

## **Abstract**

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### **Modeling the oxygen 18 concentration in precipitation with ambient climatic and geographic parameters.**

Recent exploratory analysis of a data set from the Austrian Network of Isotopes in Precipitation (ANIP) together with climatic data revealed significant correlations between isotopic compositions in precipitation and climatic conditions. Based on these results multivariate models have been developed in order to predict the oxygen 18 concentration from local climatic and geographic parameters.

The best two models are applied to 201 new locations for which long term climatic and geographic parameters are available. The resulting modeled oxygen 18 values exhibit good compliance with known correlations of oxygen 18 with temperature and altitude. Isotope distribution charts lead to a reasonable picture of the distribution of oxygen 18 in Austrian precipitation.,