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## An application of stable isotope techniques for the investigation of geographic origin of water–investigation of the Mareza Spring near Podgorica (Montenegro)

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Mareza Spring is used for the water supply of Podgorica (capital of Montenegro) since over 70 years. It is located in the central part of Montenegro in the north-western part of Podgorica Valley. The recharge area and origin of groundwater of this karstic source are not known well. This is primarily due to the fact that drainage divides in karst terrains are the unknown and insufficiently examined segments. There are a few hypotheses about the origin of water: 1. from the Zeta River which flows few kilometres north-east from Mareza Spring, 2. from the Morača River which partly sinks at the exit of the canyon (around 10 km east from Mareza Spring), and 3. from the Prekornica Mountain recharge area that is located 10-20 km north-east from the spring (that is a karst plateau with average altitude around 1,000 m asl). Therefore, the isotopic techniques (altitude effect, comparison) could be useful for testing these assumptions. In the present study monitoring of stable isotopes (<sup>2</sup>H, <sup>18</sup>O) in precipitation, surface water and groundwater of this area is carried out to determine the origin of water and adequate protection of Mareza Spring.