

4.1.2. Monthly observations of the precipitation

(M. ZUPAN)

The monthly precipitation sampling started in December 1992 at the four meteorological stations Vojsko, Trnovo, Podkraj and Bilje (changed in January 1995 by Slap). In April 1993 Lokve and Postojna were added. The sampling on Trnovo was stopped in July 1994 from technical reasons. The main purpose of the precipitation sampling was to provide the samples for isotope analyses. However we wanted to get some information about the physical and chemical composition of precipitation as well.

The sampling was carried out by Bergerhoff (VDI 1972) samplers. In the precipitation samples we analyzed the same parameters than in the spring water samples. The same methods were used (chapter 2.5) and the same control criteria (chapter 4.1.2) than for spring water analysis. The data analysis showed some seasonal trends in some of the sampling points. However, we decided the meteorological data should be taken in to the consideration. Unfortunately it could not be done in the short period of time we had.

4.1.3. Weekly sampling in the springs Hubelj and Vipava

(M. ZUPAN)

In weekly samples we measured pH value, conductivity, calcium (Ca), magnesium (Mg), sodium (Na), potassium (K), bicarbonate, nitrate, chloride and sulfate. The methods used are described in chapter 2.5 (Water Quality).

All measured data were controlled by conductivity (measured and calculated) and ion difference. The permissible value of the coefficient between calculated and measured conductivity 0.9 - 1.1 was taken in to account (GREENBERG et al. 1992). In the Hubelj spring 90 % of analyzed samples were in this range while in the Vipava spring 87 %. The highest value of coefficient for the rest of samples was in the Vipava 1.24 and the lowest 0.85. In the Hubelj the highest coefficient was 1.19 and the lowest 0.85. The calculated ion difference (GREENBERG et al. 1992) was for the Hubelj between -3,5 % and +1.6 % and for the Vipava between -3.4 and +1.6 %.

The summary of the measured concentrations of single parameters is presented in Tab. 4.1. In both springs the most changeable parameters have been conductivity and bicarbonate. The differences between minimum and maximum values have been higher in Vipava than in Hubelj. The changes of calcium concentration have been higher in the Vipava while the changes of magnesium concentration higher in the Hubelj (Fig. 4.6).

For the establishment of seasonal changes in the investigation period of time we used AARDVARK (WRc 1995) seasonal model. In the Hubelj spring