



## **Analysis of Evaporation Sources and Hydrological Cycle over the Mediterranean Region**

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Mediterranean hydrological cycle is investigated in this work. Evaporation sources climatology for precipitation is calculated and analyzed for winter and summer seasons in the period from 1961 to 2002. Air parcels are tracked backwards to assess moisture sources that contribute to local precipitation over chosen locations. The regions considered are south Europe and Mediterranean areas. High resolution datasets (25 km x 25 km) from two different climate simulations are used in this analysis. The simulations were carried out using the regional atmosphere (REMO) and ocean (MPIOM) models developed at Max Planck Institute for Meteorology. One simulation was carried out using only the atmospheric component with prescribed sea surface temperature from reanalysis data. The second simulation was performed with an atmosphere-ocean coupled version to include an active air-sea interaction in the Mediterranean Sea. Strong seasonally differences in spatial distribution and magnitude for the moisture sources are observed. In winter, when the marine evaporation is higher, the main source of evaporation is located at the sea side near the western and northern coasts of Europe and north of the Mediterranean Sea, meanwhile in summer, the mayor moisture contribution comes from land areas and larger recycling ratio values are observed.