

Thailand

Thailand has made remarkable progress in the realm of Earth observation and geospatial activities, reinforcing its commitment to addressing pressing challenges such as climate change, disaster management, and sustainable development. This report outlines key achievements and contributions over the past year, highlighting the country's advancements in satellite capabilities, geospatial platforms, innovative applications, and international collaborations.

Strengthening Earth Observation Capabilities

A significant milestone for Thailand this year was the successful launch of THEOS-2, a very high-resolution satellite, 50 cm in spatial resolution, that is playing a critical role in environmental monitoring, natural resource management, and disaster response.

THEOS-2 provides detailed data that enables Thailand to monitor natural resources and urban areas more effectively, ensuring swift action when needed.

In addition, Thailand is preparing for the upcoming launch of THEOS-2A, a small satellite designed to complement the capabilities of THEOS-2. THEOS-2A will enhance Thailand's ability to collect precise geospatial data, particularly for applications in precision agriculture, infrastructure planning, and disaster management. Together, these satellites will significantly boost the country and region's Earth observation capacity.

Expanding Geospatial Platforms

To maximize the utility of the data provided by

our satellites, Thailand has developed several key platforms. Among these is "*SPHERE*", a geospatial open platform that integrates data from various sources and makes it accessible across different sectors. SPHERE is instrumental in supporting informed decision-making processes across the nation.

Another crucial platform is the "*Actionable Intelligence Policy (AIP)*", which transforms complex geospatial data into actionable insights. This platform has become a vital tool for policymakers as they tackle challenges such as urbanization, disaster management, and climate adaptation.

Innovative Applications

Thailand's advancements in geospatial technology are having a tangible impact across multiple sectors. One of the standout developments is the creation of a "*satellite basemap*" using very high-resolution imagery. This basemap has become a cornerstone for urban planning, infrastructure development, and environmental monitoring, offering a detailed view of landscapes that enables precise and informed decision-making.

In the agricultural sector, Thailand has implemented the "*Dragonfly*" platform, a satellite-based precision farming tool that provides farmers with real-time data on weather condition, crop health, fertilization and irrigation needs, and soil conditions. This technology is optimizing farming practices, increasing yields, and improving food security across the country.

Additionally, Thailand has developed a "*geospatial digital twin*" platform for urban planning. This platform creates digital replicas of cities, allowing for the simulation and optimization of infrastructure projects, more effective land use management, and the development of resilient urban environments.

Commitment to Collaboration and Future Directions

Thailand is deeply committed to regional and global collaboration in Earth observation. Over the last year, Thailand has made significant contributions to Sentinel Asia's disaster management activities, providing critical satellite data during natural disasters.

Additionally, Thailand, GISTDA have renewed MOU with UNOSAT to ensure that our efforts are integrated into global disaster management strategies.

Thailand continues to actively participate in initiatives such as the Group on Earth Observations (GEO) and the Asia-Oceania GEO (AOGEO), sharing data and expertise to strengthen the global Earth observation community.

Thailand is also investing in capacity-building efforts, like the ASEAN Research and Training Center for Space Technology and Applications (ARTSA). Through these initiatives, we're helping to build up the region's Earth observation capabilities and ensuring that we're all better prepared to face the challenges ahead.

Looking ahead, Thailand is focused on integrating emerging technologies such as artificial intelligence (AI), machine learning, and big data analytics into its Earth observation systems. The forthcoming launch of THEOS-2A will be pivotal in this effort, providing enhanced data capabilities that will support both national and regional objectives.

Conclusion

The past year has been one of significant progress for Thailand in Earth observation. With advancements in satellite technology, the development of innovative platforms, and a strong commitment to international collaboration, Thailand is well-prepared to address the challenges of the future and contribute to the global Earth observation community.