



Estimation and Monitoring of Wind/Wave energy potential in the Eastern Mediterranean Sea

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The adaptation and use of innovative methodologies for the exploitation of renewable energy marine resources is one of the main issues today for the environmental science community. Within this framework, the exploitation of wind and wave energy potential for coastal and island states seems to be one of the promising solutions and highly interesting from research and technological point of view.

In this work, the activities of two projects focusing on the study of wind/wave energy over the area of Eastern Mediterranean Sea are presented. The “Integrated High Resolution System for Monitoring and Quantifying the Wave Energy Potential in the EEZ of Cyprus” (Ewave project) focuses on the estimation, monitoring and forecasting of the wave energy potential over the Levantine Basin with special emphasis to the Exclusive Economical Zone of Cyprus, while the “Development and application of new mathematical and physical models for Monitoring the wind and Sea wave Energy Potential” (MOSEP project) is a platform for developing new mathematical algorithms for the estimation of the wave energy over the Aegean Sea. In both projects, high resolution digital atlases of sea wave/wind climatological characteristics and the distribution of the wind and wave energy potential are developed for the coastal and offshore areas of the East Mediterranean sea . Moreover, new models for the prediction and quantification of wave energy in short and long forecast horizons are proposed. Statistical results concerning the probability density functions of the wind speed, the significant wave height, as well as the energy potential will be presented for selected sea areas in the Eastern Mediterranean Sea, while test case studies in certain regions favor to wind/wave renewable energy will be discussed.