

Thailand Next Chapter to Support CEOS

THEOS-II,

sphere

Carbon Tracking



Committee on
Earth Observation Satellites

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Agenda Item 2.2
37th CEOS Plenary
15 - 16 November 2023
Chiang Rai, Thailand
Hosted by GISTDA

THEOS-2: Successfully Launched into Space



Thailand's second earth observation satellite, THEOS-2, was successfully launched into orbit from the French Guiana Space Centre on Monday 9 October 2023 BKK time.


THEOS-2





THEOS - 2

Altitude ~621 km Sun

Payload : Optical Instrument (KORSCH Type with 3 SiC mirrors) Diameter 500 mm (Primary Mirror) Focal Le_

 425 kg.

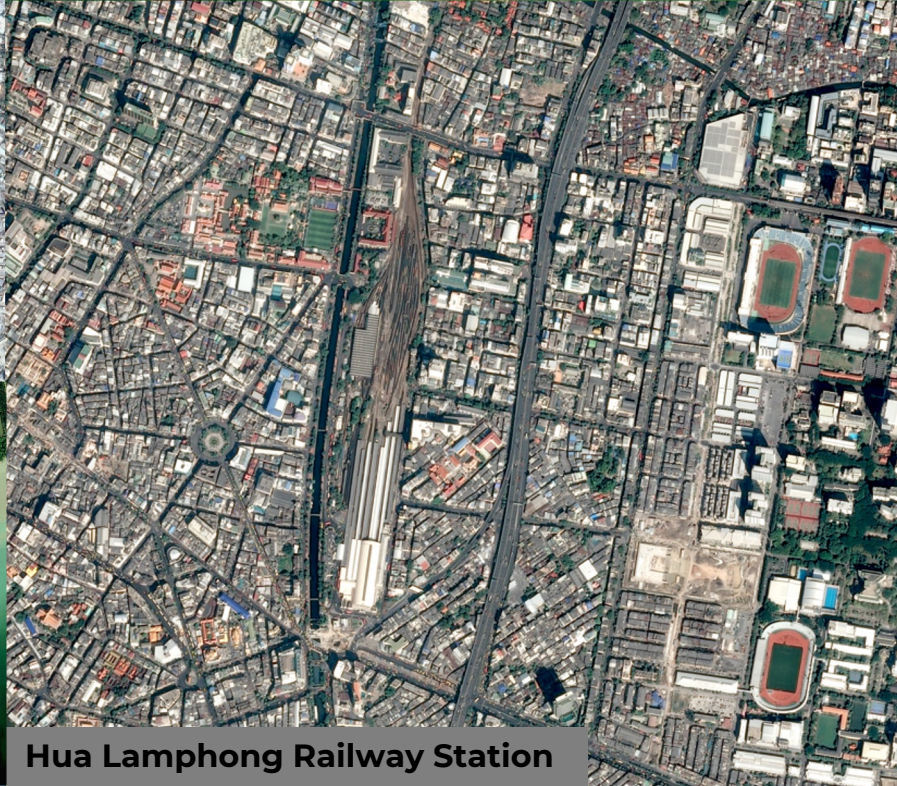
Specifications	Details
Panchromatic	50 cm.
Multispectral	2 meter
Payload	Diameter 500 mm, Focal Length 14.9 m.
Spectral Bands	RGB, NIR
 Swath Width	10.3 x 10.3 km.
Local Time	10:30 am. Sun-synchronous, 9:30 - 10:30 AM descending node
 Orbit Cycle	26 Days 1.9 days within +45° viewing angle (Mean at the equator)
Life Cycle	10 Years



Ao Udom



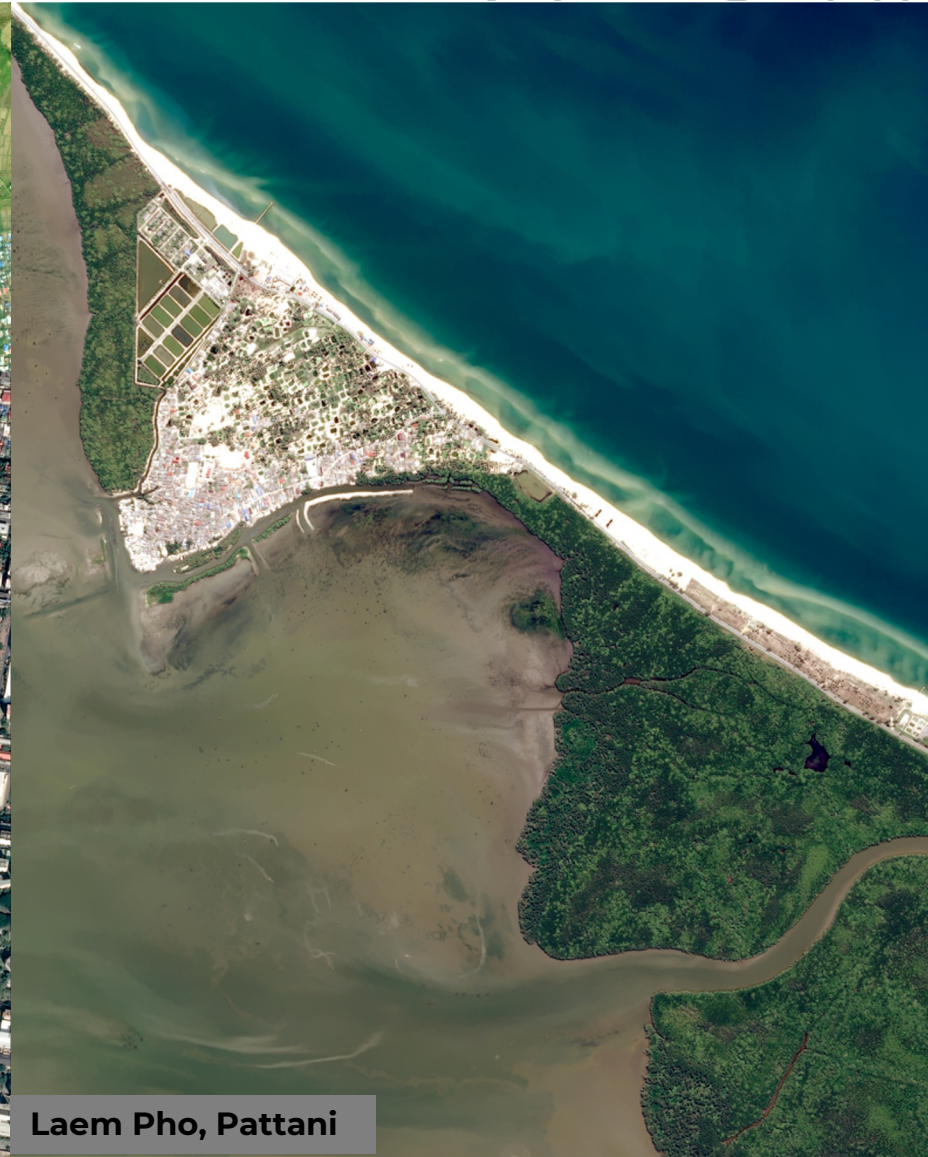
Agricultural area, Sisaket



Hua Lamphong Railway Station



Bang Khun Thian Mangrove Forest



Laem Pho, Pattani

NATURAL RESOURCES & ENVIRONMENT



Forest encroachment, Deforestation, Biomass, Carbon Storage, Green area

AGRICULTURE



Smart farming (Crop status, Nitrogen recommendation, Yield prediction, Crop classification, Pest and disease risk map, Yield potential zoning map)

WATER MANAGEMENT



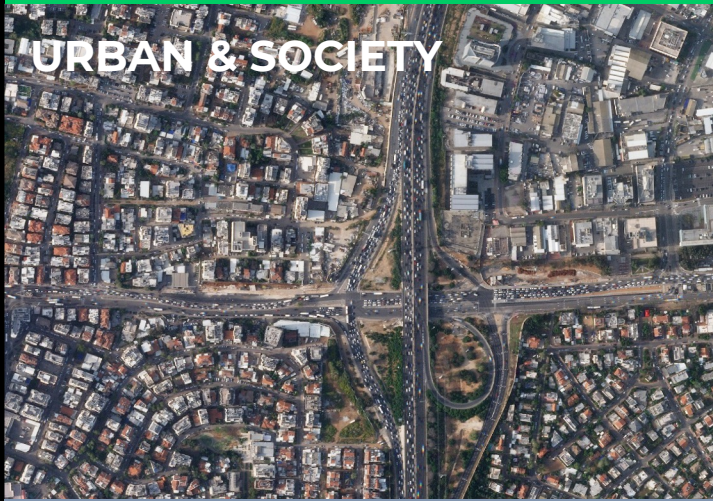
Water Storage, Water balance

DISASTER



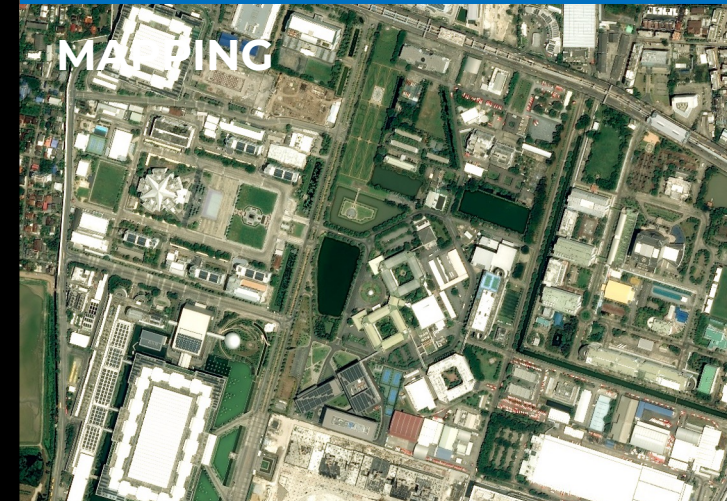
Flood extent, Flood level/ Volume, Burn Scar

URBAN & SOCIETY



3D building, Urban planning

MAPPING



Satellite base map, DEM/ DSM, 3D mapping

The Open Geospatial Platform
“Delivering map-driven values on sustainable development”

sphere



platform

FAIR Principle:

- Findable
- Accessible
- Interoperable
- Reusable

Open-source framework

•A cloud-based platform providing shared and trusted geospatial data, services, and applications for use by the public and by government agencies and partners to meet their mission needs.

Key Products



"sphere"

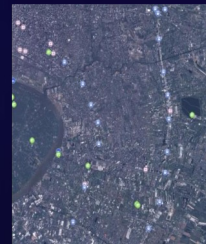
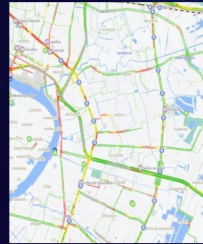
provides fast and reliable access to these products, unifying the interface and facilitating reducing the time to start analyzing the data.

The sphere initial product offer is organized according to the following categories:



DATASET

- ✓ **Basemap**
2-meter resolution with simple access
- ✓ **Satellite-as-a-Service (SaaS)**
Satellites use remote sensors to obtain information about diverse features of the Earth's surface
- ✓ **More...**
DEM | POI | AOI | Building Footprint | Admin. Boundary



TOOLS

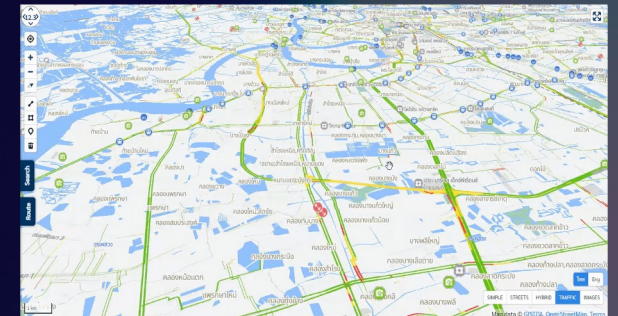
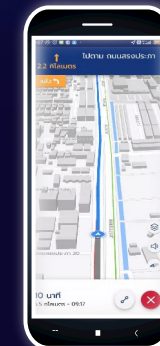
- Maps API**
Open-source map library for web browser and mobile-friendly interactive maps.
- mapMaker**
"Make & Share"
- eXeCube**
Easy web-based spatial and space-time computation

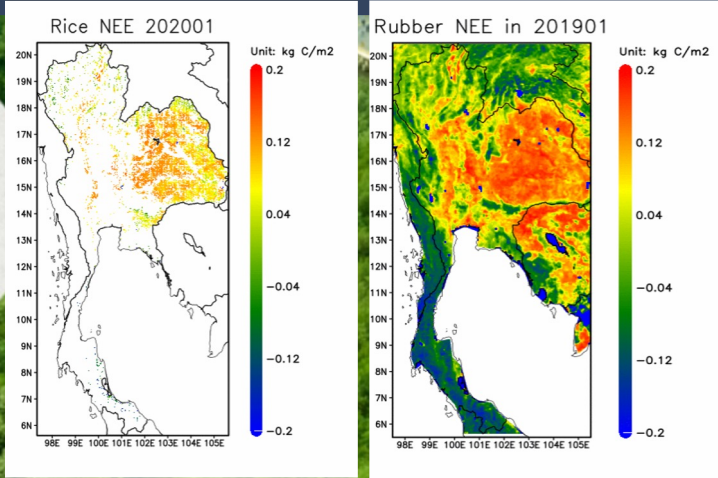


APPLICATIONS

WHERE

Turn-by-turn navigation. Select your destination, plan your own route. WHERE will navigate you. On road, as you wish.



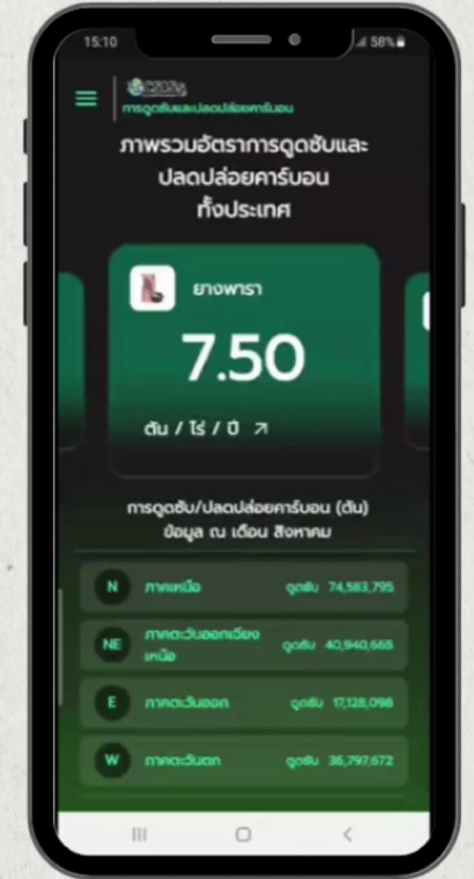


Integrate EO Satellites and Eddy Covariance Method



“Carbon Tracking”

ระบบให้บริการข้อมูลการกักเก็บคาร์บอนในประเทศไทย



เช็คคาร์บอน



<https://gistdportal.gistda.or.th/carbongpp>

Mobile Application

- ❖ **Earth Observation Services** : Social and Security Management, Natural Resource and Ecosystem, Water Management, Disaster and Agriculture
- ❖ **Space Economy**: Commercializing Earth Observation Data and Services, Boost Emerging Businesses to Global Value Chain
- ❖ **Sustaining Innovation**: R&D, Education, Continued Product Development and Innovation, Space Data Analytics and AI
- ❖ **Global and Regional Engagement and Connectivity** : Country and Regional Development, Open Opportunities to International Partners

Supporting the 2024 Chair Priorities (Biodiversity)