

Utilization of Space Technology on Disaster Risk Management in Vietnam

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- Natural Disaster in Vietnam
- Flood and storm control organizations in Vietnam
- Use Satellite images for disaster management
- Conclusion

About VNRSC 1/5

National Remote Sensing Centre in MONRE

Ministry of Natural Resources and Environment - MONRE

Administrative Organizations

Implementation Organizations

General Department of Land Management

Department of Surveying and Mapping

National Remote Sensing Centre

General Department of Environment Protection

Department of Water Resources

National Centre for Hydrology and Meteorology

General Department of Sea and Island

Department of Meteorology, Hydrology and Climate change

Centre for Water Resources Planning and Investigation

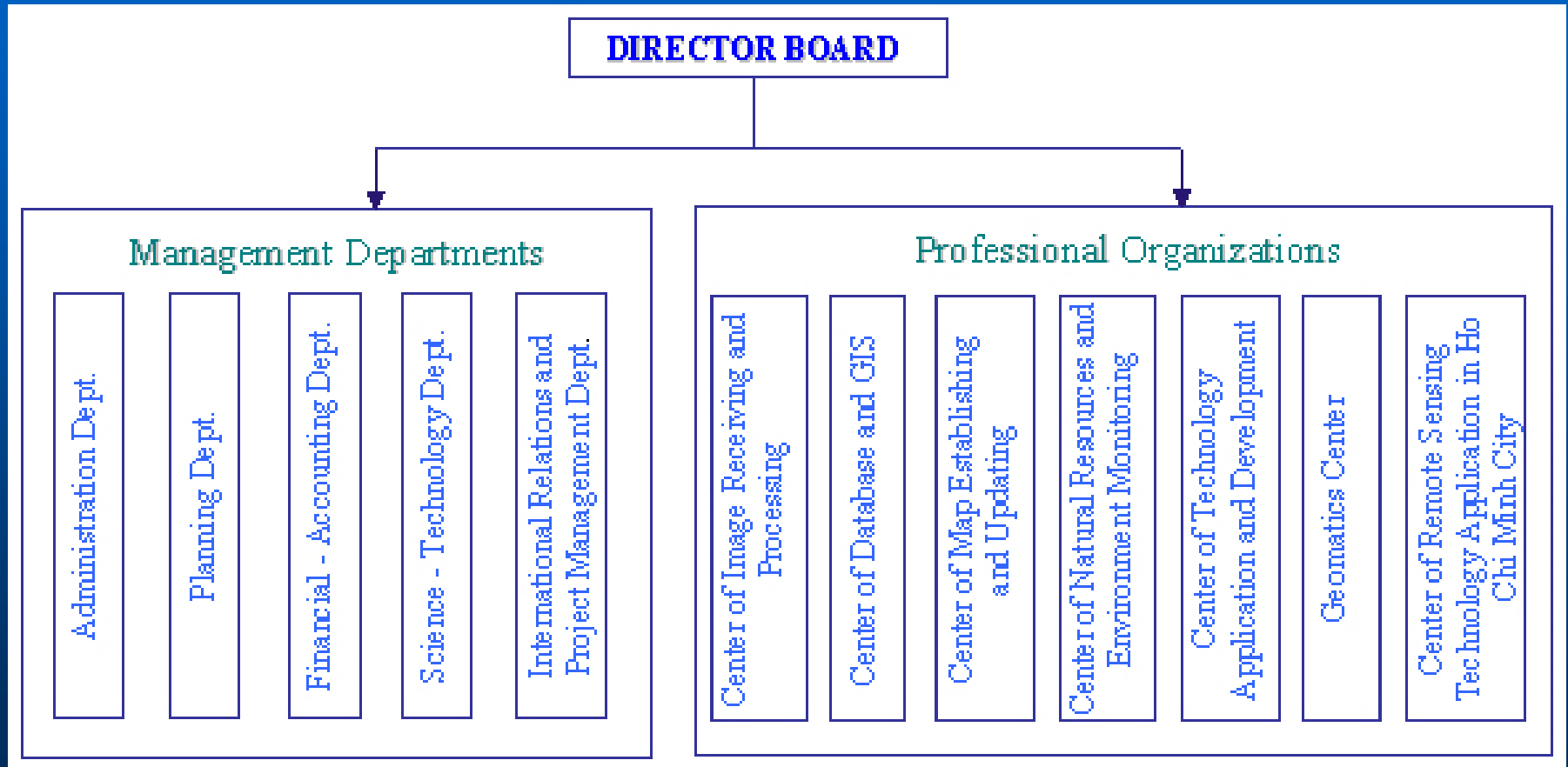
Department of Geology and Mineral

Department of Informative Technology

Institute of Hydrology and Meteorology and Environment

About VNRSD 2/5

Inside National Remote Sensing Department



About VNRSC 3/5

HUMAN RESOURCE:

Total staffs: 350 personnel (Doctor: 05 personnel; aster: 25 personnel;
Engineer: 290 personnel; Technician: 30 personnel)

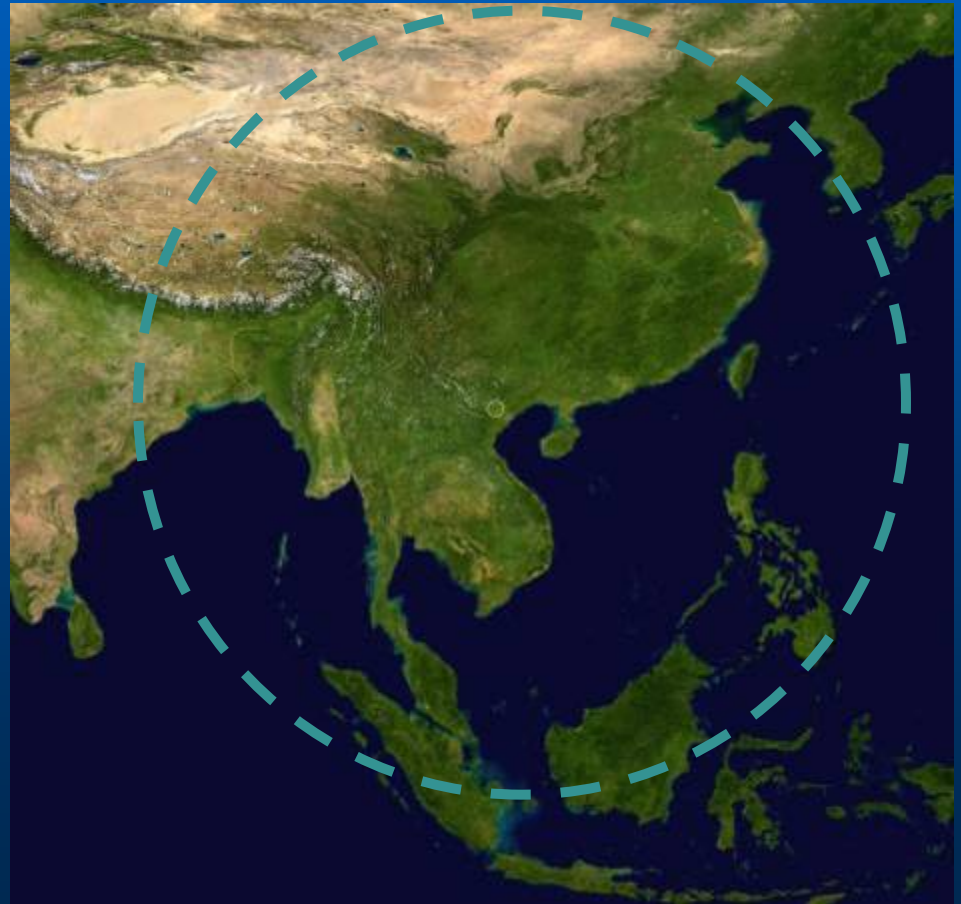
CAPABILITY IN REMOTE SENSING AND GEOINFORMATIC:

- Operation of Direct Ground Receiving Station
 - Receive and processing satellite signal: SPOT4,5; ENVISAT/ASA, MERIS
 - Archive for long-term use
- Satellite Image processing
 - Providing satellite data at standard levels
- Topographic map updating
 - At difference scale: 1/5.000 to 1/50.000
 - Annual task, covering whole country
- GIS data base establishment
 - National data-base center (RS, GIS) for common user in Vietnam
- Application of remote sensing technology for:
 - Investigation, monitoring of natural resources and environment such as land resource, water resource, mineral resource, natural resources exploitation, environmental phenomenon, hydro-meteorological phenomenon, calamity, geological accidents;

About VNRSD 4/5

Vietnam Ground Station:

- Receive and processing satellite signal: SPOT2,4,5; ENVISAT/ASA, MERIS (since Nov, 2007 – 2012); VNREDSAT 1 (5/2013); SPOT6/7 (2019)
- Daily receive telemetry signal



NRSD and Sentinel Asia for disaster monitoring

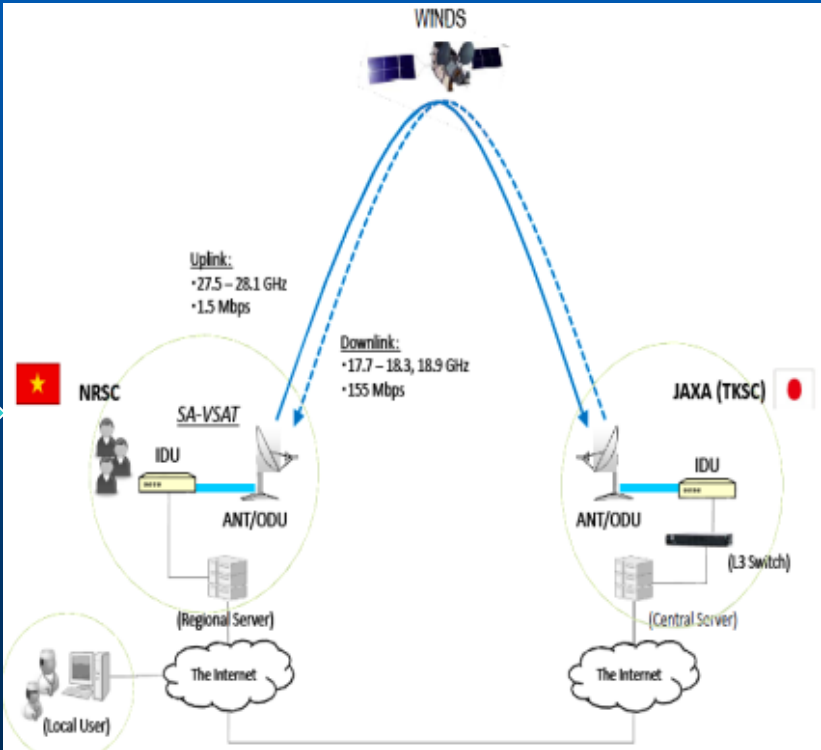
Sentinel Asia and JAXA providing the WIND Station

- In the second Joint Project Team Meeting for Sentinel Asia Step 2, The VNRSD has applied for WINDS station and to be accepted
- In June 2010, JAXA sent a technical team to site survey and in November 2010, the WIND Station being installed in VNRSC.



Installation of WIND station and operational training

- Thanks to SENTINEL ASIA, though the WINDS station and Vietnam Ground Station, VNRSC can receive satellite image incase disaster occurred



Natural Disaster in Vietnam 1/5

- The reasons: climate change, land use change, forest cut, population growth, economic development, fast urbanization, etc
- Typical disaster in Vietnam: Flood
 - Every year, there are about 10 storms coming to,
 - Central of Vietnam is the most effected;

Natural Disaster in Vietnam 3/5

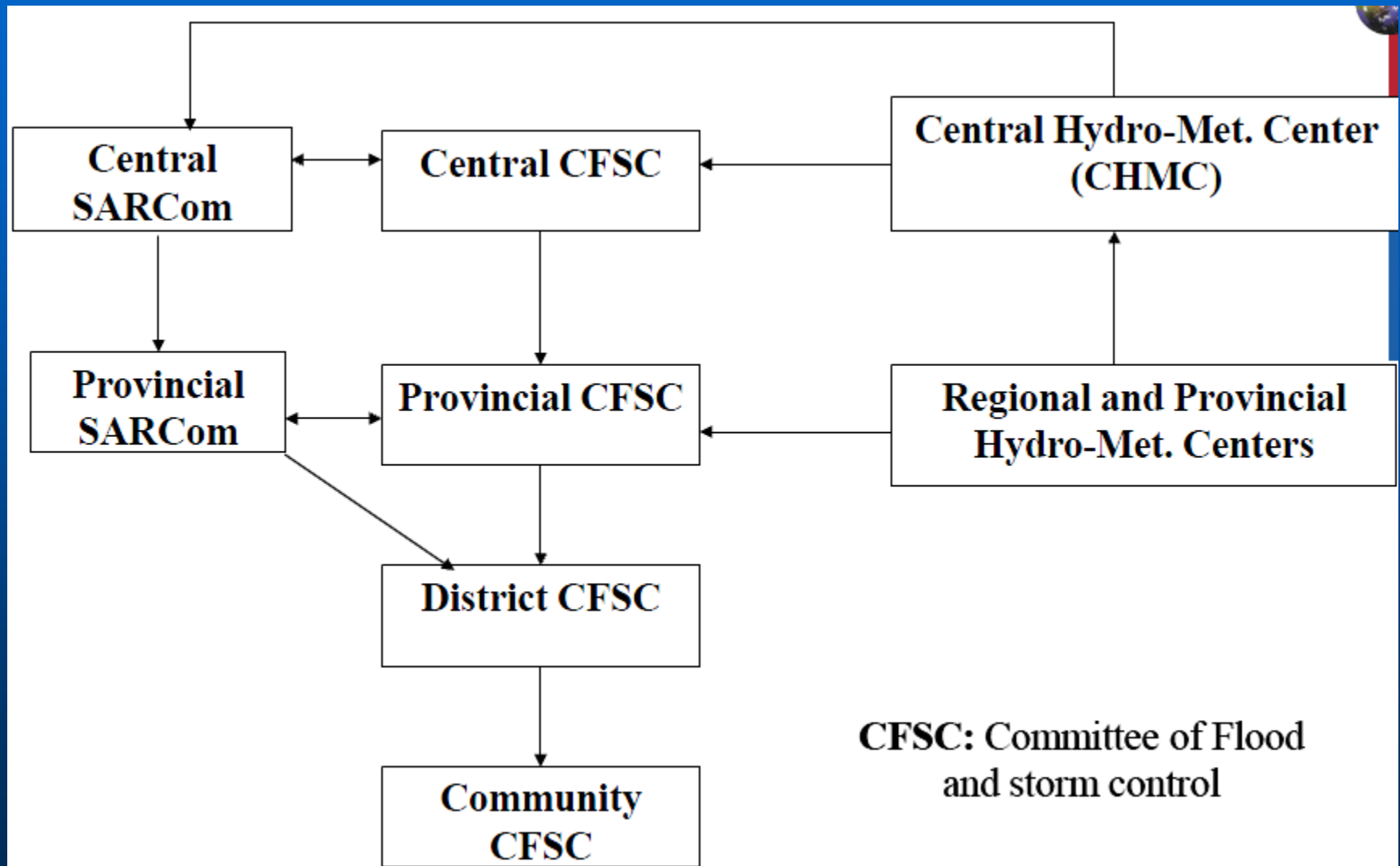
- Natural disasters: flood, landslide, flashflood, riverbank erosion, land and sea pollution,...
- Typical disaster in Vietnam: Flood
- In 2017
 - There are 16 storms,
 - 386 people were dead, the economic lost upto \$ 2.6 billion.
(Source: VN National Search and Rescue Center)



Natural Disaster in Vietnam 5/5



Flood and storm control organizations in Vietnam 1/2



CFSC: Committee of Flood and storm control

Flood and storm control organizations in Vietnam 2/2

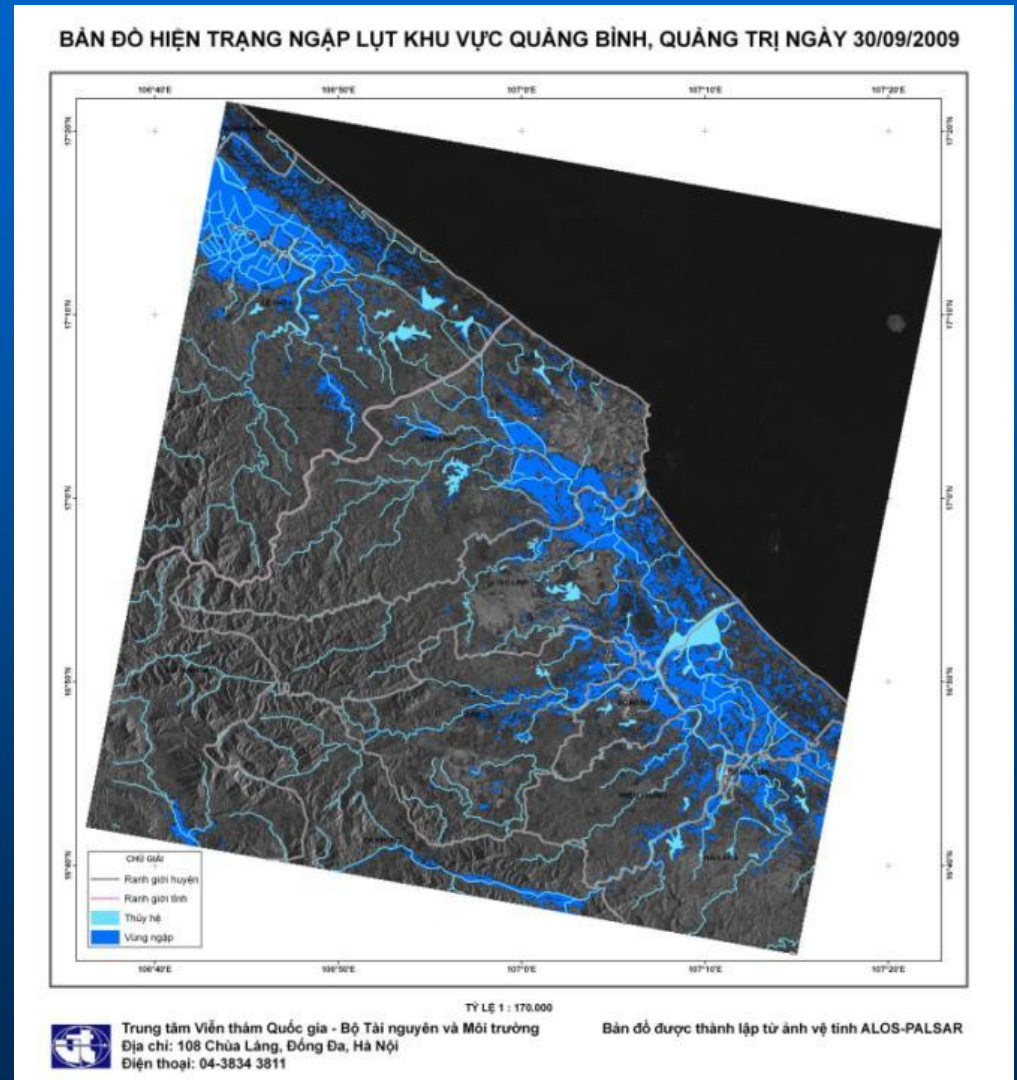
Committee of Flood and storm control: from Central Government to local government

- Carrying out the National Strategy for disaster prevention and mitigation.
- Implementation the tasks:
 - Speed up, control branch (ministries relevant) and provinces in planning and implementation of detail annual plan for disaster prevention and mitigation,
 - Appoint human resource and vehicle ... to rescue timely when disaster occur.
 -

Use Satellite images for disaster management in Vietnam 1/8

Flood map of Quang Binh province:

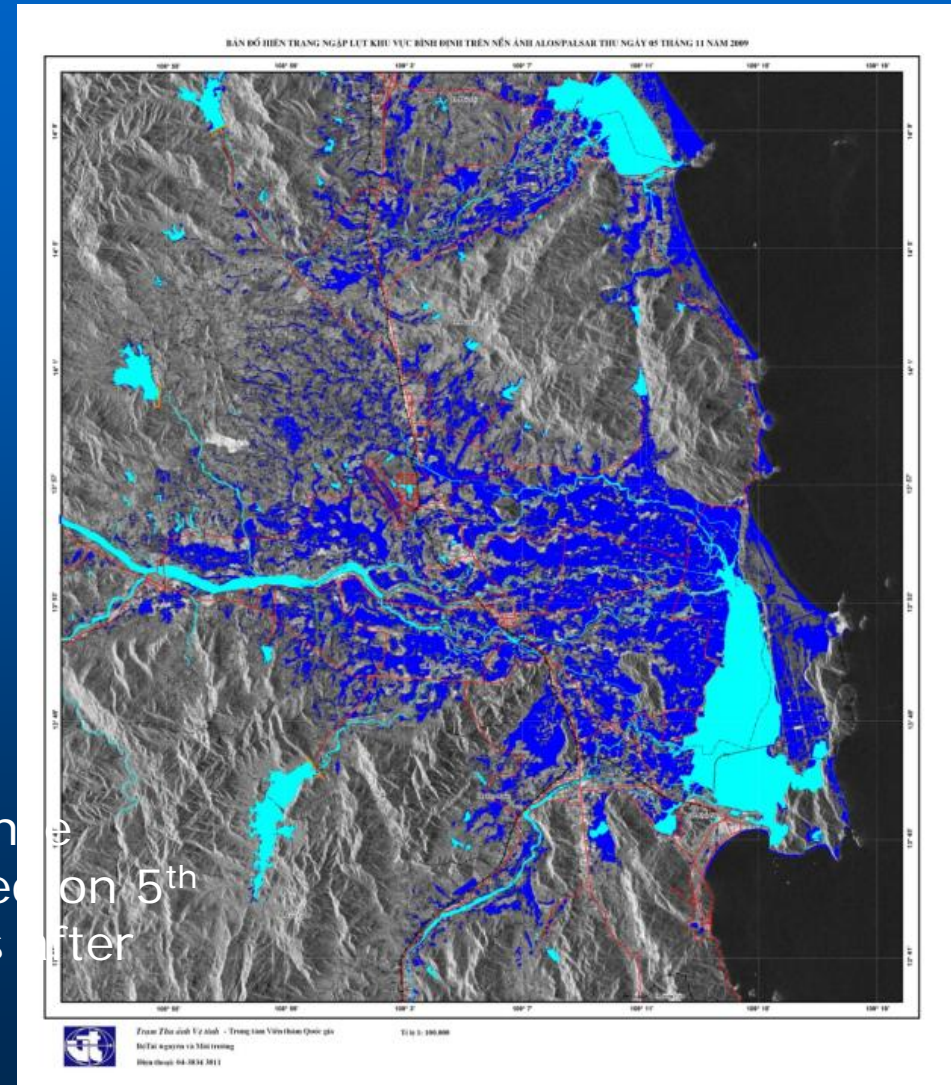
- Base on ALOS Palsar image,
- Acquired one day after flood happened (29th September 2009)



Flood map of Binh Dinh province:

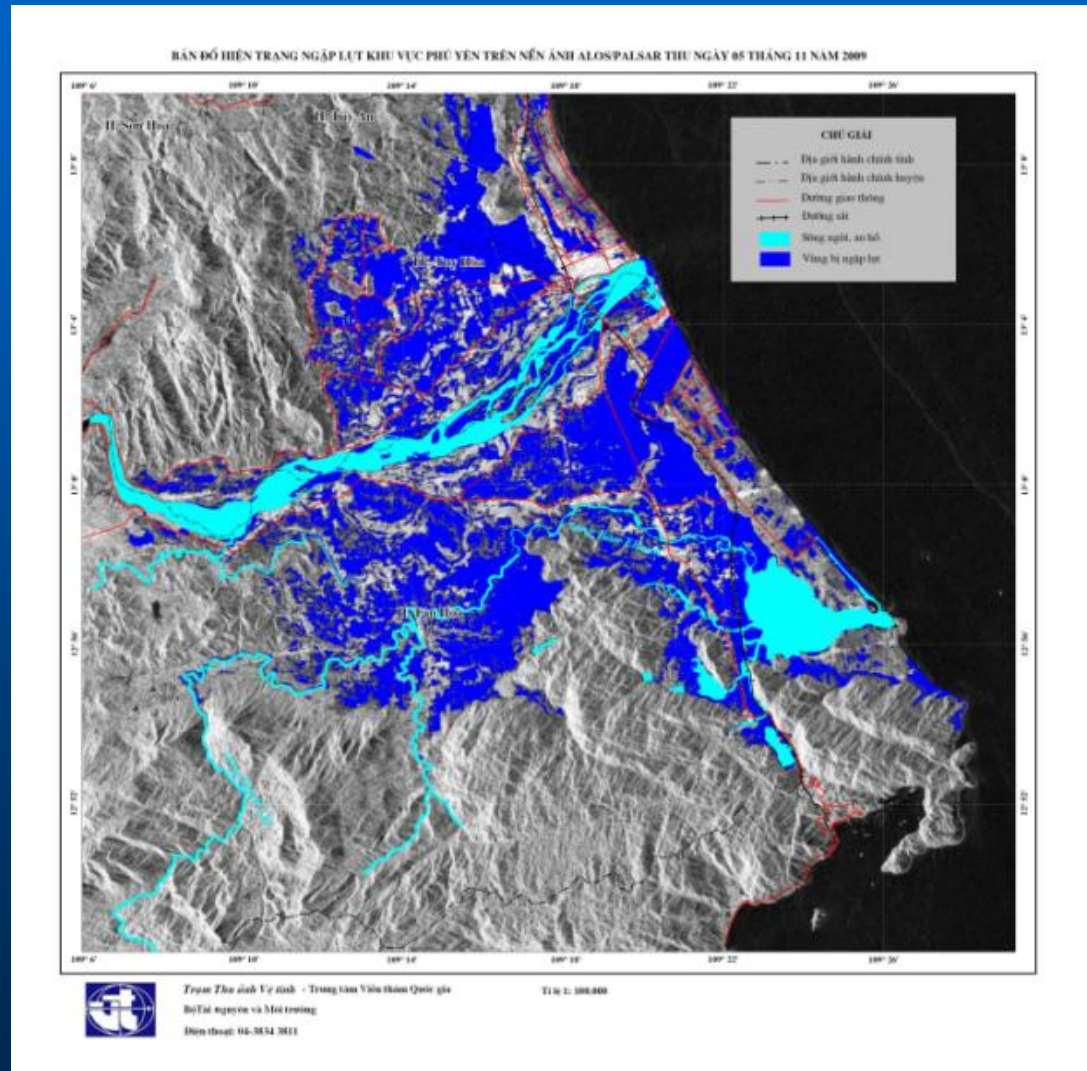
- Base on ALOS Palsar image,
- Acquired three days after flood happened (5th November 2009)

Flood map of Binh Dinh province based on ALOS PALSA acquired on 5th November 2009 (Three days after flooded

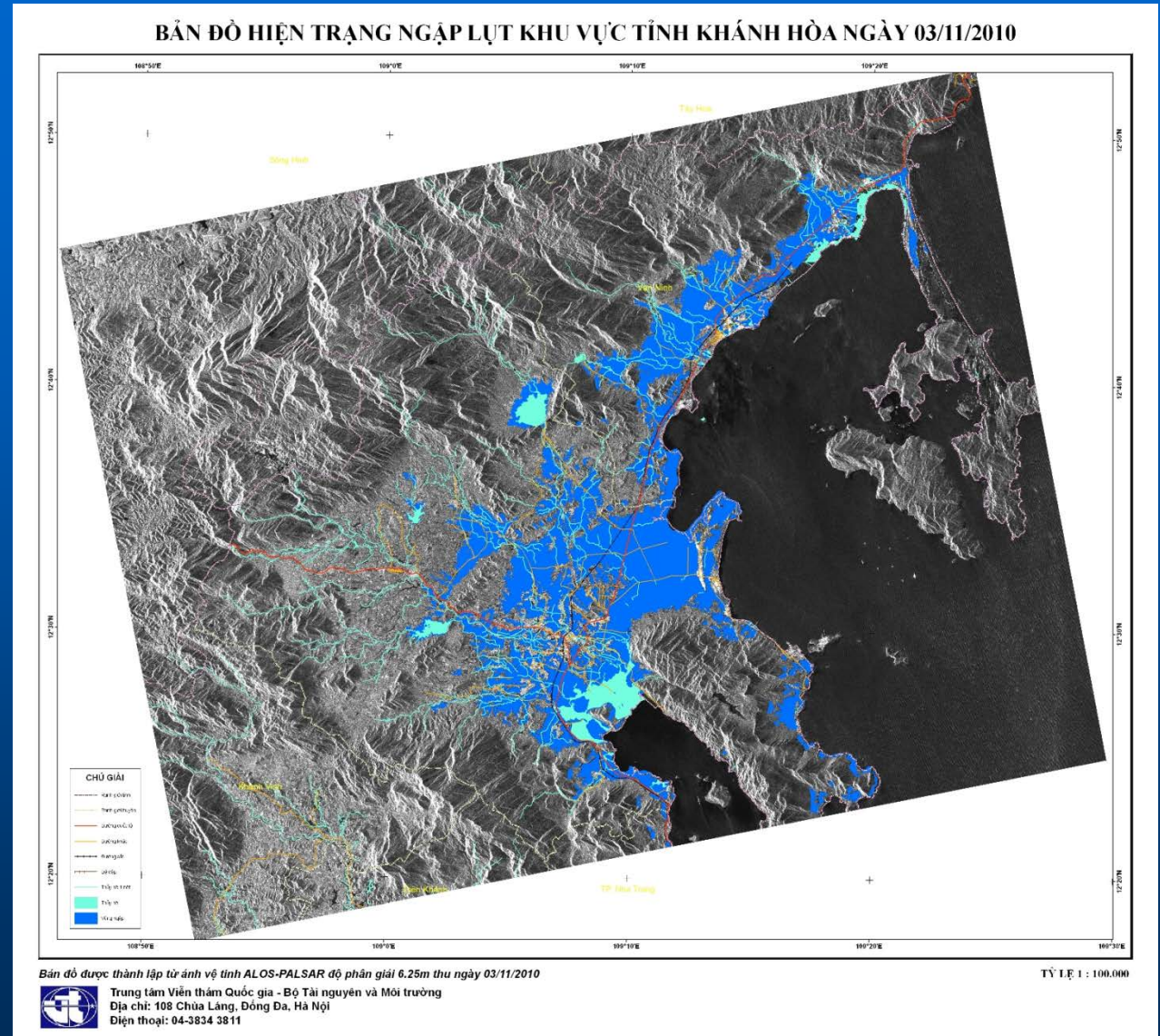


Flood map of Phu Yen province:

- Base on ALOS Palsar image,
- Acquired three days after flood happened (5th November 2009)

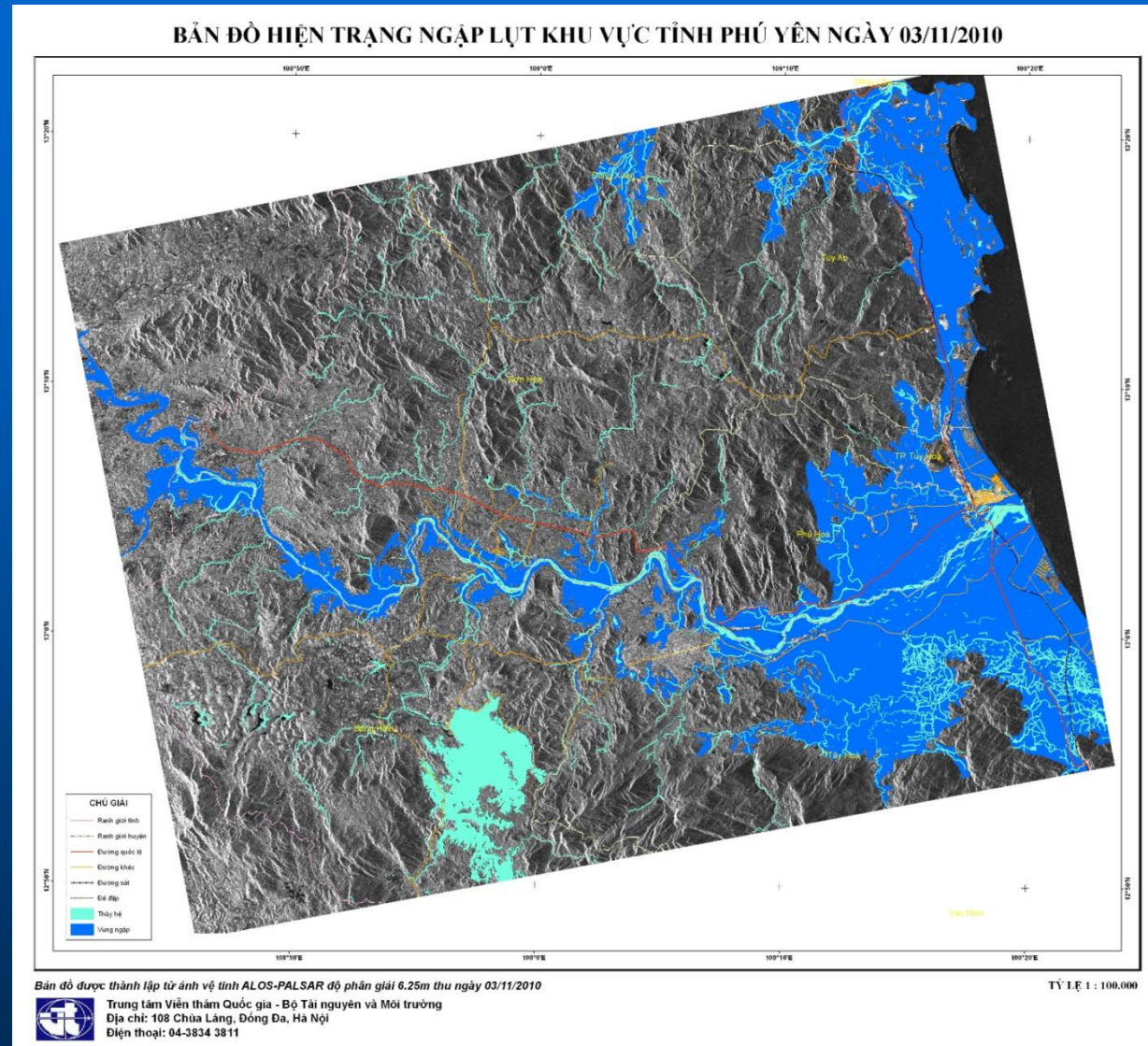


Use Satellite images for disaster management in Vietnam 7/8



Flood status map of Khanh Hoa on 3rd Nov, 2010 (analysis from ALOS Palsar data)

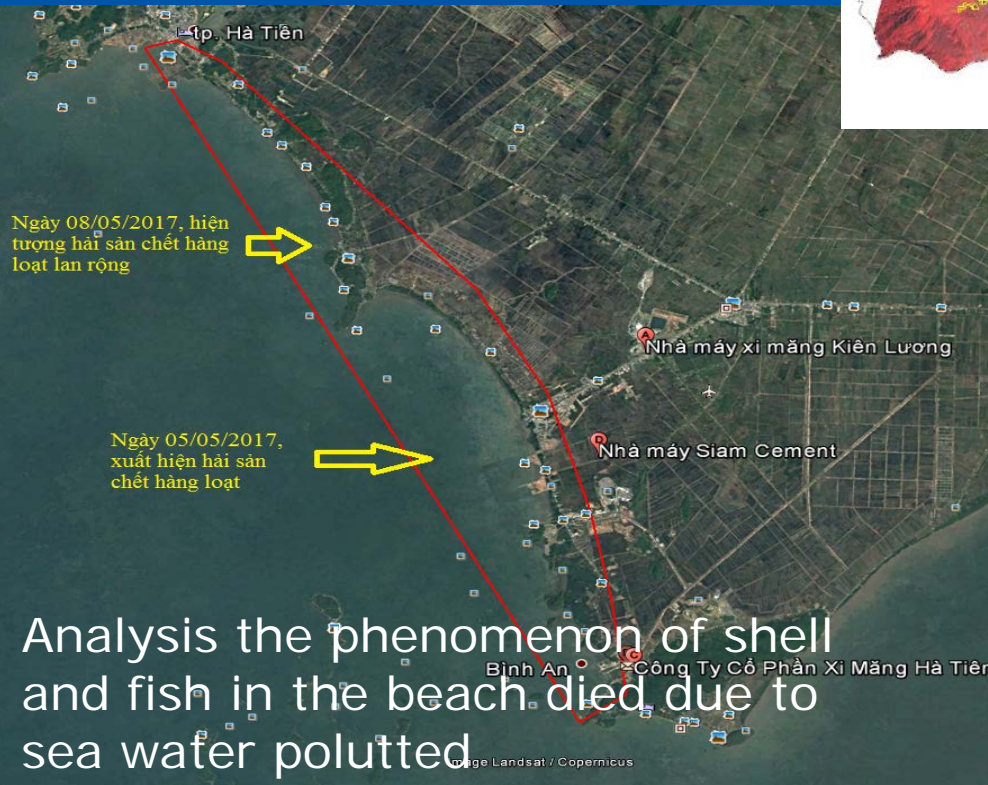
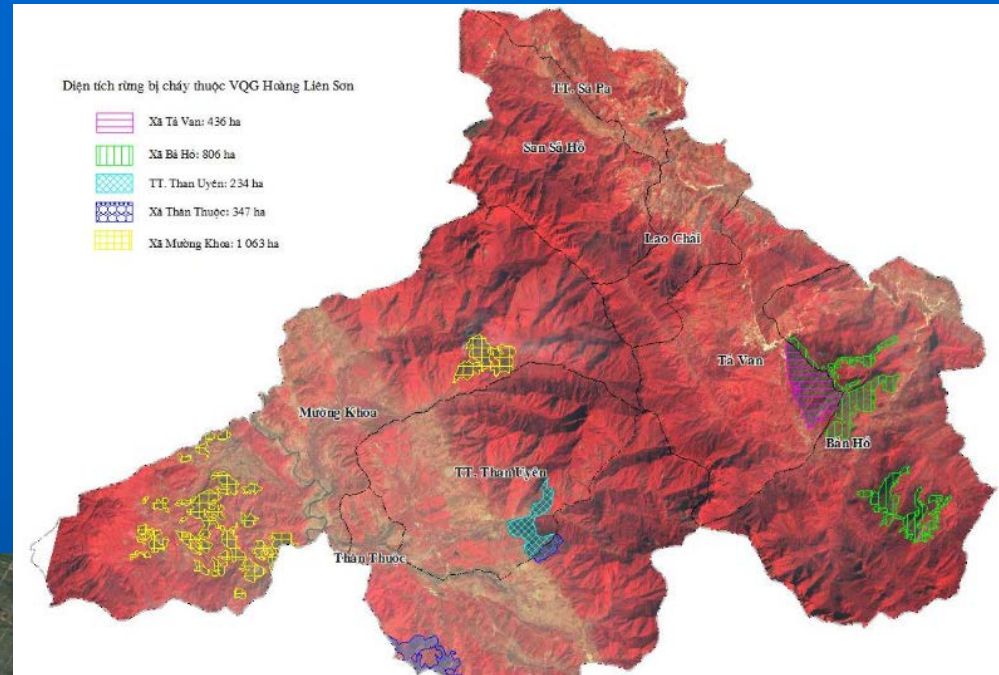
Use Satellite images for disaster management in Vietnam 8/8



Flood status map of Phu Yen on 3rd Nov 2010 (analysis from ALOS Palsar data)

Other type of disaster:

- Forest fire monitoring and surveillance

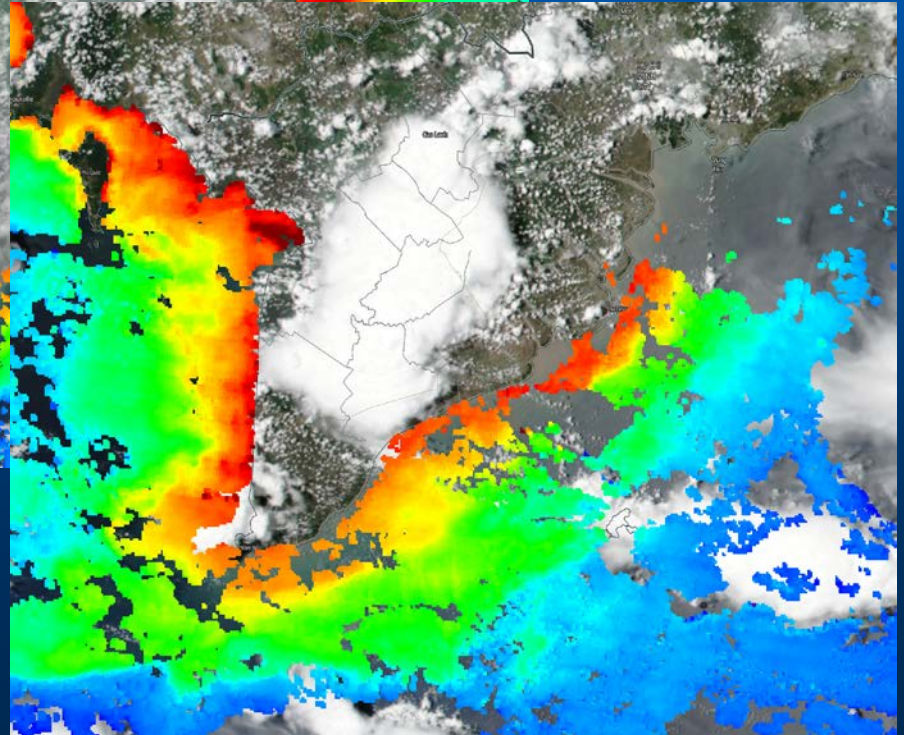
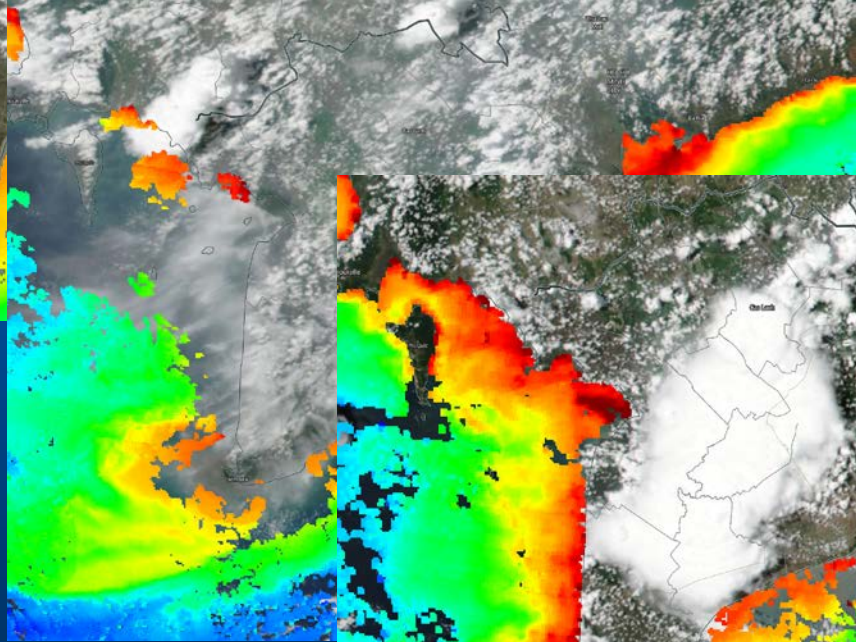
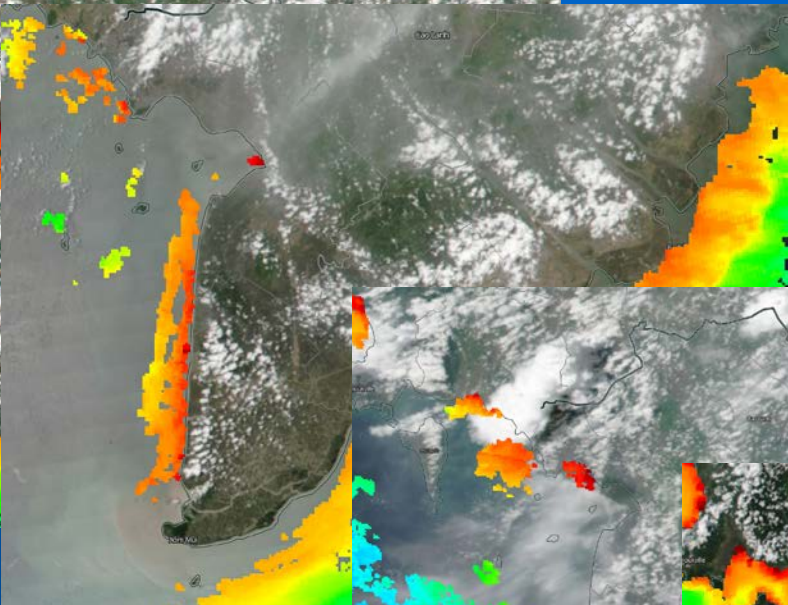


- Analysis the phenomenon of shell and fish in the beach died due to sea water polluted

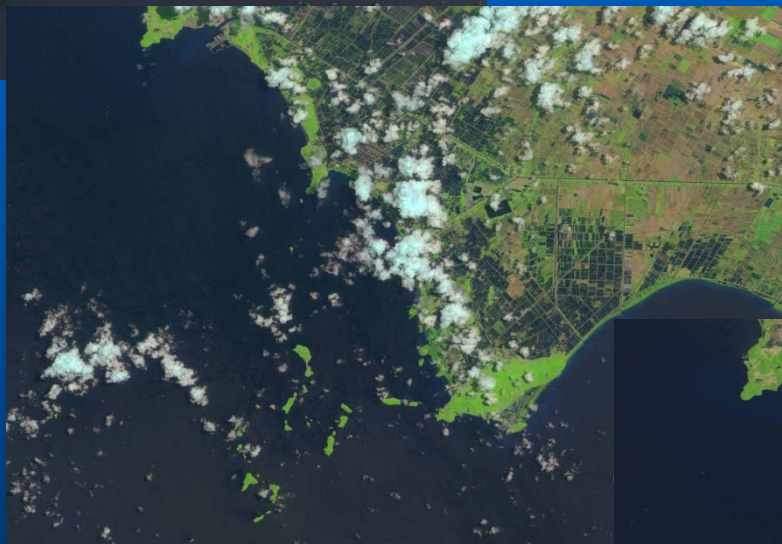
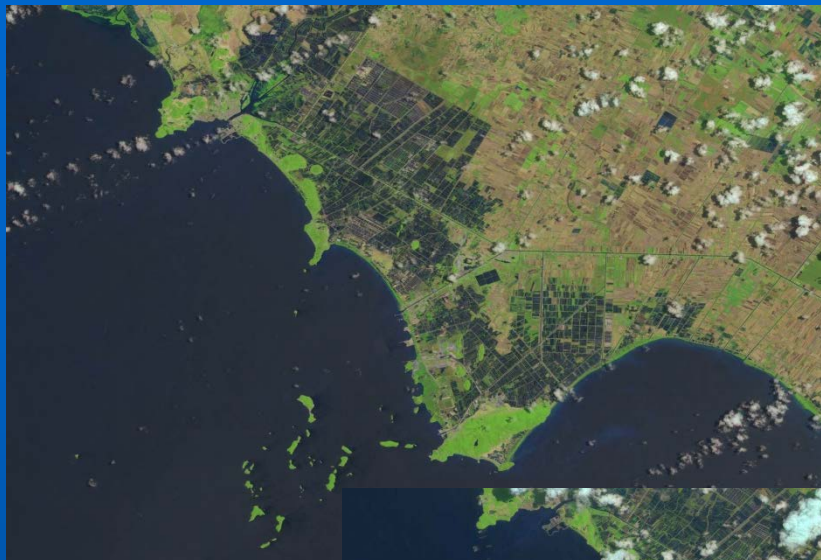
Data use

No	Type	Date
1	Vnredsatsat-1	20/1/2017
2	Vnredsatsat-1	07/4/2017
3	SENTINEL-2B	01/5/2017
4	SENTINEL-2B	11/5/2017
5	LANDSAT-8	26/4/2017
6	LANDSAT-8	12/5/2017
7	Modis	01/5/2017
8	Modis	02/5/2017
9	Modis	04/5/2017
10	Modis	06/5/2017
11	Modis	08/5/2017
12	Modis	09/5/2017
13	Modis	11/5/2017
14	Modis	12/5/2017

Chlorophyll a Concentration (mg/m³)



Modis



SENTINEL-2B

Conclusion

- Satellite data and GIS database providing useful information for disaster reduction in overall
- Sentinel Asia responses well to provide data and technology for analysis. Normally, only two or three days after activation chatter, the satellite image was taken, sometime it is impossible.
- The free data (Landsat, Seltinel, Aqua/Terra...) are also well supported for disaster analysis.

Thank you for your attention