



## **Cross isobar angles of surface winds – application for downscaling from synoptic data at the Israeli coast**

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Study of future East Mediterranean coastal surface winds may require downscaling from global models low tropospheric data, since surface winds are often under predicted. Synoptic classification may be of assistance in statistical downscaling.

This work considers the relevance of higher level winds to predict the surface winds. The relations between surface and 850 hPa winds are explored according to the cross isobar angle (CIA) of 1000 and 850 hPa levels calculated from radiosonde data at Beit-Dagan (BD), a station at the Israeli coastal plain. Two extreme categories were found. Under the first category, low tropospheric strong thermal inversion prevents efficient interaction between these two levels and the CIA values are as high as  $\pm 180^\circ$ . In the second category, as expected, downscaling of surface winds from 850 hPa is efficient under cyclone activity due to strong vertical mixing. In this category CIA values are  $\pm 50^\circ$ .

An inter-comparison of the CIAs between ERA-INTERIM and radiosonde data shows good agreement in both categories for reanalysis data. Thus suggesting some ability to use even model data but at flat coastal areas.