

Studying the Moisture Sources and the Stable Isotope Characteristic of Moisture in Northern Khorasan Province, North-Eastern Iran

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Abstract : Iran is a semi-arid and arid country in south-western Asia in the Middle East facing intense climatological drought from the early times. Therefore, studying the precipitation events and the moisture sources and air masses causing precipitation has great importance in this region. In this study, the moisture sources and stable isotope content of precipitation moisture in three main events in 2015 have been studied in North-Eastern Iran. HYSPLIT model backward trajectories showed that the Caspian Sea and the mixture of the Caspian and Mediterranean Seas are dominant moisture sources for the studied events. This showed the role of cP (Siberian) and Mediterranean (MedT) air masses. Stable isotope studies showed that precipitation events originated from the Caspian Sea with lower Sea Surface Temperature (SST) have more depleted isotope values. However, precipitation events sourced from the mixture of the Caspian and the Mediterranean Seas (with higher SST) showed more enriched isotope values.

Keywords : HYSPLIT, Iran, Northern Khorasan, stable isotopes

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