

▪ **Analysis & design of thermal storage systems**

- Energetic behavior of in-ground storage tanks of non-metallic liner, estimation of heat losses (experimental work and numerical simulation). Temperature fields (inside and around the tank), numerical simulation of hydrodynamic phenomena coupled with ground heat transfer. Static and dynamic (charging-discharging) modes of operation.
- Phase-change materials (PCM) as storage media
- Studies of liner properties of in-ground water tanks, particularly mechanical strength, thermal-insulating and water-tight properties, aiming at long-term reliability under real operating conditions of strong thermal cycling.
- Optimal design of water inlet-outlet systems for main types of commercial storage tanks, using fluid-dynamics and heat-transfer principles.