Level Monitoring
Lake Spina, Pralormo (Turin)









The background

Lake Spina, located in Pralormo (Turin), is an artificial reservoir of environmental significance, serving a key role in hydraulic regulation, set within a territory vulnerable to hydrogeological risks. In an era increasingly marked by extreme weather events – such as the recent floods that affected the Piedmont region – it became essential to implement a continuous and reliable monitoring system, capable of ensuring precise control over environmental conditions and the structural stability of the embankment.

The solution

The project, developed by Geolab, involved the installation of an integrated system based on *WineCap™* wireless dataloggers by Capetti Elettronica. These are connected on one side to piezometric sensors arranged in three parallel rows along and downstream of the embankment to measure groundwater levels, and on the other side to ultrasonic level sensors positioned to monitor the upstream reservoir, downstream reservoir, and discharge points through the embankment. The system is completed by a weather station that allows for the correlation of meteorological variations (precipitation, wind, temperature and humidity) with changes in water and piezometric levels, thus providing a comprehensive and predictive overview of the reservoir's behavior. The entire installation operates off-grid and is powered autonomously by a photovoltaic BOX, ensuring continuous operation even in adverse weather conditions.

The result

In an increasingly unstable climate, the system installed at Lake Spina provides reliable, high-continuity monitoring of hydrological and atmospheric parameters – offering a strategic tool for anticipating critical events, protecting the territory, and strengthening hydrogeological resilience.

The winning choice WineCap

- ✓ WSD12PS-4AI (4 proportional inputs for piezometers and level sensors)
- ✓ WSD12-THEE + EE07 KIT (datalogger with external temperature and relative humidity probe for outdoor use, equipped with weather protection)
- ✓ WSD12-2DI + PL200 (2-channel datalogger + rain gauge)
- ✓ WSD12-LVD + AN6410 (3-channel datalogger + anemometer)

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