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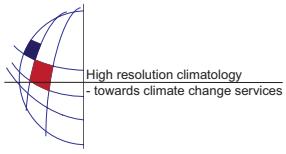

Teleconnection between Indian Ocean and the Eastern Mediterranean interannual variability, as simulated by a coupled general circulation model

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The interannual variability of the teleconnection between the Eastern Mediterranean (EM) and the Indian Ocean is investigated using 20th century simulations conducted with a fully coupled high-resolution global general circulation model, and the European Centre for Medium-Range Weather Forecasts (ECMWF) Re-Analysis (ERA-40). Comparison with observations, reanalysis, and model simulations shows that, though the model results slightly underestimate the magnitude of the anomalies, they provide a reliable representation of its real space and time va-riability. The model appears to be able to reproduce the observed Eastern Mediterranean climate variability and the associated variability over the Indian Ocean and the Indian subcontinent. Composite analysis of the vertical velocity anomalies over the Eastern Mediterranean shows that the subsidence over these regions is increased with the occurrence of positive Indian Ocean Di-pole (IOD) events. It is found that, both in the model and the reanalysis, a positive IOD results in an anomalous meridional overturning circulation between the tropical eastern Indian Ocean and the Indian Subcontinent. This meridional circulation connects an anomalous descent (ascent) branch over the Indian Ocean (Indian subcontinent). The anomalous meridional circulation in turn triggers a rossby wave response to the west of the ascending branch at about 200 hPa, inten-sifying the subsidence over the EM.