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Future changes in the relationship of precipitation intensity in Eastern Mediterranean with large scale circulation

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Abstract. The objective of this study is to investigate the linkage of large-scale upper air circulation over the greater European area with intense precipitation events over Eastern Mediterranean and then to estimate potential changes in the atmospheric patterns in the future, under global warming conditions. For this purpose, results from the regional climate model HadRM3P and Global Circulation Model HadAM3P have been used for the present period 1960–1990 (control run) and the future period 2070–2100 based on the B2a IPCC emission scenario. For the identification of the precipitation extremes the Simple Daily Intensity Index (SDII) was employed. Our analysis has shown a notable relation of extreme events with the East Atlantic and Scandinavia teleconnection patterns, as well as the Eastern Mediterranean Pattern (EMP) during the wet period. In the future, similar patterns are found, with different magnitude and position, following the projected changes in atmospheric circulation over Europe.

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