



Mechanisms for the changes in the Mediterranean atmospheric circulation in a warming world

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The Mediterranean summer climate is related to the Asian summer monsoon via atmospheric teleconnection through Rossby wave. Even though projected changes in the future Asian monsoon have been widely studied, the physical mechanisms for governing future change in the atmospheric circulation over the Mediterranean have not been resolved. This study aims to examine future atmospheric circulation change in the Mediterranean and the responsible mechanisms, using multi-model data and by conducting model experiments. Results show that the descending motion will be stronger in the Western Mediterranean but weaker in the Eastern Mediterranean in the future. This change results from the Rossby wave response induced by both the Indian summer monsoon and the East Asian summer monsoon forcings, and the barotropic Rossby wave propagation from the Atlantic forcing to the Mediterranean.