



The Impact of a Warmer Climate on the Global Coastal Low-Level Wind Jets

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Coastal Low-Level Jets (henceforth referred to as “coastal jets” or simply as CLLJ) are low-tropospheric mesoscale wind features, with wind speed maxima confined to the marine atmospheric boundary layer (MABL), typically below 1km, and most of the times below 500 m. Coastal jets occur in the eastern flank of the semi-permanent subtropical mid-latitude high pressure systems, along equatorward eastern boundary currents, due to a large-scale synoptic forcing. In this study, based on a 2-member GCM EC-Earth simulations (the “ensemble”), the impact of a warmer climate on the global coastal low-level wind jets in the twenty-first century is briefly analysed, using the classification and filtering criteria of CLLJ detection proposed by Ranjha et al. (2013). A twentieth century period (1971-2000) from present climate is used as control run. The projected changes in the global CLLJ climate at the end of the twenty-first century are analysed for the 2071 to 2100 period with the RCP8.5 greenhouse gas emissions scenario. The projections show that the Iberian Peninsula and Arabian Peninsula are the two regions with a significant increase of the frequency of occurrence of CLLJ. There is also a projected expansion of the offshore extension to the west. In the future climate, the Iberian Peninsula Coastal Jet wind speed maximum is expected to occur at higher levels, with higher wind speeds.