COASTAL DYNAMICS 2005

PROCEEDINGS OF THE 5TH INTERNATIONAL CONFERENCE

April 4–8, 2005
Barcelona, Spain

SPONSORED BY
Laboratori d'Enginyeria Marítima
Universitat Politècnica de Catalunya

WITH THE SUPPORT OF
International Centre for Coastal Resources Research (CIIRC)
E.T.S. d'Enginyers de Camins, Canals i Ports de Barcelona
D.G. de Investigación, Ministerio de Educación y Ciencia
D.G. de Costas, Ministerio de Medio Ambiente
Dursi, Generalitat de Catalunya
Universitat Politècnica de Catalunya

WITH THE COOPERATION OF
The Coasts, Oceans, Ports, and Rivers Institute (COPRI)
of the American Society of Civil Engineers

EDITED BY
Agustín Sánchez-Arcilla

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Foreword

Coastal zones are a fragile and dynamic type of environment supporting, particularly in developed countries, a large number of conflicting uses. Because of this, the dynamics of the coastal zone play a key role to make a diagnostic and to mitigate coastal zone problems. Without a sound knowledge on the hydro-morphodynamic processes which "control" the coast it is nearly impossible to manage in a sensible way our coastal assets.

In the last years there have been important advances in observational gear and numerical codes to gain knowledge on coastal processes. This has shown the complexity of coastal "drivers" and responses and the multiple scales which should be considered to address the problem. The need for an interactive and collaborative effort has become progressively clearer. Without field observations, numerical models produce an overwhelming amount of information hard to assess. Point measurements only reflect local conditions and have, thus, local (limited) value. Laboratory experiments, particularly those at smaller scales, show only a distorted and partial image. However, the synergetic combination of all these approaches offers a sound way to advance our present knowledge on coastal processes. And yet, this combined approach is sometimes hard to find because it involves non-identical research communities.

Within this context, the Coastal Dynamics International Conference has emphasized, from its beginning in 1994, the analysis of all aspects of coastal dynamics using field and lab data, together with numerical and theoretical tools. The emphasis has always been on the processes which result in water and sediment fluxes at a variety of scales and which make the study of coastal issues such a fascinating topic.

The focus of Coastal Dynamics 2005 (CD05), drawing from previous editions of the conference (Barcelona-Spain 1994, Gdansk-Poland 1995, Plymouth-United Kingdom 1997, Lund-Sweden 2001) is the coexistence of these multiple scales and the role there played by extreme events. These episodic energetic intervals are responsible for a large part of the morphodynamic response, regardless of scale, and should thus be studied with the corresponding depth and detail.

Coastal Dynamics 2005 (CD05), the fifth in the series, has benefited from EU research projects and US field studies, together with important contributions from countries such as Japan, Australia and others. The positive response to the CD05 conference and the lively exchanges in technical sessions and other more informal gatherings show that the Coastal Dynamics series is a well established scientific forum by now. The Proceedings of Coastal Dynamics 2005 (CD05) include papers dealing with microscale forms and fluxes as for instance those associated to turbulent

or intra-wave features. They also deal with large-scale coastal processes and the resulting regional-scale morphodynamics. The quality of presented papers makes us expect that this book will contribute to review the state of art in coastal processes for the coming years. Because of this, the Proceedings are expected to be of interest to coastal engineers, coastal geologists, oceanographers, applied physicists, and other interested researchers.

The conference has been organized in five general areas: (i) Bed/suspended fluxes, (ii) Coarse to silt sediments, (iii) Morphodynamics in various environments, (iv) Sediment fluxes with and without structures, and (v) the interaction with climatic drivers and coastal structures at various scales. All papers were presented in three parallel sessions.

The large number of excellent abstracts received by the conference secretariat were subject to three independent reviews, and the final selection, an indeed difficult job, was based on the quality of the abstract and its fit within the scope of the conference. All papers are potentially eligible for ASCE awards.

Finally, the conference International Steering Board and the local organizers wish to thank all those people and institutions who have contributed with their effort and support to the organization of the 2005 edition of the conference. The Dirección General de Costas (Spanish Ministry of Environment), the Spanish Ministry of Science and Education, Generalitat de Catalunya (DURSI), the Universitat Politècnica de Catalunya, the Civil Engineering School (ETSECCPB/UPC), the Coasts, Oceans, Ports and Rivers Institute (COPRI) and the International Centre for Coastal Resources Research (CIIRC) have all contributed to the CD05 success. Special mention should be made to the work done by Dr. J.A. Jiménez and the Laboratori d'Enginyeria Marítima (LIM/UPC) members. Their effort and support have been an essential ingredient in making it all possible.

Prof. Agustin Sanchez-Arcilla on behalf of
Coastal Dynamics International Steering Board
and CD05 Local Organizers

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