



Cliché Hans-Rudolf Pfeifer

# L'arsenic dans les eaux et sols en Suisse : un élément trace naturel au comportement capricieux

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*Switzerland has three main areas with elevated natural arsenic concentrations : 1) the northern part, where a number of thermal mineral springs are located, 2) the Jura mountains with iron- rich limestone and clays and 3) the Alps, where arsenic-bearing ore deposits and silicate rock aquifers are found. In addition in the Alps, there are also isolated arsenic-bearing thermal and mineral springs. A complete survey of all public drinking water supplies carried out between 1997 and 2002 showed that about 20'000 people lived in areas with arsenic between 10 and 50 µg/L in spring waters and a few hundred depended on waters with As between 50 and 180 µg/L. In the meanwhile, most communities have access to drinking water < 2 µg/L. In most cases the waters were well oxygenated and the arsenic was in its pentavalent form (arsenate). In flooded soils rich in organic matter (forest, wetlands), with reducing conditions and elevated dissolved iron, trivalent arsenite predominated. The origin of these naturally contaminated waters is in As-bearing rocks and soils, in which the As is most often located in sulfides (pyrite, arsenopyrite) and Fe-oxyhydroxides. They either occur as dm-m-sized veins or disseminated in areas of several hundred meters. Only very little contamination can be attributed to waste materials, such as mine dumps or old industrial waste repositories. Plants growing on As-rich soils usually contain less than 5 mg/kg As. Monitoring data for mosses suggests that dust particles rich in As can locally contribute to a week air pollution. The only available study on the relation of As-concentrations in drinking water and cancer incidence did not give significant results.*

**Jeudi 21 février 2013 à 11h**  
**Salle de conférences d'ISTerre**

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