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The Etesian wind system and wind energy potential over the Aegean Sea

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The Mediterranean region lies in an area of great climatic interest since it is influenced by some of the most relevant mechanisms of the global climate system. In the frame of the three Europe 2020 priorities for a smart, sustainable and inclusive economy delivering high levels of employment, productivity and social cohesion, the Mediterranean energy plan is of paramount importance at the European level, being an area with a significant potential for renewable energy from natural sources that could play an important role in responding to climate change effects over the region.

We present preliminary results on a study of the Etesian winds in the past, present and future time. We investigate the variability and predictability of the wind field over the Aegean. Statistical downscaling based on several methodologies will be applied (e.g. canonical correlation analysis and multiple linear regression). Instrumental time series, Era-Interim and the 20CR reanalyses will be used. Large-scale climate drivers as well as the influence of local/regional factors and their interaction with the Etesian wind field will be addressed. Finally, the Etesian wind resources on the present and future climate will be assessed in order to identify the potential areas suitable for the establishment of wind farms and the production of wind power in the Aegean Sea.