when exposed foreshores (abundant sand), together with drier and cooler climates, favored accelerated wind velocities and dune building. Brief episodes of very heavy precipitation led to extensive slumping in places. Root structures (rhizo­liths, or rhizoconcretions) may be useful in recognizing paleosol horizons and thus the more consistently humid intervals between those of intensive but brief dune building. The eolianite­palesol sequences deserve closer study.

Beachrock is a peculiarly unique facies precisely correlatable with MSL and in the vertical sense spanning no more than the contemporary tidal range. In the past, innumerable papers about them have been written by travelers with little knowledge of sedimentary petrology, geochemistry or Holocene history. A useful discussion of their development on Hainan Island (and southern China) is presented here (p. 7–22). From the paleo­climatic point of view an important observation is its far greater development in the mid-Holocene than today, reaching up to 500 km farther north than today and indicating mid-Holocene mean annual temperatures to be 2–4 °C warmer than today. Remembering the higher summer insolation then (due to precession), this observation provides a useful indicator from a region far removed from the former glaciated areas where some possibly confusing factors are involved.

More extended discussions of the many interesting observations in this collection must be set aside for the time being. The book is well printed and securely bound. Alas, it lacks indexes, both for citations and subject matter; the reader must perforce resort to a good deal of hunting and picking, but the rewards are numerous.

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This slim volume contains much to commend it. For example: “Just as we have health insurance to guard against sickness, we need a global insurance policy to guard against a greenhouse crisis. The best policy should cost relatively little and carry other benefits as well, such as reducing air pollution and protecting the ozone layer . . .” (extract from an address by Dr. J.A. Adejokun, director, Federal Department of Meteorological Services, Lagos, Nigeria, p. 24).

What is so interesting about the volume is not so much what it contains but by whom it is written and to whom it is directed. The book is a collection of articles directed at the needs of one country alone, in “black” or sub-Saharan Africa, written by a distinguished cross section of local, i.e., African, specialists, and directed mainly towards the literate public and leaders of that particular country, Nigeria. Inasmuch as Africa represents a continent that is most sensitive to the environmental effects of climate change and as Nigeria, with its miles and miles of barrier beaches, littoral lagoons and numerous estuaries, is a prime example of an African country that would be seriously affected by a sea-level change, this little volume can well serve as a basic text on the complex, interdisciplinary problems involved.

Ten chapters deal with the varied aspects ranging from the oceanography and meteorology to the social and urban planning. Of particular interest for our readers are those on the coastal environment (by Dr. Uka Nwangwu, exploration manager for the oil company, AGIP, in Lagos), and on the continental shelf and its response to climate change (by L.F. Awosika and A.C. Ibe, Nigerian Institute for Oceanography and Marine Research, Lagos).

Recognizing that Nigeria’s coastline is of “Atlantic type”, i.e., “passive” in plate tectonic terms, the tectonic framework is the first consideration. Since the mid- to late-Mesozoic rifting of Gondwanaland, the marginal sedimentary wedges have accumulated up to 10–14 km of sediments that have undergone steady subsidence, complicated by downslope dynamics, such as growth faults, turbidity flows and gravitational slumping. The giant Niger delta is comparable in many ways to that of the Mississippi, and it is extensively transected by submarine canyons. Its subsidence rate often exceeds 1 cm/1,000 years. Seaward of its extensive estuaries and top-set marshes and lagoons, there is commonly a belt of overlapping beach ridge barriers or strand plains. The author recognizes that even a modest sea-level rise “could very well wipe out what we know today as the Niger Delta”.

Offshore, the continental shelf is relatively narrow with its shelf break around 100 m. The tidal range is 1–3 m, and, with an uninterrupted seaward fetch all the way from the Southern Ocean, the beaches are mainly high angle with plunging breakers 2–3 m high. Longshore currents are commonly 0.5 to 1 m/second, but tidal inlets register up to 2.8 m/sec. Rapid change in MSL would, of course, cause an abrupt deepening of the shelf waters, amplifying the wave dynamics and current velocities. With rising sea level, tide ranges tend to become greater. Appreciable capital expenditures for expanding coastal defense systems and harbor facilities should be anticipated. A real loss of ground in the Niger delta would adversely affect also the fishing industry, with its strong dependency on wetlands and mangrove swamps. Some 90% of Nigeria's foreign exchange depends on oil exports, an industry largely concentrated in the delta and its offshore face.

What can be done? Present data available are considered too scanty to permit trustworthy monitoring. Monitoring contemporary change is needed in a much more widespread manner. Knowledge of rates of sea-level rise in the recent geological past would be particularly useful...

“Now is the time to act....”

The political and administrative recommendations are summarized and are worth reading. Most of the articles are adequately referenced, and a useful index is provided. What is missing, regrettably, is any hint of hard data. Its collection calls for much expenditure of both intellectual effort and solid funds.

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A distinguishing characteristic of this book on water wave mechanics is an emphasis on description of the physical processes without presentation of the detailed mathematical derivations. Material is well organized and presented in a compact form, with a generally complete and insightful discussion of mechanisms, applications and methods of solution without pursuing their derivations. There is a rich and fairly current list of references. The material interfaces with many applications; however, because in part to the length of the book, the applications are not investigated. It would seem to this reviewer that the decision of where to truncate a subject and its extension to associated applications must have been difficult, although the author has done this cleanly. The book is intended as a text, although no problems are included. The character of this book would seem to make it appropriate for advanced undergraduates and first-level graduate students; however, the lack of mathematical derivations would be a hindrance to a student planning advanced graduate studies in the field of water waves.

The book is organized into 10 chapters encompassing the range of interests to coastal and ocean engineers. Each of these chapters is reviewed below.

Following a brief first chapter—“Sea Surface Gravity Waves”, which describes the general character and physics of water waves in nature and identifies other available references on the subject including journals and reports from various laboratories—the second chapter, “Small Amplitude Wave Theory and Characteristics”, presents, without derivation, equations for the kinematic and dynamic properties of the first-order (small amplitude, i.e., Airy) wave theory. In some cases, the approaches to determining the results are outlined. Chapter 3, “Two-dimensional Wave Transformation”, applies the results of Chapter 2 and introduces additional concepts to treat changes that occur to waves as they propagate directly toward shore. Discussed are: shoaling due to changes in water depth, changes in wave height due to wind, bottom friction, and also percolation and dissipation in soft mud bottoms. The effects of vertical asymmetry (crests higher than troughs) due to nonlinearities and horizontal asymmetry (forward face of a wave steeper than the trailing) due to shoaling are described. Breaker types and their respective ranges of parameters are established. The chapter concludes with a discussion of wave set-down, set-up, and wave run-up. Where appropriate and available, equations and/or empirical results in the form of graphs are presented. Chapter 4, “Finite Amplitude Wave Theory”, describes the classical analytical (Stokes, Cnoidal and Solitary) and numerical nonlinear theories and their respective ranges of applicability. As in other chapters, limited equations are