



Observed and simulated characteristics of climate trends in the air and sea temperatures over the coastal eastern Adriatic

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An analysis of observations and regional climate modeling has been used to investigate past and future characteristics of coastal climate in the Adriatic region. The observations included stations located inland, near the shore, and at the islands as well as satellite measurements. Nine realizations of atmospheric regional climate models with a resolution of 0.11° from the EURO-CORDEX project were used in evaluation and projection modes while two ocean reanalysis fields were used in the evaluation mode. The emphasis was to estimate the extent to which global warming was and will be affecting air and sea surface temperatures in the eastern Adriatic as compared to (1) the modification of coastal atmospheric processes due to regional complexity and (2) compared to effects of the ocean flux from the Ionian sea and the broader Mediterranean waters through the Strait of Otranto. The evaluation indicates that the models generally show skill in downscaling ERA-Interim fields to the 0.11° resolution. Preliminary analysis of the surface air temperature shows that the trends in land warming are comparable with warming trends of the coastal and island areas. The differences have significant seasonal variations with maxima in summer and spring and pronounced minima in winter. These differences create seasonal changes in the variability of coastal atmospheric stability, mesoscale pressure gradients, and consequent local circulations.