OSID & IESS

Thu. Nov 12, 2026 2:00 PM - 3:30 PM JST | Thu. Nov 12, 2026 5:00 AM - 6:30 AM UTC | Room D (Icho) (3F)

Oral D2 OSID & IESS

Chair: Alessandro Oggioni, Matthias Obst

2:30 PM - 2:45 PM JST | 5:30 AM - 5:45 AM UTC

[.s6T5WKf-03] Future Perspectives for Intelligent Ocean Utilization Enabled by Ocean Digital Twins

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In recent years, marine technologies have advanced rapidly in support of the blue economy, which seeks to balance environmental conservation and economic development. Policy and technology trends suggest that labor-saving and unmanned technologies, such as autonomous ships and marine drones (e.g., AUVs and ASVs), together with AI, may play important roles in supporting the future marine industry. At the same time, real-world marine environments are highly complex and uncertain, and challenges remain for the practical implementation of these technologies.

Ocean digital twins are expected to serve as an important enabling foundation for addressing these challenges. By integrating marine environmental conditions, vessel behavior, sensor data, simulations, and AI-based analysis in a virtual environment, they are expected to enhance the efficiency and sophistication of risk assessment, operational planning, and decision-making.

This presentation reviews policy and technology trends related to autonomous ships, marine drones, and AI. It also reviews domestic and international initiatives on ocean digital twins and their potential applications, and discusses future directions for sustainable, intelligent ocean use.

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