

The Role of Moisture Sources and Evaporation Effect on the Spatial Variation of Stable Isotopes ($\delta^{18}\text{O}$ and $\delta^2\text{H}$) in Iran Surface Water Resources

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Iran is a semi-arid and arid country in Middle East which faces water shortage crisis from the early times. Surface water resources as an important water supply beside groundwater resources has a dominant role to provide part of potable and agricultural water needs of Iranian people. Thus, stable isotopes techniques as accurate method have been used to study surface water resources. Surface water resources in western part of Iran in Zagros region are mainly plotted on West and South Zagros meteoric water lines [1]. It shows that Mediterranean Sea moisture and Mediterranean air mass is dominantly recharge surface water resources in west of Iran. In the north part of Iran, most of surface water samples plot on the north Iran meteoric water line [1]. In the north part of Iran, the role of the Caspian Sea moisture and cP air mass is dominant in the recharge of surface water resources. Finally in the central part of Iran, surface water resources are influenced by various moisture sources and air masses simultaneously. In addition to the moisture sources, stable isotopes in surface water resources are under the influence of evaporation effect. The evaporation effect in surface water is studied by the line-conditioned excess (lc-excess) [2]. The more depleted lc-excess is observed in dam reservoirs and pools compare to river water samples due to evaporation effect[2]. This study shows that both moisture sources and evaporation influence surface water resources in Iran.

References

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