

Ministry of Agriculture and Environment

The background of the slide is a deep blue gradient. In the upper right, there is a bright, multi-pointed starburst light. In the lower left, a satellite is shown in orbit, with the Earth's horizon and atmosphere visible below it. A thin horizontal line is positioned below the title.

Utilizing satellite imagery data and supporting products from the Sentinel Asia system in monitoring and recovery efforts following major floods in Vietnam in 2025

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National Remote sensing Department – MAE*

Dubai, UAE - 02/2026

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1. Brief introduction to the Ministry of Agriculture and Environment; National Remote Sensing Department
2. Applying remote sensing and National Topographic Database in monitoring and recovery efforts following major floods in Vietnam in 2025
3. Comments and suggestions



MINISTRY OF AGRICULTURE AND ENVIRONMENT

Context and Strategic Vision

- On February 25, 2025, the Government issued Decree 35/2025/ND-CP, officially establishing the Ministry of Agriculture and Environment through the merger of the *Ministry of Agriculture and Rural Development* and the *Ministry of Natural Resources and Environment*. This new Ministry officially commenced operations on March 1, 2025.



Strategic Context & Vision

The merger addresses critical issues in resource management and economic development:

- + Unified Management: Eliminating overlaps in Land, Water, and Forest management between the two former ministries.
- + Ecological Agriculture: Linking agricultural production with environmental protection and climate adaptation.
- + Circular Economy: Optimizing value chains and transforming agricultural waste into resources
- + Lean Apparatus: Streamlining organizational structure for higher efficiency and effectiveness.



Core Functions & Missions



Resource Management

Unified state management of Land, Water Resources, and Minerals. Ensuring water security and efficient land use.



Green Agriculture

Developing cultivation, husbandry, and forestry toward organic and ecological practices. Smart & sustainable farming.



Environment & Climate

Pollution control, solid waste management. Leading international climate commitments and Net Zero targets.

Lean Organizational Structure



Ministry Leadership

Minister

Vice Ministers in charge of specialized areas

Overall strategic direction and executive management.



State Management Block

- National Land Agency
- Water Resources Management Authority
- Plant Protection & Crop Production Dept
- Pollution Control Authority
- National Remote Sensing Department
- Climate Change & Disaster Prevention Dept
- ...



Public Service Block

- Strategy & Policy Institute
- National Center for Digital Transformation
- Specialized Research Institutes
- Academy of Agriculture & Environment
- ...

NATIONAL REMOTE SENSING DEPARTMENT

MAIN FUNCTIONS

National Remote Sensing Department is an organization under the Ministry of Agriculture and Environment with functions as state management and implementation of public services for remote sensing field according to Law regulations of Vietnam;



HUMAN RESOURCES

Total staffs: 199 personnel

- Doctors: 08
- Masters: 48
- Engineers: 124
- Others: 19



ORGANIZATION FLOW CHART

DIRECTOR BOARD

DIVISION OF
ADMINISTRATION

DIVISION OF REMOTE SENSING
INFRASTRUCTURE AND
TECHNOLOGY

DIVISION OF GENERAL
PLANNING

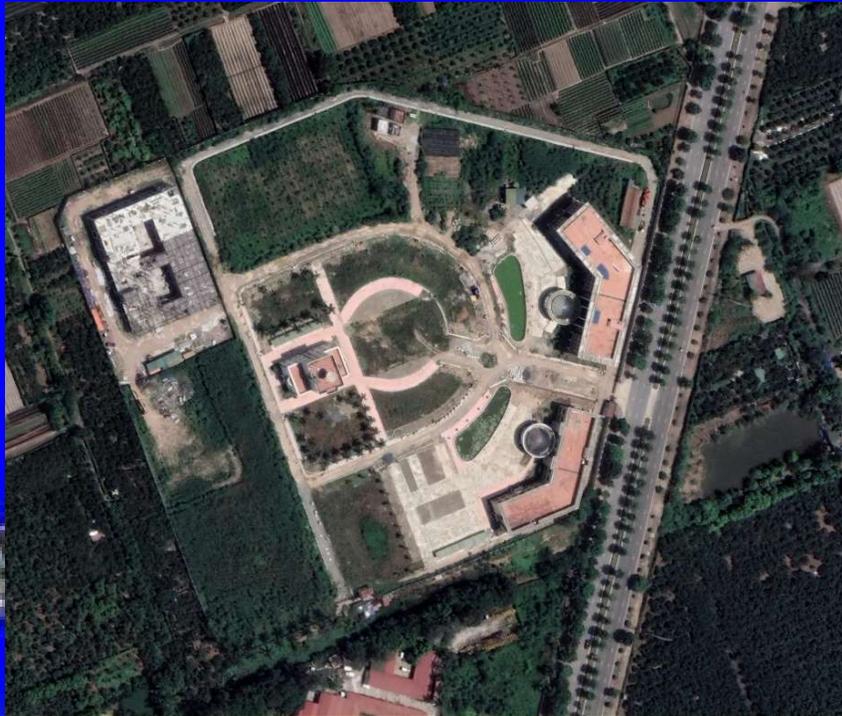
DIVISION OF REMOTE SENSING
ACTIVITY MANAGEMENT

**National
Remote
Sensing
Station**

**Center for
monitoring
agriculture,
resources and
environment**

**Center of
Remote
Sensing for
Product
Validation and
Technology
development**

WORK LOCATION



The administrative departments and 3 Application centers that carry out the application of remote sensing technology
Address at 79 Van Tien Dung Street, Bac Tu Liem District, Hanoi capital

VIETNAM GROUND RECEIVING STATION (VNGS)

- Built in 2005
- Data acquisition:
 - + SPOT 2,4, Envisat (2007-2012)
 - + SPOT 5 (2008-2015)
 - + VNREDSat-1 (from 5/2013)
 - + SPOT 6/7 (from 10/2020)

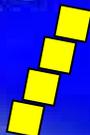


Receiving circle diameter exceeds 4600 km

Direct receiving area and corresponding coverage from HANOI (SPOT)



Acquisition of separate images



or
By continuous strips



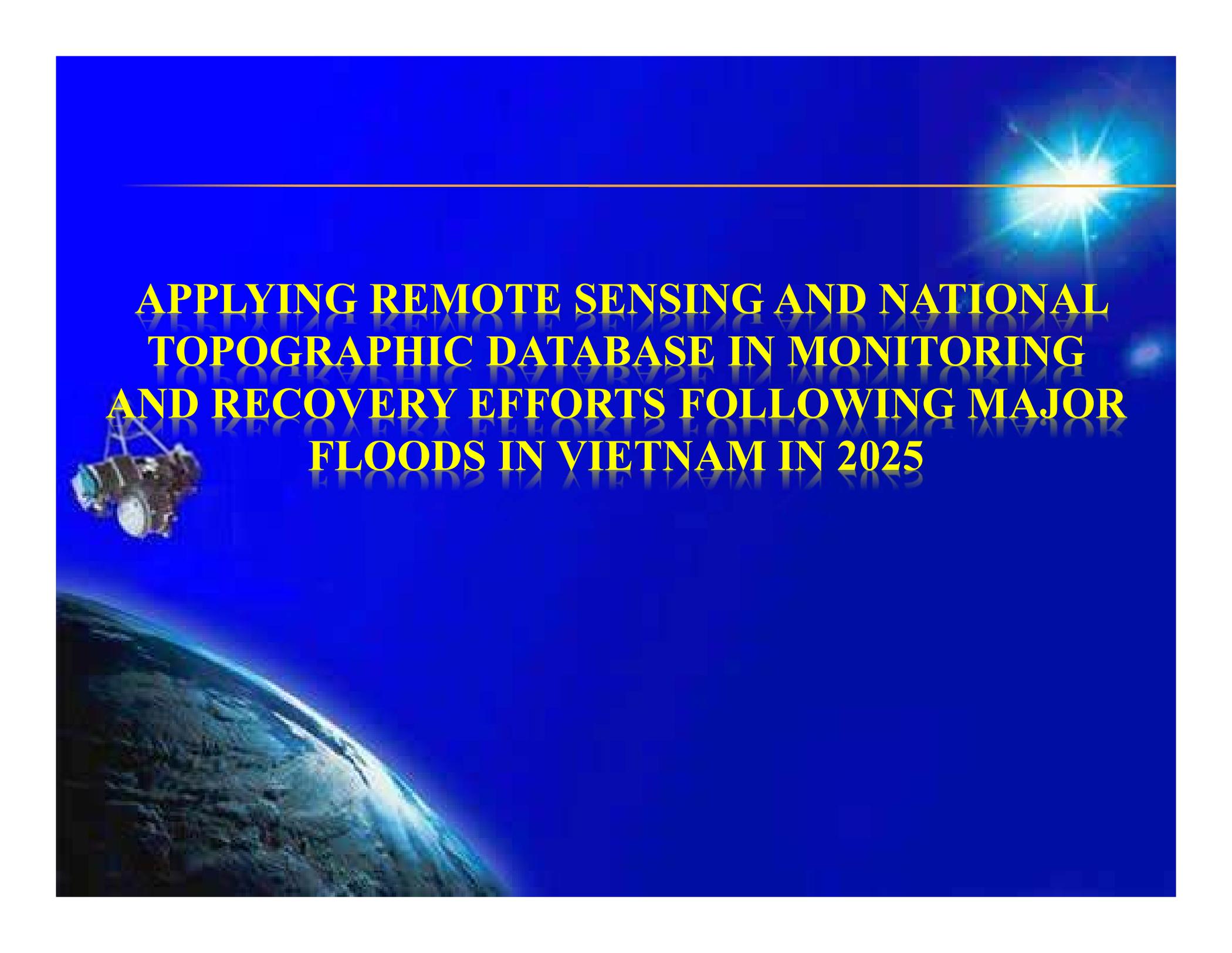
Acquisition Area of VNGS installed in Ha noi

VIETNAM GROUND RECEIVING STATION (VNGS)

South Korea's data receiving station

- + Built in 2024
- + Data acquisition:
 - + Kompsat 3A resolution of 0.55m
 - + Cosmoskymed





**APPLYING REMOTE SENSING AND NATIONAL
TOPOGRAPHIC DATABASE IN MONITORING
AND RECOVERY EFFORTS FOLLOWING MAJOR
FLOODS IN VIETNAM IN 2025**

Disaster relative frequency in Vietnam

Table: Disaster relative frequency in Vietnam

High	Medium	Low
Flood,	Landslide	Earthquake
Storm, Tropical depression	salinity intrusion	
Flash flood		
Drought		

(Source: National report on natural disaster reduction in Vietnam)

Summary of 2025 results through SA system activation

(1) 19/05/2025: Flash floods in Bac Kan province, causing 4 people dead or missing; Heavy rainfall has caused localized flooding in several areas of northern Vietnam

(2) 25/05/2025: The heavy rains have led to serious flooding in many localities. In Cam Xuyen District, over 500 households were inundated, and many inter-village and inter-commune roads were cut off due to rising floodwaters

(3) 08/06/2025: Heavy rain caused widespread flooding and landslides in several districts such as Tam Đường, Tân Uyên, Phong Thổ, and Lai Châu City

(4) 13/06/2025: Due to the impact of storm Wutip causing widespread flooding in many streets and residential areas.

(5) 21/06/2025: Monitoring Flood cause by heavy rains in Thai Nguyen City

Summary of 2025 results through SA system activation

(6) 24/07/2025: Due to the impact of Typhoon WIPHA, most provinces and cities in Northern Vietnam are expected to experience heavy to very heavy rainfall

(7) 01/08/2025: the provinces of Điện Biên and Sơn La in Vietnam were in a state of high danger due to flash floods, landslides, and the rapid rise of the Mã River

(8) 25/08/2025: Typhoon KAJIKI, the fifth storm to hit Vietnam in 2025, is bringing heavy to extremely heavy rainfall to Thanh Hoa, Nghe An, and Ha Tinh provinces

(9) 26/09/2025: Heavy rainfall due to the impact of Typhoon RAGASA : the provinces of Ninh Binh, Thanh Hoa, and Nghe An

(10) 29/09/2025: Typhoon BUALOI, Northern Vietnam and the Thanh Hoa–Hue region

Summary of 2025 results through SA system activation

(11) 07/10/2025: Typhoon Matmo caused very heavy rain in the Northern region

(12) 23/10/2025: Typhoon Fengshen caused very heavy rain From Ha Tinh to Quang Ngai provinces

(13) 06/11/2025: Vietnam's Storm No. 13 (international name "Kalmaegi" affect the central region of Vietnam

(14) 19/11/2025: a very large-scale heavy rain event occurred in the Central region of Vietnam, leading to cascading floods.

- + Prepare geographical background information layers
- + Prepare satellite images in areas where natural disasters frequently occur

Disaster occurs

Activate emergency monitoring
to SENTINEL ASIA (via OPTEMIS or email)
+ Data download

Radar image processing to extract
flooded areas

Optical image processing to extract
flooded areas

**Damage assessment – Rapid monitoring
mapping and reporting**

Flood Extent

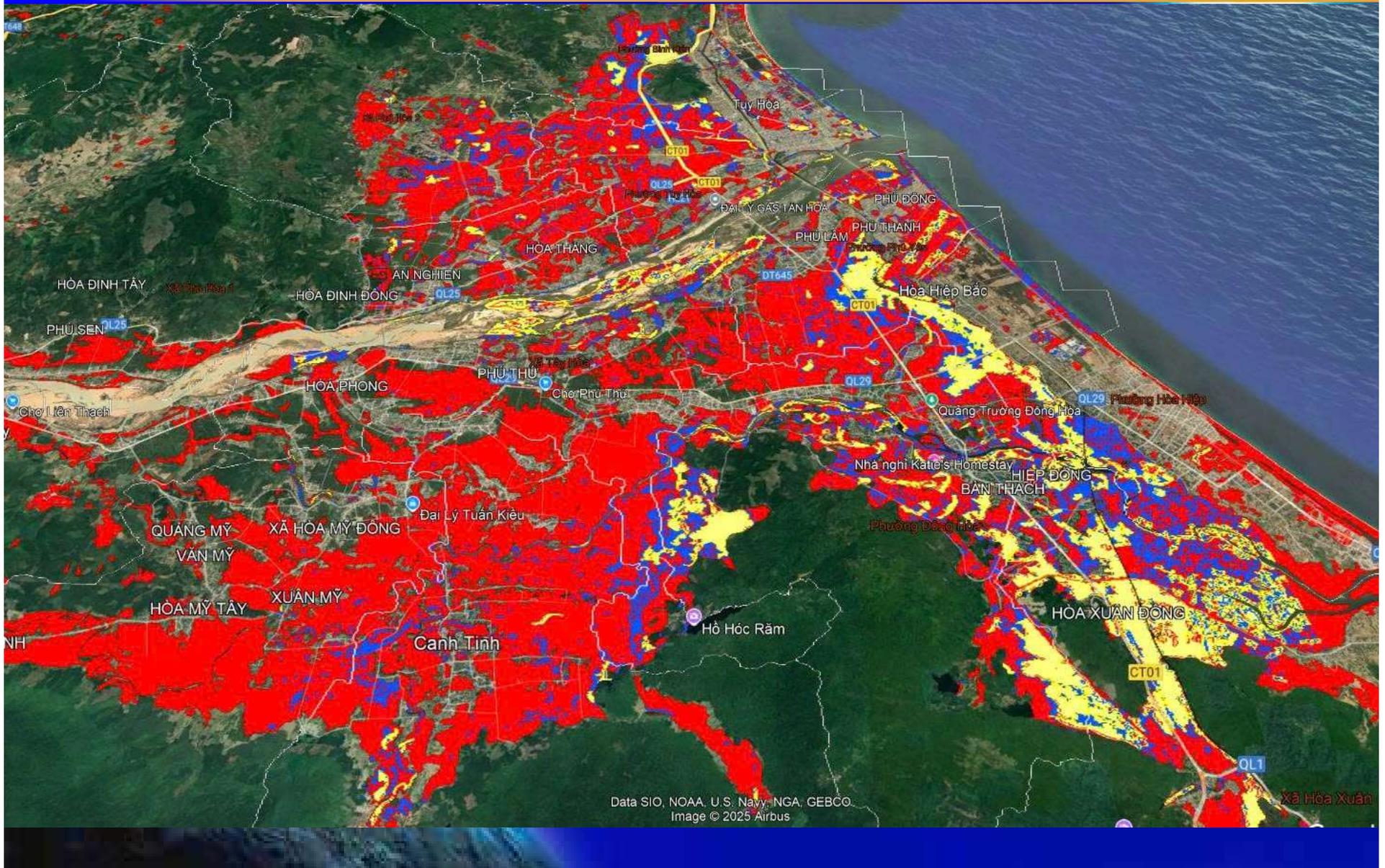
Overlay

Road
Lines

Administrative
boundary

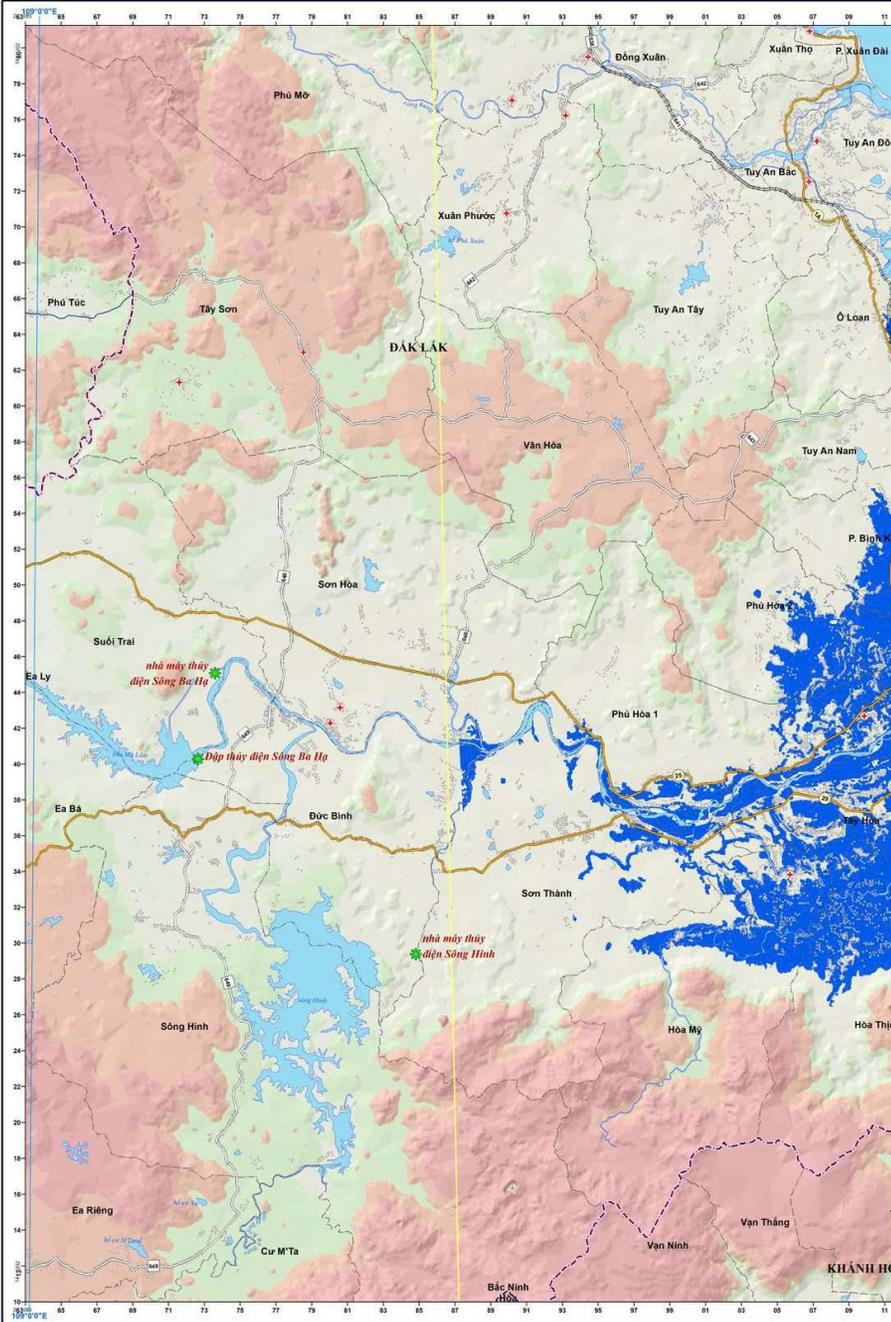
Land use
boundary

Summary of three flood monitoring periods from satellite imagery: November 21st - near flood peak (RED), November 26th (GREEN), and November 28th (YELLOW) – TUY HOA, VIET NAM



BẢN ĐỒ GIÁM SÁT NHANH DIỄN BIẾN

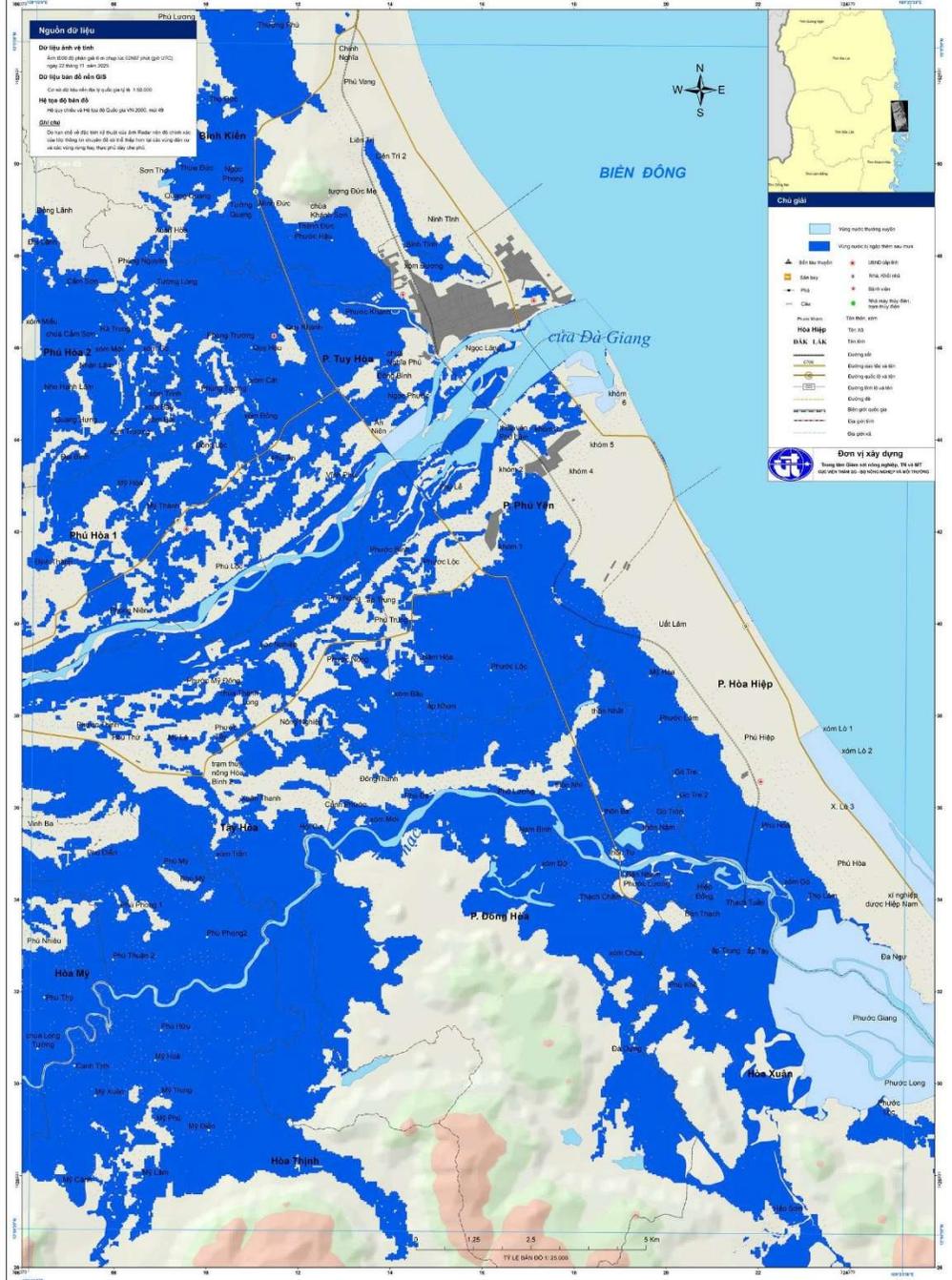
(Tính đến ngày 22/11/2025)



BẢN ĐỒ GIÁM SÁT NHANH DIỄN BIẾN NGẬP LỤT

(Tính đến ngày 22/11/2025)

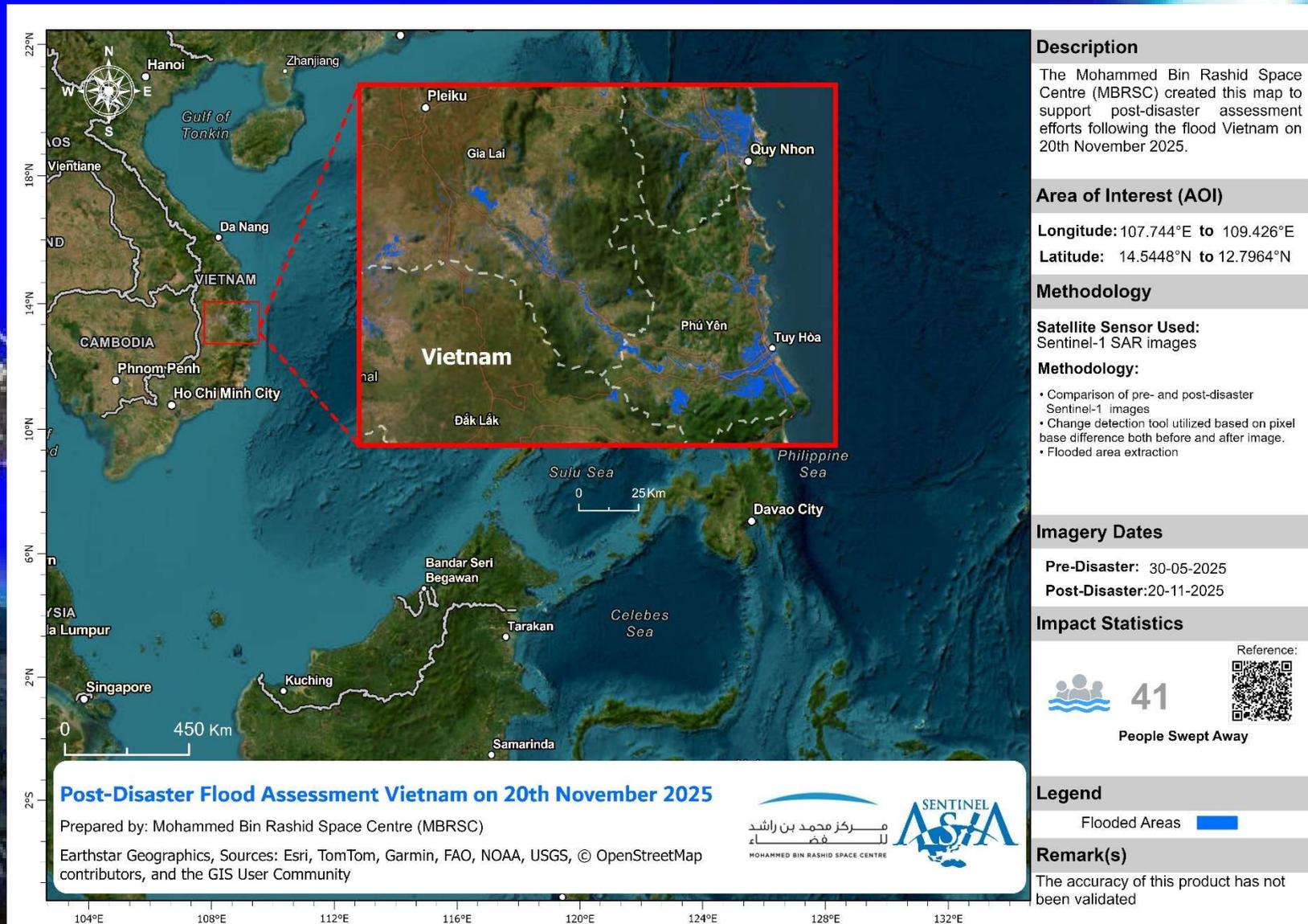
ĐẮK LẮK – Hòa Hiệp



Statistics of flooded area by district

STT	Commune	Province	Flooded area (ha)
1	Yên Khánh	Ninh Bình	1,132.36
2	Tiền Hải	Thái Bình	90.54
3	Vũ Thư	Thái Bình	799.97
4	Kiến Xương	Thái Bình	680.26
5	Thái Thụy	Thái Bình	1,556.28
6	T.x. Sầm Sơn	Thanh Hóa	11.55
7	T.P. Thanh Hóa	Thanh Hóa	78.34
8	Ngọc Lặc	Thanh Hóa	173.43
9	Cẩm Thủy	Thanh Hóa	1,473.16
10	Thạch Thành	Thanh Hóa	1,540.74
11	Hậu Lộc	Thanh Hóa	1,782.17
12	Thường Xuân	Thanh Hóa	32.19

In many situations involving heavy rainfall causing widespread flooding, we have utilized value-added products from agencies within the Sentinel Asia system, which have quickly processed and uploaded the data to the system.



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DETECTED FLOOD WATER IN ĐẮK LẮK PROVINCE

VIETNAM

As observed by ALOS-2 images on 30 November 2025



101 Km²

FLOOD AREA

This map shows the areas of detected floodwater in Đắk Lắk province, Vietnam, on November 19, 2025, caused by heavy rainfall.



4,820

AFFECTED HOUSEHOLDS

Source: Vietnamnet Global News, 24/11/2025



- Detected Flood Water
- Province Boundary
- District Boundary
- Waterbody
- Waterway
- Road

Satellite Image:

Pre-disaster : ALOS-2 PALSAR-2,
4 May 2025
2 November 2025

Post-disaster : ALOS-2 PALSAR-2,
30 November 2025

Copyright: © JAXA (2025) -
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GIS Data:

Road © OSM (2025)
Administrative Boundary © GADM (2025)

Map product made by GIC-AIT (v1.0).

Disclaimer: The accuracy of this product
is not validated.



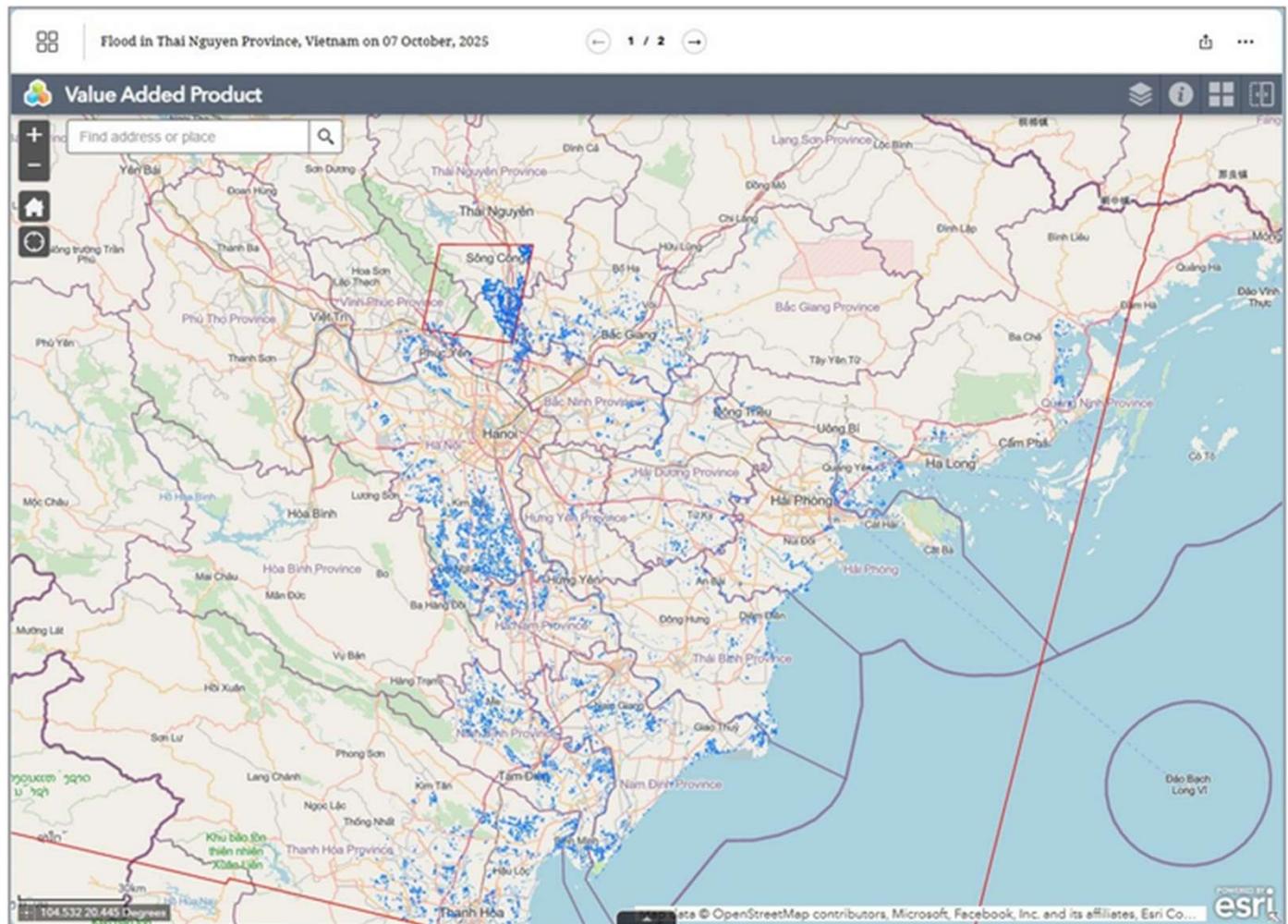
Field survey to check, evaluate and revise flood monitoring map products in some central provinces



*Quick share “WebGIS pages for the Sentinel Asia Emergency Observation”
with disaster management agencies and technical support focal points for disaster*

Web GIS

• Flood in Thai Nguyen Province, Vietnam on 07 October, 2025 [▶](#)



COMMENTS AND SUGGESTIONS

- Limitation of satellite observation for SAR data should be recognized by end-users. Ex: Urban Flood, Radar shadow, Data noise, etc.
- More frequent monitoring may be possible by constellation of satellite observation and collaboration with space agencies.
- Need to enhance the capabilities of high-performance computing in image analysis and build high-detail geographic base databases to enable rapid processing of information immediately after receiving satellite data..
- Combining technological solutions to provide highly reliable information on flood depth
- Training and technology transfer to support monitoring and relief work during natural disasters as well as post-disaster recovery for other types of dangerous natural disasters such as flash floods and landslides.





THANKS TO ALL DPN AND DAN
MEMBERS OF SENTINEL ASIA

and

THANK YOU FOR YOUR
ATTENTIONS !!!