



REPORTS OF MEETINGS

Brazilian Sandy Beaches Symposium: Morphodynamics, Ecology, Uses, Hazards and Management (Itajaí, Santa Catarina, Brazil, 3 to 6 September 2000)

The first international symposium on sandy beaches was held on the campus of UNIVALI (University of the Itajaí Valley) in Itajaí, SC, Brazil. Antonio Klein and coworkers in the Center for Earth and Marine Technological Sciences (CTTMar) at UNIVALI organized the meeting. Cosponsors provided assistance in many ways that helped to make the meeting a success. Travel grants were, for example, made available to plenary speakers from overseas. Reduced registration fees for the meeting encouraged significant student participation in this international meeting. With nearly three hundred delegates in attendance, this was the largest single grouping of coastal researchers in Brazil. Because the main theme of the meeting focused on beach biophysical processes, hazards, and management, a wide range of researchers were present with professional backgrounds in biology, geography, geology, oceanography, engineering, law, economics, and various social or human sciences. The integration of these diverse subject areas and focus on aspects of applied beach morphodynamics provided new insight to management of beach systems in different coastal environments.

The format of the meeting included oral presentations, poster sessions, and field excursions along the coast in Santa Catarina. All of the professional talks were presented in single, plenary sessions with no concurrent sessions (Figure 1). This arrangement was effective because it obliged participants with different professional training to appreciate new or different points of view. Even though most talks were delivered in Portuguese, most accompanying visual aides were labeled in English providing a level of comprehension for those delegates who were not proficient in Portuguese or Spanish languages. The talks were generally of high quality and accompanied by ample time for questions and brief discussion.

The venue for the meeting was appropriate, as the Port of Itajaí is one of the largest deepwater ports in Brazil. More than 8500 km in length, the Brazilian coastline displays not only a great diversity of ecosystems but an abundance of natural coastal-marine resources as well. About 15% of the total Brazilian population is located in the coastal zone. Although this percentage of the total national population may seem rather small, it must be remembered that coastal population clusters in the seventeen coastal states include five out of nine of the largest metropolitan areas in all of Brazil. This realization is important because many coastal environments, including beaches, are severely impacted by high population

densities in ever-expanding coastal conurbations. Within the purview of this context and by virtue of their geographic location, it is evident that sandy beaches constitute important recreational areas where many important economic and social activities are concentrated. It is thus evident that the increasing socioeconomic pressure on Brazilian beaches calls for greater understanding of patterns of use, and abuse, if this fragile environment is to be conserved or maintained. This international meeting was therefore convened in an effort to draw attention to the need for research focused on this important ecosystem and to acquire an appreciation of efforts in other countries to apply best management practices in beach systems.

With an overarching purpose to convene a meeting of Brazilian coastal researchers that would encourage dissemination of research results in this thematic area to national and international scientific communities, CTTMar (UNIVALI) and the Brazilian Association of Oceanography (AOCEANO) decided to jointly organize the *Brazilian Symposium on Sandy Beaches*. Their intent was that this event would become a forum for discussion of this important coastal ecosystem. The attraction of the symposium, based on its potential scientific value to the coastal research community, gathered most of the Brazilian coastal researchers at one location where ideas could be exchanged, considered, and discussed. During the course of the technical sessions, 168 scientific papers were presented; there were in addition 23 technical presentations that were specifically devoted to the main theme of the meeting.

The symposium, convened by CTTMar (UNIVALI), was sponsored by the Coastal Education and Research Foundation (CERF), Coordenação de Aperfeiçoamento de Pessoal de Nível Superior" (CAPES—Agency of Ministry of Education), Conselho Nacional de Desenvolvimento Científico e Tecnológico" (CNPq—Brazilian Research Council), Fundação de Amparo a Ciência e Tecnologia do Estado de Santa Catarina (FUNCITEC—Science and Technology Research Foundation from Santa Catarina State), and Secretaria Especial da Comissão Interministerial para os Recursos do Mar" (SECIRM—General Office of Interministry Commission of Marine Research under the Brazilian Navy). The event was also supported by the Brazilian Association of Hydrologic Resources (ABRH), Brazilian Association of Quaternary Studies (ABEQUA), and the Brazilian Program of Marine Geology and Geophysics (PGGM).



Figure 1. Opening remarks at the first plenary session. The committee making official welcome remarks at the “Brazilian Sandy Beaches Symposium” included (from left to right) Comte. Flávio Giacomazzi (Sub-Secretary, PSRM-SECIRM); Prof. José Roberto Provesi (Pro-Rector of Research, Graduation and Extension, UNIVALI); Prof. Edison Villela (Rector of UNIVALI); Prof. Fernando Luiz Diehl (Director of CTTMar, UNIVALI), and Prof. Charles W. Finkl (Editor-in-Chief, *Journal of Coastal Research*, and Florida Atlantic University).

Members of the Organizing Committee included: Antonio H. F. Klein (CTTMar-UNIVALI), Charles W. Finkl Jnr. (Florida Atlantic University/CERF), Fernando Luiz Diehl (CTTMar/UNIVALI/AOCEANO), Guilherme G. Santana (CTTMar/UNIVALI), João Thadeu de Menezes (CTTMar/UNIVALI), José Gustavo N. de Abreu (CTTMar/UNIVALI/AOCEANO), Lauro Júlio Calliari (LOG-DEGEO-FURG), Leonardo Rubi Rörig CTTMar / UNIVALI /AOCEANO), and Maria Inês Freitas dos Santos (CTTMar/UNIVALI/AOCEANO).

Highlighted in the symposium were twenty-three speeches about beach-related topics that were germane to the main symposium thematic areas as follows: Prof. Dr. Andrew Short (Australian Beach Systems: The Morphodynamics of Wave Through Tide Dominated Beach-Dune Systems), Prof. Dr. John Hsu (Geomorphic Approach for Coastal Protection and Management), Prof. Dr. Afranio Mesquita (Sea-Level Variations along the Brazilian Coast: A Short Review), Pro. Dr. Eloi Mello (Wave Climate in Brazil—a Review), Prof. Dr. Dieter Muehe (Beach Morphodynamic Research in Brazil: Evolution and Applicability), Profa. Dra. Maria A Vaz dos Santos (Numerical Models Applied to Brazilian Sandy Beaches—a Review), Prof. Dr. Elirio Toldo Junior (Forecasting Shoreline Changes of Lagoa dos Patos Lagoon, Brazil), Prof. Dr. João Alveirinho Dias (Evaluation of Soft Protection Techniques on Sandy Shores: A Case Study of Ria Formosa Barrer Islands,

Portugal), Prof. Dr. Omar Defeo (Marine Invertebrate Fisheries in Sandy Beaches: A Review), Prof. Dr. Carlos Borzone (Beach Ecology and Morphodynamic Approach in Brazilian Sandy Beaches), Prof. Dr. Cesar Cordazzo (Response of Brazilian Coastal Foredunes to Natural and Human-Induced Disturbance), Prof. Dr. Norton M. Gianuca (Fauna of the Coastal Dunes in Southern Brazil), Prof. Dr. Allan Jones (Use of Sand Beach Amphipods in Impact Assessment), Prof. Leonardo Rubi Rörig, MSc (Ecology of Surf Diatoms in Brazilian Beaches), MSc. Júlio Gonchorowsky (Brazilian Turtle Conservation Program [TAMAR]), Prof. Dr. Guilherme G. Santana (Tourism Development in Coastal Areas of Brazil: Economic, Demand and Environmental Issues), Prof. Antonio Henrique da F. Klein (Beach Safety Program in Santa Catarina Coast), Prof. Dr Mark B Orams (Sea, Sand and Sun: The Use of Sandy Beaches as a Resource for Tourism), Prof. Dr. Charles Finkl Jnr (Environmental Impacts of Coastal-Plain Activities on Sandy Beach Systems: Hazards, Perception and Mitigation), Prof. MSc Francelise Pantoja Dielh (Brazilian Laws: Aspects About Coastal Zone Use), Prof. Dr. Marcus Polette (Methodological Subsidies for Beach Carrying Capacity—Study Case: Central Balneário Camboriú Beach-SC), Prof. Dr. José Maria Landim (Sandy Beaches of the Eastern/Northeastern Coast of Brazil: Geographic Variability and Coastal Erosion), Profa. Dra. Enise Valentini (Considerations about Beach Restoration Including Cases with Tidal



Figure 2. Some guests at a reception at UNIVALI. A congenial atmosphere was accorded to all participants at the “Brazilian Sandy Beaches Symposium” in the poster hall. Guests could mingle among the crowds and talk to authors of poster sessions after a daylong meeting of professional talks. Shown here (from left to right) are Prof. John R.C. Hsu (Department of Marine Environment & Engineering, National Sun Yat-Sen University, Taiwan, R.O.C.), Prof. Charles W. Finkl (Charles E. Schmidt College of Science, Florida Atlantic University, Boca Raton, Florida, USA), and Prof. Andrew D. Short (Coastal Studies Unit, School of Geosciences, University of Sydney, New South Wales, Australia).

Inlets), Prof. Dr. Luís H. Melges-Figueiredo (Control and Recuperation of Oil Impact on Sandy Beaches), and Prof. Dr. William J. Cleary (Inlet-Related Management Issues in Southeastern North Carolina, USA).

In addition to the technical sessions, there were five short courses offered in one-half or full-day sessions viz.: Marine Tourism (Prof. Mark Orams—New Zealand), Coastal Management (Prof. João Alveirinho Dias—Portugal), Beach and Barrier Morphodynamics: Applications to the Brasiliam coast (Prof. Andrew Short—Australia), Dynamics of Populations in Sandy Beaches (Prof. Omar Defeo—Uruguay), Coastal Stabilization (Prof. Jonh Hsu—Taiwan). The short courses were offered both before and after the meeting on the campus of UNIVALI.

Registration at the meeting officially tallied 286 participants. There were 168 scientific papers presented in the format of posters, that were displayed during the plenary sessions and at social events (Figure 2). Seventy professional papers were submitted for consideration by a peer review panel with a view towards acceptance and publication in a special issue of the *Journal of Coastal Research* (JCR) entitled “Proceedings of the Brazilian Sandy Beaches Symposium: Ecology, Uses, Hazards and Management”, to published by CERF and CTTMar in Brazil in 2001.

Following the symposium, the organizing committee con-

sidered various aspects of the presentations and developed a list of recommendations for future research of beach systems in Brazil. The purpose of these recommendations is to promote a better understanding of the Brazilian coastal boundary layer. It is hoped that future research in Brazil will attempt to follow, both specifically and in general, these following suggested lines of inquiry.

- (1) Hydrodynamic data is urgently required because there are only one or two wave measuring devices installed along the entire Brazilian coast. The availability of hydrodynamic data is essential to increased understanding of beach processes.
- (2) Data related to longshore and cross shore sediment transport is required for calculation of coastal sediment budgets, which in turn are essential to proper management of eroding beaches for sediment replenishment and other engineering works.
- (3) There is a need for acquisition of data related to near-shore dynamics, sand bar movement, and dynamic of the upper shoreface in order to better understand coastal processes in general and beach morphodynamics in particular.
- (4) Intense beach monitoring programs are required as for example in cases of process-answer to storm events and erosion versus recovery.

- (5) More studies of causes of beach erosion, and long term data of beach changes.
- (6) Aspects related to urban development in coastal zones, especially water quality, pollution control, and ground water seepage.
- (7) Implementation of integrated studies dealing with the potential biologic resources of sandy beaches as they effect habitats for various organisms such as *Mesodesma*, *Donax*, *Emerita*, *calichirus*.
- (8) Implementation of international programs that will facilitate and expand coastal research in Brazil.
- (9) Establishment of a permanent forum for discussion of problems associated with management of sandy beaches.
- (10) Educational aspects resulting from increased knowledge of Brazilian beach systems need to be put into a national perspective that possibly includes integrated planning.

Although specifically developed for extant conditions in Brazil, these recommendations for coastal research could apply to most coastal nations. The success of this first Brazilian

symposium on sandy beaches will depend, in part, on the course of future coastal research in this rapidly developing country with long segments of tropical and subtropical coastline.

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