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Statistical Analyses of Stable Isotopes Time Series in Precipitation in Ljubljana - Slovenia

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The stable isotopic composition of hydrogen and oxygen (δ^2H and δ^{18}O) and tritium activity are monitored in monthly precipitation at Ljubljana since 1981. Seasonal variations of δ^2H and δ^{18}O are observed and are typical for continental stations of the Northern Hemisphere. The weighted mean delta δ^2H and δ^{18}O values are -59‰ and 8.6‰, respectively. The orthogonal Local Meteoric Water Line is δ^2H = (8.06 $\pm$ 0.08) δ^{18}O + (9.84 $\pm$ 0.71), and the temperature coefficient of δ^{18}O is 0.29‰/°C. Deuterium excess weighted mean value is 9.5‰ and indicates the prevailing influence of the Atlantic air masses. Tritium activity in monthly precipitation shows also seasonal variations which are superposed to the decreasing trend of mean annual activity.

In the paper overview of the measurements and statistical analyses are given for complete set of numerical data for the period 1981 – 2006.