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water modulation: initial stage and demodulation; 8.4. Deep-water modulation: modulation leading to breaking; 8.5. Spectral evolution; 8.6. Comparison between theory and experiment; 9. Summary; References; Bubble Measurement Techniques and Bubble Dynamics in Coastal Shallow Water; 1. Introduction; 2. Primary Mechanisms of Wave Breaking and Bubble Generation
3. The Bubble Field Description and Bubble Sensors; 4. Shallow Water Deployment Techniques; 5. Large Scale Shallow Water Field Experiments (1985-1999); 6. Bubble Void Fraction Variations Near Surf Zones; 7. Bubble Size Distributions in Littoral Zones; 8. General Remarks on Bubble Dynamics in Shallow Water; References; Simulation of Waves in Harbors Using Two-Dimensional Elliptic Equation Models; 1. Introduction; 2. Boundary Conditions; 3. Numerical Solution; 4. Incorporation of Additional Mechanisms; 5. Application to Harbors; 6. Concluding Remarks; References
Recent Advances in the Modeling of Wave and Permeable Structure Interaction; 1. Introduction; 2. Porous Flow Models; 3. General Governing Equations and Matching Conditions; 4. Wave Interaction with Structures. Linear Solutions; 5. Shallow Water Models; 6. Short Wave-Averaged Flow; 7. Modeling Based on the Navier-Stokes Equations; 8. Conclusions; 9. Future Work; References; Descriptive Hydrodynamics of Lock-Exchange Flows; 1. Introduction; 2. Experimental Facilities; 3. Basis for Interpretations of Flow Images; 4. Features of Gravity Currents; 5. Features of Internal Bores; 6. Flow Expansion of Gravity Currents and Internal Bores

Sommario/riassunto

This volume consists of five articles covering a wide range of topics in coastal oceanographic engineering. The reader can find an article discussing the modern bubble measurement techniques applied to field studies of bubble dynamics in coastal shallow water. A comprehensive review paper on nonlinear modulation of water waves provides readers with a new perspective on nonlinear processes in the coastal and ocean wave environment. For those who are interested in wave modelling, there are two review articles discussing various wave models, which can be used to study wave-structure interactions and harbor oscillations. Finally, readers who are interested in the subject of stratified flows can find an article presenting the detailed laboratory observations of lock-exchange flows.
