

Name of research institute or organization:

Climate and Environmental Physics and Dept. of Chemistry and Biochemistry, Universität Bern

Title of project:

Comparison of ^2H , ^3H and ^{18}O in precipitation taken at the Sphinx station and in shallow ice cores taken at the Jungfraufirn

Project leader and team

Ulrich Schotterer

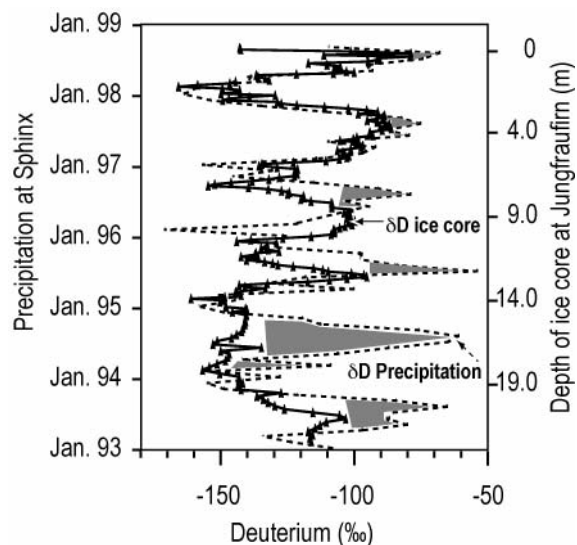
Project description:

During the ongoing research (comparison of ^2H , ^3H and ^{18}O in precipitation and ice cores) three short field campaigns were performed in February, May, and December. In February surface samples were taken from the Jungfraufirn after a cold and dry period lasting several weeks. The purpose was to study the influence of sublimation on the δD and $\delta^{18}\text{O}$ relation and on the resulting deuterium excess in the Alps. Distinct changes of the deuterium excess due to sublimation were observed only on high altitude glaciers in the dry Andes. The preliminary data from Jungfraufirn show that a similar strong effect during the dry winter periods can be observed in the Alps too. The experiments will be continued to confirm these data under different weather conditions.

The shallow ice cores drilled in May and December are part of a re-evaluation of temperate glaciers for ice core studies as illustrated in Figure 1. They should help to examine the influence of percolating melt and (occasionally) rain on the climatic information derived from stable isotopes in the accumulated snow layers especially after the heat wave of summer 2003.

Figure 1:

Comparison of Deuterium in monthly composites of precipitation at the Sphinx platform and in an ice core from Jungfraufirn. The shaded area indicates where percolating melt or occasional summer rain removed the accumulated stable isotope information (from Schotterer et al. 2004).



Collaborating partners/networks:

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