



Review of *Advances in Coastal Hydraulics* edited by Vijay Panchang and James Kaihatu

World Scientific, Hackensack, NJ; 2018; ISBN 9789813231276; 502 pp.; \$178.00.

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[https://doi.org/10.1061/\(ASCE\)WW.1943-5460.0000558](https://doi.org/10.1061/(ASCE)WW.1943-5460.0000558)

The subject of modern coastal hydraulics is rather diverse, spanning a range of topics that at their core focus on the movement of shallow water and its interaction with the seabed and coastal structures. This book is a departure from most recent books on coastal hydraulics in that it does not contain the often-published fundamental principles nor is it limited to numerical modeling applications. This book instead offers in-depth case studies on a variety of advancements in coastal hydraulics that apply an array of engineering tools such as numerical modeling, remote sensing, observational networks, and artificial neural networks. The book is most suitable as a reference to familiarize upper-level graduate students and/or researchers with a selected variety of advanced topics in coastal hydraulics. The reader is assumed to have a background in basic hydraulic principles and familiarity with the fundamental mathematical expressions of these principles.

Each chapter tackles one advanced topic by experts in that advanced area of research or application. The individual chapters are

well written and typically all contain an introduction, motivation or background problem description, literature review, application of the advancement, and conclusions. The order in which the topics are presented does not suggest a particular flow. While the book contains a heavy dose of wave processes, wave-driven currents, and wave-vegetation and wave-sediment interactions, there are several chapters on unique topics such as Arctic erosion, saltwater intrusion into aquifers, bathymetry from remote sensing, and hydrokinetic energy from tides, as well as the stochastic design and assessment of coastal structures.

Chapters on observations and extreme sea levels diverge from a solely coastal focus and include global and basinwide descriptions. The editors acknowledge that the topic of sea level rise is only briefly mentioned and is left to recent special journal issues and other publications. Some of the analysis and validation throughout the book lacks the high degree of qualitative rigor that would set a standard for future applications. However, most disappointing perhaps is the treatment of surge and inundation modeling. Significant advancements have been made in the last 10 years that are given only cursory treatment in the single chapter addressing extreme water levels. The relevance of this particular chapter is more focused on the geographical specifics of the Indian Ocean.

Overall, the new book provides an excellent window into a diverse array of advancements in coastal hydraulics and has the capability to launch the unfamiliar reader in new directions.