

Ships in Waves

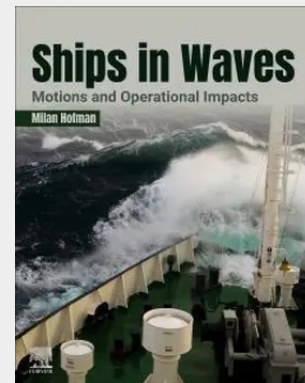
Motions and Operational Impacts

Ships in Waves: Motions and Operational Impacts delivers a structured and in-depth exploration of the core theories and phenomena governing vessel interactions with wave environments. Progressing from fundamental concepts to elaborate formulations, the book supports gradual engagement with complex material, facilitating confident physical understanding. Topics include ship oscillations (both in calm water and under wave excitation), stochastic wave modeling, responses in regular and irregular seas, and the consequences of extreme motions—such as dynamic loads, rolling, slamming, and capsizing. Organised modularly, the contents allow selective study and targeted review based on the reader's interest or specialization, uniquely bridging the divide between intricate technical knowledge and engineering application. In addition to the essential theoretical framework, cutting-edge advances and rarely covered aspects are also addressed, including wave energy converters and a critical review of the new IMO intact stability criteria. Designed to serve audiences in academic and research contexts, this authoritative volume is especially valuable not only for assessing motion characteristics but also for enhancing system reliability and informing future design strategies for vessels, offshore platforms, floating structures, and other marine installations that demand a nuanced balance of performance, safety, and sustainability.

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147,50 €

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vorbestellbar, Erscheinungstermin ca. Oktober 2026

Artikelnummer: 9780443454189

Medium: Buch

ISBN: 978-0-443-45418-9

Verlag: Elsevier - Health Sciences Division

Erscheinungstermin: 01.10.2026

Sprache(n): Englisch

Auflage: Erscheinungsjahr 2026

Produktform: Kartoniert

Gewicht: 450 g

Seiten: 540

Format (B x H): 216 x 276 mm

