

This book is an introduction to the modeling of oil spill or water contaminants towards transport processes in the environment. It presents a new approach to illustrate how the geostrophic approximation can be systematically exploited to produce a deterministic dynamical framework adequate for the calculation of motions of large time and space scales. The dynamical field may be determined based on Kelvin propagation wave theory as a new hydrodynamic model and calibrated by measurements. Wind data may be determined by using Weibull probability distribution to apply for oil spill modeling. The suggested procedure is an attempt to find a simple way towards taking advantage of developments in environmental Modeling. As an example, it is verified and applied in the Persian Gulf to provide the capability of simulating oil spill accidents leading to oil spill hazard contour maps and find how to optimize the location of cleaning vessels by minimizing the oil spill damage.



Mohammad Ali Badri, Ahmad Reza Azimian
Research Area: • Computational Fluid Dynamics •
Environmental Contaminant Modeling • Hydrodynamic
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**Mohammad Ali Badri
Ahmad Reza Azimian**

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Environmental Modeling



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