International summer school on
Preventive methods for coastal protection
Klaipeda, 18–20 September 2011
Co-organised by the BONUS BalticWay consortium and
Geophysical Sciences Department, Klaipeda University.

The ever increasing human impact on various vulnerable sea areas and especially the increase in risks associated with potential oil pollution from ship traffic or oil platforms, calls for out-of-the box thinking in safe management of the maritime activities and for novel methods for mitigating the impact of the associated risks on vulnerable areas. The school is dedicated to novel methods for coastal protection and maritime spatial planning that use the intrinsic dynamics of ocean currents for the management of environmental risks.

The material largely follows the achievements of the international research consortium BalticWay towards smart use of currents in environmentally safer management of the Baltic Sea maritime industry. The developed technology binds together a 3D ocean model, calculations of a large set of Lagrangian trajectories of water particles, statistical analysis of the properties of these trajectories and, finally, methods for construction of the optimal fairway. The school presents an overview of the entire technology, from the basics of physical oceanography and circulation modelling and up the methods for quantification of offshore areas in terms of their ability to create danger to the vulnerable regions and practical procedures for the construction optimal fairways in terms of environmental risks.

The key topics of the school

- Basics of physical oceanography (Dr. Kai Myrberg, Helsinki)
- Introduction into hydrodynamics of currents and waves (Prof. Tarmo Soomere, Tallinn)
- Basics of numerical ocean and oil spill modelling (lecturer to be confirmed)
- Modelling of the Baltic Sea circulation (Dr. Oleg Andrejev, Helsinki)
- Lagrangian dynamics and trajectories (Prof. Kristofer Döös, Stockholm)
- Modelling of risk based on Lagrangian trajectories (Prof. Tarmo Soomere)
- Applications in ship routing and maritime spatial planning (lecturer to be confirmed)

The school is mostly designed PhD students and well-prepared MSc students. Basic knowledge of calculus, differential equations and mathematical statistics is necessary to follow the lectures.

The school may also be of interest for young researchers and marine and coastal engineers who wish to obtain an overview the novel technology and its potential applications. The expertise from the school may be used in different areas of marine and environmental sciences including, but not limited to meteorology, oceanography, geophysical hydrodynamics, ocean and coastal engineering, and pollution control.

The school will be held in the Geophysical Sciences department of Klaipeda University. Participants are welcome to present their own research in a students' session within the school.

Participation is free for academic students (both on MSc and on PhD level); however, a fee of 50 euro per person is requested during registration, towards covering the costs of coffee breaks and lunches during the event. Participants are expected to cover their travel and accommodation costs. A limited number of supportive grants are available towards covering the travel (up to 250 euro per person) and local accommodation costs.

Registration deadline: 17 August (loreta@corpi.ku.lt)
Contacts:

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