



Leading modes in Variability of Mediterranean Evaporation and their Relation to Regional Climate

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A gridded monthly evaporation data from the Woods Hole Oceanographic Institution (WHOI) data set for 1958-2006 are used to investigate interannual variability of Mediterranean evaporation and its links to regional climate during cold and warm seasons. The first Empirical Orthogonal Functions mode (EOF-1) of evaporation explains 43-58% of its total variability. This mode is characterized by the monopole pattern in all seasons. However, despite structural similarity, in different seasons the EOF-1 of Mediterranean evaporation is associated with different climate signals. In particular, during winter principal components of this mode demonstrate significant correlation to the East Atlantic (EA) teleconnection pattern. In summer there is indication of tropical (presumably from Asian monsoon) influence on Mediterranean evaporation and its interannual variability. Both in winter and summer PCs of the EOF-1 demonstrate clear interdecadal signal, which is dominating in summer PCs. Important, our analysis did not reveal significant links between Mediterranean evaporation and the North Atlantic Oscillation (NAO) in any season. The EOF-2 of evaporation accounts for 11-20% of its variance. Its spatial pattern is characterized by zonal dipole with opposite variations of evaporation in western and eastern parts of Mediterranean Sea. Presumably, this mode is associated with smaller scale (i.e. local) affects of atmospheric dynamics. Seasonality of the leading modes of Mediterranean evaporation is also well seen in the character of their links to regional precipitation during different seasons.