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Evaluating the effect of Mediterranean oscillation (MO) on the variability of seasonal precipitation over North West of Iran

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The importance of rainfall variability for the global and regional climate makes it valuable to know the variability of the rainfall for long periods as function of natural and anthropogenic forcing. The pattern with the center of high/low pressure over the western Mediterranean which reflects the Mediterranean oscillation (MO) is the most important climate variability mode in the region. Atmospheric systems affecting the North West of Iran are mostly Mediterranean. In this study we applied the wavelet and cross wavelet analysis in Mediterranean oscillation (MO) and rainfall time series in North West of Iran for identifying the main periodicities in time series and also indication of the scale of higher covariance between two time series. Cross wavelet spectrum showed that only winter rainfall (DJF) in Tabriz and Urmia stations are in anti phase with Mediterranean oscillation time series, with significant common power in 7-9 years. In the winter rainfall wavelet spectrum, the most significant periodicities for both Tabriz and Urmia stations were around 1-3 and 8 years and for Sanandaj station were around 1-2 years. We concluded that the Mediterranean oscillation influences on variability of winter rainfall over North West of Iran.

Key Words: Mediterranean Oscillation, Wavelet, North West of Iran.