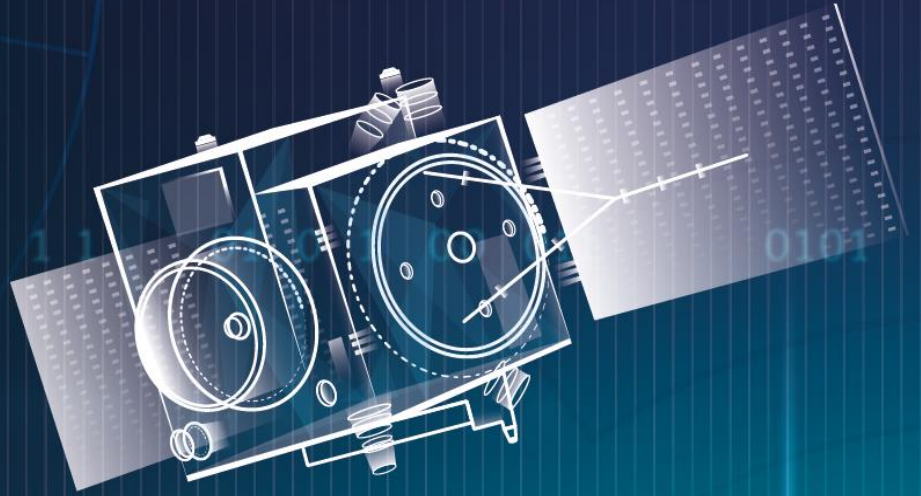




TO BE AN ORGANIZATION
THAT BRINGS TOGETHER
THE VALUES OF
SPACE TECHNOLOGY
AND **GEO-INFORMATICS**
FOR THE GREATEST BENEFIT
OF HUMANITY

Beginning to put forward

In 1971, Thailand join
NASA ERTS-1 project
(The world's first earth
observation satellite) afterward
perform the satellite survey
of natural resources unit

In 1979, first ground
station in South-East Asia
In 1982, satellite survey
of natural resources unit

In 2000, set up
GISTDA by 1999 act of
legislation

In 2008, launch first
Thailand observation
satellite "THOES"

In 2011 to present,
THEOS-2 project and digital
decision-making innovation
platform

Target

- To increase space economy in Thailand and generate value for driving economic
- Complete THEOS-2 to apply in Thailand important missions
- To promote GIS data for public acceptance tool to develop and solve country issues



Mission

- Perform as a earth observation duties
- Develop an infrastructure in the sectors of innovation and the space industry
- Establish a satellite constellation for the evolution of THEOS-2
- Enhance satellite technologies and space research
- Provide application and solution for Thai society
- Strengthen Thailand's human resources
- Expand the reach of international associations

GISTDA CONSTELLATION

Main satellite

THEOS-2

Launch : 2023

Payload : Optical, Diameter 500 mm, Focal Length 14.9 m.
Spectral Bands: Pan = 0.45-0.74 μm , Blue = 0.45-0.53 μm , Green = 0.53-0.60 μm , Red = 0.63-0.70 μm ,
Near Infrared = 0.76-0.87 μm .

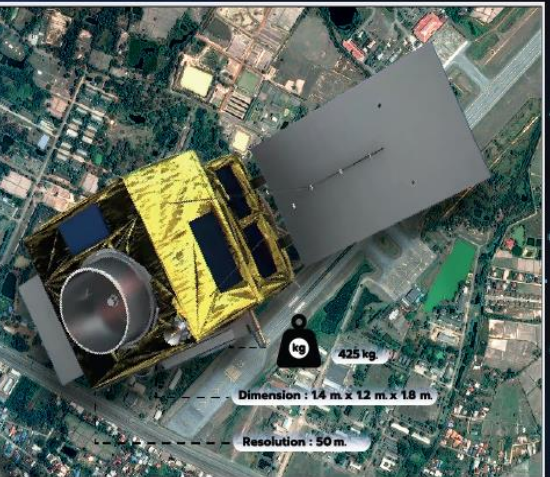
Orbit : 621 km, Sun-synchronous, 10:30 AM. LTAN

Image Resolution : 0.5 m. resolution Panchromatic (black and white image) 2 m. resolution Multispectral image

Swath Width : 10.3 km. at nadir

Dynamic Range at Acquisition : 12 bits per pixel

Dimension Revisit : 1.9 days within $\pm 45^\circ$ viewing angle
(Mean at equator)



Small satellite

THEOS-2A

Launch : 2023

Payload : High resolution image (CMOS detector with Bayer Filter); 250 mm. aperture and focal length of 2100

Image Resolution : 1.18m. @550km.

Spectral Bands : Blue = ~400nm. – 510nm, Green = ~490nm. – 580nm.,
Red = ~580nm. – 635nm.

Area of Coverage : 5.9 km. x 5.9 km.

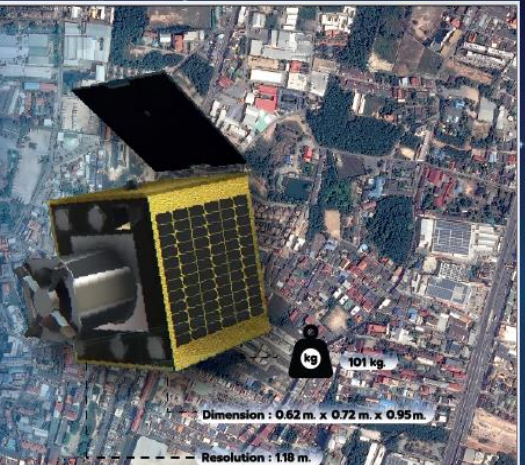
Video Mode

- 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

Orbit : 500 km, Sun-synchronous, 10:30 AM. LYDN

Revisit : 2 days within $\pm 45^\circ$ viewing angle (Over Thailand)



Thailand's first satellite

THEOS (THAICHOTE)

Launch : Oct 1st 2008

Image Resolution : 2 m. resolution Panchromatic image (black and white image) 15 m. resolution
Multispectral image

Orbit : 820 km., Sun-synchronous, 10:30 AM. LTAN

Swath Width : Panchromatic image 22 km. and Multispectral
image 90 km.

Revisit : Worst case 3 - 5 days within $\pm 45^\circ$ viewing angle



NEW SPACE ECONOMY SATELLITE

Satellite Ground Station Network, Hosting and Maintenance Service

GISTDA is a key player in the space technology development sential to support and promote the space industry as well as to invest in the space business, as it is crucial for the development of advanced and sophisticated technologies to sustain future space business and space related services



Mr.Nawattakorn Kaikaew
Ground System Engineering Division
Tel: 083 529 3836
E-mail: nawattakorn@gistda.or.th

Currently, GISTDA provide ground station installation service for Earth observation satellite.

Products/Services

1. RF Survey and Geospatial Analysis service
2. Ground receiving station design
3. RF equipment import-export service
4. Ground receiving station services
5. Main power system service
6. Backup power system service (UPS and Generator)
7. Internet service
8. System security service
9. Ground receiving station maintenance services



National Satellite Assembly Integration and Test: AIT

The AIT is located in Space Krenovation Park (SKP), Sriracha district, Chonburi province; it is a tool center and advanced laboratory that has met international standards, allowing it to build, componentize, develop, and test satellites ranging from Cubsat to small satellites. In addition, GISTDA continues to provide these services to the private and industrial sectors in Thailand in order to increase the value of the business and service sectors. We expect that these facilities will boost national economies in the event of a space economy and increase labor productivity in the future via technology transfer and training.



High resolution to very high resolution satellite data

(less than 1 meters)

Using satellite imagery

- Create an accurate large scale map or 3D model
- Classify landuse type and evaluate the change in agricultural and forest land cover
- Design a strategy for dealing with disasters and rescuing those affected
- Analyze the change detection in the environmental field such as identify illegal activities, commercial routes, oil spill monitoring and illegal fishery
- Monitor flood and coastal change
- Investigate air pollution and smoke detection
- Fuel, gas and mine exploration
- Manage risk and Insurance
- Urban planning and monitoring the changing area such as transportation network, massive infrastructure
- Delivery of security and conflict prevention in the territory
- Research and stay updated on energy use
- Environment and natural resource management
- Nature resource management, topography, and disaster implementation
- Apply with GIS technique



More information

Specifications	Detail
Resolution	0.3 – 0.92 m.
Swath Width	5.5 – 150 km.
Revisit	1 – 5 Day

Hub of Observing System

Medium resolution satellite data

(more than 1 meters)

Using satellite imagery

- Detect the change of landscape
- Categorize and track the agricultural area
- Monitor the change of environment and natural resource
- Disaster surveillance
- Build Thailand data base of remote sensing
- Apply with GIS technique

Specifications	Detail
Resolution	1 – 30 m.
Swath Width	15 – 850 km.
Revisit	1 – 16 Day



RADAR SATELLITE

Using satellite imagery

- Research and evaluation to be utilized in natural resource management, agricultural ventures, infrastructural development, and other large-scale projects
- Closely watching coastal, vessel, oil spill and marine pollution
- Check the area for catastrophes, flooding, and erosion
- Civil affairs and the defense of the nation
- Digital elevation model mapping
- Handy in agriculture and natural resource management

Cosmo-SkyMed X-band

Specifications	Detail
Resolution	1 x 1 - 100 x 100 m.
Swath Width	10 x 10 - 200 x 200 km.

TerraSarX X-band

Specifications	Detail
Resolution	0.25 - 40 m.
Swath Width	4 x 3.7 - 270 x 200 km.

RADARSAT-2 C-band Sar

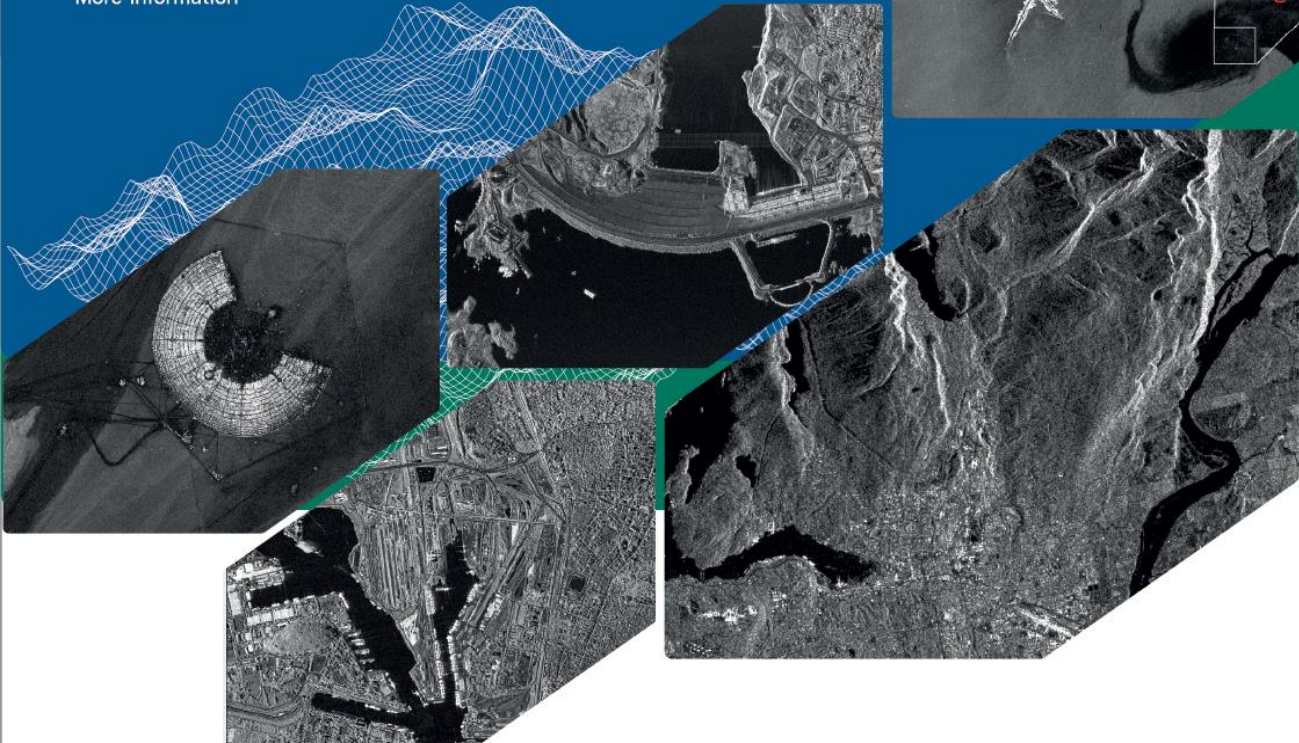
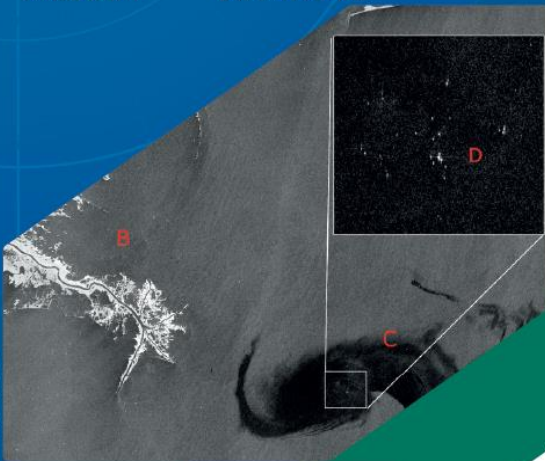
Specifications	Detail
Resolution	1.6 - 30.0 m.
Swath Width	50 - 170 km.

GaoFen-3 SAR X-band

Specifications	Detail
Resolution	1 - 5000 m.
Swath Width	5 x 5 - 650 km.



More information



SOLUTION & SERVICE

Natural Resource and Environment Solution

GISTDA has brought Geo-Informatics technology to Thailand in order to assess the country's forest state. This is because effective natural resource arrangement is crucial in terms of forestland, coastal, and marine territories. In addition, the aspiration is directly related to coastal erosion, vessel detection, and oceanographic buoys.

- Stay updated on panding greenery
- Classify landuse land cover
- Evaluate the efficacy of climate change
- Analyze carbon storage
- Evaluate Biodiversity
- Track changes in the marine and coastal environment
- Detect oil spills in marine in time
- Determine unusual maritime transportation



Natural Resources
& Environment

Agriculture



Agriculture Solution

Advances in space technology can improve a country's agricultural productivity and competitiveness by allowing for more precise farming management (from planting to harvesting) and the ability to predict crop yields or diagnose plant diseases.

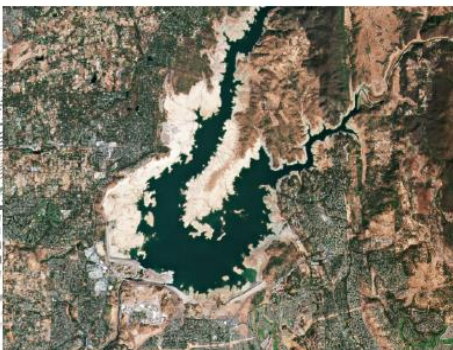
- Check on the crop current condition
- Categorize economic agricultural areas
- Accurately estimate harvest productivity
- Forecast future agricultural yields
- Investigate plant diseases



Integrate Water Management Solution

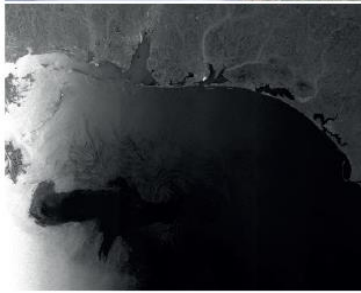
Since Thailand constantly encounters floods every year, the water situation is essential to human beings. This challenge may be tackled with the use of Geo-informatics and satellite technologies, which can comprehend potential water shortages or floods. The strategy for mending may be promptly put into effect.

- Prompt and effective water management
- Arrange municipal water system
- Control agriculture water resources
- Manage water usage strategy



Integrate Water
Management

SOLUTION & SERVICE



Disaster

For almost 20 years, GISTDA has relied on Geo-informatics and space technology to empower various Thai government agencies in confronting natural disasters, including floods, wind, and wildfires, all of which are hazardous and challenging for humans to control. GISTDA affords a wide range of services, including those related to hot spots, which are a leading source of forest fires in northern Thailand, and air pollution, such as micro dust, which has negative effects on public health. Furthermore, the endangered flood location is revealed in order for a solution to be proposed to minimize the impact. This is what GISTDA can provide for both users and clients in the case of an unexpected event.

- Accurate flood forecasting and monitoring
- Locate the source of the fire in a shorter time
- Rapid micro dust measurements

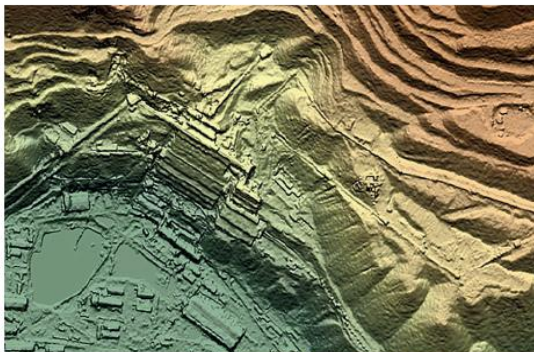
Disaster



Urban and Society

Today's cities and societies provide significant challenges that government agencies simply can not disregard. GISTDA, as a government agency, takes on the duty of using Geo-informatics and space technology to assist these organizations in their handling of poverty, social inequality, and other social issues. This is an important part of the GISTDA's aim to better the world around us.

- Urban planning
- Maintain a focus on the growth of metropolitan areas
- Setup urban zoning



Mapping

GISTDA is a government organization with over 20 years of experience and expertise in mapping which support all of the agency's project decisions by OGC standards.

- Perform a complete mapping service survey and production
- Make maps with a better resolution available.
- Produce drone-based maps



Urban and Society

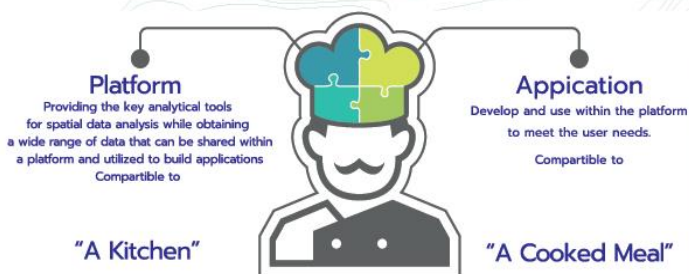
Mapping

THE OPEN GEOSPATIAL PLATFORM

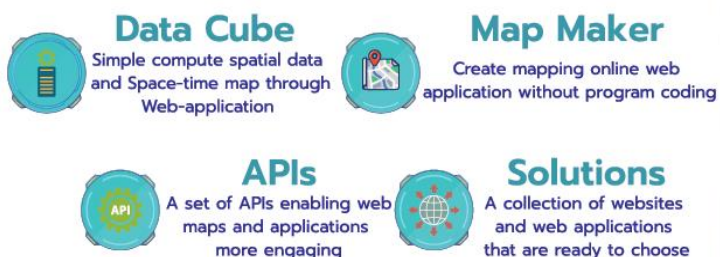


SPHERE ?

An API-connected collection of tools and digital spatial data that helps in the development of applications and other spatial data-related services. GISTDA is evolving to a new business era with reduce focussed on products and services, and growing emphasis on digital platforms



PRODUCT



GOAL

Thailand has a Geospatial service platform.

- Easy to use and accessible by all Thai people
- Variety, accuracy, and high quality to compete with foreign platforms
- Grow the GI business
- Solve the spatial problems at each level



AIP ACTIONABLE INTELLIGENCE POLICY

The process of applying "Intelligence" to formulate "Actionable Policy"

Integrate 6 solution to drive the country forward



Processing big spatial data for policy makers to see current situations and problems as well as forecasting future situations and create policies that are appropriate to the characteristic of the area.



Decision support for sustainable policy making that considers the economy, society, and environment.

GISTDA TRAINING CENTER

GISTDA specializes in educating and training both national and international manpower in the subjects of Geo-informatics and space technology.

Annual Course

S&G (Space and Geo-informatics) is a critical asset for enhancing productivity in any industry. To meet the expectations of clients head-on, GISTDA currently offers a full calendar year's worth of onsite and online training. The program has progressed from an elementary level all the way up to an executive level with an emphasis on practical application.

Specific Course

This course was designed to assist specialized institutions; using the e-Curriculum system, particular institutions can select the subject and structure of the program that deliver. Because the system can give general information like course details and training budget right away, the organization will be able to make decisions more quickly.



For more information please visit our website : <https://training.gistda.or.th>



How to register : <https://training.gistda.or.th/howto>
Tel. : +66 (0) 3304 --8091 ext. 107 - 109
E-mail : training@gistda.or.th

Facebook : <https://www.facebook.com/gistdatrainingcenter>



The SCGI Master's Program is a special international Master's Program in Geo-Informatics and Space Technology under the Sirindhorn Center for Geo-Informatics (SCGI), which was developed for high-quality manpower development. It is a double degree program that occurred through cooperation and is taught jointly by GISTDA, Burapha University, and Wuhan University. Teaching facilities will be operated in both Thailand and China. Students will learn in-depth research techniques from high-level professors from world-renowned Geospatial universities.

This master's degree program is a comprehensive course that covers the requirements of the public, private, and industrial sectors, in which students will benefit from having advanced knowledge to work in the most efficient way.

For more information please visit our website : <http://artsa.gistda.or.th/>



ARTSA

ARTSA was established as a hub for research and learning with the goals of bolstering Asean's in-house intellectual capital and forming a connection of research institutions throughout the region.

For more information please visit our website : <http://artsa.gistda.or.th/>



Thailand's first and unique space educational center

**This is a place that encourages people to appreciate
their position in the universe in order to acquire
inspiration to exist in this world.**

Understanding the universe and why the Earth sustains life is a good place to start.

Questions concerning the Earth's geometry, such as whether it is round or flat, may be addressed from any perspective, from an imaginary world to the realities of outer space. In spite of technology's best efforts, several space adventures are just too worthwhile to miss.

SPACE CAMP

develop a passion for future exploration in the fields of science and technology



ONE DAY KID

The activities are designed to overcome the generational gap in learning by providing younger children with inspiration via hands-on recreational activities that enable them to comprehend the practical value of Geo-informatics space technology.

Plan a visit for space inspirium



For more information please visit our website

Website: <https://spaceinspirium.gistda.or.th>

Tel. : +66 (0) 3300 5835-6

E-mail : spaceinspirium@gistda.or.th

Open and inspire youth programs for learning and understanding the process of space technology. In addition, both the presentation and the workshop have been prepared by professionals in the field of space technology. Young people will be able to interact with experts in Geo-informatics and space technology in order to learn about and debate different case studies from Thailand and other countries.

Apart from that, adolescents may practice problem-solving using Geo-informatics technology wisely and reap the benefits.

1. Educate young children regarding space technology and promote the adoption of Geo-informatics and space technology concepts to deal with the issue via STEM.

2. Enhance the entire procedure of a learning center, with a focus on preparing the next generation of space technicians for open-country growth and gaining a thorough understanding of each space technology from knowledgeable instructors



**It is our intention
to create, space is
more approachable
and understandable**



GISTDA

Geo-Informatics and Space Technology Development Agency (Public Organization)

120 The Government Complex, Building B, 6th - 7th Fl.

Chaengwattana Rd., Lak Si, Bangkok 10210, Thailand

Tel: +66 2141 4564-66, 69

Fax: +66 2143 9592-93



WWW.GISTDA.OR.TH



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