

Coastlab 14

**APPLICATION OF PHYSICAL
MODELLING TO
PORT AND COASTAL PROTECTION**

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**Editors:
Valeri Penchev and Francisco Taveira Pinto**



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Coastlab 14 - Varna: APPLICATION OF PHYSICAL MODELLING TO PORT AND
COASTAL PROTECTION

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PREFACE

The 5th International Conference on The Application of Physical Modelling to Port and Coastal Protection, COASTLAB14, has been organized in Varna, Bulgaria, from 29 September to 2 October 2014, by the Black Sea - Danube Coastal Research Association, under the auspices of the International Association of Hydro-Environment Engineering and Research (IAHR), Coastal and Maritime Hydraulics Committee (CMHC).

Coastlab14 continued successful tradition, after Porto (2006), Bari (2008), Barcelona (2010) and Ghent (2012), to provide a forum to discuss the latest developments in physical modelling in the field of coastal and harbour engineering.

For the first time the Coastlab conference was held in Eastern Europe, in Varna, Bulgaria. The host city of Varna, often called the Black Sea “Riviera”, is a major tourist destination, business centre, commercial seaport, cultural centre, and headquarters of the Bulgarian Navy and merchant marine. Varna is also an university centre, with 2500 faculty and researchers, and over 30000 students.

The main objectives of the Coastlab14 conference were:

- to bring together experienced and early stage researchers from coastal laboratories from EU and all over the world, and to provide a forum for direct exchange of expertise and discussions on physical modelling with application to port and coastal protection;
- to contribute to the critical assessment of existing knowledge in the field of port and coastal engineering research, that fully accounts for environmental concerns, and climate change, in a sustainable manner;
- to identify the need and the key directions for future research in the areas of coastal and harbour engineering;
- to promote close working relationships between researchers and coastal engineers from different countries and with different expertise.

The Technical programme included 4 renowned keynote lectures, and 80 (oral and poster) presentations in 16 technical sessions, presented and discussed by 120 participants from 24 countries. The presentations and extended discussions, together with the social events during the conference, contributed to a fruitful and friendly atmosphere, warmly inviting for a frank exchange of experience and ideas between researchers and coastal engineers, as well as for communication and networking between young and experienced researchers.

Coastlab14 has continued its tradition to act as acknowledged platform for direct exchange of knowledge and experience between early stage researchers and senior scientists in the field of port and coastal engineering. A one day Ph. Master Class took place prior to the Coastlab14 conference, on Monday, September 29th 2014.

The objective of this Master Class was to provide the participants with useful knowledge and discussion on issues dealing with physical and numerical modeling of water waves, currents, and their interaction with coastal structures. In the morning 4 experienced researchers talked about the latest research results in their field of expertise. In the afternoon parallel group sessions were organised for discussing participants' research experiences and the day-by-day problems encountered.

During the conference, a 3 days exhibition has been organized, bringing the Coastlab14 participants in direct contacts with major research laboratories, experimental instrumentation and facility providers, and well with known companies in the field of coastal engineering.

Keynote lectures, and various papers are presented in this book attempting to cover as completely as possible all related aspects in laboratory research on Coastal hydrodynamics, Waves, Currents, Harbour areas, Breakwaters, Coastal protection structures, Beaches, Sediments - and their complicated interactions.

The papers have been accepted after a peer-review process based on their full text. Thanks are due to the International Scientific Advisory Board, who had most of the responsibilities of reviewing the papers by providing their constructive comments.

The quality of the papers presented gives good reasons to believe that this meeting contributes to promote further collaboration of the researchers and engineers in the field of port and coastal protection, in a climate change environment.

The organizers of Coastlab14 express their sincere acknowledgments to the Sponsors and Exhibitors at the conference: the International Association for Hydro-Environment Engineering and Research (IAHR), Bosch Rexroth B.V., the Netherlands, HR Wallingford, UK; DHI Group, Denmark, and CORES (Coastal Research & Engineering) Ltd., Bulgaria.

We would like to thank to all administrative and technical staff members, as well as to our scientific collaborators from the International and Local Committees for supporting the organization of Coastlab14.

Finally, we are pleased to announce, and to invite you to participate in the next 6th Coastlab16 Conference, that is going to transfer the spirit of Coastlab idea to the North America, planned to take place in Ottawa, Canada, in 2016.

Valeri Penchev & Francisco Taveira Pinto
Co-Chairs, Coastlab14 Organising Committee