

SHALLOW WATER MT TECHNOLOGY

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The company «Nord West Ltd» developed in 2008 an instrumentation and technology named AQUAMATIC (AQUA MAGnetoTellurIC) aimed at carrying out MT studies in shallow water basins (transition zone). It consists of floating containers for industrial ground-based MT instrument produced by the company “Phoenix Geophysics”, special sea electrodes and cables. The instrumentation suggests that measurement of the electric field at the seafloor, while the magnetic field is measured on-land.

AQUAMATIC is a unique acquisition system designed for shallow water with depths of a few meters; moreover it can be applied in the conditions of strong currents and wind waves. The application of AQUAMATIC makes it possible to carry out MT surveys in transition zones with the depths less than 20 m, which are white spots of geophysical studies, where nor traditional sea technology, nor traditional on-land technology could be applied.

The main advantage of the elaborated technology is a relatively low cost of survey. Due to the system's small size and weight it is not necessary to use a specially equipped vessel to exploit the system, as it is required of deep sea seafloor MT soundings, just a small catamaran and a boat are quite enough. The system's small weight makes it possible for 2-3 people to install the instrument. It is also more economic in terms of time spent for one sounding: at favorable weather conditions one team may operate up to 5 stations.

The first practical application of AQUAMATIC system were experimental MT studies along two profile in the Volga River estuary and the northeastern part of the Caspian Sea with typical depth of 1-2 meters. The results obtained at the Caspian Sea open new prospects for MT method; which can be now used at earlier inaccessible vast transition zones at estuaries, shallow continental shelf, big rivers and lakes.

shallow water, MT acquisition technology, continental shelf

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