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## The Isotopic Composition of Cyprus Precipitation. A Tool of Isotope Hydrology.

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Monitoring and profiling the isotopic composition of soil water in combination with groundwater isotope hydrology are commonly used in studying flow and transport in soils as well as in estimating groundwater recharge. Establishing the isotopic composition of local precipitation is of essence. Towards this end and in facilitating the application of isotope hydrology in Troodos Fractured Aquifer (TFA), precipitation was monitored in 16 precipitation sampling stations, stretching from the shoreline up to 1725 m above m.s.l., from January of 2015 to December of 2017. A seasonal trend was discerned, with isotopically depleted rainfall occurring in December as opposed to the more enriched autumn and spring rainfall. Northern European air masses appear to prevail during the months of December to January during which  $d$  values tend to be on average above 25‰ whereas the more enriched rain with the lowest  $d$  values occurs in July. The averaged seasonal effect between 2015 and 2017 on  $\delta^{18}O$ ,  $\delta^2H$  and  $d$  values are 4.53‰, 30.98‰ and 14.93‰, respectively. Cyprus' Local Meteoric Water Line (LMWL) was found to be equal to  $\delta^2H = (6.58 \pm 0.13) * \delta^{18}O + (12.64 \pm 0.91)$  and a general decrease of 1.22‰ for  $\delta^2H$  and 0.20‰ for  $\delta^{18}O$  in precipitation was calculated per 100 m altitude. Similar values have been found by other researchers for the region. These variations in the isotope composition of rainfall can be used to earmark seasonal input of recharge water and for deriving percolation rates from tracing their movement in the soil column.