Review: Oil Spill Modeling and Processes
By C. A. Brebbia (Ed.)

Reviewed by Ryder W. Miller
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C. A. Brebbia (Ed.). *Oil Spill Modeling And Processes*. Southampton, UK: Wit Press, 2001. 161 pp. ISBN 1-85312-672-1 (cloth). US$115.00, F 74.00.

With President George W. Bush in the White House trying to affect decisions in California by clearly supporting a change from the Democratic Party in the governor's office, Californians are now especially concerned over the future of the wonderful California coastline. With no end to our dependency on oil in sight, pristine Alaska has also long been a source of worry. Oil spills will probably continue to occur (as the recent disaster off the coast of Spain shows), but significant advances have been made in the designing of mathematical methods to predict their dispersion.

Editor C. A. Brebbia (of the Wessex Institute of Technology) in *Oil Spill Modeling and Processes* has collected half a dozen technical papers that quantify the monitoring of oil spills. The work is surprisingly readable, but one needs an understanding of calculus and statistics to understand the mathematics. With abstracts and summaries one can follow the subject and glean valuable insights into how to monitor oil spills. For example, factors affecting the movement of oil in ocean water include drift, surface spreading, evaporation, dissolution, entrainment, emulsification, stranding, adsorption and desorption, photo oxidation, and biodegradation.

The contents include: Mathematical Modeling of Oil Spilled into Marine Waters; Modeling Oil Spill Impacts; Review of Modeling Procedures for Oil Spill Weathering Behavior; Weathering of Oils at Sea: Comparisons between Field Data and Model Predictions; The Evaporation of Oil Spills: Development and Implementation of New Prediction Methodology; and Water-in-Oil Emulsification and Implementation of Modeling of the Process.

Not found herein are discussions of alternative energy resources or attempts to reduce the number of oil spills. The book describes the progress that has been made in oil spill modeling and processes, and the further efforts that are necessary. The large number of references shows that scientists have been busy trying to find solutions to the unending problem of oil spills. But as H. Murat Cekirge of Florida State University, and Steven L. Palmer of the Florida Department of Environmental Protection conclude in the opening chapter: "In general the existing models have been successfully applied to actual spill events. Further research is needed, especially with regard to the

transport of non-floating oils and the toxic effects that oil may have on sensitive environments" (p. 16).

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