distance from the shoreline. Other chapters bear generally similar structures to others in this book with field measurements providing the impetus for interpretation.

In summary, rather than attempting to provide a cohesive treatment of particular subject areas, this book contains a description of a potpourri of interesting and quality individual research studies with a primary emphasis on shallow water oceanography. Twenty five of the thirty papers are centered around field measurements with most of the data sets collected as part of the particular study. Three of the chapters focus on the mechanics and/or transport of fine sediments, whereas non-cohesive sediments are the subject of only two chapters. This book will fill a valuable niche as a reference on state of the art methodology in shallow water oceanography and would provide an appropriate basis for a graduate reading course in this subject. Moreover, the individual papers present a valuable bibliography in their respective subject areas.

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Climate and Sea Level Change: Observations, Projections and Implications, edited by R.A. Warrick, E.M. Barrow and T.M.L. Wigley, 1993. Cambridge University Press, London, 424p., ISBN 0521 39516X

Although the last decade has seen numerous volumes on sea-level change, this one is rather different, in that, besides the perennial topic of the global trend, it deals largely with projections and case studies. These regional investigations are really what are needed at the present time, because it is gradually becoming clearer that most of the heavily populated regions coincide with regions of tectonic subsidence, augmented by unusually high compaction rates.

Part I (Chapter 1) by Warrick is an overview and synthesis. If you were a busy statesman and not scientifically illiterate (almost a self-contradiction, alas), you should read this chapter carefully because it systematically summarizes the whole book. There are three more parts containing factual information: The natural versus man-made energy inputs (Part II, Data), global predictions (Part III), and the case studies (Part IV). The latter include Bangladesh, Egypt, Hong Kong, Mississippi delta, Netherlands, South America (East Coast), and the U.K. And so, as with Mark Twain's comment on the weather ("nobody does anything about it"), we come to Part V, Summaries and Recommendations. There is a modest subject and geographic index, but no author index; this would have been desirable, because, with the proliferation of literature, it is convenient to look up names of specialists. This is especially true because the references are thrown in at the end of each chapter, and one has therefore no alphabetic access to the rather voluminous citations.

The book is a rather tardy byproduct of a UNEP/CEC Workshop held at the University of East Anglia in 1987 on Climate Change, Sea Level, Severe Tropical Storms and Associated Impacts. One of the outcomes is a committee product presented by P.L. Woodworth (with a panel of 13, S. Jelgersma, chairperson).

In the politically-charged atmosphere of present-day problems that include CO_2 and global warming, glacier ice melting, sea-water expansion (steric volume change) and so on, the most frequently asked questions relate to a site-specific response: how will it affect me? Gornitz attributes about 50% of the eustatic change to steric expansion, but the critical factor may well be the local tectonic component. And what is the natural trend, *i.e.* pre-anthropogenic modifications? Tooley treats this on all time scales, from the Vail curve (mainly orders of $> 10^7$ yr) to the Holocene scale of a few centuries or even decades. He clearly assumes a climatic link with sea level fluctuation, and with past CO_2 fluctuations. I think he is in error when he states that "eustasy" is an absolute term. It has long been recognized as a physical descriptor of global sea level, as embracing all sorts of genetic concepts (glacio-, tectono-, sedimento-) and is subject to modulation by a legion of physical conditions (steric change, ocean dynamics, geotectonics and so on. If one eliminates a useful term, how else do we distinguish water-level changes from the effects of hydroisostasy, geoidal change, steric change and so on?

What about present sea level rise? When all the corrections and adjustments are included, Gornitz sets it at 1.3 mm/yr, which is not very significantly different from a value (1.2 mm/yr) published by this reviewer 32 years ago, though with far less data. In his 1985 book on coastline changes, Bird concluded that 70% of the world's sandy

coasts were eroding. No one has pointed to any significant erosion of hard-rock coasts. For a coastline to actually recede (as distinct from episodic washovers, inlet creation, etc.), Tooley believes a sustained rate of change of sea level rise of about 5 cm/yr is required, so we still have a long way to go. If the secular change is slow, the local sedimentary regime can re-adjust to it.

Bird lists sea-level change at the bottom of his list for causative potentials. He points out storm frequency and direction as clearly the two most hazardous problems. Very little work, however, has been done in that direction. Most of this volume, appropriately deals with the nuts and bolts of short-term sea level change. One may perhaps draw some conclusions from the topics that are NOT discussed. For example, if climate change is in progress, the velocity of the great geostrophic currents will change and so will the geodynamic gradient in the cross-current profile (these are measurable by tide gauges): not a word about them. What of storm frequency and direction? Major coastal retreat in South America (Schnack) seems to be a consequence. No less than three chapters deal with different aspects of the Bay of Bengal and Bangladesh. It is clearly the surges and storm frequency that are far more important than sea level change.

This is a valuable book and a useful guide for coastal specialists. If there is a lesson to be drawn from it, future research should be organized on a team basis and should include climatologists, meteorologists and dynamic oceanographers as well as Quaternary geologists and physical geographers.

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