



Weather types' influence on the 10 m wind changes in the EURO-CORDEX projections over the Adriatic region

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Focus area in this study is the Adriatic region where several near-surface (i.e. 10 m) wind regimes impact daily human activities and characterize local climate. We examine 10 m wind speed changes in the EURO-CORDEX regional climate models' (RCMs') projections, and how they are linked with the newly defined weather types based on the location of the synoptic centers relative to the Adriatic region. RCMs used in this study are SMHI-RCA4 and DHMZ-RegCM4.2, forced by 5 (4) CMIP5 global climate models under historical, RCP4.5 and RCP8.5 greenhouse gasses concentrations. The weather type algorithm considers daily mean sea level pressure and 500 hPa geopotential height data to define one out of 16 possible weather types that are relevant for the generation of the two main winds over this region, namely Bora and Sirocco. Finally, for the each grid cell inside our focus area, distribution of the Bora and Sirocco days is based on the each weather type, for both historical (1971-2000) and future (2041-2070) time periods. We limit in this presentation on the Bora-related mechanisms. For the winter season, RCM projections indicate reduction in the main cyclonic types relevant for the Bora formation over the entire Adriatic. In contrast, for the summer season, increase in the main anticyclonic Bora-related weather types is found in the RCM ensemble over the northern Adriatic.