Call for Abstracts

Next-Generation Maritime Autonomy: Uncrewed Maritime Systems Across Surface and Undersea Environments

The Marine Technology Society Uncrewed Maritime Systems Committee invites abstract submissions for its upcoming TechSurge event. This focused technical program brings together researchers, operators, engineers, and decision-makers advancing the state of the art in uncrewed surface and undersea systems. The Speaker Program will consist of 15 to 20-minute presentations followed by moderated question-and-answer panel discussions.

The program committee reserves the right to reassign accepted presentations to merge into panel discussions or *a different session or consolidate sessions as needed to support the overall program structure.*

We welcome submissions across the following tracks:

Platforms

Beyond Hull Forms: Advances in Uncrewed Surface and Undersea Vehicle Design and Integration

Abstracts are sought on the evolving design and integration of USV and UUV systems, ranging from micro-class vehicles to long-duration ocean gliders. We invite submissions addressing innovative hull design and how "fit for mission" thinking is reshaping platform architecture decisions around endurance, modularity, and payload integration. The submitted abstract may address one or more of these key subtopics: Tackle the persistent power problem: energy storage, alternative power sources, and the tradeoffs that define operational range and sensor capacity. Address the practical realities of transport, mobilization, demobilization, and storage that too often determine whether a capable system ever gets deployed. And take on the enduring question: will the industry ever converge on a truly universal Launch and Recovery System (LARS), or will mission diversity always demand bespoke solutions?

Sensor Innovation / Miniaturization and On-Bboard Processing

Small Footprint, Big Data: Next-Generation Miniaturized Sensors for Uncrewed Platforms

Abstracts are sought on advances in miniaturized sensing for size, weight-, and power-constrained UMS platforms. Topics of interest include advances in lab on chip technology, resolution-versus-power-consumption tradeoff, positioning, metadata, and payload management systems for multi-sensor operations. Submissions addressing the data standardization debate — including the role of open interface standards such as Bristlemouth — are particularly encouraged.

Dual Use / Dual Domain

One System, Many Missions: Designing for Cross-Domain and Dual-Use Applications

Abstracts are sought on platforms and architectures designed to serve both commercial and defense markets, or to operate across surface and undersea domains. Topics of interest include data pipeline solutions for moving information from classified to unclassified environments, combined-domain mission planning and execution, and fit-for-purpose design frameworks that accommodate diverse mission sets. Case studies demonstrating real-world dual-use or dual-domain operations are welcome.

Defense Applications

Autonomous at the Edge: UMS in Defense Operations, and Future Fleet Concepts

Abstracts are sought on the application of UMS to defense missions including Intelligence, Surveillance, and Reconnaissance Intelligence, Surveillance, and Reconnaissance (ISR), mine countermeasures, critical undersea infrastructure (CUI), force protection, and logistics. Topics of interest include crewed-uncrewed teaming, autonomy in contested and communications or position degraded environments, and recent trials and capability demonstrations. Submissions addressing acquisition pathways and the integration of UMS into programs of record and as-a-service are also welcome.

Network Connectivity – Comms and Information Dissemination

Data Integration at Scale: Managing Heterogeneous Multi-Platform, Multi-Sensor Streams in Real Time

Abstracts are sought on communications architectures and data management strategies for networked UMS operations. Topics of interest include platform-to-platform communications in swarm operations, over-the-horizon and shoreside command and control, and the downstream impacts of connectivity on data ingest, archiving, and delivery to customers and the public. Submissions covering middleware, data brokers, quality control workflows, and interoperability solutions for multi-platform networks are particularly encouraged.

Deep Sea Exploration, Interrogation, and Extraction

Into the Abyss: Uncrewed Systems Enabling Full-Ocean-Depth Science and Discovery

Abstracts are sought on UMS capabilities advancing deep ocean exploration and characterization. Topics of interest include multi-platform operations coordinating surface and undersea assets, near-real-time data exfiltration from vehicle to shore, and deep communications solutions. Submissions addressing sensor integration advances — including synthetic aperture sonar (SAS), 3D laser scanning, and multibeam backscatter — are welcome, as are presentations on the emerging frontier of environmental DNA (eDNA) sampling at depth and Deep Sea Mineral extraction.

Real-World Deployments

From the Field: Operational Realities, Hard-Won Lessons, and the Human Side of UMS Deployments

Abstracts are sought from practitioners with firsthand operational experience. We invite submissions from NOAA's expanding UMS deployment program, academic and research UMS missions, and DoD trials evaluating autonomous systems under realistic conditions. This track prioritizes candid storytelling over polished results — we want to hear what worked, what didn't, and what the broader community needs to know. Topics may include logistics and launch-and-recovery challenges, at-sea system failures and recovery, weather and sea state impacts, and operator readiness.

Bio-Inspired Technologies

Nature's Blueprint: Biomimicry and Bio-Inspired Design in Uncrewed Maritime Systems

Abstracts are sought on the application of biological principles to UMS design and capability. Topics of interest include bio-inspired propulsion and maneuverability, soft robotics, adaptive sensing, energy harvesting strategies drawn from nature, and swarm behaviors modeled on schooling or colonial organisms. Submissions should address the translation from biological observation to engineered systems and highlight where bio-inspired approaches are delivering measurable operational advantages.

Submission Guidelines

Each abstract should be 250–500 words. Submissions should describe the topic to be addressed, the key findings or arguments to be presented, and the relevance to the UMS community. Accepted presenters will be notified by September 4, 2026, and will be expected to deliver a 15 to 20-minute presentation with accompanying slides.

Submit your abstract here by August 7, 2026.