

Ministry of Natural Resources and Environment
NATIONAL Remote Sensing DEPARTMENT (NRSD)

Disaster Monitoring in National Remote sensing DEPARTMENT

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National Remote sensing
Department – MONRE*

Contents

- Introduction to NRSD MONRE
- Cooperation with JAPAN: WINDS-VSAT Station installation in NRSD
- Utilization of WINDS for Earth Observation data transferring.
- Result of the operation

Establishment of NRSD

- 1980 – The Remote Sensing Center belong to State Depart. of Geodesy and Cartography
- 1994 – RSC belong to General Depart. Of Land Administration (GDLA);
- 2002 – RSC of Ministry of Natural Resources and Environment (MONRE);
- 2008 - National RSC of MONRE
- 2013 - National Remote Sensing Department

NRSD IN MONRE

MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT

Office of the Admin

Department for Planning

Finance Department

Department of Personnel and Organization

Department of International Cooperation

Department of Science and Technology

Department of Meteorology - Hydrology and CL.Change

General Dep-t for Environment

General Dep-t for Sea and Islands

General Dep-t For Land Management

Agency of Geology and Mineral Resources of Viet Nam

Agency of Water Resources Management

Agency of Water Resources Management

Vietnam Agency for Survey and Cartography

National Remote Sensing Department

Information technology Agency

National Centre for Meteorology and Hydrology

Centre for Water Survey and Planning

College for NREnvironment

Magazine of Natural Resources and Environment

Newspaper of Natural Resources and Environment

Main functions and Duties

- To submit to the Minister of Natural Resources and Environment draft laws, ordinances and legal documents on remote sensing; Disseminate, guide sectors, localities, organizations, citizens and control them to keep remote sensing activities in accordance with the law;
- To build and update the remote sensing database and publish the national remote sensing metadata; Application of remote sensing for monitoring natural resources, environmental protection, natural disaster prevention and response to climate change.

- Verification of programs and projects related to remote sensing infrastructure, national remote sensing data acquisition, remote sensing application and development;
- To uniformly manage the planning on the network of remote sensing stations, remote sensing data bases, exploitation and use of national remote sensing data; To monitor, inspect and sum up the situation on the application and development of remote sensing on a national scale;
- To sum up the demand for RS data collection by ministries, branches and localities, formulate plans on the receipt and processing of remote sensing data according to annual plans and periodically 5 years for organization of implementation; To provide RS data to agencies, organizations and individuals as prescribed by law

- Organizing the observation and supervision by remote sensing; To assume the prime responsibility for elaborating and publishing annual and unscheduled reports on the exploitation and use of natural resources, environmental pollution, natural disasters and climate change with RS technologies;
- To build, manage, exploit and develop remote sensing infrastructure, including: remote sensing satellite systems, remote sensing stations, storage and processing systems, remote sensing databases; Remote sensing data transmission network; To guide and inspect the protection of the technical safety corridors of remote sensing stations

Organization flowchart of NRSD

National Remote Sensing Department

Directorate

Administr.
Office

Accounting
Sector

Planning
Sector

Science and
Technology sector

Inter. Relation
Sector

Center for Natur. Res
and Env. Monitoring

Center for Aquisition &
Image processing

Mapping Center
by Satellite imagery

Research Center for
RS Technology

Northern Center for
RS Application

Center for RS&GIS Services.

Southern Center for
RS Appl. at HCM City

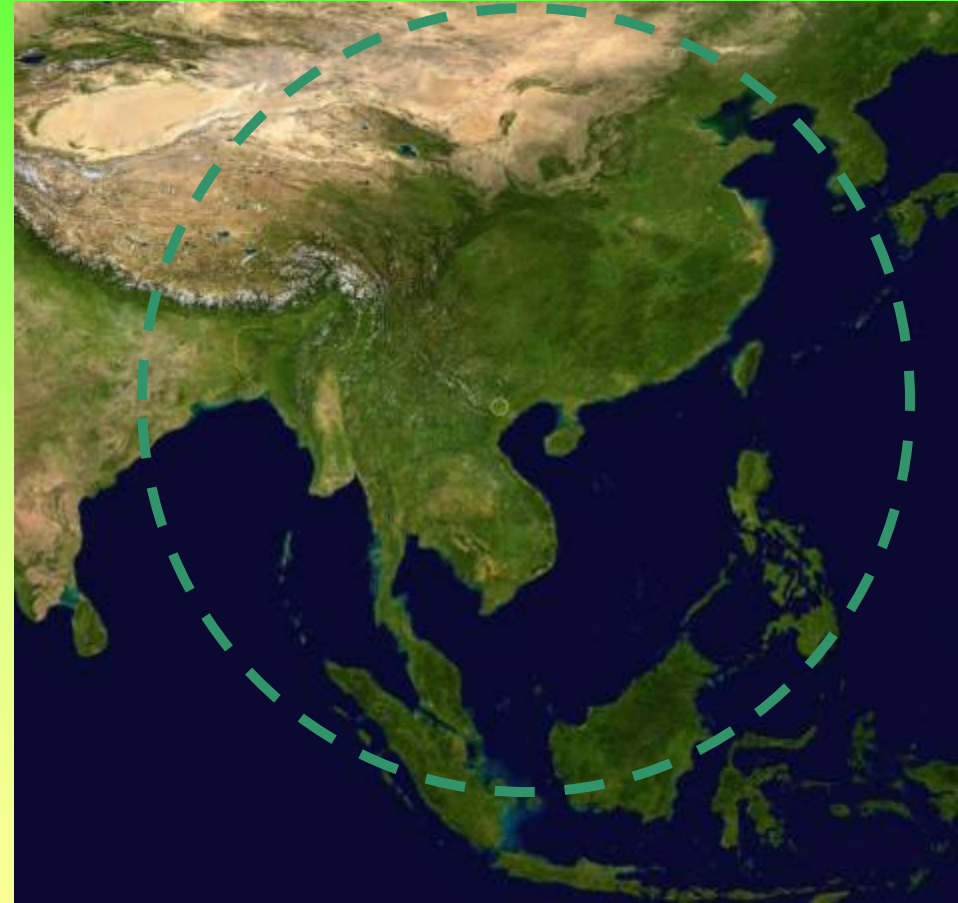
Vietnam Ground Station

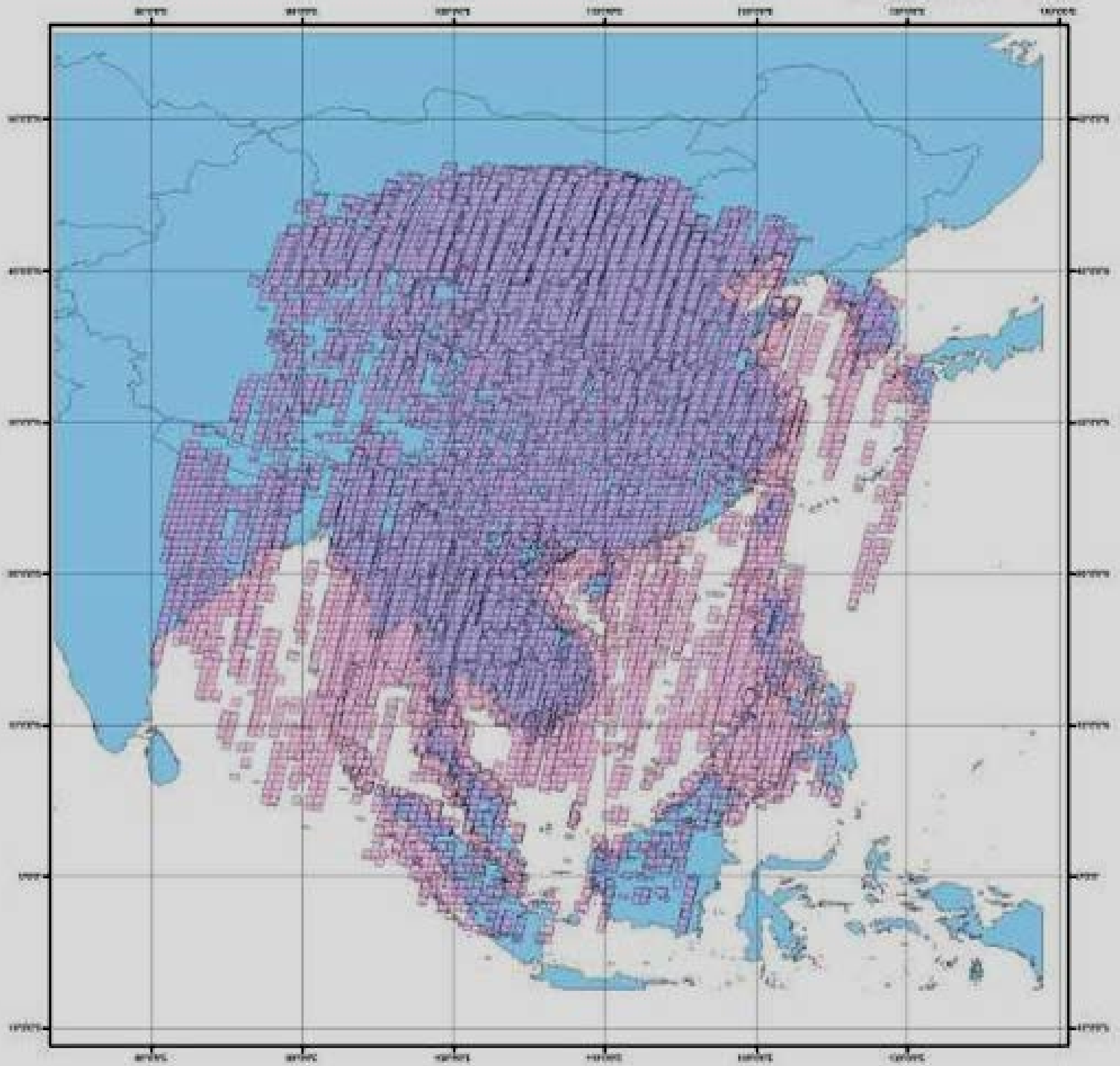
- Located at Hanoi, the Capital city of Vietnam;
- Become to operation since November 2008;
- Receiving data from SPOT2, SPOT4, SPOT5, ENVISAT ASAR and ENVISAT MERIS;



DATA RECEIVING

- Telemetry from satellite can be received in the cycle 2500 km in diameter;
- The lowest receiving angle is 5 degree.
- After 8 years operation, thousand scenes of EO data have been receiving and storing at the station





The staff

280 per.

- Doctors : 6
- M.Sc : 55
- Engineers : 200
- Others : 19

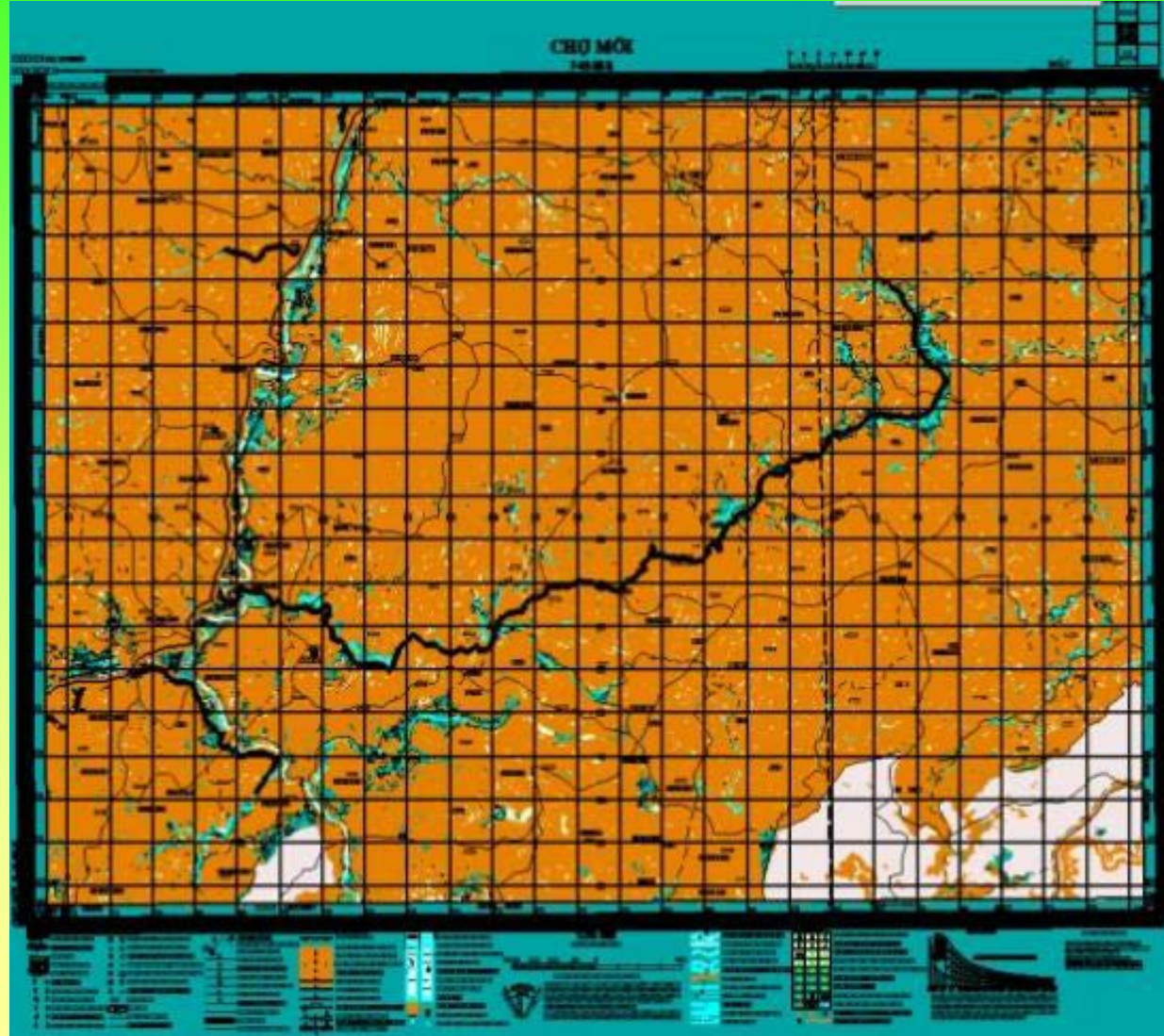


Main Applications of Remote Sensing in NRSD

- Topographic map updating
- Landcover/landuse monitoring
- Forestry investigation
- Thematic mapping
- Disaster monitoring

TOPOGRAPHIC MAP UPDATING

- Data received at VNGS has been widely used for topographic map updating at various scale including 1:10000; 1: 25 000; 1: 50 000;



LAND COVER MONITORING

Satellite ortho-photo map has been used for land cover monitoring such as:

- Land use inventory;
- Forest inventory in Phase IV, V



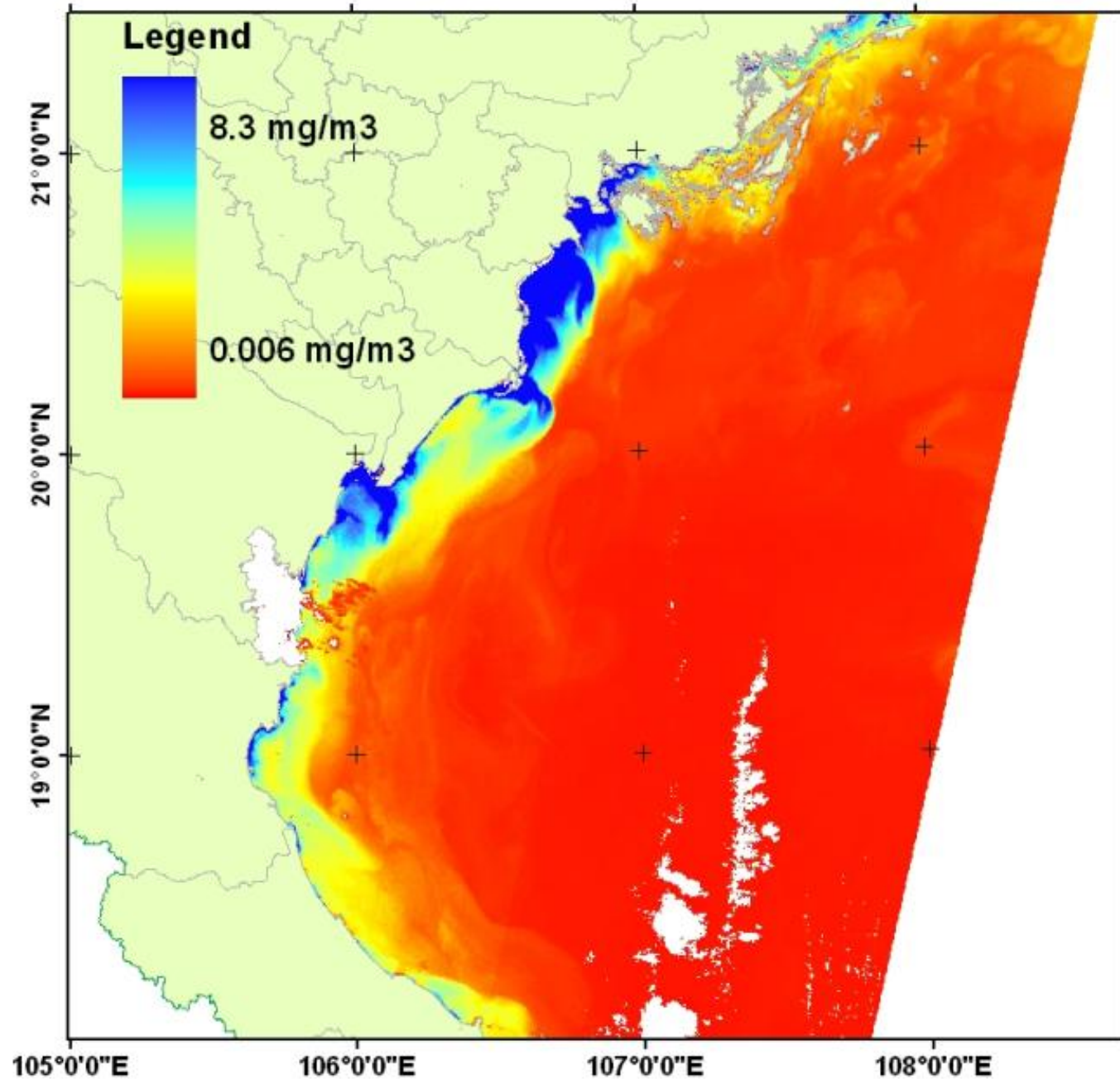
THEMATIC MAP MAKING

Satellite data is also used for thematic map making such as:

- Submerging map in Mekong estuary;
- Environmental sensitive map;
- Mangrove mapping;
- Land cover change mapping.

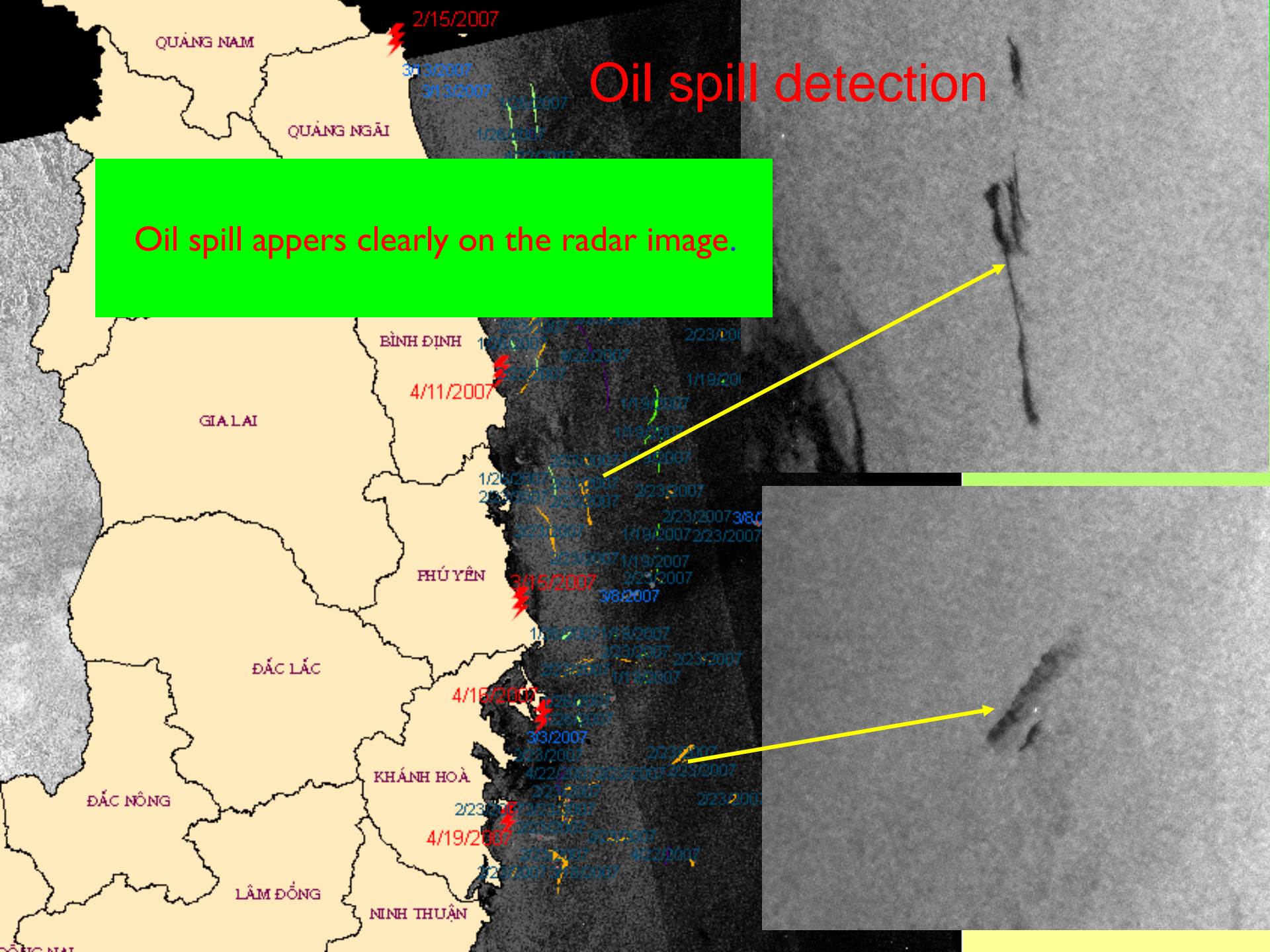
BẢN ĐỒ PHÂN BỐ HÀM LƯỢNG CHẤT
LƠ LỬNG TRONG NƯỚC BIỂN

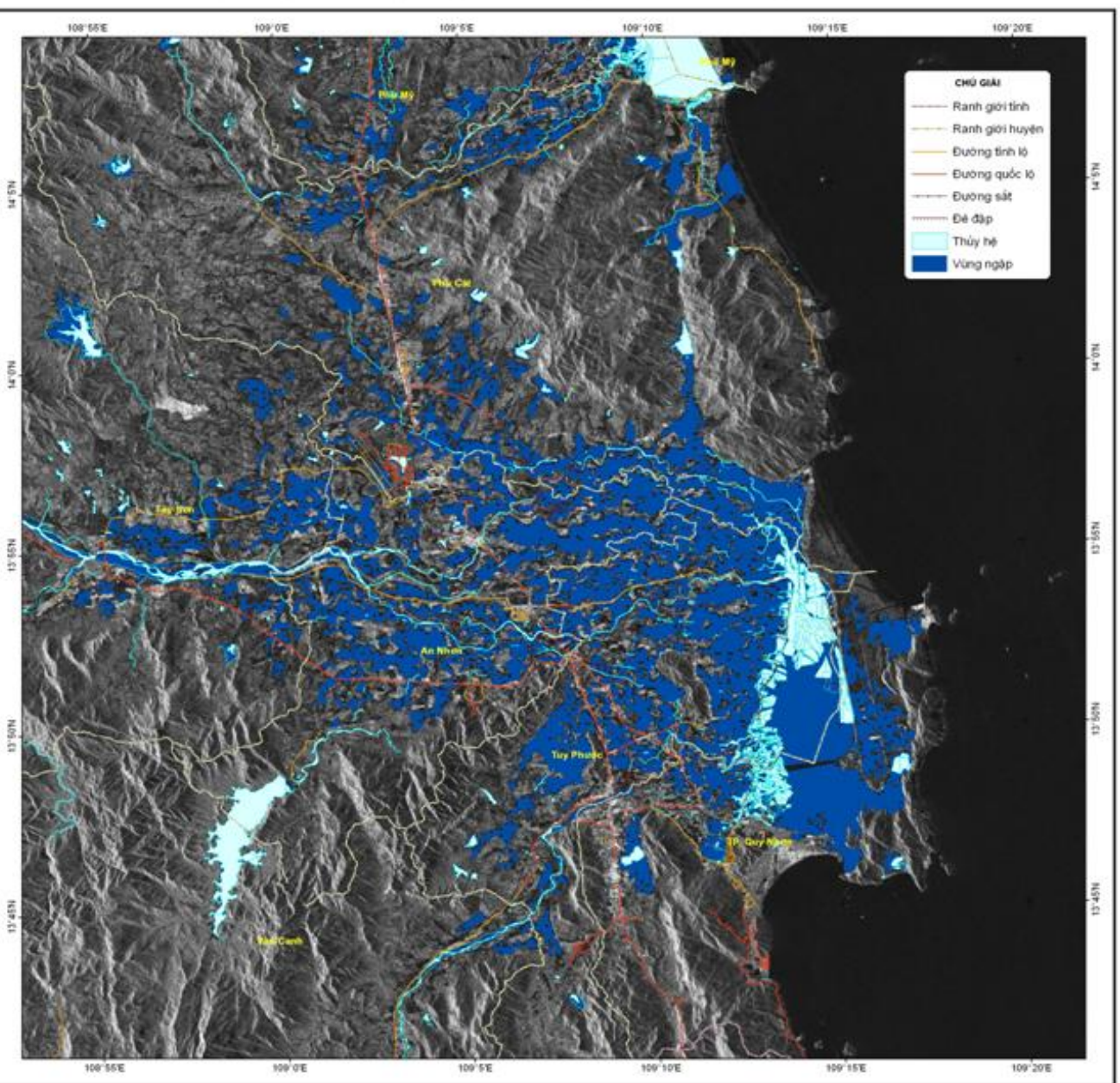
Bản đồ hàm
lượng chất
lơ lửng trong bển
mặt nước
biển



Oil spill detection

Oil spill appears clearly on the radar image.





Binh Dinh
Flood rapid
map made
from ALOS/
PALSAR by
NRSD
(dated 05/11/2009)

Bản đồ được thành lập từ ảnh vệ tinh ALOS-PALSAR thu ngày 05/11/2009

TỶ LỆ 1 : 100.000

Objectives and the role of WINDS station

- Participation in Sentinel Asia Disaster
- Data Analysis Node
- Application node
- Training node
- Supplied satellite images for disaster monitoring
- Distribute the publication materials

Installation of SA-VSAT/WINDS at NRSD

- The ground station: automatic operation
- The operation team:
 - Submit EOR (Emergency Observation Request) to ADRC when a disaster occurs
 - Turn on IDU upon JAXA's request
 - Utilize transferred data for disaster management activities



Outdoor equipments



Indoor equipments



- Completed installation SA-VSAT on Nov 26, 2010



Training



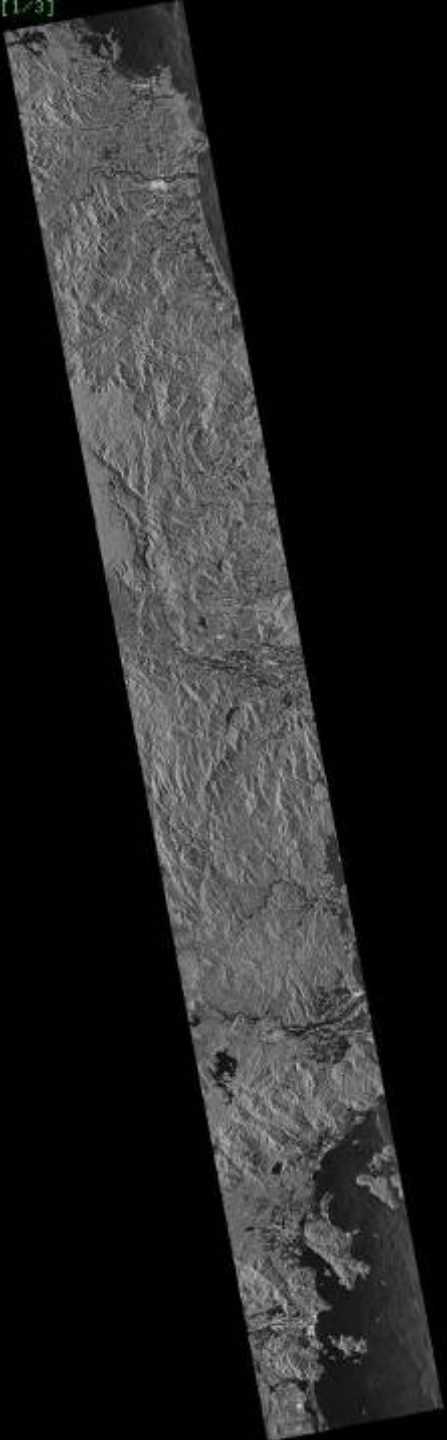
Transferred data

Data transferred to WINDS depends on 2 phases: emergency phase and usual phase

- In emergency cases: satellite data, satellite imagery, analysis results
- In usual cases: MTSAT data, Hotspot data and Rainfall data.

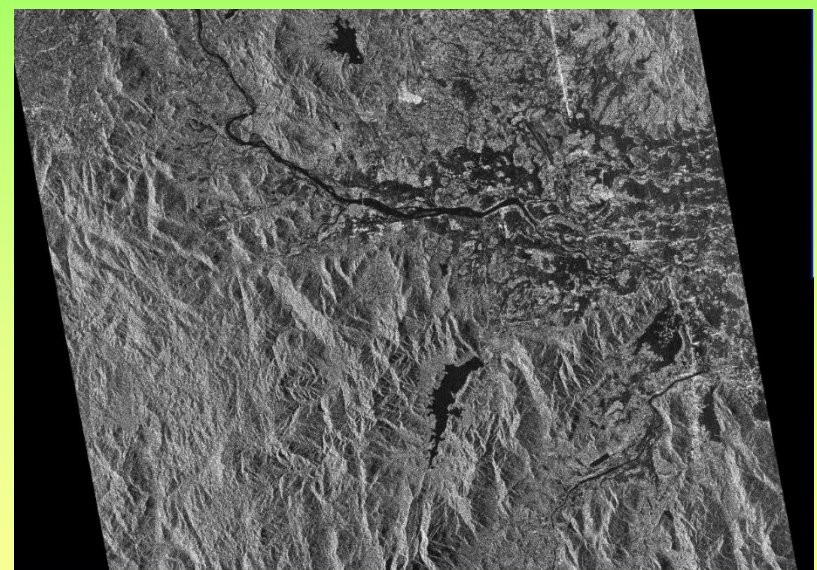
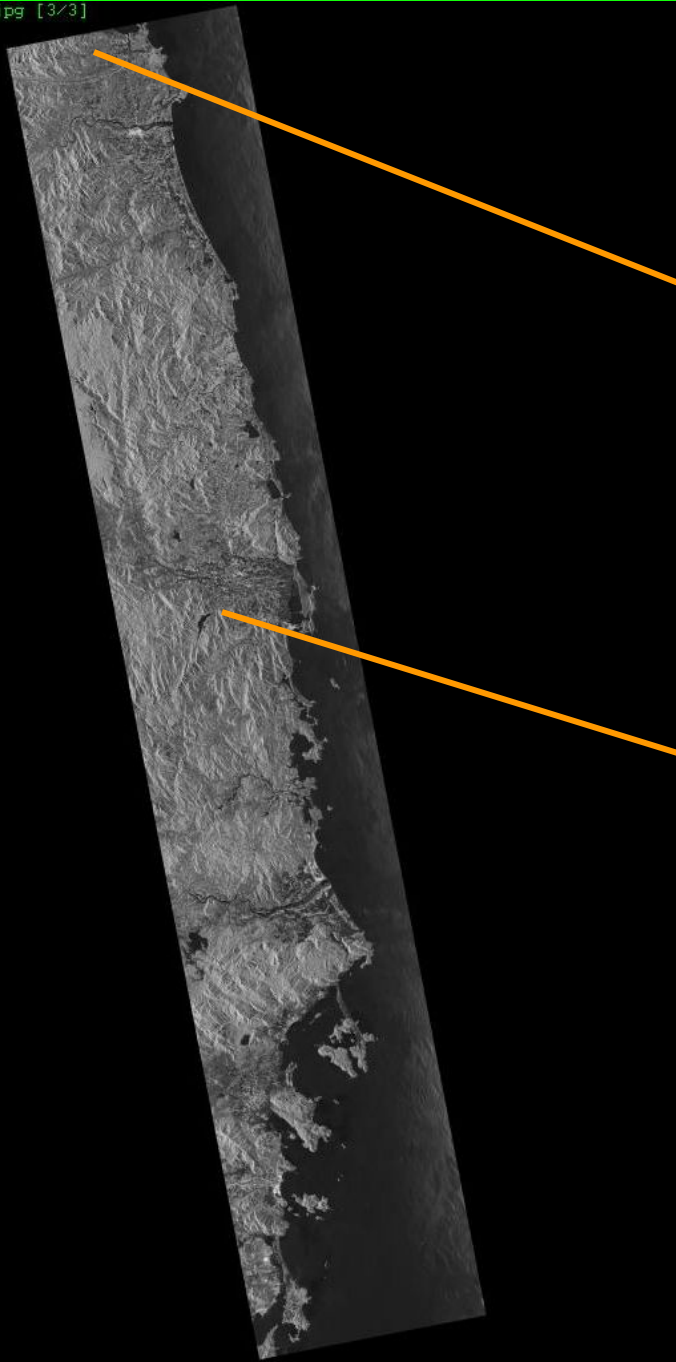
Example: list of data from WINDS

ID	Name	Format	Type
INF_000001	ALOS(Jpeg)	3	1
INF_000002	ALOS(GeoTiff)	1	1
INF_000003	ALOS(Data)	2	1
INF_000005	IRS(GeoTiff)	1	1
INF_000006	IRS(Data)	2	1
INF_000007	THEOS(Jpeg)	3	1
INF_000008	THEOS(GeoTiff)	1	1
INF_000010	KOMPSAT(Jpeg)	3	1
INF_000011	KOMPSAT(GeoTiff)	1	1
INF_000013	Product-JAXA(Jpeg)	3	2
INF_000014	Product-JAXA(GeoTiff)	1	2
INF_000023	Product-GISTDA(Jpeg)	3	2
INF_000024	Product-GISTDA(GeoTiff)	1	2
INF_000050	MTSAT-Visible-N(Jpeg)	3	10
INF_000051	MTSAT-Visible-N(GeoTiff)	1	10
INF_000052	MTSAT-Infrared-N(Jpeg)	3	10
INF_000085	Hotspot-KARI(Point)	7	11
INF_000086	Hotspot-KARI(Data)	9	11
INF_000087	GFAS-1Day(Jpeg)	3	12
INF_000088	GFAS-1Day(GeoTiff)	1	12

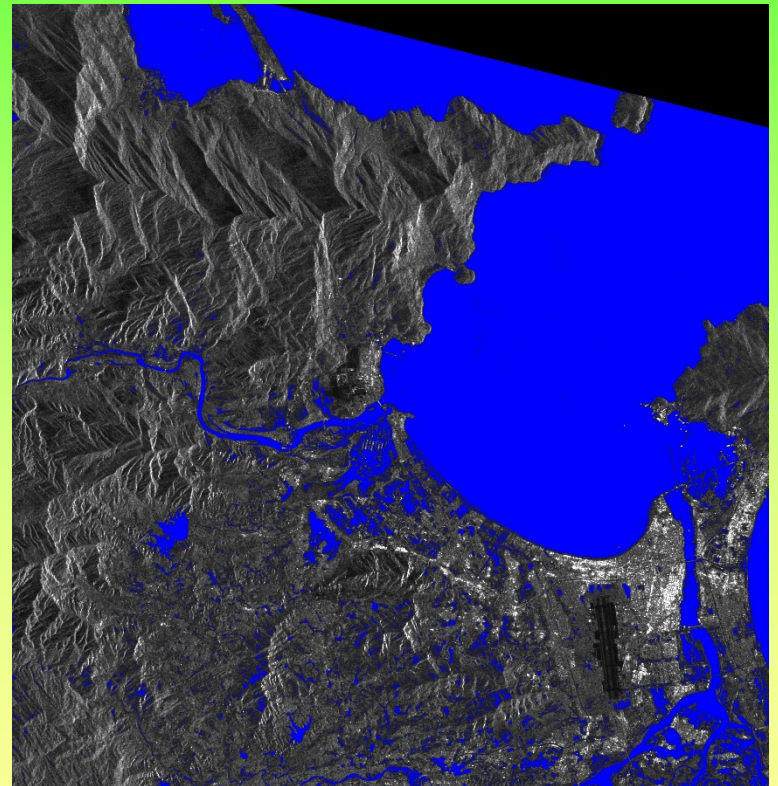
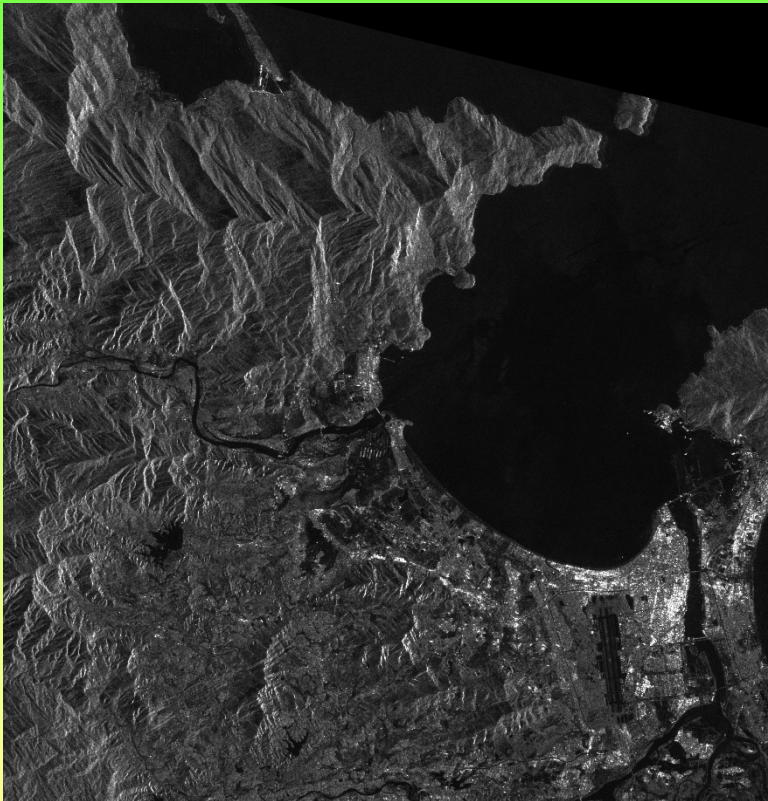


Result of the operation

- Receiving satellite data through Sentinel activation.
- Total times for Sentinel activation at NRSD are 13 from 2010 to 2016.
- Mechanism of data transfer via internet with low bit rate (<1mb/s).



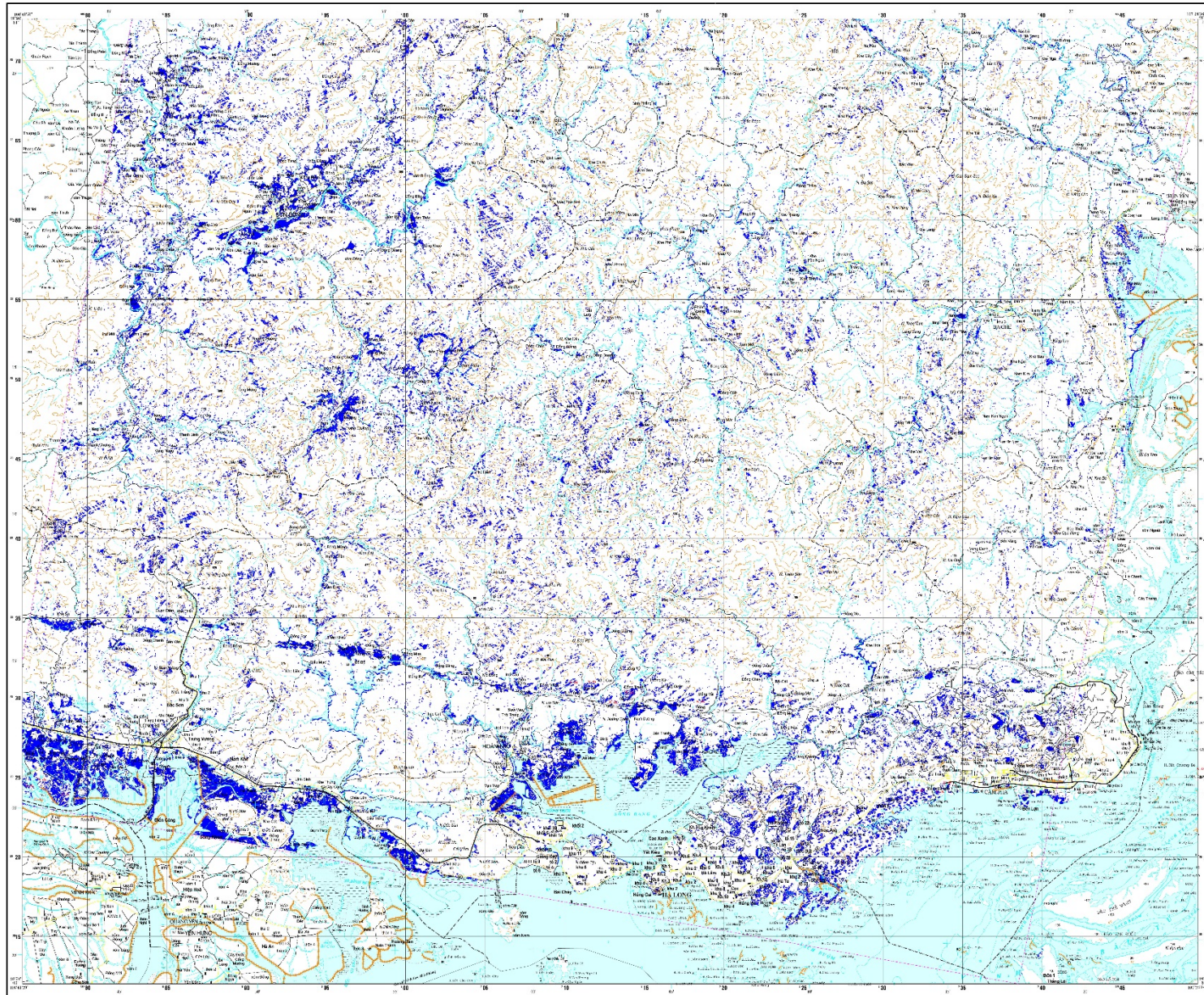
ALOS/PALSAR



Flood map over Quang Ninh Province 2015

BẢN ĐỒ NGẬP LỤT KHU VỰC TP. HẠ LONG, NGÀY 31/7/2015

02/AVC/MET - HỒ BỒI ĐÀNG - KHU VỰC TP. HẠ LONG VÀ MỸ HẠNG, QUẢNG NINH, VIỆT NAM



- Khu vực bị ngập nước sau thời điểm xảy ra lũ lụt (Khu vực bị ngập nước sau thời điểm xảy ra lũ lụt theo kết quả mô phỏng của mô hình AT 02C-PALSAE (theo bản vẽ 1:100.000 ngày 16/09/2015)
- Khu vực có đất bồi tích

- CÁC YẾU TỐ NỘI DUNG KHÁC**
- Bùn bồi tích gần sông, ven biển
 - Đường đất gò, gò đất bồi tích
 - Sông, suối, hồ ao
 - Kênh rạch
 - Khu đất cát
 - Đường sắt
 - Quốc lộ
 - Tỉnh lộ
 - Huyện lộ
 - Đường dân cư
 - Cầu, cống
 - Đường
 - Đường dây điện
 - Đường ống nước
 - Đường ống nước cấp
 - Đường ống nước cấp
 - Đường ống nước cấp

CƠ QUAN CHỦ TRÌ VÀ THỰC HIỆN
TRUNG TÂM CHẤM SÁT TÀI NGUYÊN MÔI TRƯỜNG VÀ ĐỊA DẠ
CỤC VIỆN THAM QUỐC GIA - HỒ TÂM MỸ

* Nguồn tư liệu ảnh được sử dụng để phục vụ công tác nghiên cứu và ra quyết định
* Tài liệu tham khảo: HỒ BỒI ĐÀNG - KHU VỰC TP. HẠ LONG VÀ MỸ HẠNG, QUẢNG NINH, VIỆT NAM
* Kinh phí chi trả công tác nghiên cứu và ra quyết định theo quyết định số 102/QĐ-UBND ngày 28/7/2015

BẢN ĐỒ ĐƯỢC THÀNH LẬP THEO CÁC TÀI LIỆU
Ảnh vệ tinh MODIS/PALSAE thu thập vào ngày 16/09/2015
Bản đồ địa hình 1:100.000/1:50.000/1:25.000 thu thập vào ngày 10/09/2015
Mô hình mô phỏng ngập lụt
Số liệu địa hình thu thập từ các trạm đo đạc địa hình
Số liệu địa hình thu thập từ các trạm đo đạc địa hình



TỶ LỆ 1:100 000

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**Thank you
for
your kind attention!**