



Feasibility of the GPR Technique for the bathymetry and sub-bottom stratigraphy of a lake environment

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The Ramsar Convention defines the wetlands as diverse and productive ecosystems, and emphasized the importance of developing action plans, covering monitoring and research, for the conservation, wise use and sustainable management of these singular areas and biodiversity. Within this framework, this paper presents a Ground-Penetrating Radar (GPR) survey of the Fonte Cova mine (Coristanco, Galicia). This site is an abandoned kaoline mine that was flooded forming a freshwater lake, which is included in the Project Baseline (Project Baseline Fonte Cova), as a part of an initiative of the Global Underwater Explorers (GUE) organization to explore and conserve aquatic environments throughout the World. This mine did not receive remediation treatment after being abandoned, which motivates to monitor water conditions, wildlife and the condition of the sub-bottom of the lake and sediments.

The GPR study was conducted with an unshielded 200-MHz frequency antenna moved over the lake surface using an on purpose designed pseudo-catamaran. Without disturbing the subsoil structure, the GPR method allowed for a continuous measurement of the subsurface. The obtained GPR results included a high-resolution imaging of the subsurface structures, which allowed defining sedimentary bedforms and kaolinite formations, sediments layering and characterization, as well as sub-bottom profiling.