



MEDIA RELEASE

Singapore, 26 March 2025 | **For Immediate Release**

Singapore Advances Maritime Innovation with Geospatial Partnerships and Launches Maritime Digital Twin

The Maritime and Port Authority of Singapore (MPA) has signed two Memoranda of Understanding (MOU) to advance geospatial technology and develop skilled maritime talent. It has also launched Singapore's first Maritime Digital Twin earlier on 24 March 2025 – a virtual model of Singapore's port. Together, these initiatives will deliver data-driven insights and visualisation that improve risk management and optimise operational planning, towards enabling safer, more efficient, and environmentally sustainable maritime operations.

Strengthening Maritime Geospatial Applications

2. MPA has signed a three-year MOU with Jurong Port, Singapore Cruise Centre Private Limited, Esri Singapore, Hexagon's Safety Infrastructure and Geospatial Division, Nika, Technology Centre for Offshore and Marine, Singapore (TCOMS), A*STAR Institute of High Performance Computing (A*STAR IHPC) and the Centre of Excellence in Modelling and Simulation for Next Generation Ports (C4NGP) in the College of Design and Engineering of the National University of Singapore (NUS), to promote knowledge-sharing initiatives and explore geospatial technologies to address real-world challenges.

3. Geospatial tools use location-based data such as satellite images, traffic and weather data, and sensor readings from buoys and on land to create 2D and 3D visual insights. These can help stakeholders monitor real-time conditions, manage risks, and plan operations more effectively by improving risk management and decision-making, and enhancing operational planning for improved safety and efficiency. Partners will explore the use of geospatial tools to develop solutions to strengthen preparedness, monitor sea level rise, and improve the safety and efficiency of port operations, such as vessel navigation, marine services and the bunkering of alternative fuels.

Developing a Skilled Maritime Geospatial Workforce

4. MPA also signed a three-year MOU with NUS to develop a skilled maritime geospatial workforce. Under this partnership, MPA and NUS will explore the development of maritime geospatial courses for NUS undergraduate and post-graduate geography students, and a professional certification programme for mid-career professionals. The maritime geospatial programmes will cover skills in 2D and 3D mapping, geospatial analytics, and advanced environmental and operations modelling. This will build a pipeline of talent equipped with the skills and knowledge to drive maritime geospatial innovation in the industry and government.

Inaugural International Maritime Geospatial Forum at Singapore Maritime Week

5. MPA announced these MOUs at the inaugural International Maritime Geospatial Forum (IMGF) on 26 March 2025 during Singapore Maritime Week (SMW) 2025. The forum brought together more than 100 international speakers and industry leaders to discuss how geospatial technology can improve maritime and port operations.

Launch of Singapore's First Maritime Digital Twin

6. Singapore's first Maritime Digital Twin was launched at the SMW Opening Ceremony on 24 March 2025. The dynamic virtual model of the Port of Singapore was developed by MPA in partnership with the Government Technology Agency of Singapore (GovTech). Industry use-cases demonstrating the potential capabilities of the digital twin, including real-time vessel monitoring and underwater visualisation of hull inspection and cleaning, are being showcased at EXPO@SMW during the Singapore Maritime Week from 25 to 27 March 2025.

7. These efforts to expand our geospatial knowledge and digital twin capabilities align with the Singapore Geospatial Master Plan (2024 – 2033)¹. Launched in March 2024 by MPA and the Singapore Land Authority (SLA), the Master Plan serves as a blueprint to drive geospatial innovations to benefit society and seize new opportunities arising from the complex challenges Singapore faces as a hub port and island-nation.

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¹ The three pillars of the Singapore Geospatial Master Plan are 1) Mainstreaming, 2) Deepening Capabilities and 3) Going Global. You may access the Master Plan here: <https://go.gov.sg/singapore-geospatial-master-plan-2024>

About the Maritime and Port Authority of Singapore (MPA)

MPA was established on 2 February 1996 with the mission to develop Singapore as a premier global hub port and international maritime centre, and to advance and safeguard Singapore's strategic maritime interests. MPA is the driving force behind Singapore's maritime and port development, taking on the roles of maritime and port regulator and planner, international maritime centre champion, national maritime representative, and a champion of digitalisation and decarbonisation efforts at regional and international fora such as at the International Maritime Organization and the International Organization for Marine Aids to Navigation. MPA partners industry, research community and other agencies to enhance safety, security, and environmental protection, facilitate maritime and port operations and growth, expand multi-domain capabilities, and support the cluster of maritime ancillary services and manpower development. MPA is responsible for the overall development and growth of the maritime multi-domain and the Port of Singapore.

For more information, please visit www.mpa.gov.sg/

About Singapore Maritime Week 2025

SMW is an annual gathering of the international maritime community to advance key industry issues and exchange ideas to bring the sector forward. Driven by MPA, in collaboration with industry stakeholders and research and educational institutions, SMW brings together key opinion leaders and industry leaders through conferences, dialogues and forums.

The range of activities and events organised by MPA, industry stakeholders and research and educational institutions, as well as the cosmopolitan profile of participants, reflect the vibrancy and diversity of Singapore as a global hub port and leading international maritime centre.

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