



## COVER PHOTOGRAPH: ANTARCTICA

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## COVER PHOTOGRAPH



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### COVER PHOTOGRAPH: ANTARCTICA

During the winter months in Antarctica, the continent will double in size. This is because the frozen surface of the Ross Sea creates a solid layer of what is known as pack ice. Emperor Penguins, which are endemic to Antarctica, will have a harder time reaching food sources because of the vast amount of pack ice that goes on for miles beyond their nesting area. The Emperor Penguins in the photograph were in a celebratory state after a Russian icebreaker ship had broken through the miles of pack ice, providing them with a gigantic shortcut to their ocean food. These penguins can swim to depths well over 1000 feet at a rate of around 5 mph. After exiting the ocean, the penguins will toboggan (slide on their bellies) and then stand to walk with teetering steps. (Photograph taken in November 2008 by James W. Mahoney, Jr., West Palm Beach, Florida.)



# THE COASTAL EDUCATION AND RESEARCH FOUNDATION

1656 Cypress Row Drive  
West Palm Beach, FL 33411, U.S.A.

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The Coastal Education and Research Foundation [CERF] is a nonprofit corporation dedicated to the advancement of the coastal sciences. The Foundation is devoted to the multi-disciplinary study of the complex problems of the coastal zone. The purpose of CERF is to help translate and interpret coastal issues for the public and to assist professional research and public information programs. The Foundation specifically supports and encourages field and laboratory studies on a local, national, and international basis. Through the medium of scientific publications, television, and radio CERF brings accurate information to the public and coastal specialists on all aspects of coastal issues in an effort to maintain or improve the quality of shoreline resources.

Because CERF is concerned with broad environmental issues, our efforts concentrate on significant problems such as maintenance of good quality (potable) water with adequate supply, and hazards associated with potential beach erosion, flooding, and susceptibility of developed shorelines to storm surge and wave attack. By focusing attention on these potential man-made and natural hazards, it is hoped that our research efforts will help others improve the quality of life in diverse coastal areas. CERF thus aims to stimulate awareness of coastal (marine and freshwater shorelines) land and water problems; initiate and foster research and innovation to promote long-term coastal productivity; establish an educational forum for the debate of contentious coastal issues; and develop new principles and approaches for enlightened coastal management, and encourage their adoption and use.

CERF is associated with the Department of Geosciences at Florida Atlantic University (FAU) in Boca Raton, Florida, and one of the main editorial offices for the *Journal of Coastal Research* (JCR) is located at the University. This partnership provides a basis for cooperative investigation, in private and public sectors, of biophysical resources found in open and naturally protected coastal regions, estuaries, large inland bodies of water bounded by shorelines, wetlands, and other coastal environments. Multidisciplinary studies at FAU's Department of Geosciences brings together experts from various fields in remote sensing, geographic information science, spatial ecology, environmental studies, marine biology, coastal geology, geography, and coastal engineering. Scientific investigative efforts by faculty, students, and staff span a wide and diversified range of interrelated topics that are relevant to solutions of today's dynamic problems. It is hoped that these combined attempts to better understand the nature of coastal processes will help forestall what may become contentious issues of tomorrow.

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Members are individuals that support the aims of the foundation through personal and group efforts or by donations. Memberships are available in different categories with privileges.

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## Editor-in-Chief

**Charles W. Finkl** Ph.D., CSci, CMarSci, FIMarEST, CPGS, CPSSc, PWS

Dr. Charles W. Finkl is President and Executive Director of the Coastal Education & Research Foundation [CERF], publisher of the JCR. Charlie, a founding editor of the *Journal of Coastal Research*, has served as Editor-in-Chief for the past 27 years. He is a Research Professor in the Department of Geosciences at Florida Atlantic University in Boca Raton, Florida. He received his Bachelor and Master of Science degrees from Oregon State University and the Ph.D. from the University of Western Australia. He is a member of more than 20 professional societies and has published more than 200 professional papers, books, and reports. He is a Chartered Marine Scientist (CMarSci) [Institute of Marine Engineering, Science and Technology], Certified Professional Geological Scientist (CPGS) [American Institute of Professional Geologists (AIPG)], Certified Professional Soil Scientist (CPSSc) [American Registry of Certified Professionals in Agronomy, Crops, and Soils], and a Professional Wetland Scientist (PWS) [Society of Wetland Scientists]. Charlie has field experience in parts of the USA, Caribbean area, Brazil, Honduras, Russia, South Africa, Western Europe, Australasia, and South Pacific islands. He is also the Series Editor of the Encyclopedia of Earth Sciences Series that is published by Springer (Germany). There are more than twenty-eight volumes in the Series and about twenty-five are available online. Charlie also serves on the Editorial Board of the *International Journal of Environmental Studies* (Routledge) and is an occasional peer reviewer for many other professional journals.

Charlie has interests and expertise in the general areas of surficial geology, coastal and marine geomorphology (including coastal classification), coastal/marine biophysical environments, exploration geochemistry, soils and weathering (regolith geology), coastal zone management and engineering applications or impacts on natural systems (including erosion control and shore protection), coastal hydrology including submarine freshwater and mineralized seeps, subaerial and marine structural geology, natural hazard mitigation in coastal zones, marine environments and coastal wetland protection and restoration, and remote sensing (e.g. land cover classification in coastal wetlands, advection-diffusion turbidity plumes in coastal waters, delineation of bottom types and sand resources), effluent disposal and pollution of wetlands and estuaries, water resources mapping and conservation, time series studies of wetland hydroperiod and soil moisture.

## Foundation Meetings

### International Coastal Symposia (ICS)

The International Coastal Symposium (ICS) was set up by Per Bruun (deceased) and Charlie Finkl, the first meeting being held in Hilton Head, South Carolina, in 1993. Since then these CERF meetings were held a second time in Hilton Head and then in Palm Beach, Florida. With the success of these meetings, CERF moved the ICS to the international scene holding meetings in conjunction with local sponsors in Australia, Brazil, Iceland, New Zealand, Northern Ireland, and Portugal. Forthcoming meetings will be held in Szczecin, Poland (11th ICS hosted by Dr. Kazimierz Furmanczyk at the University of Szczecin), and Plymouth, United Kingdom (12th ICS hosted by Dr. Gerd Masselink at the University of Plymouth). The ICS deals with all aspects of the coastal zone and attracted more than 600 delegates to the 10th ICS, organized by the Faculdade de Ciências Sociais e Humanas – UNL in Lisbon, Portugal. For more information, please visit [www.cerf-jcr.org](http://www.cerf-jcr.org)



# JOURNAL OF COASTAL RESEARCH

## An International Forum for the Littoral Sciences



### Supporting Scientific Organizations

- **AZTI** - Tecnalia [Pasaia, Spain; [www.azti.es/](http://www.azti.es/)]
- Coastal and Hydraulics Laboratory (**CHL**), US Army Corps of Engineers® [Vicksburg, Mississippi, U.S.A.; <http://chl.erdc.usace.army.mil/>]
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- Royal Belgian Institute of Natural Sciences: Management Unit of the North Sea Mathematical Models (**MUMM**) [Brussels, Belgium; [www.mumm.ac.be/](http://www.mumm.ac.be/)]

### Aims and Scope of the Journal

*Journal of Coastal Research*, an International Forum for the Littoral Sciences, is dedicated to all aspects of coastal research. These include geology, biology, geomorphology (physical geography), climate, littoral oceanography, hydrography, coastal hydraulics, environmental (resource) management, engineering, and remote sensing. Although each field functions effectively within its own purview, the cross-disciplinary nature of coastal studies requires familiarity with other fields as well. Hence, the scope of topics is necessarily broad in order to address the complexity of coastal biophysical and socio-economic interactions. Because of the wide range of interrelated topics, the journal invites original contributions and manuscripts dealing with theory, methodology, techniques, and field or applied topic studies on interdisciplinary coastal issues.

The journal encourages the dissemination of knowledge and understanding of the coastal zone by promoting cooperation and communication between specialists in different disciplines. Natural scientists, for example, are encouraged to collaborate with professionals in other fields to prepare contributions relating to the coastal zone that foster increased appreciation of coastal environments and processes. By means of this journal, with its scholarly and professional papers, systematic review articles, book and symposia reviews, communications and news, and special topical issues, an international forum for the development of integrated coastal research is provided.

### Advertising, Editorial, and Subscription Information

**Advertising and Editorial Office:** All advertising and editorial correspondence should be sent to Dr. Charles W. Finkl, Editor-in-Chief, *Journal of Coastal Research*, 1656 Cypress Row Drive, West Palm Beach, FL 33411, U.S.A. PHONE: 561.313.0926. E-MAIL: [CFinkl@CERF-JCR.com](mailto:CFinkl@CERF-JCR.com).

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The *Journal of Coastal Research* is currently surveyed in *Applied Science & Technology Abstracts*; *Applied Science & Technology Index* (H.W. Wilson); *Aquatic Sciences & Fisheries Abstracts*; *BIOBASE*; *Biological Abstracts*; *BIOSIS Previews* (Thomson); *CAB International Abstracts* (CABI); *CSA Civil Engineering Abstracts* (ProQuest); *Current Awareness in Biological Sciences* (Elsevier); *Current Contents/Agriculture, Biology, & Environmental Sciences* (Thomson); *Ecology Abstracts* (ProQuest); *Environmental Sciences & Pollution Management*; *GeoAbstracts* [Geographical Abstracts: Physical Geography; Ecological Abstracts; Geological Abstracts; *GEOBASE*] (Elsevier); *GeoRef*; *Meteorological & Geostrophysical Abstracts* (ProQuest); *Oceanic Abstracts* (ProQuest); *Oceanographic Literature Review* (Elsevier); *Physical Sciences Digest* (CSA, Ebsco); *Pollution Abstracts* (ProQuest); *Referativnyi Zhurnal*; *Science Citation Index*; *SciSearch* (Thomson); *SCOPUS*; *Water Resources Abstracts* (Bethesda); *Zoological Record* (Thomson).