



Agenda

Breakout Seminar

Coastal Erosion Monitoring Platform Based on Wireless Sensor Networks and 3D Point Clouds from Airborne LiDAR: Knowledge Sharing and Networking

Date: 6 November 2025 Time: 08.00 - 16.40

At Room MR101 Queen Sirikit National Convention Center (QSNCC)

Program Overview

Coastal erosion presents a significant global concern, posing increasing threats to numerous coastal communities and ecosystems. The resulting environmental impacts are profound, leading to habitat destruction, loss of biodiversity, and systemic ecosystem disruption. To effectively counteract these issues, sustainable coastal management practices and protective measures must be implemented. These measures must responsibly balance environmental preservation, community support, and development. Crucially, implementing protective actions with minimal negative impact requires access to comprehensive and reliable information. Therefore, a data center platform providing both raw and processed data is essential. This data can be sourced from various local and remote techniques, including sensors, video monitoring systems, 3D point clouds, and weather stations. By amalgamating these diverse data streams and leveraging AI algorithms trained on past observations, we can develop a more nuanced understanding of the factors driving erosion. Accordingly, this project proposes the development of a platform for collecting, monitoring, and processing environmental data in coastal areas. The platform will integrate and analyze data from wireless network sensors, video monitoring imagery, 3D point-clouds, and weather stations using AI algorithms. Ultimately, this system is designed to support decision-making by generating recommendations or predictions derived from the integrated data analysis.

Time	Session
08:00 – 08:15	Registration

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	MC. Mr. Chakapat Chokchaisiri & Dr. Kasorn Galajit
08:15 – 08:40	Opening speech by Director-General of the Department of Marine and Coastal Resources (DMCR), Thailand
	Welcome Remark by Dr. Thepchai Supnithi , President of Artificial Intelligence Association of Thailand (AIAT)
	Welcome Remark by Assoc. Prof. Dr. Teerayut Horanont Hub of Talents in AI and Innovation Next, Head School of Information Computer and Communication Technology (ICT), Sirindhorn International Institute of Technology (SIIT), Thammasat University, Thailand
	Welcome Remark by Dr. Hiroshi Emoto , National Institute of Information and Communications Technology (NICT), Japan
08:40 – 09:00	Project summary and activities report by Dr. Surasak Boonkla , Project leader, National Electronics and Computer Technology Center
09:00 – 09:20	Coastal erosion protection activities report in Thailand by representative of Coastal Resources Conservation Division, DMCR , Thailand
09:20 – 10:40	Blue economy and funding opportunity by Professor Padermsak Jarayabhand , National Research Council of Thailand
10:40 – 11:00	Research activities relating to coastal monitoring by Dr. Dian Handiani and Dr. Yessy Nirwana Kurniadi , Bandung National Institute of Technology (ITENAS), Indonesia
11:00 – 11:20	Break
11:20 – 11:40	N-Biopipe: Innovation for Coastal Production by Dr. Somprasong Thongkham , NANOTEC, National Science and Technology Development Agency, Thailand
11:40 – 12:10	Coastal erosion protection activities report in Indonesia by Dr. Johan Risandi , Research Center for Oceanography, National Research and Innovation Agency (BRIN), Indonesia
12:10 – 13:10	Lunch
13:10 – 13:30	Hub of Talents in AI and Innovation Next by Assoc. Prof. Dr. Teerayut Horanont Hub of Talents in AI and Innovation Next, Head School of Information Computer and Communication Technology (ICT), Sirindhorn International Institute of Technology (SIIT), Thammasat University, Thailand

Time	Session
13:30 – 13:50	Optimizing Above Ground Biomass Estimation using Remote Sensing and Machine Learning, a Mangrove Restoration Project Case study by Mr. Thein Tun Tun , Sirindhorn International Institute of Technology (SIIT), Thammasat University, Thailand
13:50 – 14:10	Utilizing a Classification Tree for Rocky Terrain Detection in 3D Point Clouds for Coastal Erosion Studies by Dr. Akkharawoot Takhom , Faculty of Engineering, Thammasat University, Thailand
14:10 – 14:30	Dominant wave height estimation based on spectral analysis for coastal erosion monitoring systems in real time by Dr. Kasorn Galajit , NECTEC, National Science and Technology Development Agency, Thailand
14:30 – 14:50	Water Surface Level Estimation Based on the Fast Segment Anything Model for Coastal Monitoring Systems by Mr. Julathit Chetsawang , Sirindhorn International Institute of Technology, Thammasat University, Thailand
14:50 – 15:10	Study on Adaptive Sampling Approach Using Signal Variance-Based Method for Energy-Efficient Wireless Sensor Networks in Coastal Monitoring by Mr. Aung Kyaw Min , Sirindhorn International Institute of Technology, Thammasat University, Thailand
15:10 – 15:30	Break
15:30 – 15:50	Study on YOLOv11-Enhanced Detection of Bamboo in Shoreline Protection Fences by Dr. Waranrach Viriyavit , Faculty of Informatics, Burapha University, Thailand
15:50 – 16:10	Study on Wave Direction Estimation from Optical Satellite Imagery Using Multi-Stage Gabor Filter by Dr. Surasak Boonkla , NECTEC, National Science and Technology Development Agency, Thailand
16:10 – 16:30	Study on Wave Direction Estimation Based on Local Gradient Techniques from Satellite Imagery for Coastal Dynamics Monitoring by Mr. Chakapat Chokchaisiri , TAIST-Science Tokyo program, National Science and Technology Development Agency, Thailand
16:30 – 16:40	Closing Remark by project leader