



Coastal Wind Profiles In The Mediterranean Area From A Wind Lidar During A Two Year Period

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Reliable measurements of vertical profiles of wind speed and direction are the basis for testing models and methodologies of use for wind energy assessment. Modelling coastal areas further introduce the challenge of the coastal discontinuity, which is often not accurately resolved in meso-scale numerical model. Here, we present the analysis of two year of 10-minute averaged wind speed and direction vertical profiles collected during a two-year period from a Wind- lidar ZEPHIR 300[®] at a coastal suburban area. The lidar is located at the SUPER SITE of CNR-ISAC section of Lamezia Terme, Italy and both dataset and site are unique in the Mediterranean area. The instrument monitors at 10 vertical levels, from 10 m up to 300 m. The analysis is classified according to season, and wind directions for offshore and offshore flow. For onshore flow, we note an atmospheric layer at around 100 m that likely represents the effect an internal boundary layer caused by the sharp coastal discontinuity of the surface characteristics. For offshore flows, the profiles show a layer ranging between 80m and 100m, which might be ascribed to the land night time boundary layer combined to the impact of the building around the mast.