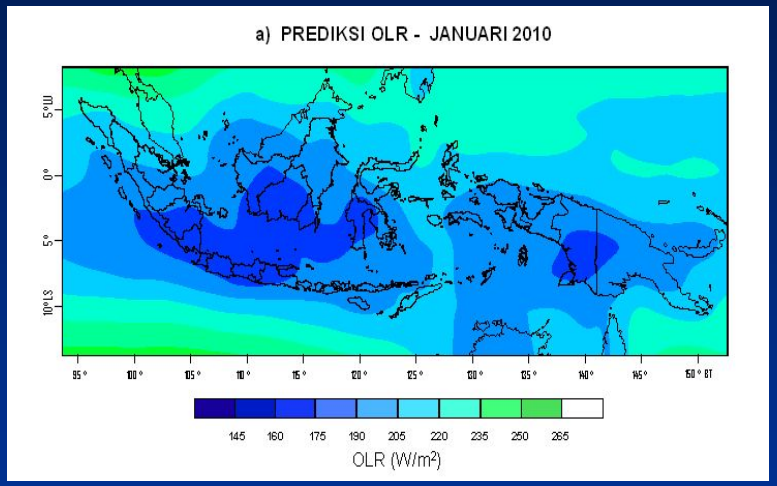
IPD, 1.0° x 1.0°

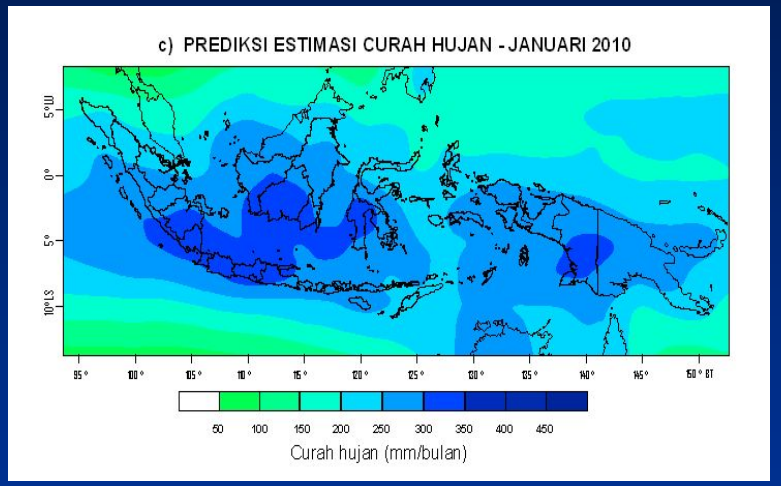
JSD, 0.1° x 0.1°

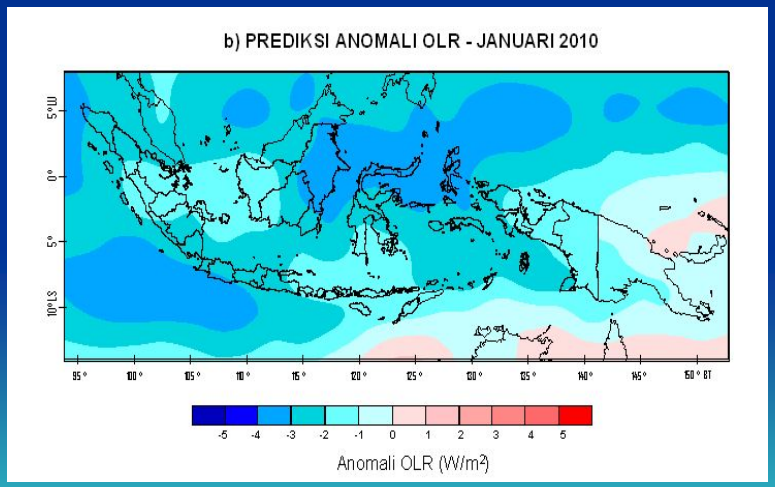
Result of Terra/Aqua-satellite data

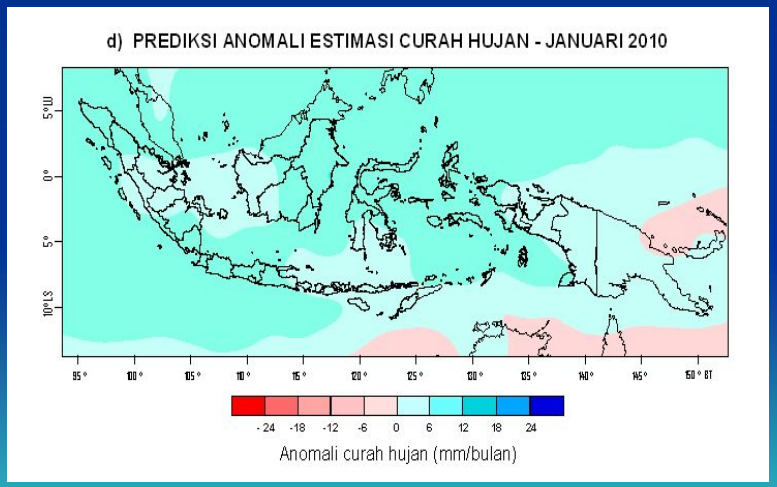
Simulation using nesting methods from Global Scale into Regional Scale

Prediction of OLR, its Anomaly, Rainfall Estimation & its Anomaly



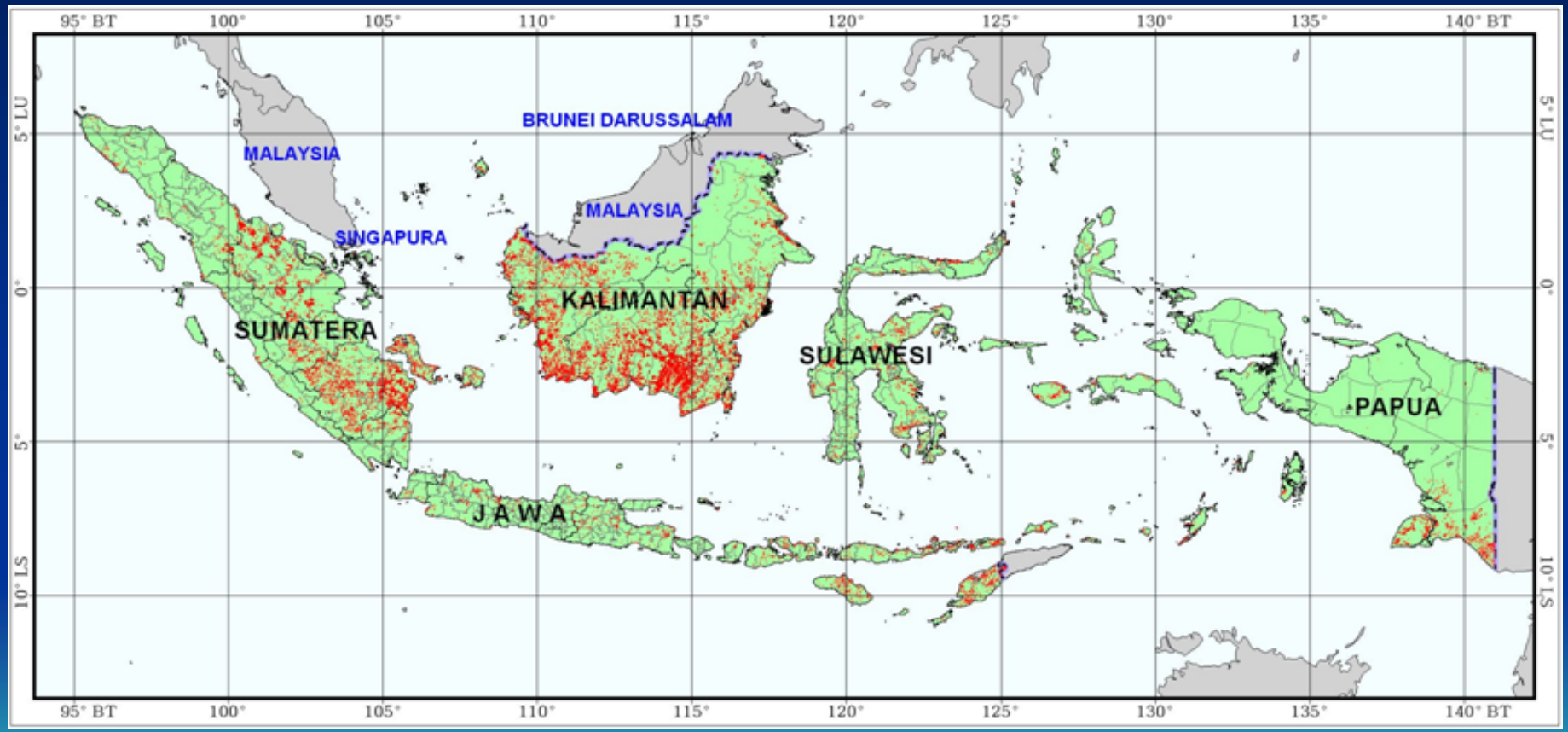






Flood Prone area in Java

Yearly Hotspot Monitoring using MODIS Imageries



Quick Response

1. Remote Sensing for Disaster Information
2. Remote Sensing for Impact Analysis of Earthquake, Volcano, Flood, Forestfire, etc.
3. GNSS for Optimation of Search & Rescue.

SIMBA-LAPAN (Remotely-Sensed Information System for Natural Disaster Mitigation) - Windows Internet Explorer

http://www.lapanrs.com/SMBA/smba.php?lg=en

www.lapanrs.go.id

File Edit View Favorites Tools Help

Favorites | Internet Explorer cannot di... | SIMBA-LAPAN (Remot...

KEDEPUTIAN PENGINDERAAN JAUH - LAPAN

NATIONAL INSTITUTE OF AERONAUTICS AND SPACE - REMOTE SENSING AFFAIRS

HOME | TECHNOLOGY DEVELOPMENT | DATA SERVICES | EARTH MONITORING AND SIMBA
PROFILE | BUSINESS SUPPORT | NATURAL RESOURCES INV. | APPLICATION DEVELOPMENT
LINK | TRAINING AND ACTIVITIES | DOWNLOAD | SITE MAP

Language English

Weather & Climate Natural Disaster Crop Assessment Other Natural Disaster Database 17:19:07

Monday, February 15, 2010

SIMBA Menu

- Home
- Searching Form

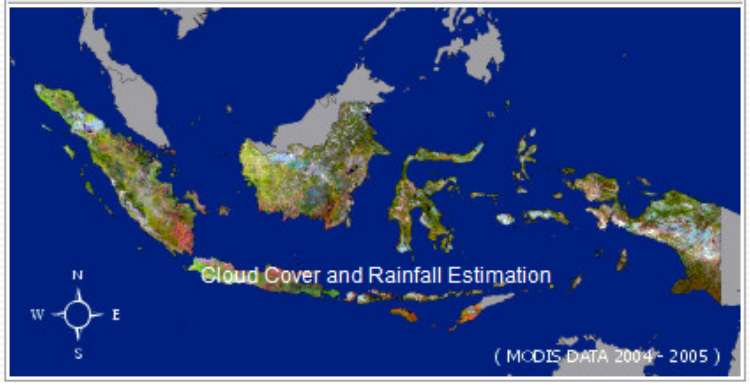
Daily Information:

- Cloud Cover
- Rainfall
  - TRMM
  - Qmorph
- Fire Danger Rating System
- Hot Spot
  - Indonesia (MODIS)
  - Indonesia (NOAA)
  - Southeast Asian
  - Smoke Haze Distribution
- Potential Flooded Area
  - Indonesia (MTSAT)
- Ocean Parameters
  - Sea Surface Temperature
  - Chlorophyll

Monthly Information:

Remotely-Sensed Information System for Natural Disaster Mitigation (SIMBA - LAPAN)

News Flash



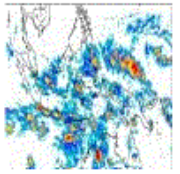
News

- Flood in Cilacap, Jawa Tengah (Feb 2010) detail
- Flood in Jakarta (Feb 2010) detail
- Flood in Labuhan Batu, North Sumatera (Feb 2010) detail
- Flood in Palangkaraya, Central Kalimantan (Jan 2010) detail

New Satelite Image

MODIS Terra/Aqua Satelite Images
(February 03, 2010)

Daily Weather



Cloud Cover (MTSAT)
(February 14, 2010)

Early Warning Bulletin

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SIMBA-LAPAN (Remotely-Sensed Information System for Natural Disaster Mitigation) - Windows Internet Explorer

http://www.lapanrs.com/smba/smba.php?pg=bj_hr_20100215_jkt.htm

www.lapanrs.go.id

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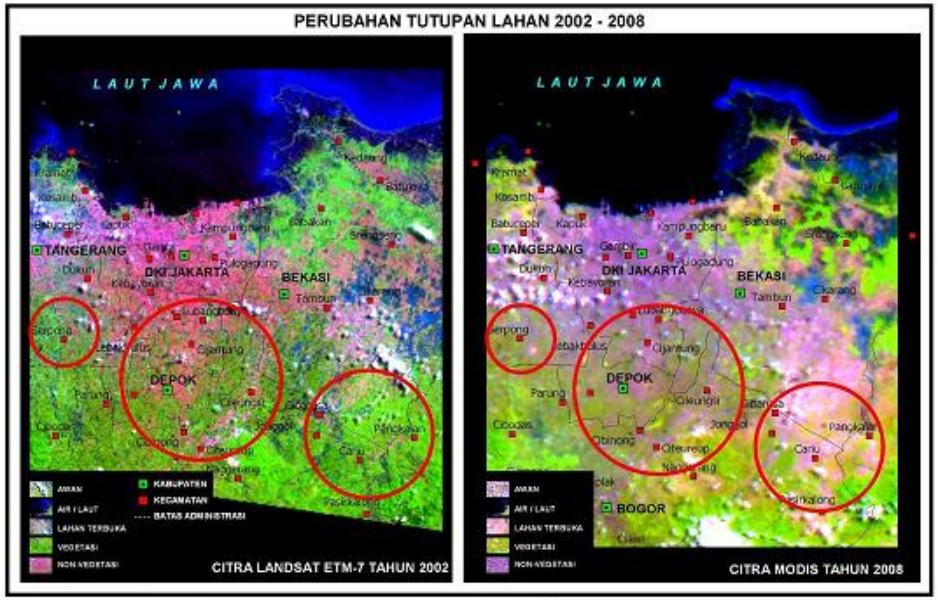
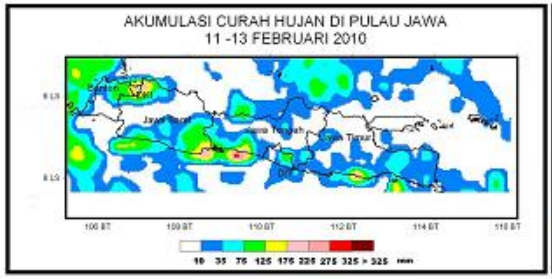
- Ocean Parameters
  - Sea Surface Temperature
  - Chlorophyll

Monthly Information:

- Weather & Climate
  - Tropical Cyclone and Its Effect
  - Rainfall Accumulation
  - Climate Prediction Due to El-Nino/La-Nina
- Fire Danger Rating System
- Hot Spot
  - Sumatera

KEJADIAN BANJIR DI JAKARTA DAN SEKITARNYA 13-15 FEBRUARI 2010





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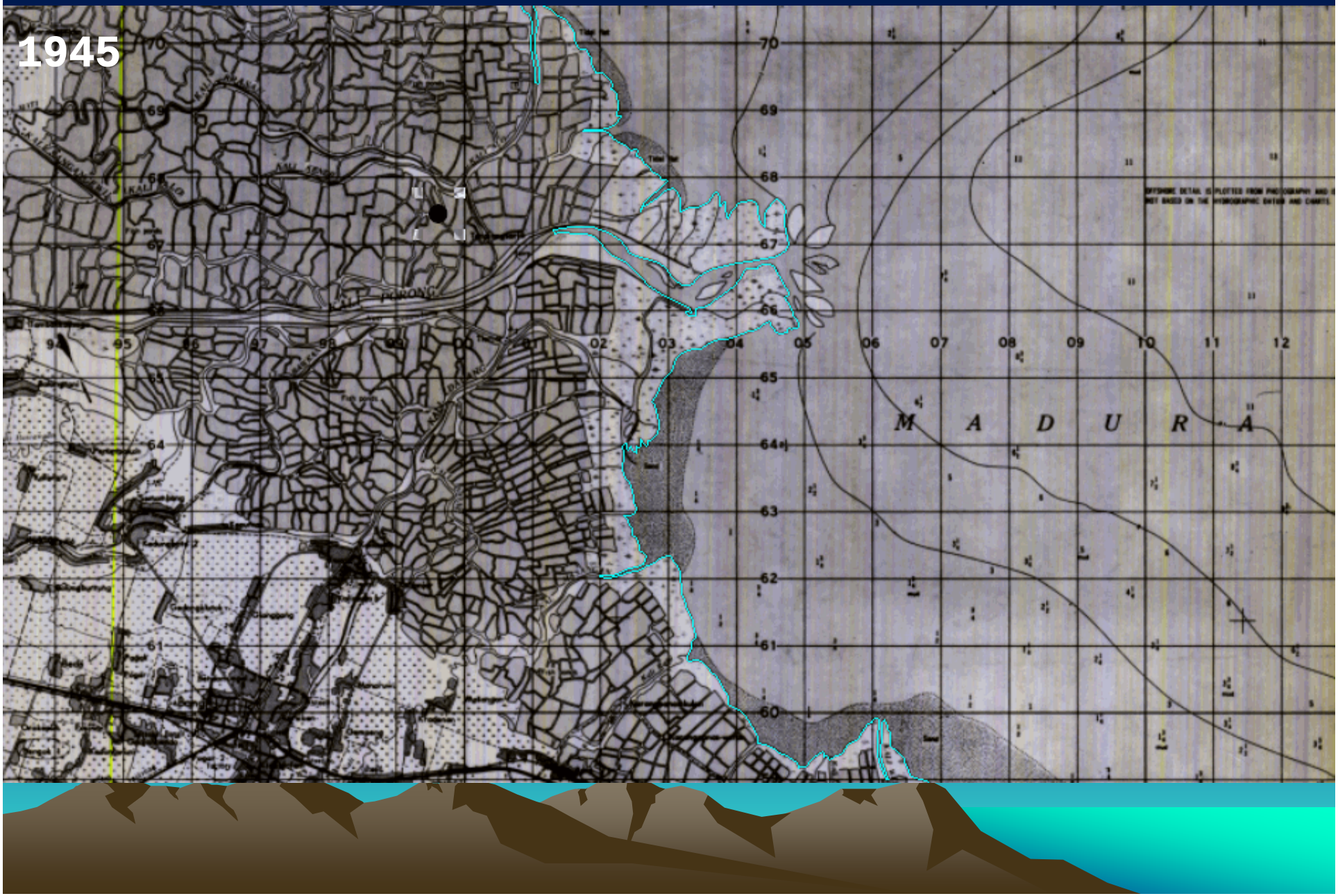
Monitoring of Coastal Development after mud-flow break



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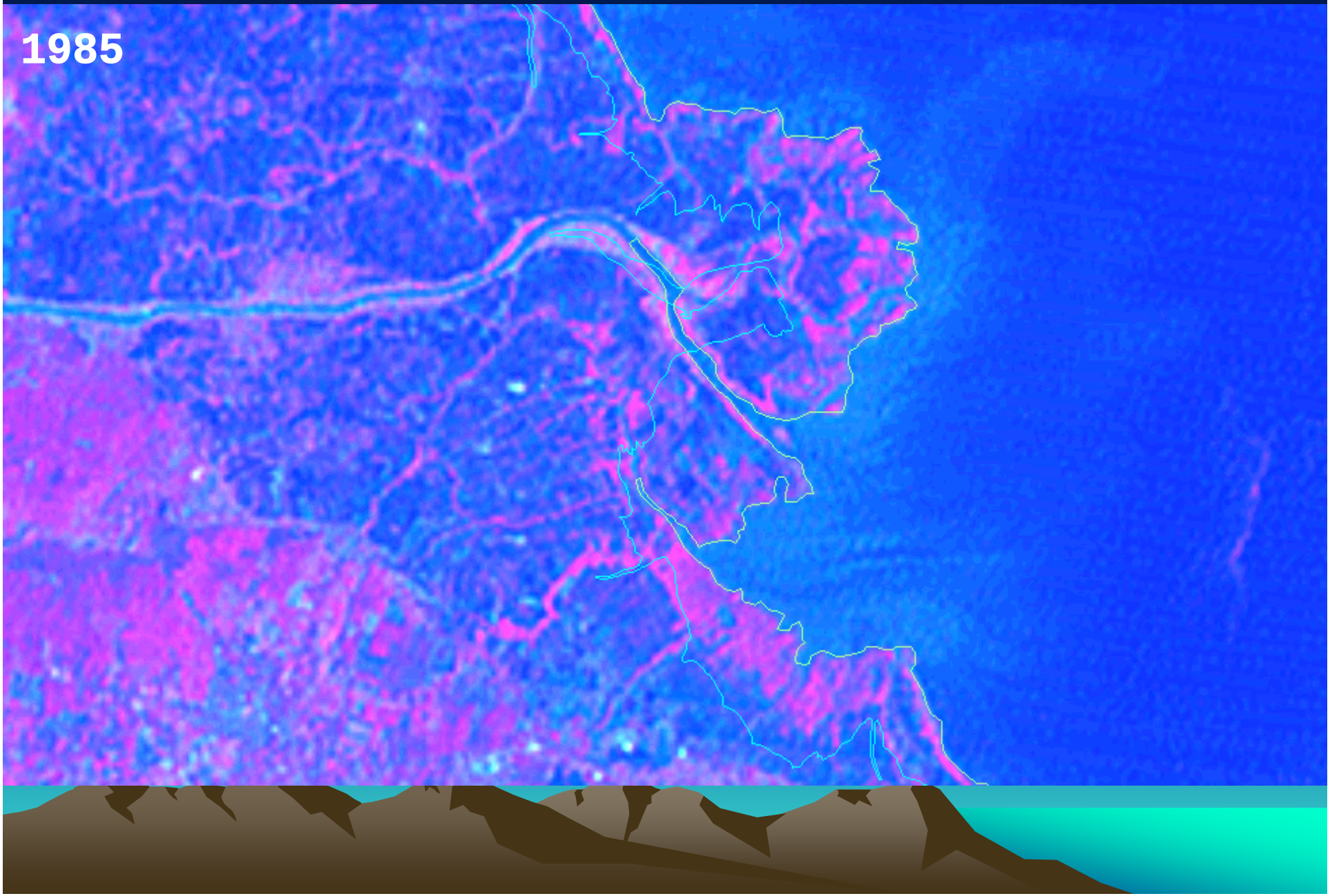

Monitoring of Coastal Development after mud-flow break

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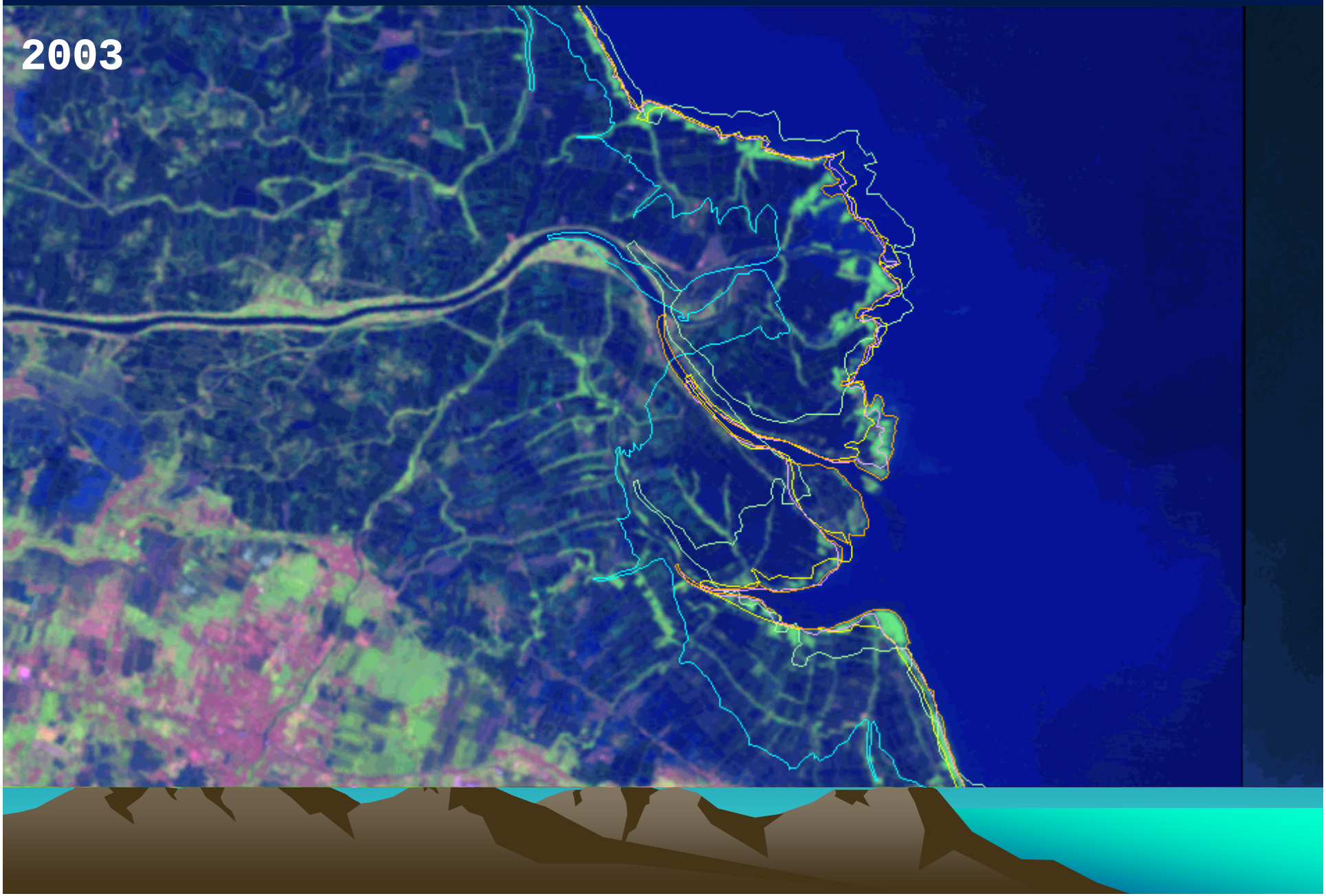

Monitoring of Coastal Development after mud-flow break

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2006
147,5
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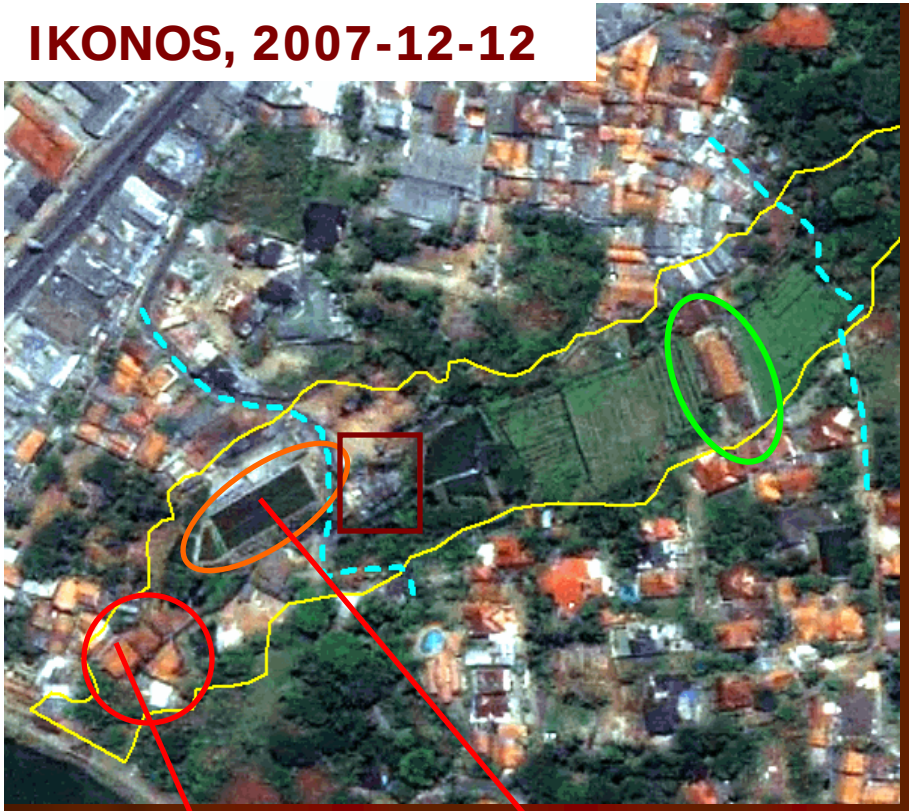
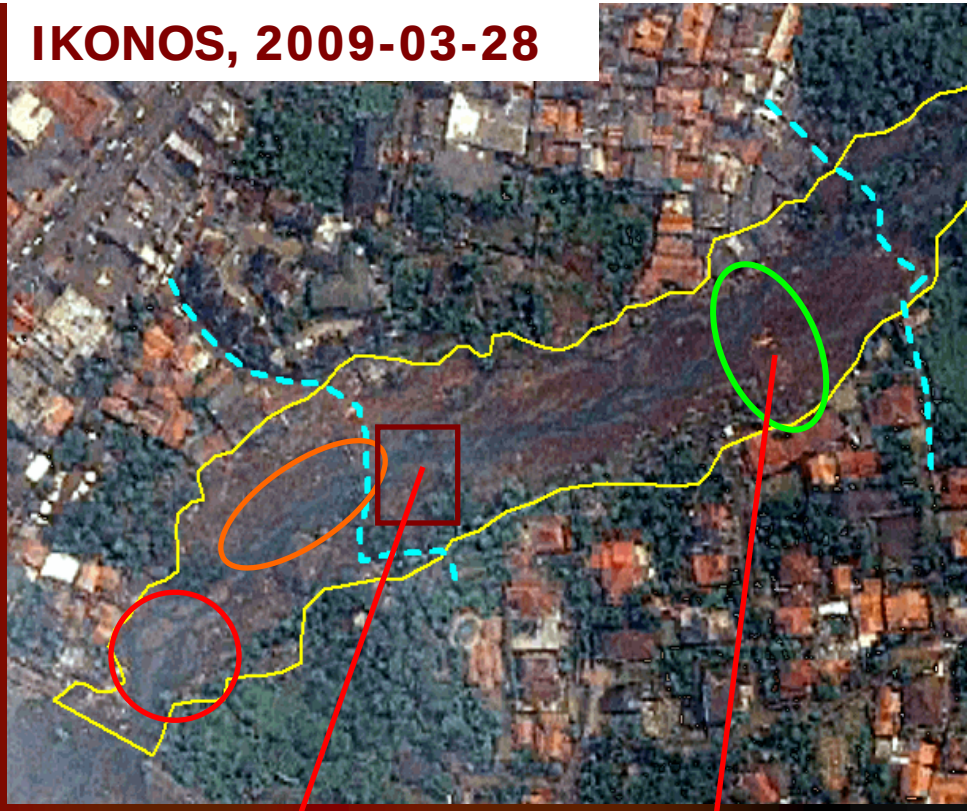
Feb 2008
815 Ha

IKONOS, 2007-12-12



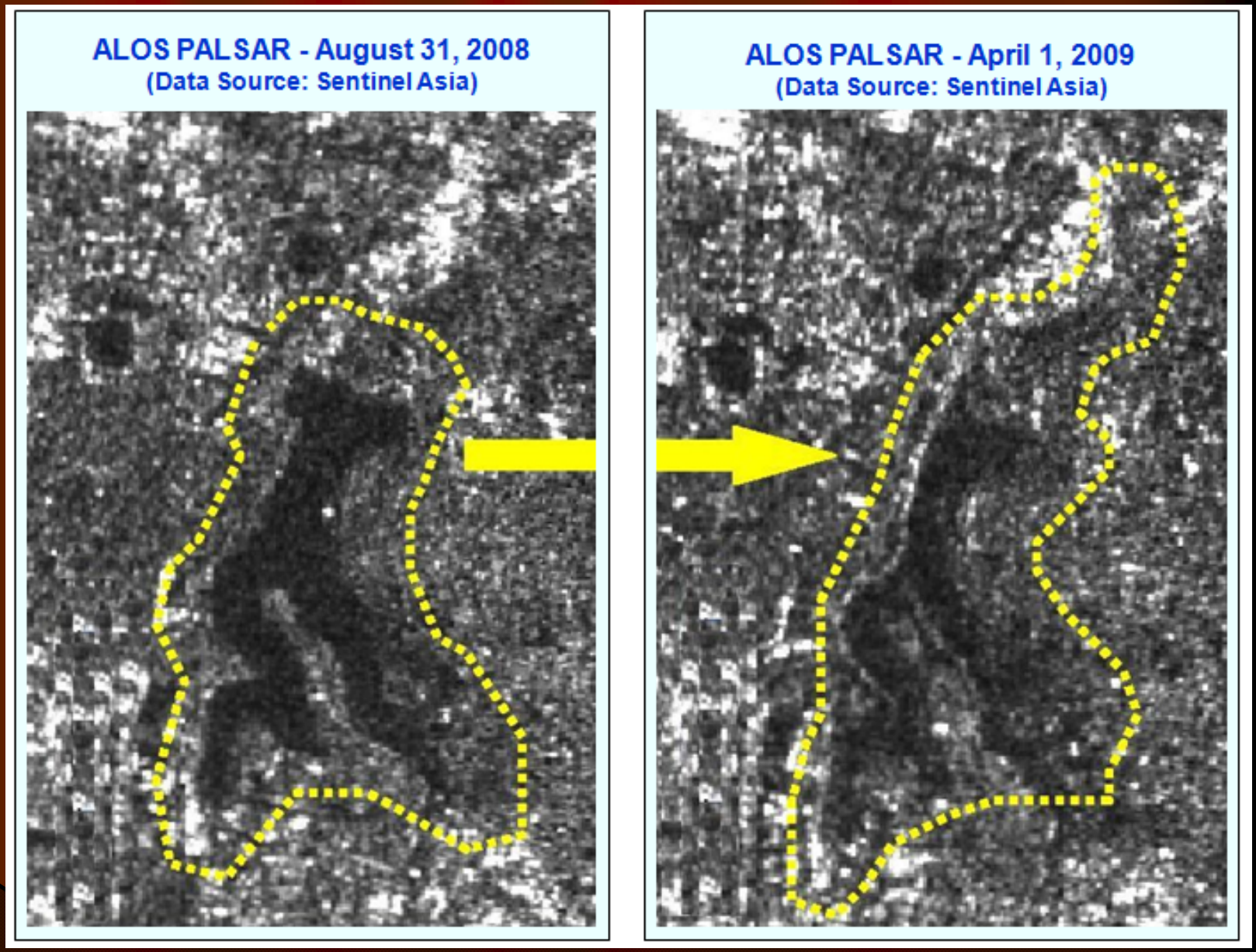
IKONOS, 2009-03-28



Dam Break @ Situ Gintung near Jakarta

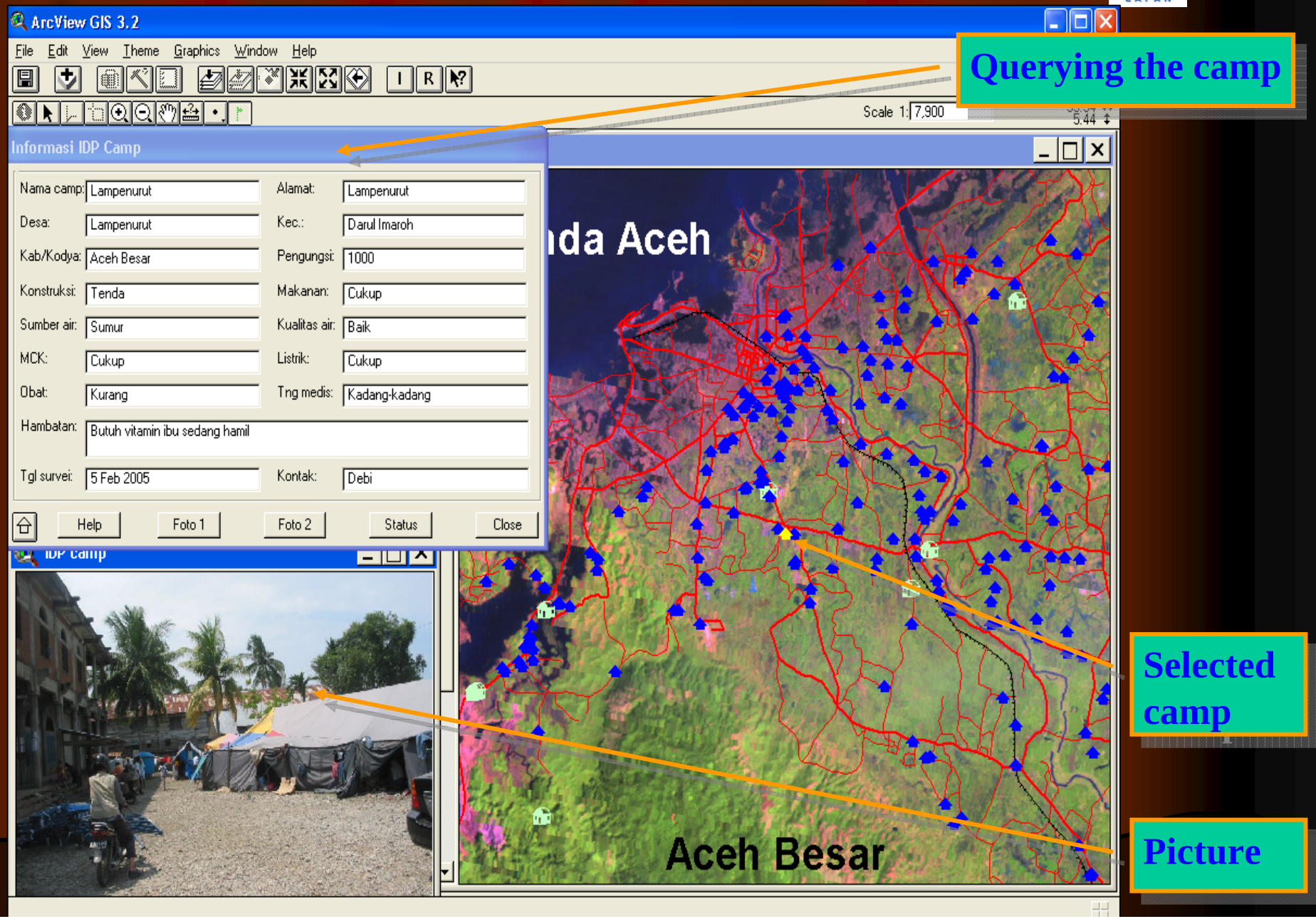
GeoResponse
Situ Gintung Rapid Mapping Assessment

Impact analysis with SAR-data



Rapid damage identification using basemap, remotesensing data & GNSS

Information System for Tsunami Victims



Capacity Building on Satellite Remote Sensing Data for Disaster Management & Earth's Environment Monitoring

- Modis (jp)
- ALOS (jp)
- Cartosat (in)
- Formosat (tw)
- Radarsat2 (ca)
- TerraSAR-X (de)
- Hyperion (us)
- etc.

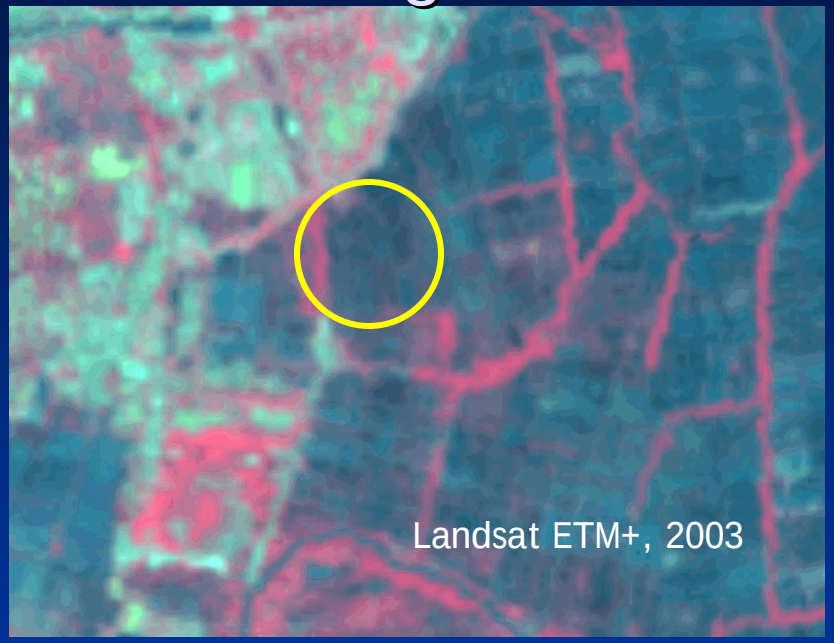
Terrasar-X spotlight data (1 m) over flooded Jakarta, 2008

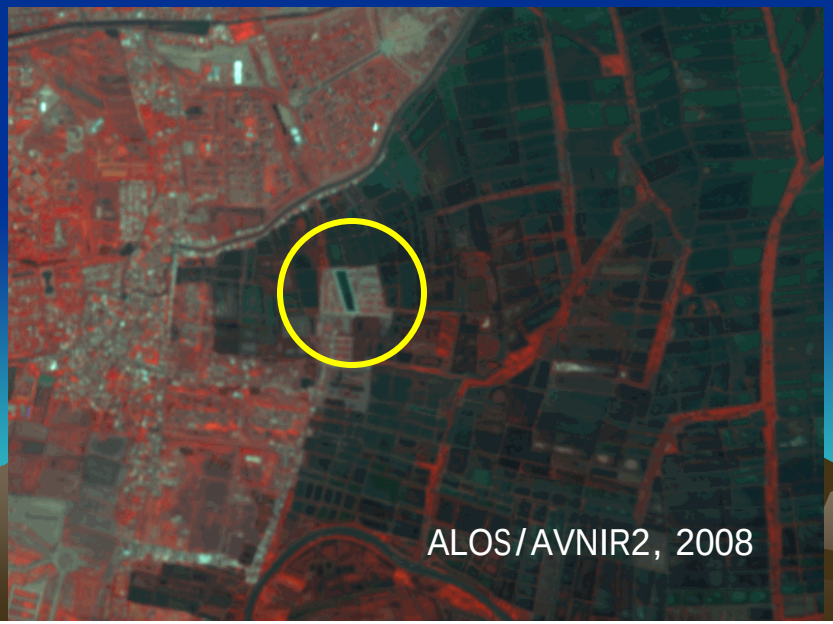
Indonesian Experiment Satellite Lapan Tubsat

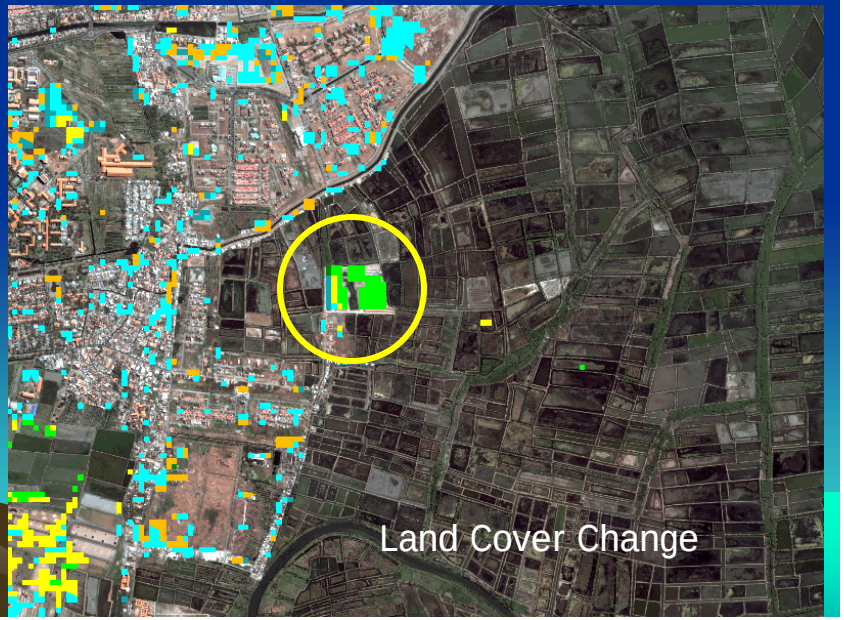
Suramadu Bridge 2007

Suramadu Bridge 2008

Research on Earth Environment Change Detection using Multisensor Satellite Imageries

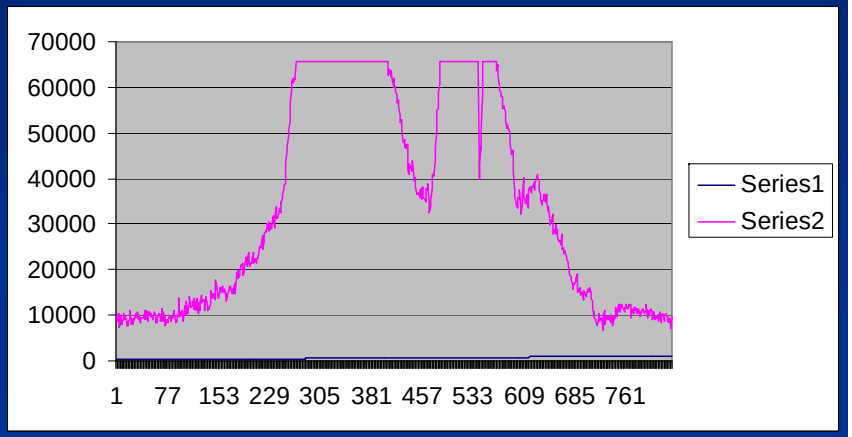


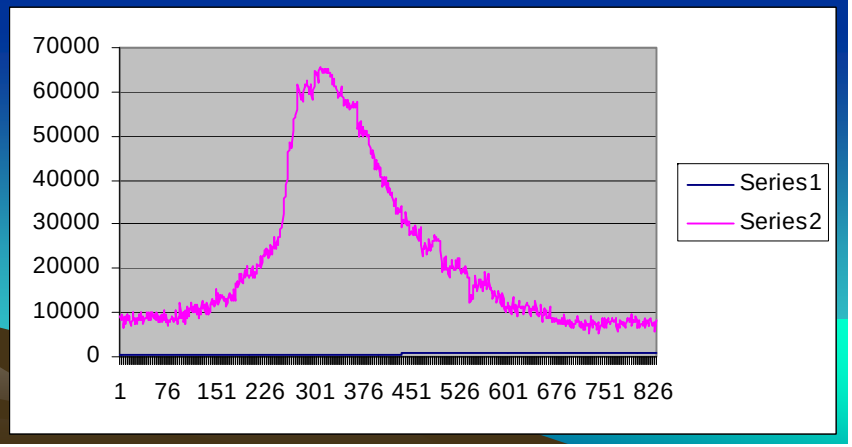


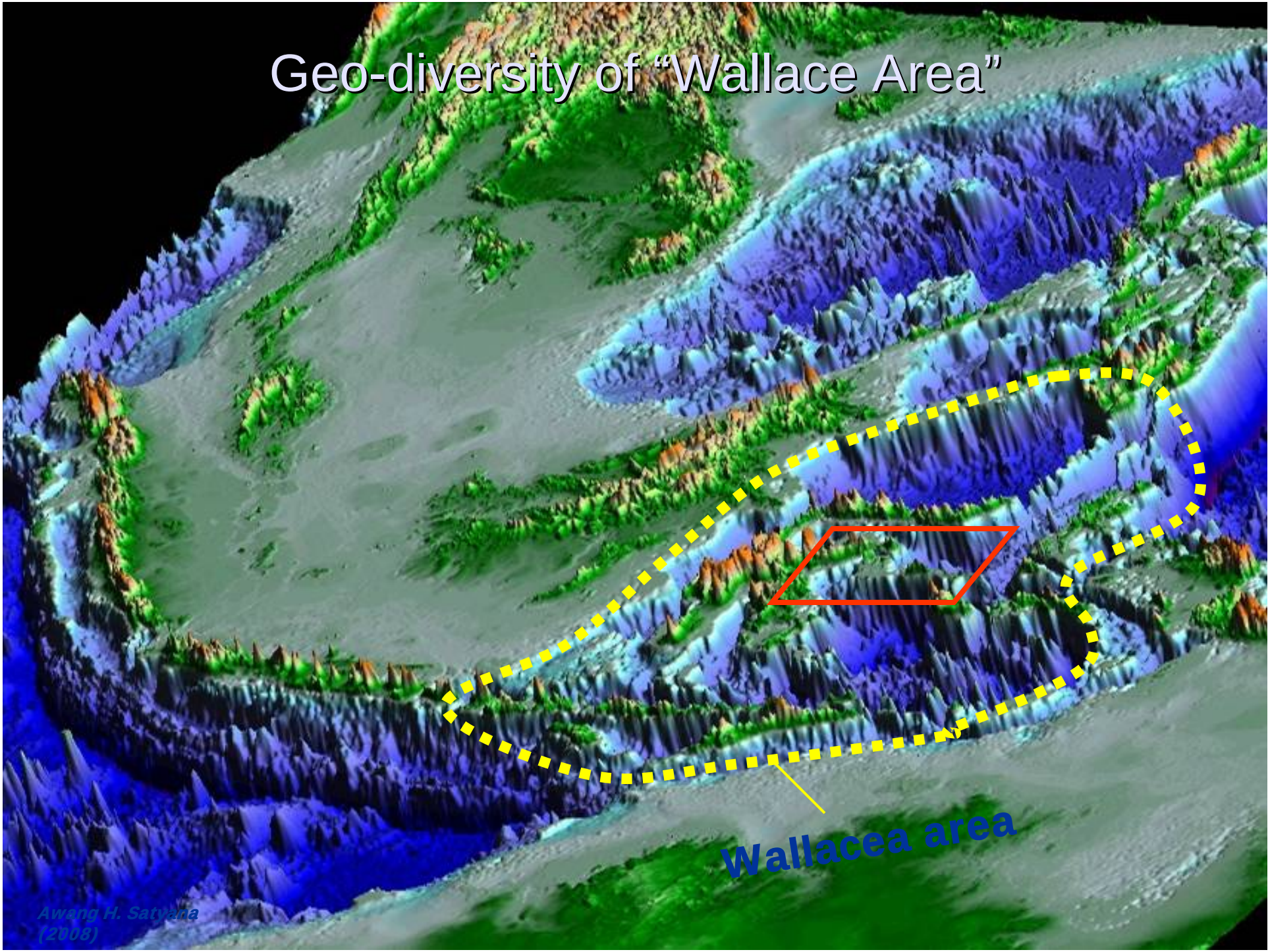


Research on Hyperspectral Satellite Imageries to Map Bio-diversity & Geo-diversity

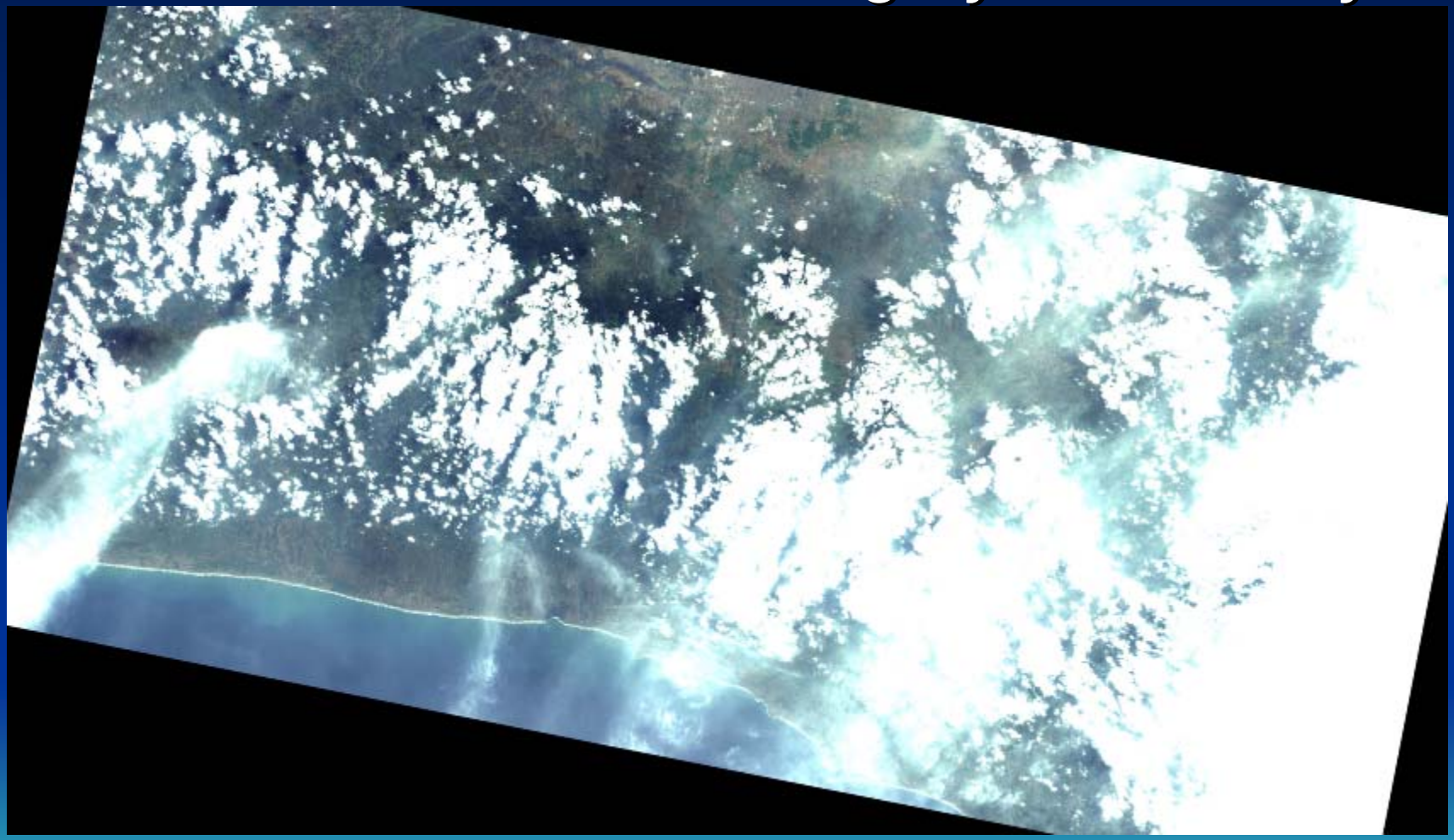
Spectrometry



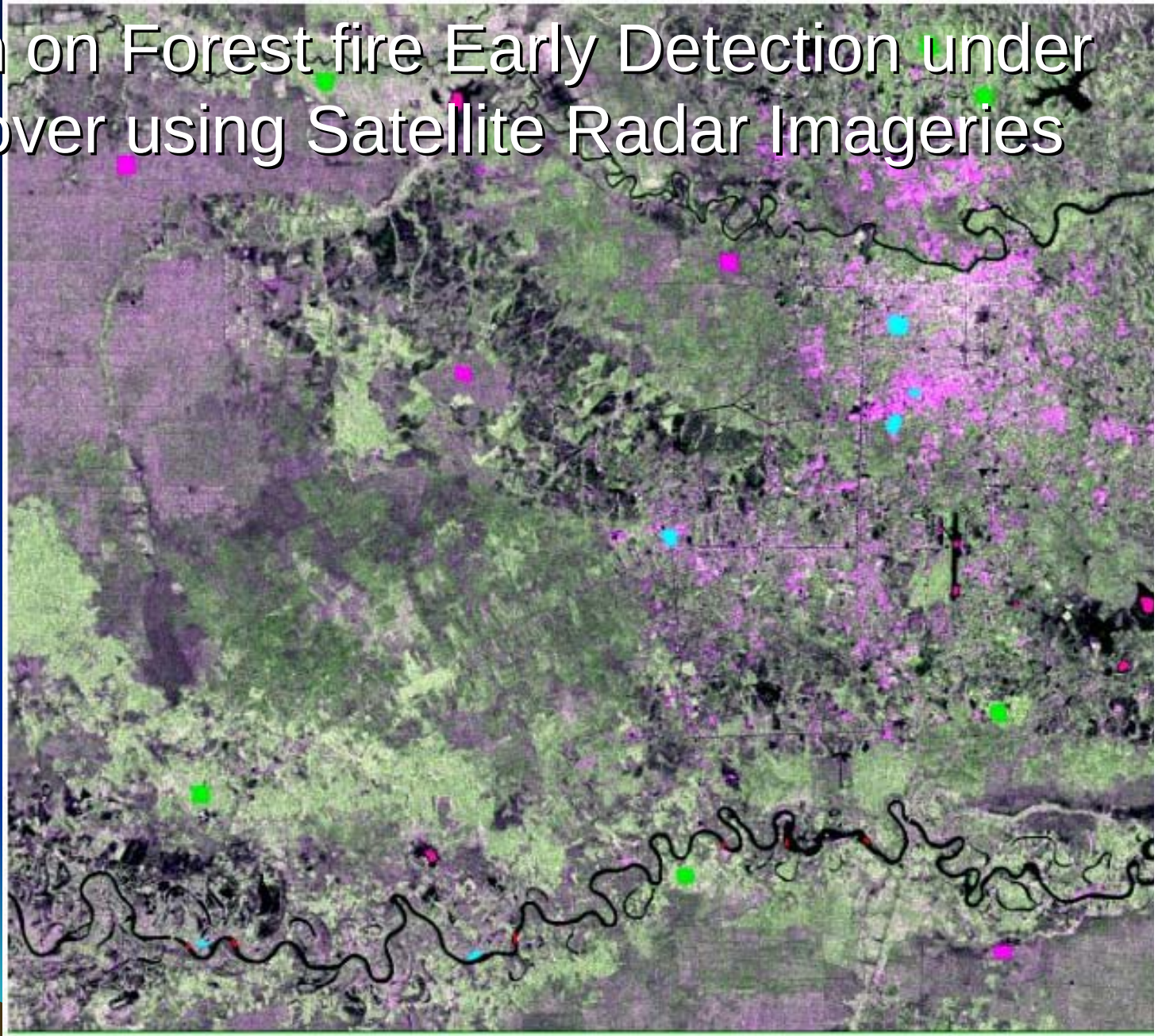



Geo-diversity of “Wallace Area”
Wallacea area
Awang H. Satyana
(2008)

It is some times difficult under cloud cover, even when satellite imagery come early



Research on Forest fire Early Detection under Cloud cover using Satellite Radar Imageries



Indonesia Proposal

- International Standardization
  - On GNSS data format to guarantee interoperability of existing equipment & system
  - Integrated Spatial Data Handling for Disaster Management of all existing RS-satellites.
- Improve the Capacity Building
  - More free sample data for international cooperation on Remote Sensing Research & Training especially in Active Sensor (Radar)
  - More UN sponsored training for GNSS and remotesensing for disaster management & earth's environment monitoring

Thank you

National Institute of Aeronautics and Space
(Lembaga Penerbangan dan Antariksa Nasional, Lapan)

National Coordinating Agency for Surveys and Mapping
(Badan Koordinasi Survey dan Pemetaan Nasional, Bakosurtanal)