Geophysical Research Abstracts, Vol. 7, 08346, 2005
SRef-ID: 1607-7962/gra/EGU05-A-08346

Oxygen and hydrogen isotopic compositions of springs and rain in the Slovenian part of the Canin Massif Karst area (Upper Isonzo / Soča River Basin)

L. Ballarin**,** L. D'Amelio, **D. Lenaz**, and R. Semeraro
Geokarst Engineering S.r.l., Trieste, Italy (davide.lenaz@area.trieste.it)

The Canin Massif is located in the Western Julian Alps, on the Italian - Slovenian border, and, with dozens of galleries and pits still unexplored, is one of the most important areas of high – altitude Karst. The chain is limited to the south by the NE-SE and S-verging "Moistrocca line", which, to the SW, would relate with the SE-NW and S-verging "Uccea line". These faults put the Cretaceous Flysch of the Julian Basin and edges of the Jurassic and Cretaceous carbonates of the Bovec syncline in contact with the Norian – Rhaetian calcareous and calcareous – dolomitic masses. The SW slope, besides being confined by the Uccea line is also bordered by the Resia Valley line. Canin Mt. is formed by a large monocline of the Dolomia Principale and of the Dachstein Limestone with an anticlinal fold along the slope of the Soča River. Karstic springs are present in the Bovec area as well as in the Resia Valley.

From July 1999 to June 2001 some of these karstic springs were sampled in the Bovec area to find out their isotopic composition and define their recharge zones. Moreover some pluviometers were installed at different altitude.

The mean temperature of the four studied springs ranges between 6.3 and 9.2˚C, pH is comprised between 8.2 and 8.4, conductibility ranges between 175 and 309.4 mS/cm.

As far as concern isotopic data, spring δ^{18}O per mille$_{(VSMOW)}$ ranges between – 8.00 and – 9.13 while δD per mille$_{(VSMOW)}$ ranges between – 54.00 and – 63.04. The δ^{18}O per mille$_{(VSMOW)}$ of pluviometers ranges between – 4.80 and – 6.29 from July 1999 to June 2000 and between – 6.97 and – 9.51 from July 2000 to June 2001. The δD per mille$_{(VSMOW)}$ of pluviometers ranges between – 28.38 and – 40.3 from July 1999 to June 2000 and between – 45.77 and – 66.08 from July 2000 to June 2001.

Even if small, these variations allow to better evidence the mean altitude of recharge zones, so that there are, sometimes relevant, differences between the altitude of springs and that of the recharge zones. As an example, the altitude of Zadnizza spring is 545 meters, while its recharge zone has been calculated at 1433 meters.