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STABLE ISOTOPES IN PRECIPITATION IN ROMANIA –A FIRST OVERALL MAP

Stable isotopes in precipitation in Romania have been measured only sporadically with no long-term monitoring project existing so far. Here we present the results of a 3-year, ongoing, monitoring study of stable isotope distribution in precipitation in 20 stations from Romania (East-Central Europe), spread throughout the country, at altitudes between 0 and 11500 m asl. The general Meteoric water line is described by the equation $\delta^2\text{H} = 7.7 \cdot \delta^{18}\text{O} + 6.9$. The monthly $\delta^{18}\text{O}$ and $\delta^2\text{H}$ values range between -12 and -6 ‰, and -40 and -90 ‰, respectively, being higher at high altitudes and in NW Romania, and lower in the W and SE Romania. No clear continentality trend could be discerned in the distribution of $\delta^{18}\text{O}$ and $\delta^2\text{H}$. Altitude, latitude and local factors (rain shadow, foehn effects, high evaporative plains) seems to be the most important factors in the spatial pattern of $\delta^{18}\text{O}$ and $\delta^2\text{H}$ distribution. While most of the precipitation is derived from moisture originating in the North Atlantic, SW Romania receives supplemental amounts of precipitation from the Eastern Mediterranean, as clearly seen in the higher than average (16-18, compared to ~10) d-excess values in precipitation from this region (mainly during the autumn and early winter months).

Author: Dr PERSOIU, Aurel (Stefan cel Mare University Suceava, Romania)

Co-authors: Mrs BADALUTA, Carmen (Stefan cel Mare University Suceava Romania); Mrs NAGAVCIUC, Viorica (Stefan cel Mare University Suceava Romania)

Presenter: Dr PERSOIU, Aurel (Stefan cel Mare University Suceava, Romania)

Track Classification: Isotopes in Precipitation