

Special Issue

Wave–Ice Interactions in Oceans: Observations, Modeling, and Dynamics

Message from the Guest Editors

Interactions between ocean waves and sea ice affect both wave dynamics and sea ice behaviour. The most widely studied topic is wave attenuation by sea ice, an ice-to-wave feedback. However, the mechanisms behind attenuation—specifically the relative roles of scattering and dissipative processes across different ice types and length scales—remain insufficiently understood and are subject to large uncertainties. On the wave-to-ice side, increasing attention is being paid to wave-induced ice breakup, which may accelerate sea ice melting or refreezing. Waves also contribute to the formation of grease and pancake ice, influencing sea ice dynamics and thermodynamics. Despite their importance, many of these processes are not yet represented in operational sea ice models. This Special Issue welcomes studies on wave–ice interactions through in situ and satellite observations, theoretical and numerical modelling (including coupled model development), and laboratory experiments. We aim to highlight the latest research that advances the understanding and representation of wave–ice interaction physics in both scientific and operational contexts.

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About the Journal

Message from the Editor-in-Chief

Journal of Marine Science and Engineering (JMSE, ISSN: 2077-1312) focuses on research in the fields of Ocean Engineering, Coastal Engineering, Physical Oceanography, Geological Oceanography, Marine Biology, and Marine Environmental Science. It publishes reviews, regular research papers, and short communications, as well as Special Issues on particular subjects. Our aim is to encourage scientists to publish their experimental and theoretical results in as much detail as possible. There is no restriction on the maximum length of the papers.

Editor-in-Chief

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