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Large Scale Moisture Fluxes that are related to dry and wet conditions over Mediterranean Basin

Sinan Sahin (1), Juerg Luterbacher (2), Elena Xoplaki (3), and Murat Turkes (4)

(1) Department of Civil Engineering, Faculty of Çorlu Engineering, Namik Kemal University (ssahin@nku.edu.tr), (2) Department of Geography, Climatology, Climate Dynamics and Climate Change, Justus Liebig University Giessen (juerg.luterbacher@geogr.uni-giessen.de), (3) Department of Geography, Climatology, Climate Dynamics and Climate Change, Justus Liebig University Giessen (elena.xoplaki@geogr.uni-giessen.de), (4) Center for Climate Change and Policy Studies, Boğaziçi University, İstanbul, Turkey (murat.turkes@boun.edu.tr)

Large scale moisture flux analysis was carried out for the Mediterranean Basin in order to investigate the large scale atmospheric controls on moisture flux convergence that are related to dry and wet conditions. The seasonal moisture budget (precipitation minus evaporation) was calculated using the National Centers for Environmental Prediction—National Center for Atmospheric Research reanalysis data for the period 1949–2014. We focus on winter and summer circulation patterns for explaining the changes in dry and wet conditions rather than spring and autumn, as the transitional nature and characterization of these seasons are more uncertain in the Mediterranean basin. The driest and wettest years were chosen according to Standardized Precipitation Index (SPI) and the differences between those years and average conditions were compared statistically and graphically. According to results, large scale climate changes over Mediterranean Region are linked to significant changes of the moisture fluxes in the Gulf of Mexico region and partially in the US East coast especially for wet years. Therefore the climatic role of the Gulf Stream for extreme climate conditions over Mediterranean region should be investigated.