COASTAL GEOLOGICAL OCEANOGRAPHERS PROVIDE THE FOURTH DIMENSION

THE COASTAL OCEAN, defined here as waters covering the continental margin, has become an area of intense study. A driving impetus always has been to understand the complex oceanographic transitions between land and deep sea. However, recently this has been joined with a host of other more applied stimuli including: pollution concerns, military needs, commercial endeavors, and climatic relevance. Clearly the spectrum of coastal research requires studies of waves and currents, chemical composition and productivity of seawater. These imperatives explain the need for physical, chemical, and biological oceanographers, but why involve geological oceanographers?

As the trend toward interdisciplinary studies blurs boundaries, it is becoming more difficult to assign particular research to an individual discipline. Shoreline morphology was once a topic left to geologists, but in the past decade physical types have become intrigued by the interactions between flow and bed shapes on the beach and shoreface. In the past, only geologists could get excited about particle-size distributions; now chemists realize the relationships between size and the fate of particle-reactive chemical species. Sediment transport was once the domain of geologists, but now larval dispersal and benthic recruitment are closely linked to this field of study. So is there anything left that is uniquely geological? Yes.

Many oceanographers measure a property in the water column or seabed and construct a one-dimensional profile. Sometimes a transect of profiles or a series of transects create two- or three-dimensional descriptions of a variable, which can be used to interpret processes. The more motivated studies will include time-series observations, to determine how the variable changes over a tidal cycle, a storm, or a season. We applaud the monumental effort to continue Alistair Hardy's measurements over time scales of decades. However, time-series observations are difficult, expensive, and limited. Wouldn't it be nice to put our observations more easily into a temporal perspective—to have a natural record of coastal oceanic processes that spanned centuries and millennia. This is possible through the study of sedimentary strata.

The strata preserved within the seabed record evidence of past oceanic processes. For continental margins, high accumulation rates provide the added benefit of a *high-resolution* record of processes. The keys to employing sedimentary strata effectively are two-fold: 1) documenting the record; 2) reading the record. The former involves direct (e.g., coring, drilling) and indirect (e.g., seismic profiling) investigation of the seabed, to identify as well as possible the clues preserved. The latter requires insights (e.g., through field and lab studies) regarding how to interpret the clues, and how to extrapolate (e.g., through modeling) to conditions impossible to observe. The potential is to add a fourth dimension to studies of the coastal ocean, and this is the *unique* contribution that geological oceanographers provide.

—Chuck Nittrouer and Joe Kravitz

OCEANOGRAPHY SOCIETY · 1988

THE OCEANOGRAPHY SOCIETY

4052 Timber Ridge Drive
Virginia Beach, VA 23455 USA
(804) 464-0131; fax: (804) 464-1759

OFFICERS
Margaret Leinen, President
Robert A. Duce, President-Elect
Melbourne G. Briscoe, Secretary
David Evans, Treasurer
Arnold L. Gordon, Past-President

COUNSELORS
Richard T. Barber
Stephen E. Calvert
Tommy D. Dickey
Robert F. Anderson
Rick Spinrad

EXECUTIVE DIRECTOR
Judi Rhodes

CORPORATE/INSTITUTIONAL SPONSORS
Aanderaa Instruments, Inc., Woburn, MA, USA
Chishitsu Chosa-Jo, Ibaraki, Japan
GE Astro Space Division Princeton, NJ, USA
John G. Shedd Aquarium, Chicago, IL, USA
Monterey Bay Aquarium Research Institute, Pacific Grove, CA, USA
National Marine Fisheries Service, Silver Spring, MD, USA
Ober, Kaler, Grimes & Shriver, Washington, DC, USA
RD Instruments, San Diego, CA, USA
Scripps Institution of Oceanography, La Jolla, CA, USA
Woods Hole Oceanographic Institution, Woods Hole, MA, USA

OCEANOGRAPHY

CO-EDITORS
Larry P. Atkinson
Center for Coastal Physical Oceanography
Old Dominion University
Crittenton Hall
Norfolk, VA 23529
(804) 683-5558
Internet: atkinson@ccpo.odu.edu

Connie Sancetta
National Science Foundation
Ocean Sciences Division
Room 725
4201 Wilson Blvd.
Arlington, VA 22230
(703) 306-1586
Internet: csancett@nsf.gov

ASSOCIATE EDITORS
James W. Ammerman
Department of Oceanography
Texas A&M University
College Station, TX 77843 USA
(409) 845-5105

Gregg J. Brunskill
Australian Institute of Marine Science
PMB No. 3, Townsville, M.C.
Queensland 4810, Australia
(077) 789 211; FAX (077) 725 852;
Internet: g_brunskill@aims.gov.au