explanation?

In spite of the improvements in the second edition of *Coastal Sedimentary Environments,* in spite of the well-known reputations of the authors and the editor, it appears that we must continue to await a representative synthesis of coastal sedimentary environments for some time to come.

Alan Carr
Wellington
Somerset, England

Geomorphologia Litoral y Cuaternario (Homenaje a Juan Cuerda), anyonymous (ed.), 1985, Universitat de Valencia, E.T.H.–Zürich, Universitat de Palma de Mallorca, 196p.

This multi-authored publication, mostly in Spanish, brings together a great deal of information about the geomorphology and recent stratigraphy of the western Mediterranean ocast, notably the Balearic Islands and the Valencia section of the coast of Spain. One article summarizes the sea-level history of Bermuda. The book is a *Festschrift* in honor of Juan Cuerda, a distinguished naturalist and expert on the litoral shell deposits of the late Quaternary raised beaches that have become widely publicized through the work of K.W. Butzer. Cuerda, before retirement, was an army officer, who always "found time" to guide visiting scientists (including this reviewer) to the most interesting spots along the coastline of Mallorca. To the coastal specialists this region is particularly instructive because there is an interplay between eustatic shoreline deposits and calcareous eolian accumulations that built up during regressions. Furthermore, the island is near a rifted plate boundary, the site of sea-floor spreading in the Miocene, so that some neotectonics are also present.

Rhodes W. Fairbridge
New York, New York

Ocean Wave Modelling, by the SWAMP Group, 1985, Plenum Press, New York. US$49.50, ISBN 0-306-41685-9.

This book presents the "principal results of a wave model intercomposition study conducted by the Sea Wave Modelling Project (SWAMP) and first presented at a symposium on Wave Dynamics and Radio Probing of the Ocean Surface, held May 13-20, 1981, in Miami, Florida." The book is divided into two sections: the first gives the Principal Results and Conclusions of SWAMP (153p.), while the second section (94p.) contains chapters on the individual models.

Nine wave modelling groups from the United States, Japan and Europe, representing a comprehensive range of the available models, participated in SWAMP. Model intercomparison was achieved by running the models using seven hypothetical, idealised wind fields specially designed to expose the models to critical conditions. The results of each test case are presented in a separate chapter and then summarised.

Numerical wave models are routinely used to forecast ocean wave conditions or to generate wave data for areas of the globe where instrumental wave data are inadequate. Such models seek to predict the evolution of the surface wave field that would be generated by a given wind field. This is achieved by solving an energy balance equation which describes the evolutionof the 2-dimensional wave spectra in terms of a net source function. The source function terms give the spectral energy transfers arising from input of wind energy, the nonlinear wave-wave interactions and dissipation. Models differ in the form assumed for the source function and the numerical methods used in integrating the spectral energy equation.

The test cases were designed to place severe conditions on the models, and as a result, strong divergences were found between the predictions of different models. "Major sources of uncertainty were found to be associated with the response to changing wind directions and the modelling of the transition region between windsea and swell. However, surprisingly large discrepancies were also found in the basic fetch- and duration-limited growth curves for a uniform wind field" (p. 20). For real wind fields the models would be expected to be in closer agreement.

The results of the tests reveal much about the differences between the models that was not previously clear. For anyone contemplating using modelling techniques or with a need to understand the workings of wave models, this book will be invaluable, as it contains a wealth of detail on the present wave models.

Third generation wave models are planned which will utilise more sophisticated methods of calculating the nonlinear transfer source function. With such developments on the horizon, the present volume provides a timely summary of the state reached by the present wave models.

For non-specialist readers this book assumes some knowledge of the spectral description of random wind-generated waves. It assumes familiarity with the physics of wave generation by the wind and the role of resonant wave-wave interactions in the growth of the wave spectrum. Readers will need to be familiar with the accepted spectral forms and have some knowledge of the numerical solution of differential equations over a 2-dimensional surface. The book is clearly written and concepts are lucidly explained with frequent reference to the original works. It will be essential reading for wave modellers and rewarding reading for oceanographers wanting to know the present state of the art in numerical wave modelling.

B.R. Stanton
New Zealand Oceanographical Institute
Wellington, New Zealand

Managing the Ocean: Resources, Research, Law, by J.G. Richardson (Editor), 1985, Lomond Publications, Mt. Airy, Maryland, 407p. US$ 28.95, ISBN 0-912338-49-0.

The third volume in a series initiated by the publisher with UNESCO in 1979, this book deals with ocean resources and policy. In this book thirty-six distinguished specialists representing highly diverse domains of ocean knowledge were invited to present a cogent review and prospectus. The purpose of this collective statement was to remind the specialist and enlighten the layman in possible trends of ocean exploitation in the next generation.

"Managing" the sea represents a major challenge, one that involves aspects of science, law, economics, and engineering as applied to the ocean and coastal environments. Politics is an additional factor that in practice often becomes the salient guiding principle when it comes to man's abuse of the oceans. Alas! This book attempts to surmount such barriers, showing ways that man can profit from the ocean and yet protect valuable biophysical resources bases.

The book is organized into four main parts: resources, research, management and governance, and the future. The thirty-five contributed chapters range widely in content, style and length. Even though some chapters are short, a few pages, they collectively impart an appreciation for the scope of management problems and give an inkling to possible solutions. The ocean resource topics in Part II, for example, range from minerals of the sea, medicine from the sea, birds, aquaculture and energy, to glaciers and climate. Although the section dealing with ocean research includes twelve chapters, topics are necessarily limited by space constraints in a book of this length. Still, the breadth of coverage is representative of present initiatives, making for interesting and informative reading. The management roles considered in Part IV focus on institutional arrangements of the new ocean regime, partnership in intergovernmental cooperation, the international area of the sea-bed, conventions and new concepts on the Law of the Sea, and management of marine ecosystems. Perhaps some of the most interesting commentaries are found in Part V, the future. Here the contributors discuss potential uses of the sea into the next century, *viz.* military use of the oceans, exploiting ocean energy, and developing mineral-biological resources.

The book is handsomely produced, referenced and indexed. As a general introduction to managing the ocean, it will provide some insight into the nature and scope of the problem. Those interested in detailed treatment of selected topics, however, will have to turn to other works. For an overview, this book is recommended to all those interested in the content and procedures of ocean management, now and especially in the future.

Charles W. Finkl, Jnr.
Charlottesville, Virginia