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Italy – Croatia

BLUE RECHARGE

THE BLUE RECHARGE Project's Newsletter

Blue Credits for Water Aquifers Recharge and Sustainability

Within the framework of the BLUE RECHARGE project, the Istrian Water Protection System (IVS), EFRI, and UNIRI-FIZRI partners have established a working team together with the organisations in charge of exploratory drilling, tracing, and water monitoring in southern Istria. Project's Associate Partner, the Pula Water Supply Company (Vodovod Pula), is actively involved in the monitoring activities, as the BLUE RECHARGE project's activities are taking place in their supply area, where the company has strong interest in protecting the aquifers.

On November 27th, 2024, the Istrian Water Protection System (IVS) invited the working team members and the project's associated partner Vodovod Pula, for a meeting in Buzet, Croatia.

Monitoring activities

The stable isotopes of hydrogen (^{1}H, ^{2}H) and oxygen (^{16}O, ^{18}O) are powerful natural tools to track the movement of water through the different parts of the water cycle. The ratios of stable isotopes in water ($^{18}O/^{16}O$, $^{2}H/^{1}H$) depend on the "history" of the water because every change that the water has "experienced" leads to changes in its composition. A "lighter" water with ^{16}O, for example, passes more easily from the liquid to the gaseous phase so that more water molecules with the isotope ^{18}O remain in the liquid phase. For this reason, seawater contains more of the heavier oxygen and hydrogen isotopes compared to rain or snow. Understanding the isotopic composition of water provides information about the origin of

Reliable meteorological data is required for the interpretation of the water isotopic composition and knowledge of the hydro-meteorological conditions in the area of MAR application. For this purpose, weather stations (Davis, Vantage Pro2) were purchased.

Marija Cargonja (UNIRI-FIZRI) replacing the containers for the monthly precipitation collection at the Peroj-Magornja site (January, 2025).

groundwater, recharge areas, flow paths, and mixing of water in aquifers. For effective water management, especially in projects such as Managed Aquifer Recharge (MAR), the use of isotope techniques is crucial right from the planning phase. This helps to track the efficiency of the infiltration processes, calculate the proportion of infiltrated water in the local groundwater, and track the flow paths of the infiltrated water. In order to obtain reliable information on the isotopic composition of the water, regular sampling at springs should be organized, and a network of rain gauges should be established. Regular sampling and monitoring are key to collecting reliable data for these studies.
We have installed rain collectors at four locations in southern Istria: Svetvincenat, Peroj-Magornja, Karpi and Loborika. Once a month we go on an excursion to collect samples.

Moreover, IVS, UNIRI-FIZRI and the Pula Water Supply Company organized a field trip to determine the locations for the weather stations and to agree on meeting the technical conditions for their installation according to the recommendations of the Croatian Meteorological and Hydrological Service.

Karlo Velican and Diana Mance (UNIRI-FIZRI) checking the position for the installation of an anemometer to accurately measure wind direction and speed (Buzet, January 2025).

More information at:

- Project website: https://www.italy-croatia.eu/web/bluerecharge
- Communication management – segreteria@venetiancluster.eu

Stay tuned for more updates as we progress with this significant project!