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## **Ruskeala underground laboratory for the study of natural waters (Karelia, Russia)**

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Ruskeala underground laboratory was organized jointly by the Karelian Research Center of the Russian Academy of Sciences (KarRC RAS) and Kolmas Karelia company as an experimental innovative facility for the study of underground spaces. KarRC RAS is a partner in the Baltic Sea Underground Innovation Network (BSUIN) project of the Interreg Baltic Sea Region Programme. Ruskeala quarries can act as a showcase of the transformation of the chemical composition of groundwater formed in Proterozoic calcareous rocks of the Fennoscandian Shield and exposed by open mining. Drillholes reveal weakly alkaline fresh (0.4 g/l) bicarbonate calcium-magnesium groundwater, which, when discharged in quarries, loses dissolved gases (CO<sub>2</sub>, He, Rn), becomes more alkaline and fresher due to atmospheric precipitation. Since the biota in the man-made reservoirs is poor, nitrates, as the final product of the transformation of nitrogen compounds brought in by surface runoff, can accumulate in the quarry water. The mine network provides a unique opportunity for studying the hydrodynamics and geochemistry of groundwater and its interaction with surface waters.

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