



Temperature Monitoring in Slovene Ice Caves - Can less tell more?

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Slovene cave cadastre holds more than 10.000 caves, amongst them 549 were described as ice caves but only 115 of them lie below 1500 meters of altitude and furthermore only a few caves in the lower altitudes contain perennial ice or snow deposits. Ice caves can be found in all Slovene mountainous regions – the Alps, the Prealps and in the Dinaric Mountains, from 442 up to 2455 meters above sea level.

Although first ice cave in Slovenia was mentioned already by Valvasor in the year 1689 and many ice caves were described by scholars in the 19th century, Slovene ice caves were never systematically investigated. Most published data on Slovene ice caves derives from caving excursion reports and from investigations done by members of Karst research institute and consists of random temperature measurements, assessment of ice volume, information on cave fauna and some other general remarks. With this in mind a project of systematic temperature measurements in Slovene ice and cold caves was launched in 2009. The aim of the project is to determine the general temperature characteristics of the caves and to see the bigger picture.

Investigation of ice caves in the World is concentrated on small number of well known and usually show cave with developed infrastructures. Measurements include versatile methods which yield huge amount of data but concern one cave only. Approach of our work consist of temperature measurements in 15 caves, all below 1500 meters above sea level, with cold thermal anomaly and ice occurrence long into the warm part of the year. Caves in lower altitudes are not only easily accessible, but changes in temperatures and ice volume are more profound because of higher mean outside air temperatures, which makes these caves significant for science.

Some investigated caves contain various amounts of perennial ice deposits and other, the so called cold caves (Slovene: ledenica), are significant from the historic point of view as older literature suggest they once held perennial ice deposits. Although each cave is unique in its physical characteristics, the attempt will be made to see if temperatures correlate with the cave's dynamics. Temperature monitoring along with mass balance and periglacial processes in ice caves are the core of our investigations. In the meeting some interesting Slovene ice caves and preliminary results will be presented.