Geophysical Research Abstracts,
Vol. 11, EGU2009-1757-1, 2009
EGU General Assembly 2009

Freshwater budget (E-P) over the Mediterranean Sea: Climatology and Variability from Satellite Estimates of the Air-Sea Interaction

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Satellite estimates of evaporation and precipitation together with the coincident and concurrent satellite estimates of wind, humidity, sea and air surface temperatures provide a unique tool for the description of the climatology and the study of the variability of the freshwater budget (Evaporation-Precipitation) over the Mediterranean Sea. Three geographical basins are distinguished, the western, the central and the eastern Mediterranean according to the phenomenology of the surface properties. Major modes of variability in each basin depend on local forcing as well as teleconnections that link the regional to the global climate. Freshwater flux variability over the Mediterranean Sea is related to the deep and intermediate water formation in each basin. The Eastern Mediterranean Transient mode that took place in the beginning of the 1990's is present in the air-sea fluxes implying that the driving mechanism for this mode of variability is the turbulent flux forcing at the surface of the ocean. This work illustrates the need for higher resolution fluxes and near-coast techniques.