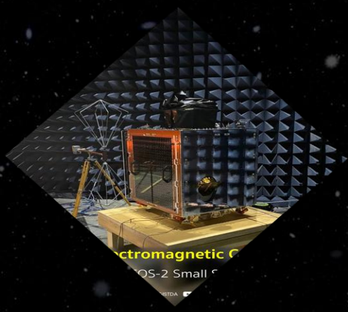
Country Statement: Thailand

29th ICC on RESAP, 2-4 September 2025, Seoul, ROK

Peerapat Akarakupt
International Relations Specialist
Geo-Informatics and Space Technology Development Agency (Public Organization)

Vision: To be an organization that brings together the values of space technology and geo-informatics for the greatest benefit of humanity



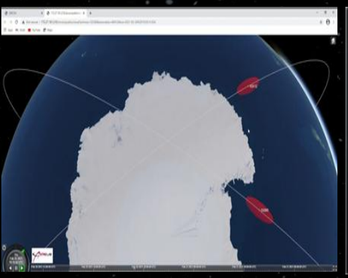
I. Earth Observation Satellite Operation (in-house software)
II. Satellite Development
III. Space Situation Awareness/ Space Traffic Management
IV. Space Exploration/ Space Science Research

Space Technology Dev.

Space Application Dev.



I. Agriculture
II. Disaster Management
III. Natural Resources & Environmental Management
IV. Mapping & Urban Development





I. National Space Act.
II. National Space Master Plan 2023-2037 (15 Years)
III. National Geospatial Master Plan (5 Years)

Space Law & Policies

GISTDA's Missions As Space Agency of Thailand

Capacity Building



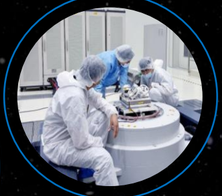




Space Infrastructures

I. THEOS & Ground Equipment
II. National Satellite Assembly, Integrated, and Test Center (AIT)
III. Space Laboratories







I. Awareness Raising
II. Degree & Non Degree Courses (GI & Space)

Space Value Chain

Outer Space

- Space Exploration
- Space Experiment
- Space Situation Awareness
- Space Traffic Management

UpStream

Mission Design

- Architecture Design
- System Design
- Satellite Design
- Spacecraft
- AIT, GALAXI Lab

Manufacturing

- Raw material
- System Integration
- Satellite, Payload

Mid-stream

Launch Services

- Insurance
- Launch facilities, Spaceport

Operators

- Ground system
- Satellite operations

Downstream

Services

- Satellite Data
- UAV
- Sensor
- Production System
- GI ARD
- Data Cube
- MAP APIs
- Open Data Platform

Applications & Solutions

- **Water Management**
- **Disaster**
- **Urban Planning**
- **Agriculture**
- **Natural Resource**
- **Mapping**

Extended Economy

- Navigation
- Logistic
- Mapping
- Broadcasting
- Tourism

Capacity Building

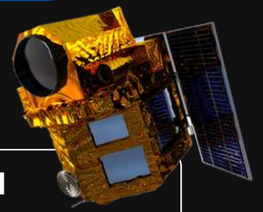
National space data center | Space Academy | Geospatial Intelligence Center | ARTSA | SCGI | Space Inspirium

THAILAND
EARTH OBSERVATION SYSTEM

Medium Solution
2.1 - 30 m.



THAICHOTE



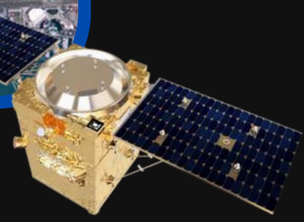
SPECIFICATION			
RESOLUTION	2 METERS PANCHROMATIC	15 METERS MULTISPECTRAL	2 METERS PANSHARPENED
SPECTRAL BANDS RGB,NIR	**SWATH WIDTH :** P22, M90 KM **REVISIT:** 26 DAYS		

LAUNCH DATE: OCTOBER 01, 2008

High Solution
1-2 M.



THEOS-2



SPECIFICATION			
RESOLUTION	0.5 METERS PANCHROMATIC	2 METERS MULTISPECTRAL	0.5 METERS PANSHARPENED
SPECTRAL BANDS RGB,NIR	**SWATH WIDTH :** 10.3 KM AT NADIR **revisit:** 26 days **life cycle:** 10 year		

LAUNCH DATE: OCTOBER 09, 2023

Very high Solution
30 - 99 CM.



THEOS-2A



SPECIFICATION	
RESOLUTION	1.07 METERS
SPECTRAL BANDS RGB	Video Mode: High Rate, Full Frame (5120x5120), FPS (25) Long Duration, Low Rate, Full Frame (5120x5120), FPS (10) Long Duration, High Rate, Small Frame (Captured: 5120x2880 (5k) End Product Post Processing: 3840x2160 (Ultra HD/ TV 4K)), FPS (25) AIS & ADS-B Receivers for ship and aircraft detection
SWATH WIDTH: 5.7 KM X 5.7 KM - 5.9 KM X 5.9 KM @BOL	

LAUNCH DATE: TENTATIVELY IN 2025

SOLUTIONS

1. Mapping

- Satellite base map
- DEM/DSM
- 3D mapping



2. Agriculture

- Economic Crop Monitoring
- Digital Agriculture Platform
- Smart farming



3. Disaster

- Decision Support System for drought, flood and fire
- Crop, drought and disaster monitoring system



4. Natural Resources

- Forest encroachment
- Deforestation
- Biomass
- Carbon storage



5. Water Management

- Water storage
- Water balance



6. Urban Planning

- 3D Building
- Digital Twins



Disaster Risk Management

Decision Support System for Disaster Management

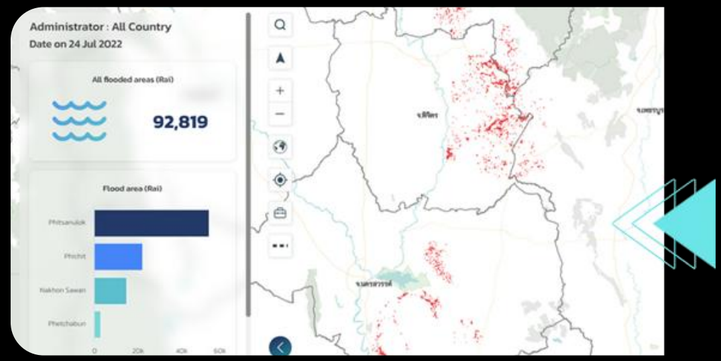

Flood


Fire


Drought


Air Pollution



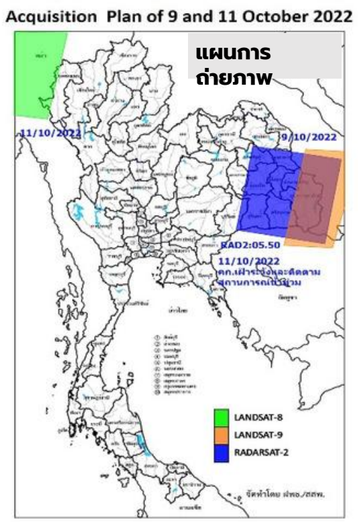


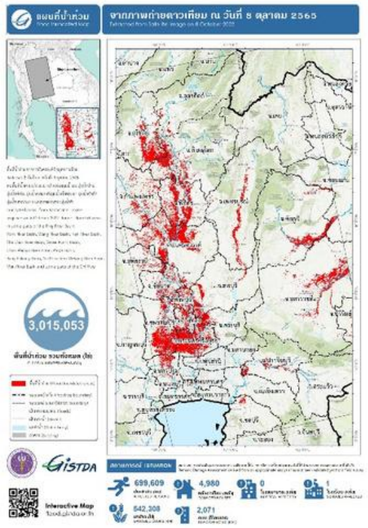


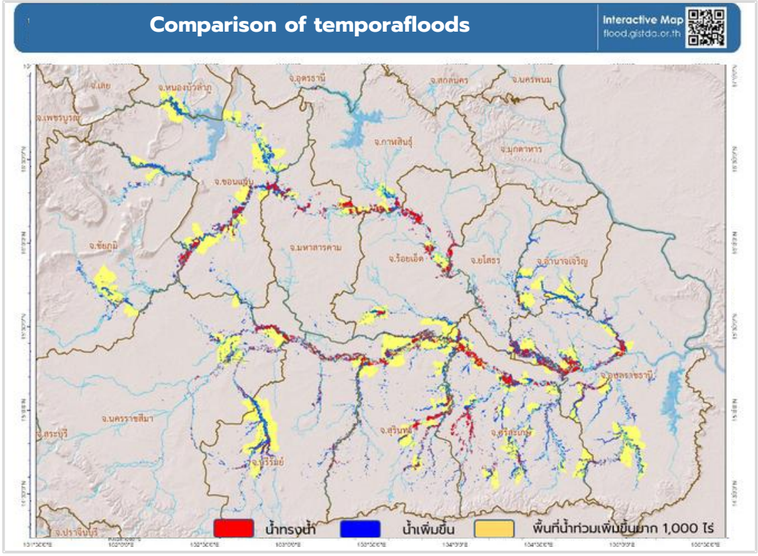


GISTDA Roles on Water Resources Management using GI

Flooded areas from near real-time images
https://disaster.gistda.or.th/flood

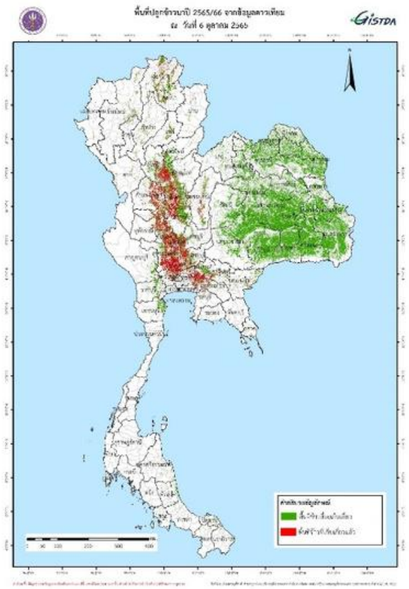


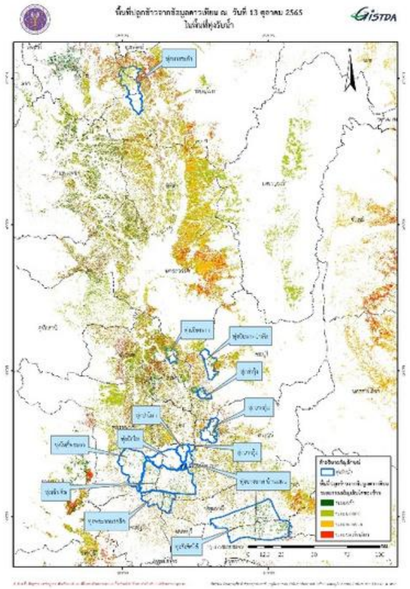


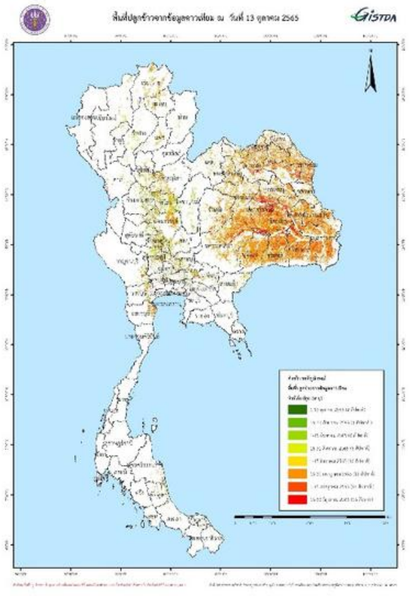


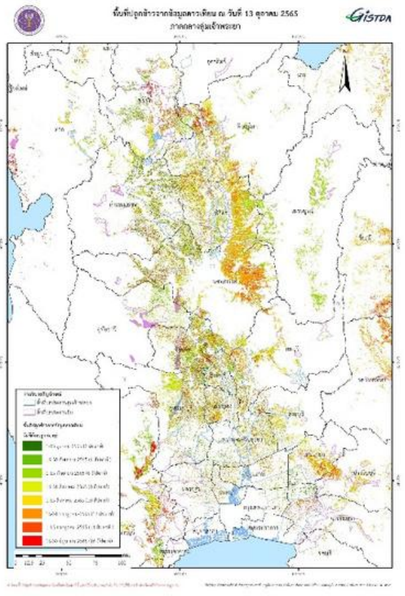
- Data preparation of an element at risk & past floods
- Data acquisition of near real-time images
- An assessment of socio-economic impacts
- Geo-Information data supported to policy makers

Recent Paddy fields
https://gisagro.gistda.or.th/rice

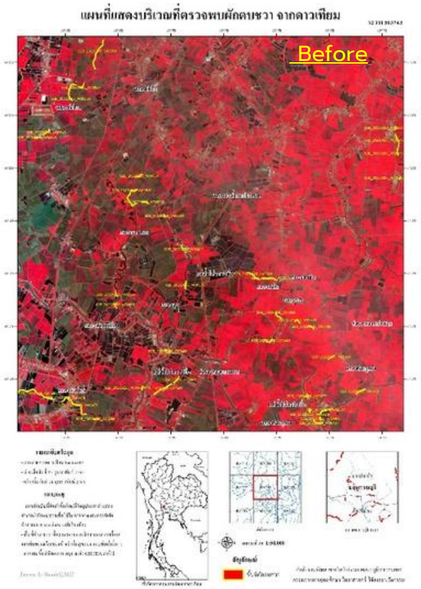


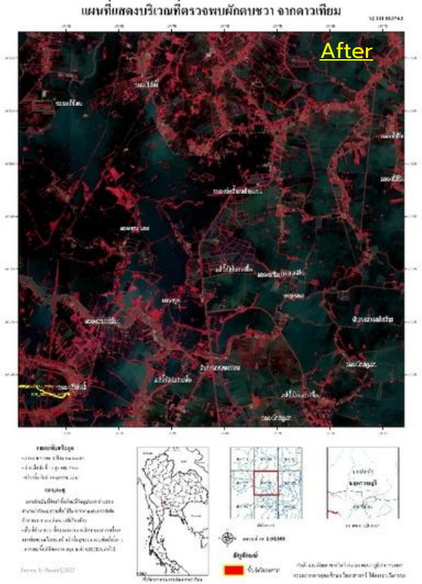


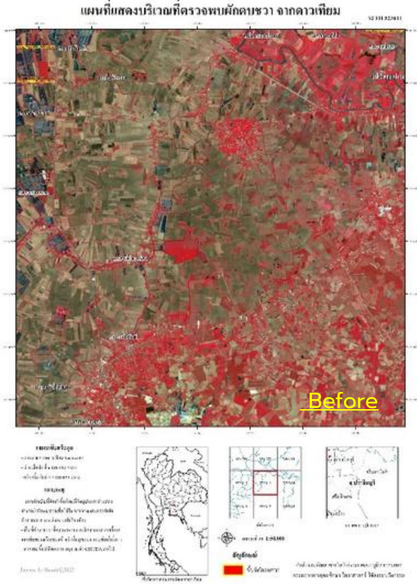


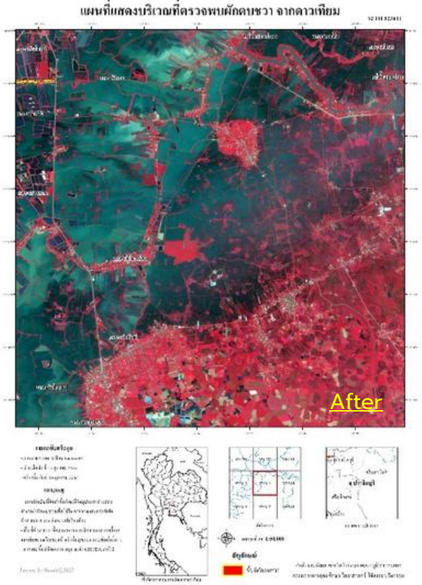


Aquatic plant identification
https://flood.gistda.or.th/download.html







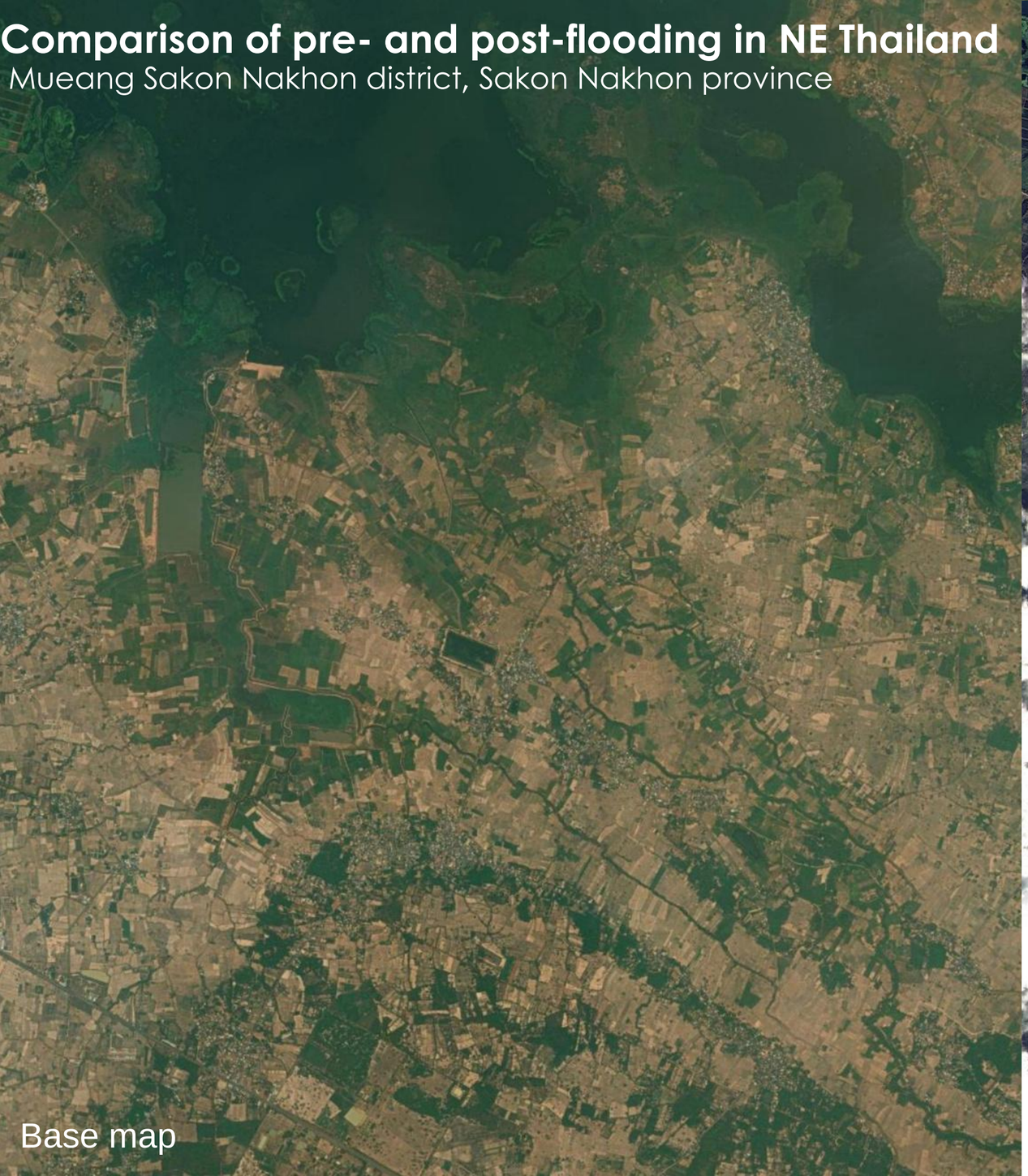



แม่น้ำยม
ต.ดงเดือย
ต.กง
#THEOS2



Comparison of pre- and post-flooding in NE Thailand

Mueang Sakon Nakhon district, Sakon Nakhon province





Post-flooding in NE Thailand from Thaichote satellite

At Samat and Selaphum districts, Roi Et province



Thaichote; 20 September 2023

© GISTDA 2023

FLOOD AREA, SUKHOTHAI, THAILAND



THEOS-2 IMAGE

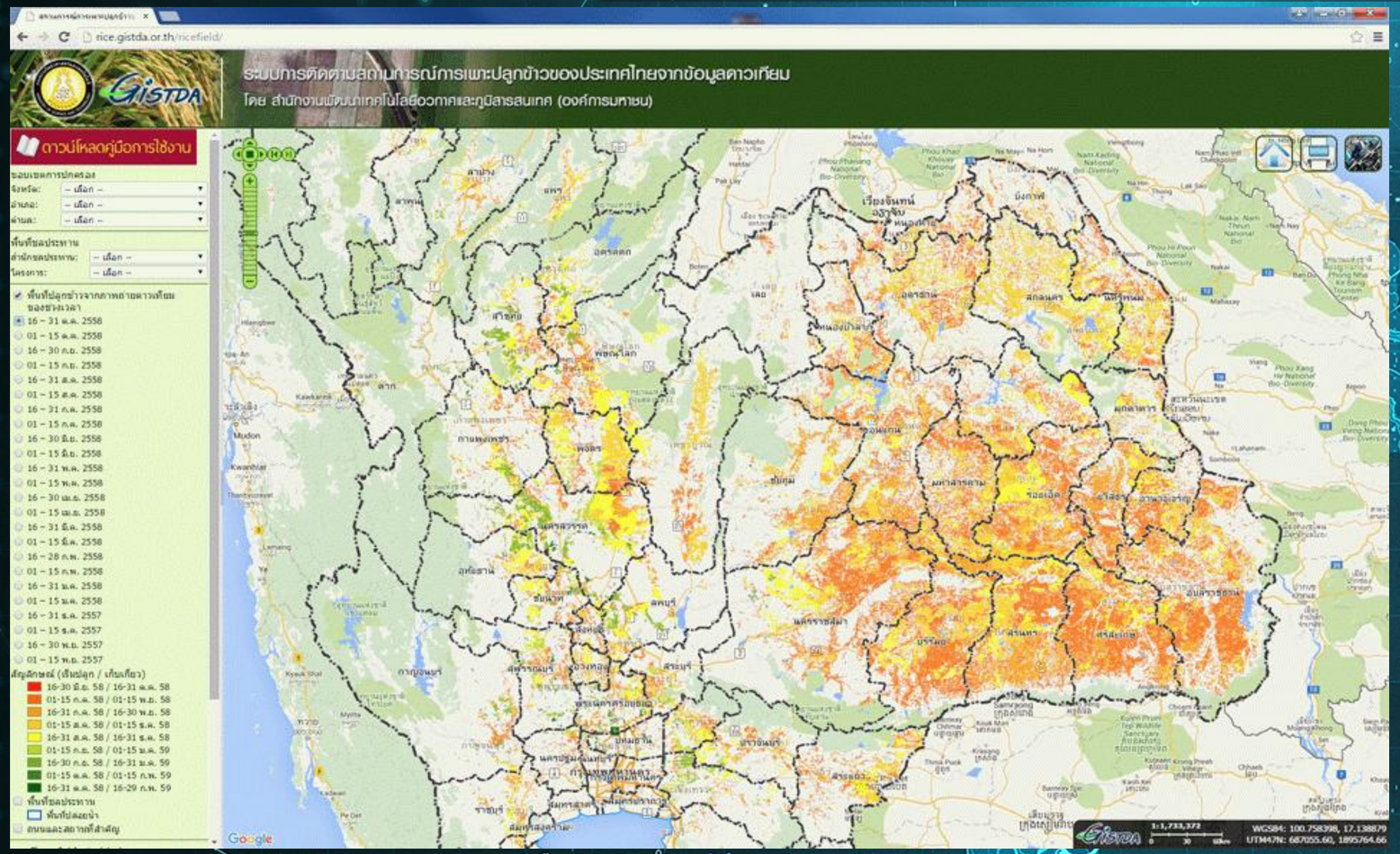
Date : 6 Sep 2024 ~ Resolution : 50 cm

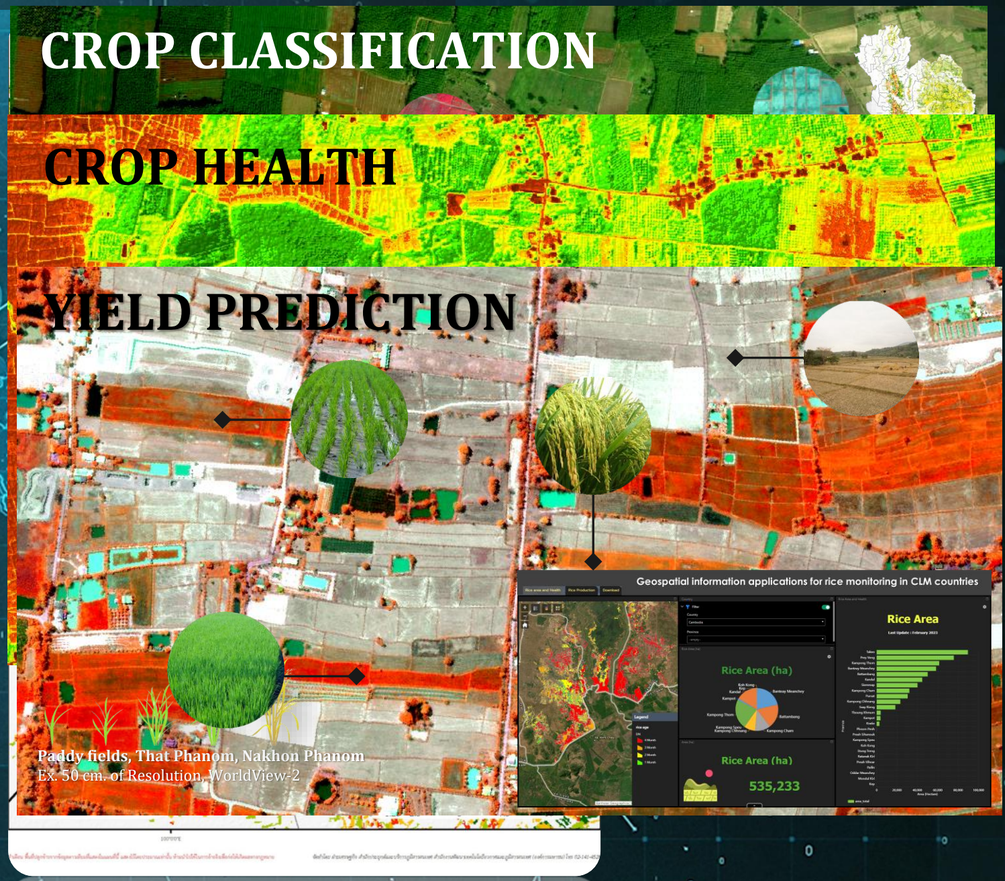
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GISTDA

Geo-Informatics and Space Technology Development Agency

Digital Agriculture Platform






Rice


Rubber trees


Oil palms


Cassavas


Maize


Sugarcane

- Planting areas
- Crop age
- Crop production
- Crop health
- Yield prediction

Key Achievements on the Implementation of the Plan of Action

ADVANCING GEOSPATIAL INNOVATION FOR FIRE MONITORING & TRANSBOUNDARY HAZE POLLUTION PROBLEMS

- Biomass burning in the region causes severe cross-border haze, degrading resources, threatening health, and demanding regional cooperation.
- Satellite and geospatial tools enable standardized monitoring of fires, burned areas, and air pollution across countries, offering a unified approach with broad coverage.
- GISTDA has successfully deployed multi-sensor space applications for fire and pollution monitoring, providing data for agencies and decision-makers.

Participating Countries: Mekong River Countries.

Key Activities:

- Knowledge transfer and experience sharing to enhance regional capacity (Policy & Operational Level)
- Hotspot and air quality monitoring platform development

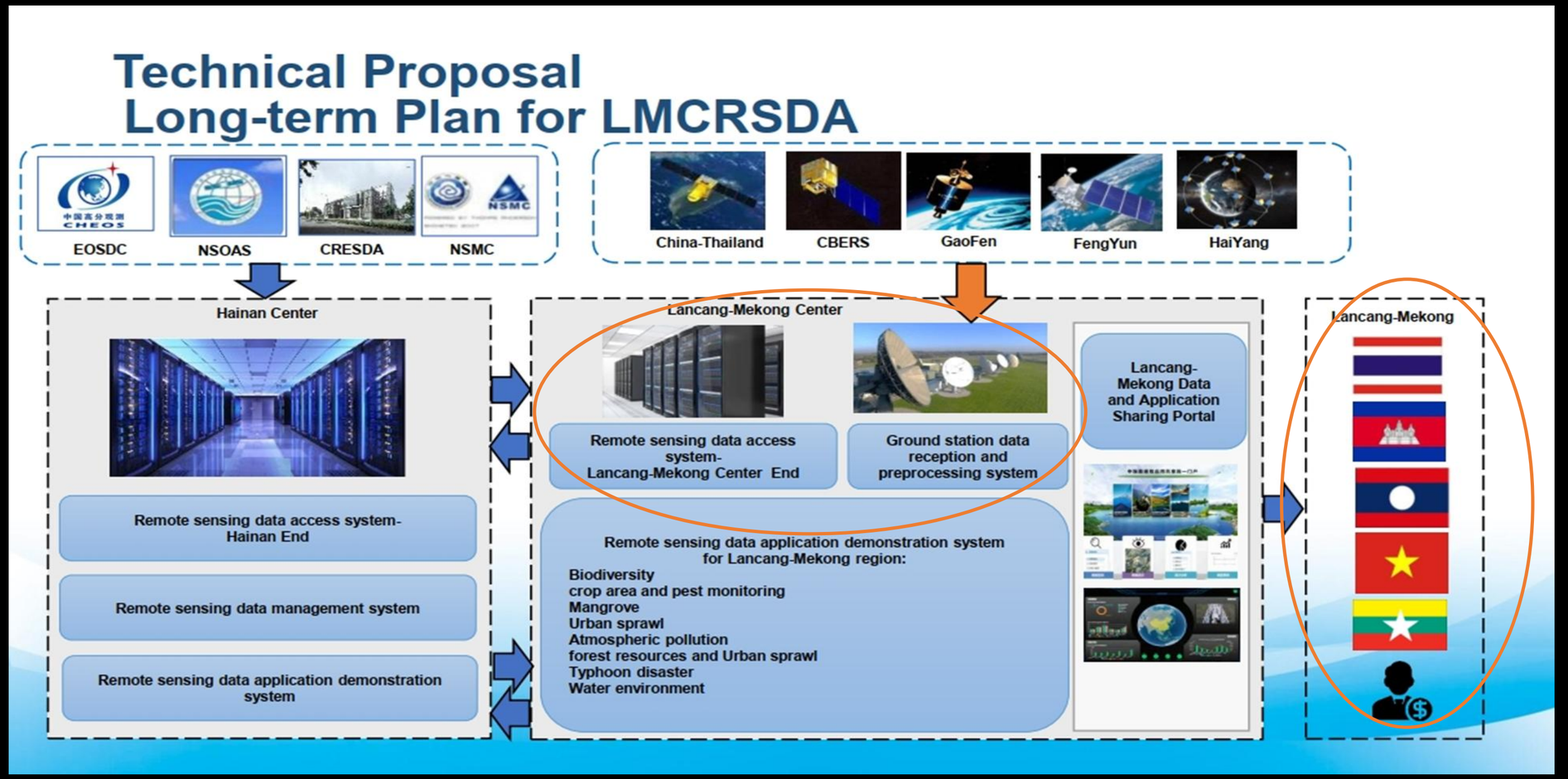
ESCAP APCTT Asian and Pacific Centre for Transfer of Technology

GISTDA

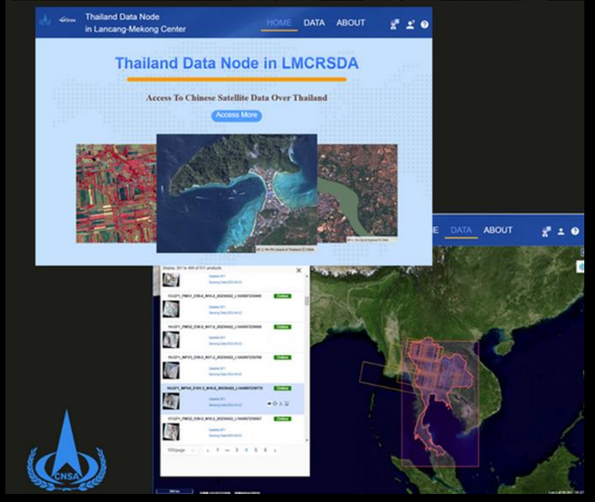
Thematic Area:

- **Management of Natural Resources (Forest)**
- **Social Development (Contamination and pollution)**

Lancang-Mekong Center for Remote Sensing Data and Application (LMCRSDA)







Objectives & Activities:

Regional satellite data platform, to promote the utilization of Chinese satellite data, and to jointly develop applications and innovation among Lancang-Mekong countries.

Thematic Area:

- **Disaster Risk Reduction and Resilience (Innovation)**
- **Management of Natural Resources (Regional Practices & Intergovernmental Discussions)**

Empowering Geospatial Technology for Enhancing Proactive Public Health Surveillance in LMC Countries

Lancang-Mekong Cooperation Special Fund

◦ **Objectives**:

- To develop a spatial surveillance system for infectious and non-communicable diseases using data from space technology and geographic information systems in the Lancang-Mekong River sub-region
- To establish a network for cooperation in health geospatial information (Geo-Health) at the sub-regional level in the Lancang-Mekong River Basin

◦ **Activities**:

(1) Technical operation (platform development)
(2) Capacity Building activities in Geo-Health

◦ **Expected deliverables**:

(1) Analytical model for Geo-Health by linkage with environmental and health database factors
(2) Spatial intelligent platform for public health management
(3) Risk maps
(4) Regional Geo-Health network

Thematic Area:

• Social Development (Health Management)

Building the Pan-Asia Partnership for Geospatial Air Pollution Information (PAPGAPi)



Pandora Sites

Installatation Sites	Sources of Air Pollution	Status
Bangkok (Central) -Pollution Control Department (PCD)	Residential & Transportation	- Operational and publicly accessible.
Chiang Mai (Northern) -Chiang Mai Rajabhat University (CMRU)	Agricultural waste burning	- Not operational due to an issue with sun tracker and head sensor
Songkhla (Southern) -Prince of Songkhla University (PSU)	Transboundary pollution	- Not operational due to an issue with a spectrometer.
Nakhon Pathom (Central) - Silpakorn University	industrial, urban, and agricultural zones	- Operational and publicly accessible.



Future Cooperation:

- Enhance the potential for GEMS and Pandora for research and development
- Develop models and products for Thailand and neighboring countries
  - Assess the concentration of pollutants at ground level (surface concentration)
  - Short-term forecasting from satellites data
  - Identify the distribution of pollutants (short and long-range transport)
- Establish a network for the use of geospatial and satellite data on air pollution

Thematic Area:

- **Social Development (Contamination and pollution)**

Capacity development initiatives and needs



Credit: The Mirror Foundation

Proposals for regional cooperation

Dragonfly

2023

- N Fertilizer Recommendation
- Plant Growth
- Soil Properties
- Soil Temp.
- Soil Moisture
- Disaster
- Product Price
- Farmer Notebook



2024

- Pest & Disease Alert
- Credit Score
- Yield Prediction

2025

- Carbon Credit
- Straw Calculator
- Crop Water Requirement

2026

- Crop Insurance
- Market Place

Dragonfly

Digital Agriculture Platform

6,089 Registered Users

COUNTRY	ACTIVE USERS
Thailand	16K
United States	154
South Korea	40
China	37
Singapore	33
Japan	21
Ireland	18

GISTDA

Urban Digital Twin Decision-Making

Key Objectives



1

Prototype Development

Develop a prototype of Digital Twin technology in a pilot area, Khon Kaen Province.



2

Decision Support System

Serve as a tool to support government decision-making for more effective spatial problem management.



3

Data Integration

Integrate geoinformation and other relevant data in an Open Data format to support various sectors in alignment with the National Strategic Plan.



4

Data Accessibility

Enable government agencies and the public to access 3D Digital Twin data for enhanced information awareness and understanding.

Key Features

❖ Assessment of Solar Power Generation Potential

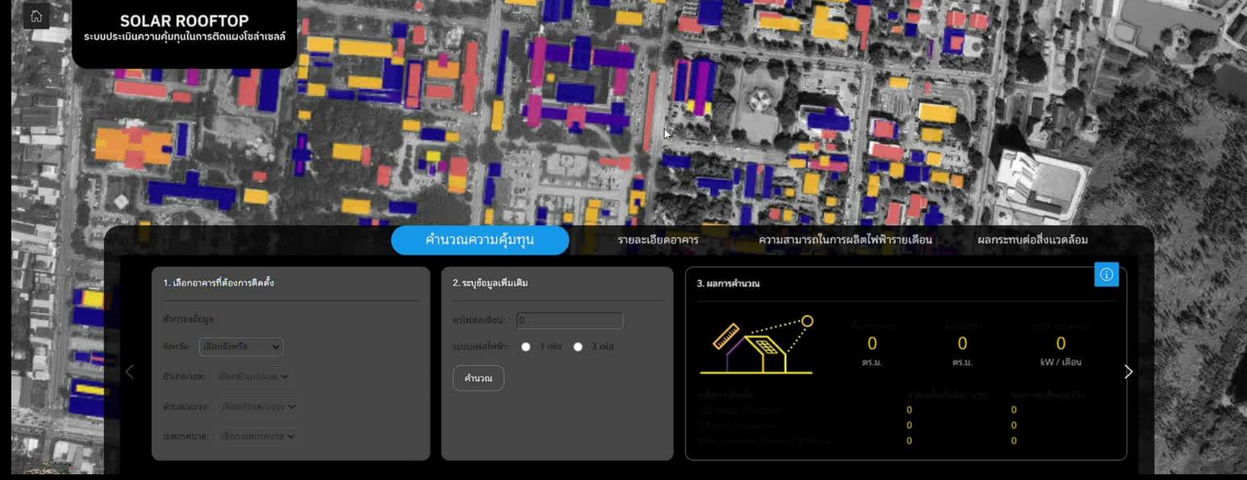
✓ Analysis and development of a model for evaluating solar power generation potential using 3D building data

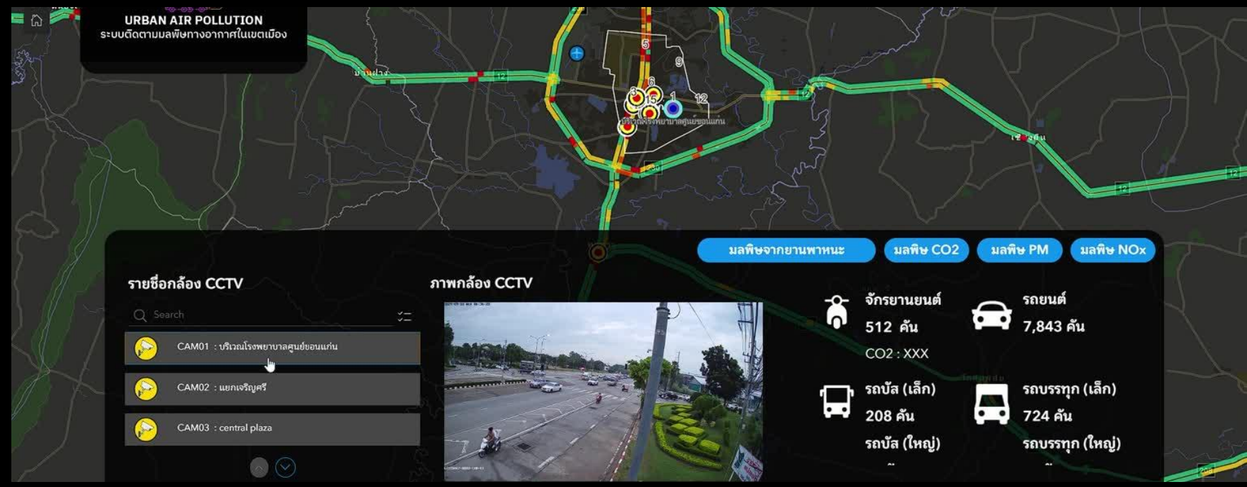
❖ Urban Air Pollution Monitoring

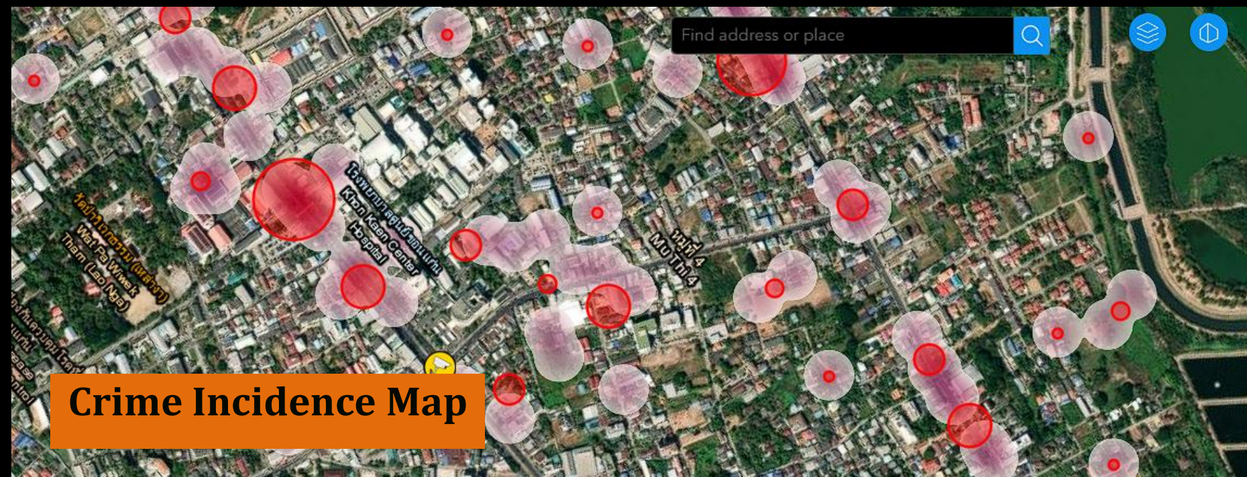
✓ Air pollution forecast
✓ Air pollution emission analysis

❖ Public Safety

✓ Public safety monitoring system using CCTV data







Support to be provided to the secretariat & member States

- We will continue and enhance our supports and collaboration with the secretariat and member States, and we would like to encourage member States to actively contribute more on the significant initiatives/projects, for example, SatGPT, Virtual Satellite Constellation, as well as, the joint research & capacity development on AI + Space Technology.

HOSTED BY

THAILAND SPACE EXPO 2025

"UNITED IN SPACE: BUILDING A GLOBAL COLLABORATIVE FUTURE"
ASIA'S GATEWAY TO THE NEW SPACE ECONOMY
16-18 OCTOBER 2025, ICONSIAM, BANGKOK

라는 주제로 태국에서 열리는 대표적인 국제 우주 박람회입니다. 2025년 10월 16–18일 방콕 TRUE ICONSIAM HALL에서 개최되며, 전 세계의 리더, 혁신가, 청년들이 모여 최신 우주 기술을 선보이고 협력을 강화하며 우주 경제의 미래를 함께 만들어갑니다.

将于 2025年10月16日至18日 在 曼谷 TRUE ICONSIAM HALL 举行，汇聚来自全球的领袖、创新者和青年，共同展示前沿航天技术，促进合作，共创太空经济的未来。

- Asia's leading platform for space innovation, business, and policy dialogue
- Featuring government agencies, private sector leaders, startups, and investors
- Bridging collaboration between Thailand and the global space ecosystem
- A showcase of technology, knowledge, and future partnerships

SUPPORTED BY

HIGHLIGHT AND EXPERIENCE THE FUTURE OF SPACE AT TSX 2025

HOSTED BY GISTDA

ACTIVITIES

INTERNATIONAL EXHIBITIONS
60+ BOOTHS FROM GLOBAL SPACE AGENCIES, COMPANIES & PAVILIONS

SPACE CONFERENCE & FORUMS
GLOBAL DIALOGUES ON POLICY, COMMERCIAL TRENDS, AND INNOVATION

BUSINESS MATCHING
CURATED B2B MEETINGS BETWEEN SPACE COMPANIES AND INVESTORS

YOUTH & INNOVATION ZONE
SPACE SHOWCASE, COMPETITIONS & CAREER INSPIRATION FOR THE NEXT-GEN

PROGRAMME

- SPACE FOR OUR FUTURE
- 25 YEARS OF THAILAND'S SPACE AFFAIRS (GISTDA SILVER JUBILEE)
- OPENING CEREMONY - HER ROYAL HIGHNESS PRINCESS MAHA CHAKRI SIRINDHORN
- MAXIMIZING THE VALUE OF AI & FREE SATELLITE DATA
- THAILAND'S TURN: CAPTURING THE BILLION - DOLLAR OPPORTUNITY IN SPACE TECH
- WISDOM TALK: THAILAND'S PATH TO THE GLOBAL SPACE MARKET
- EUDR COMPLIANCE: ASEAN'S READINESS AND THE ROLE OF SATELLITE-BASED TRACEABILITY

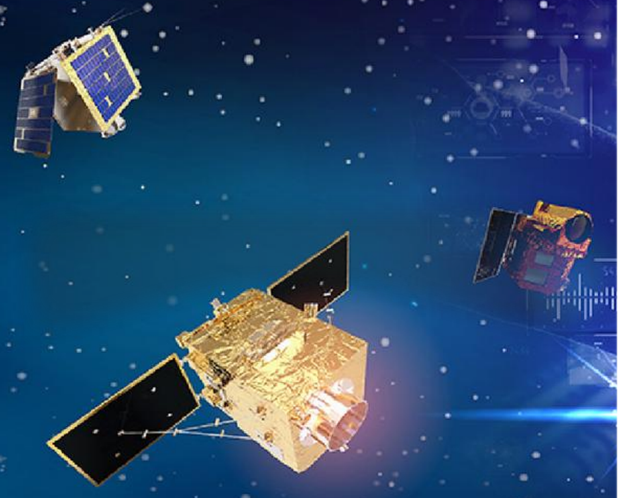
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Thank you

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