

## **SEISMIC REFLECTION AND TDEM IMAGING OF A COMPLEX AQUIFER SYSTEM**

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A geophysical survey was conducted on a coastal basin, near the mouth of the Flumendosa River (eastern Sardinia - Italy), where salt-water intrusion phenomena occur. The objective of the survey was to supply information about stratigraphy and geometrical boundaries of the basin to help hydrogeologists in the rehabilitation studies.

The survey included a 2-km seismic line shots using the P-wave technique and a profile of TDEM soundings, which overlapped the seismic line. Even if the acquired seismic reflection data were of good quality, analysis and processing of the recorded wavefield was not straightforward because of complex stratigraphy and the presence of events with conflicting dips. Seismic reflection results show a sequence of sedimentary layers that extends up to a depth of 750 meters, where a faulted bedrock was encountered. TDEM data confirm the stratigraphy and give information on the salinity of waters in the shallower aquifers.

In the area are present many boreholes from which characteristics of shallower aquifers are achieved. However, since wells deeper than 150 meters are not yet available, the results of the geophysical survey provide new important information for hydrogeological purposes and for better planning remediation projects.