



# Overview of Disaster Management in Thailand using Remote Sensing Technology

by

Geo-Informatics and Space Technology Development Agency (GISTDA)  
Ministry of Science and Technology

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IISC (India Institute of Science) Center of Nano Science and Technology Building Bangalor, India

# Extremely Flooding in Thailand 2011



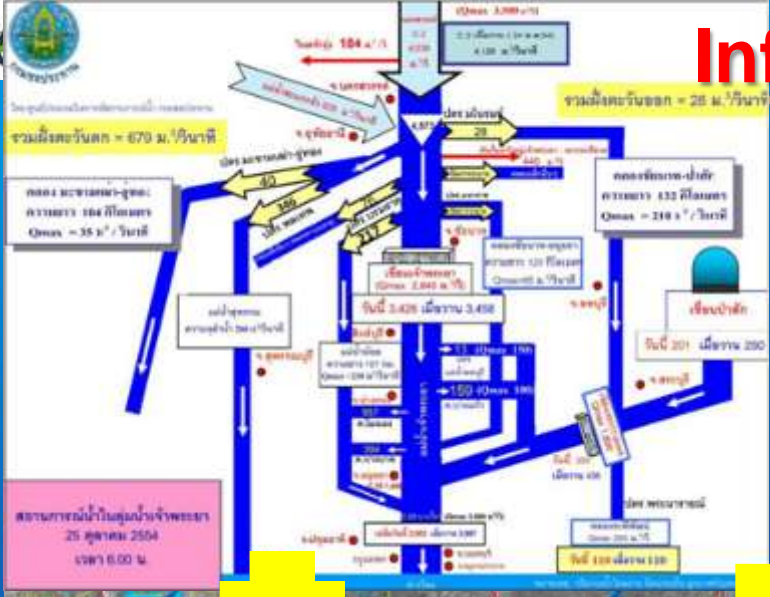
# Actions of the Government

- ❖ Set up **“Flood Relief Operations Center” : FROC**
- ❖ Daily meeting and report to the Prime Minister for action
- ❖ Satellite images (Remote Sensing) derived from space is a golden key for decision making

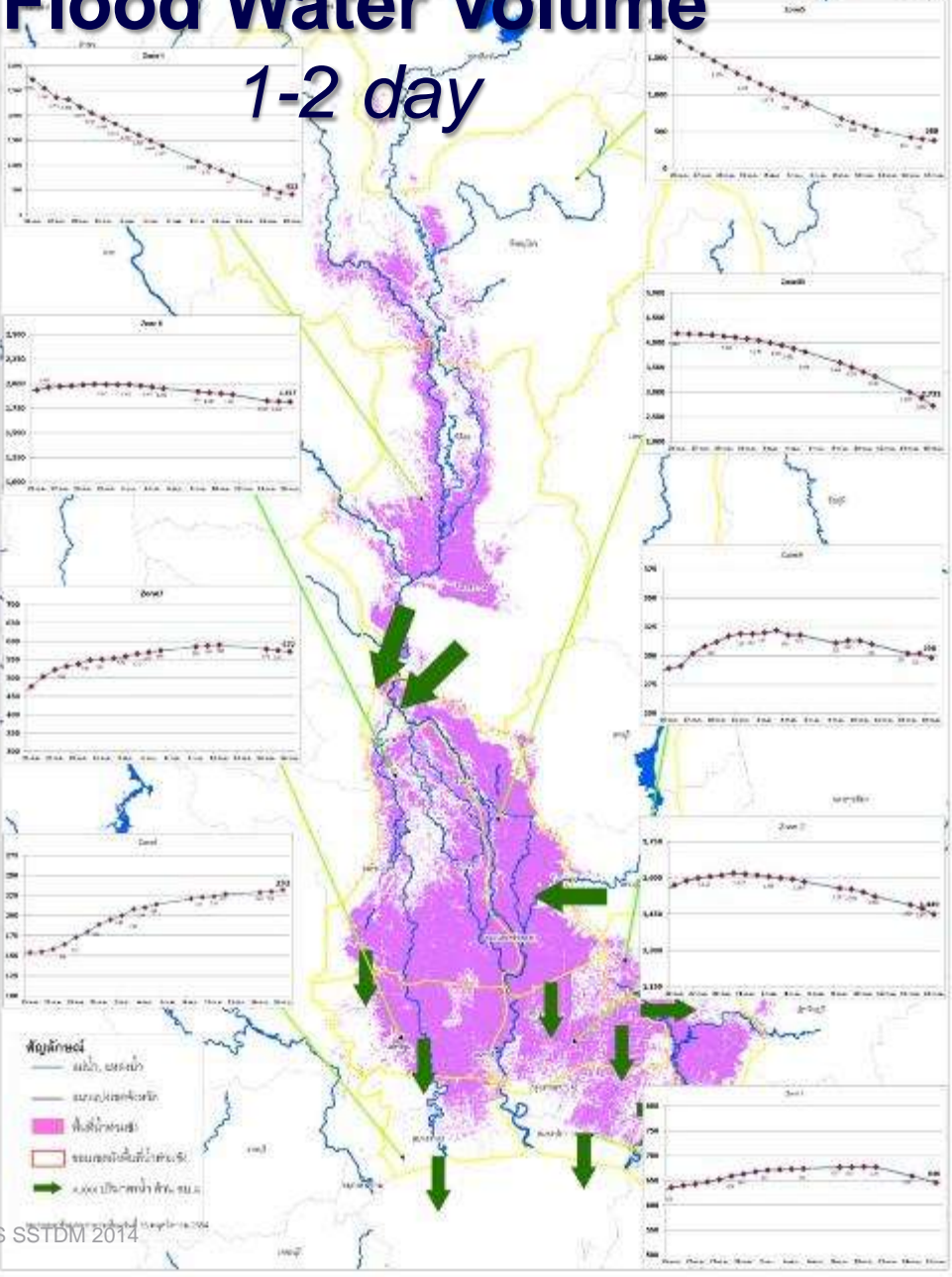
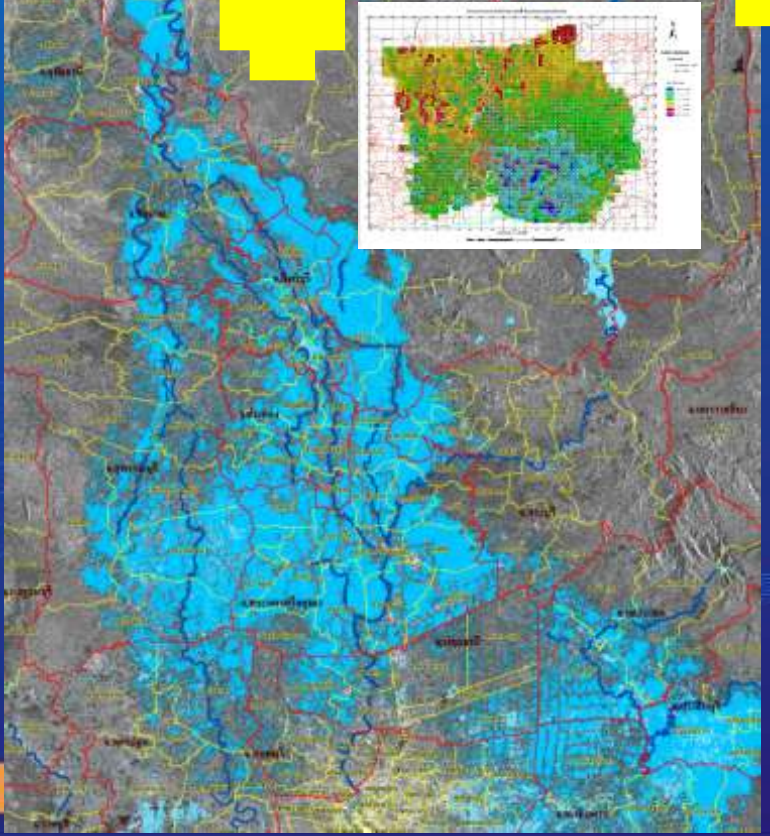




# Information for decision making



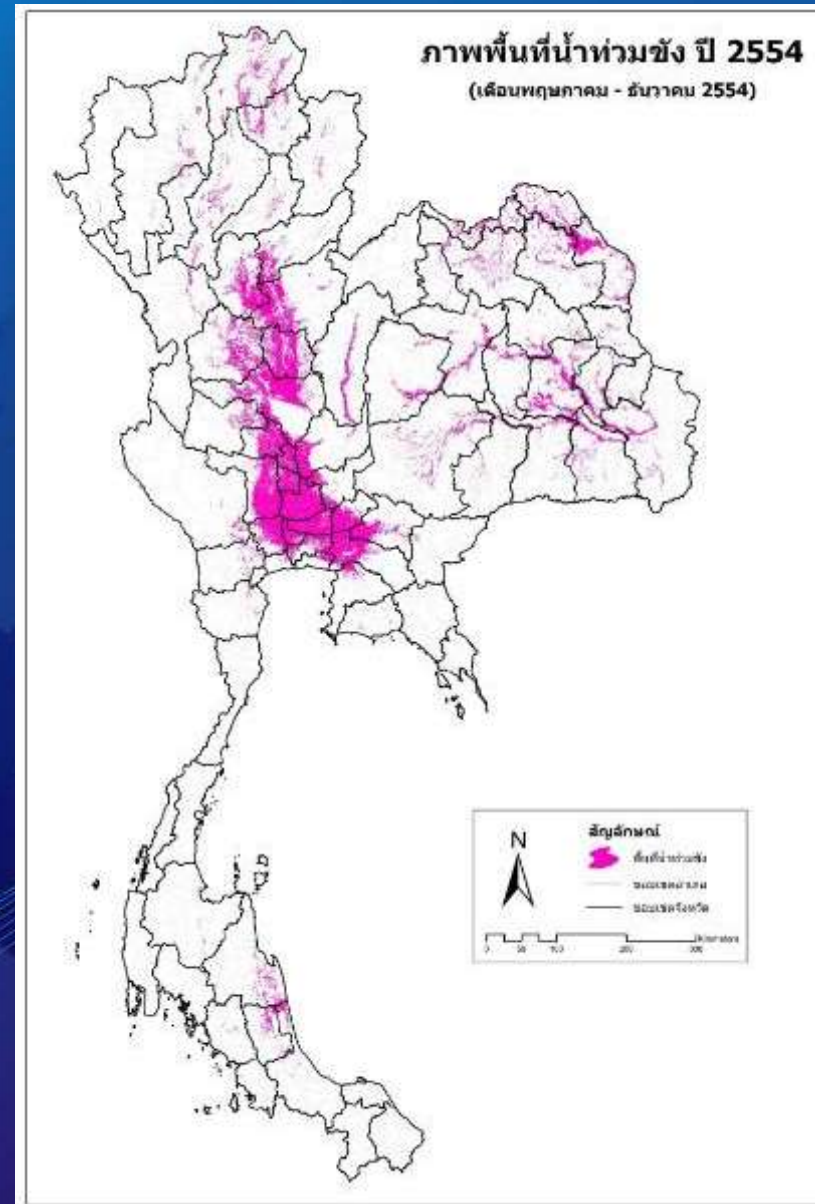
## Flood Water Volume 1-2 day



# Thailand Big Flood 2011: from satellite data

- 935 Radarsatellite images
- 387 THEOS (THAICHOTE) images
- 482 Terra/Aqua MODIS images
- ~ 50 satellite images (HR, SAR..) from international agencies

28.69 million Rai / ~45,900 km<sup>2</sup>



# EOS Application for Flood

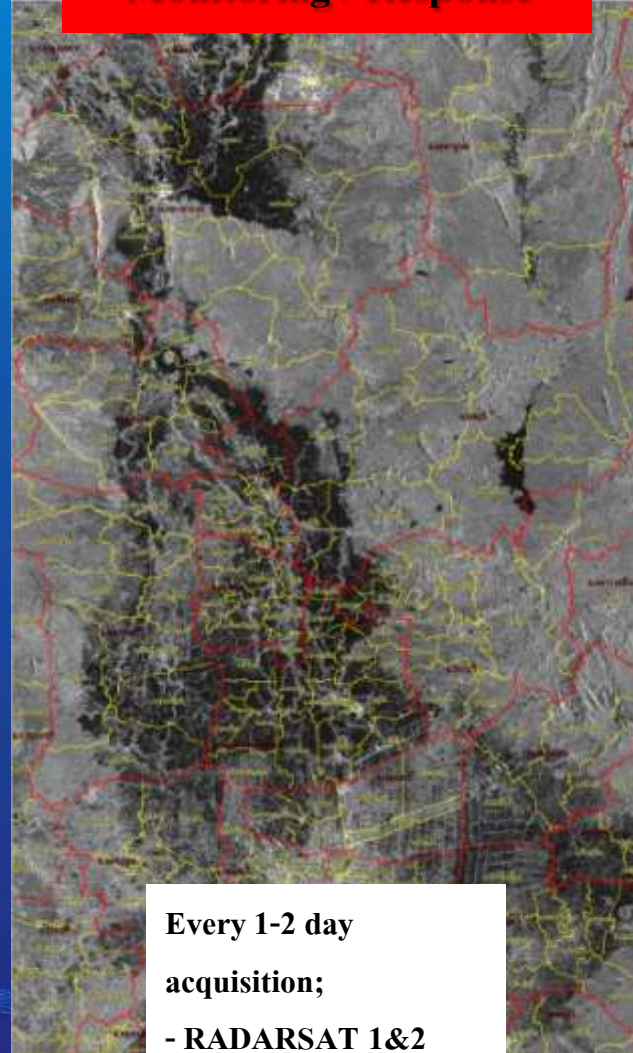
## Observation / Preparing

## Monitoring / Response

## Assessment / Recovery



2 times of acquisition;  
- Terra (morning)  
- Aqua (afternoon)



Every 1-2 day  
acquisition;  
- RADARSAT 1&2



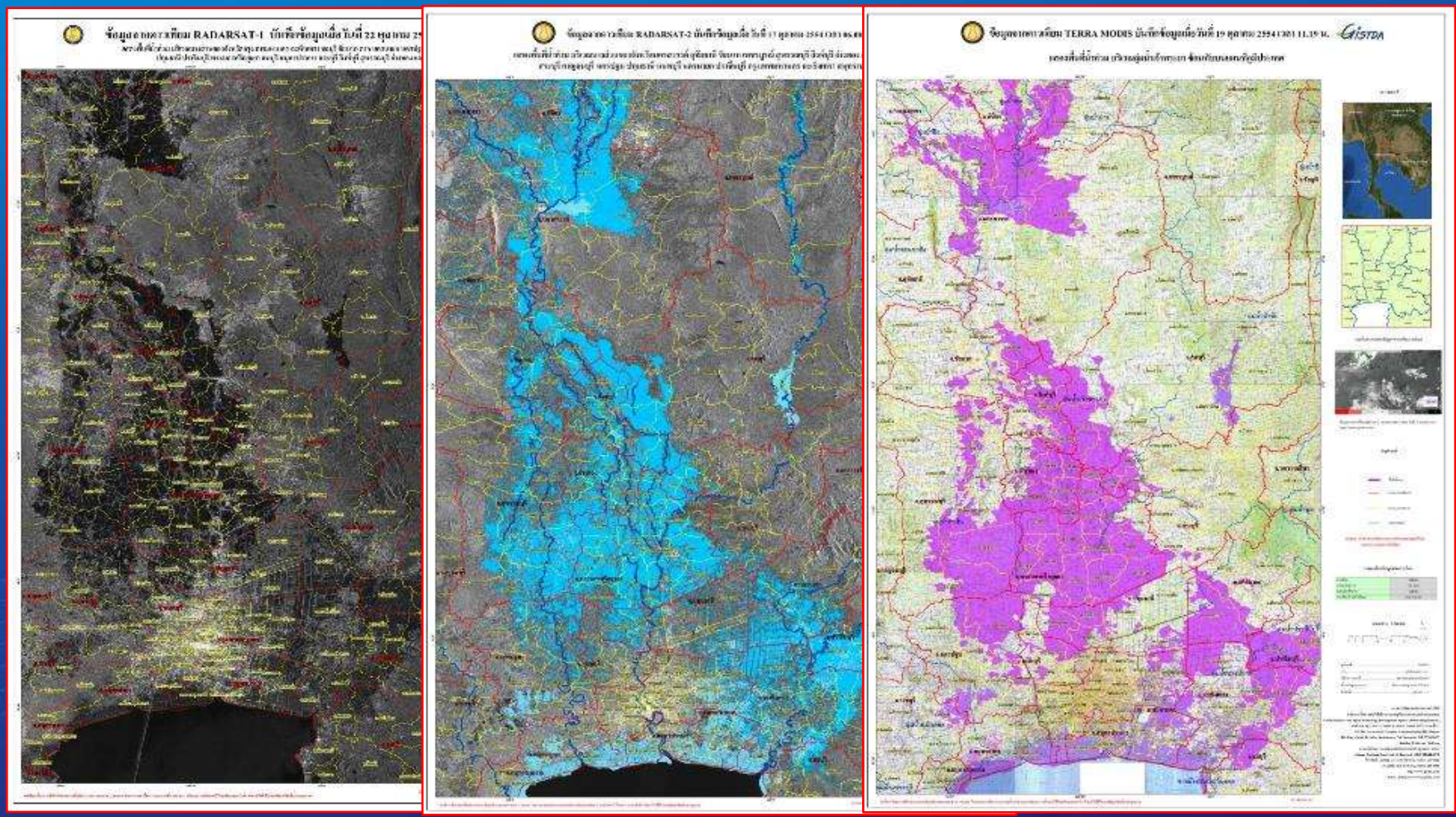
High resolution data  
- Pre and post flood (once)  
- During flood (hot spot)

Large Coverage Small

Low Spatial resolution High

High Temporal resolution Low

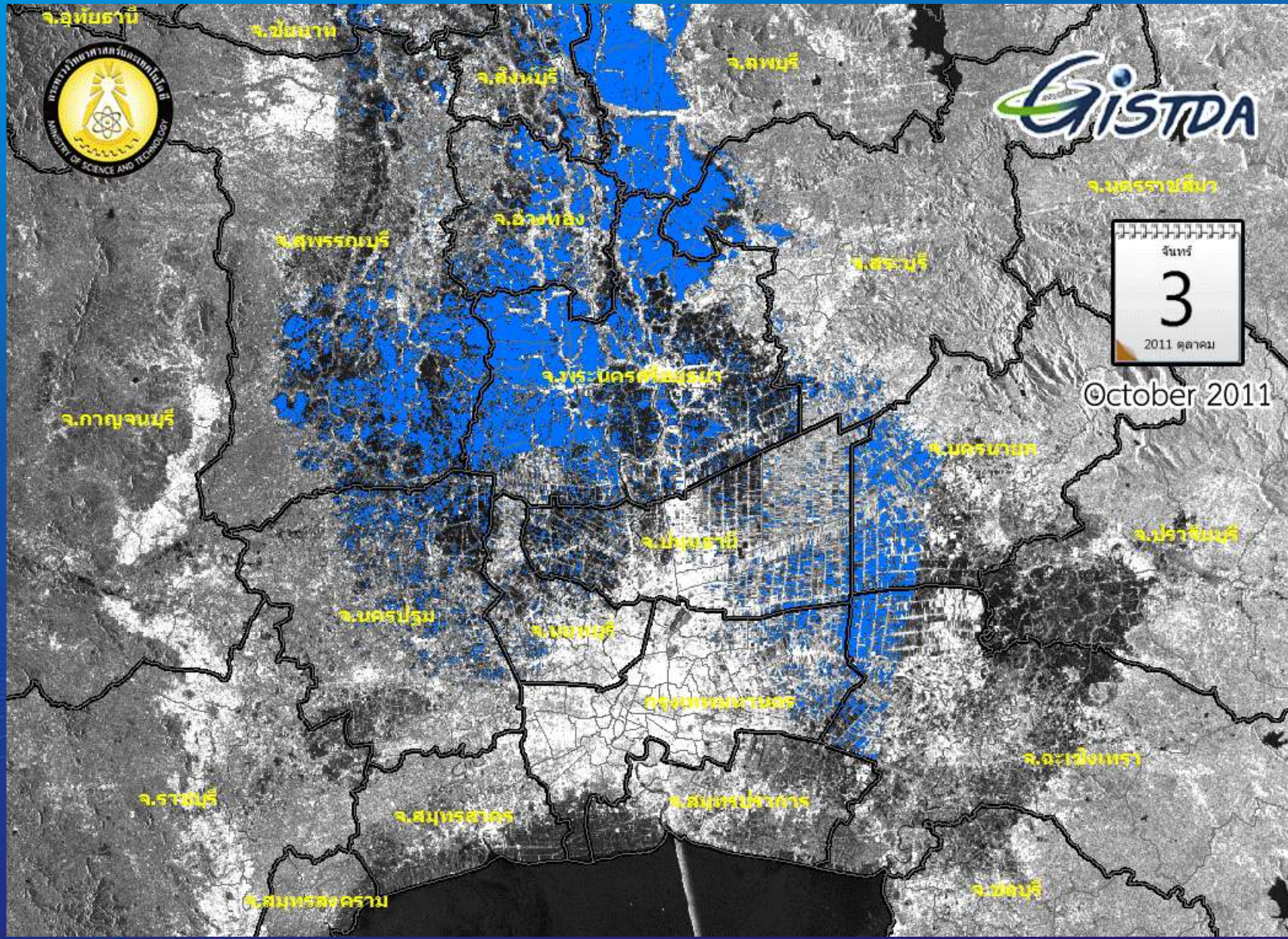
# Flood mapping from satellite data



Advance Users General



# Flood: 3 Oct - 28 Dec 2011





## Limitation of Satellite Data Acquisition

- ❖ Priority - Urgency fee (50% of normal price)
- ❖ Planning conflict
- ❖ Revisit time
- ❖ Cloud
- ❖ Refusal
- ❖ Ground visibility conflict

*...how to manage*

## Data supporting from international agencies

- ❖ 1-4 days for data delivery
- ❖ Data downloading time 4-6 hr/scene
- ❖ Data are useful for recovery activities but not for immediate response (which required very near real time data)
- ❖ Satellite data requesting conflicted with GISTDA's acquisition plan (RADARSAT): *missing of communication*
- ❖ Data products are finally in PDF file (not satellite data / GIS product), *it suitable for presentation but not for making decision*

*...how to manage*

# Microsatellite Work Plan



# Microsatellite mission / Project concept

## ❖ Disaster management (Payload)

- Flooding
- Hot spot (Wildfires)
- Crop management

## ❖ Earth Observation Microsatellite

- Altitude Orbit      600                      km.
- Weight                      50 – 100                      kg.
- Optical payload (decision marking)
  - MS (R G B)
  - Panchromatic
  - Near Infrared (NIR)
  - Short wave Infrared (SWIR)



# We are looking for...

- ❖ **Partner ship**
- ❖ **Co-investment**
- ❖ **Training Course / Exchange Trainee**



**Thank You**  
**[www.gistda.or.th](http://www.gistda.or.th)**