

**MARSES: POSSIBILITIES OF LONG-TERM MONITORING SPATIAL/TIME
VARIATIONS AND CHANGES OF SUBSURFACE GEOELECTRICAL SECTION ON
THE BASE RESULTS OF THE GEOPHYSICAL SURVEY SALT/WATER INTERFACE
ON THE MARINA DI RAGUSA, SICILY AND SHALTER ISLAND, USA.**

Y. R. Ozorovich¹

ABSTRACT

One of the more important challenges facing natural resource managers today is how to identify, measure and monitor the cumulative impacts of land use across space and time. The tool used in this project has various abilities and advantages. It can be used as an operative system for short or long term water search tasks, e.g. to identify ground water table, soil salinity level, waste level, or to monitor changes in subsurface horizons, etc. The measured parameters can be used to track seasonal and climatic changes in selected area. The distinctive advantage of the utilised monitoring system is the measurement of the soil humidity and groundwater component along a depth profile from the surface to the ground water level. It is not possible to detect such subsurface horizon humidity parameters by other monitoring means, such as observation wells, coring, etc.

The project aims at obtaining a fundamental understanding of the physical processes taking place at a dynamic fresh/seawater interface through carrying out detailed small-scale studies, and at providing a framework for understanding the effect of these processes on a larger scale and over longer periods of time.

First observations of the dynamic parameters (spatial/time variations and changes of the salt/water interface in the process of the inland extent and movement of saltwater interface from sea boundary under the sounding depth in order to 100 m) have been obtained on the base new generation non-invasive instrument for subsurface sounding and new methodology.

The field results of the geophysical survey on the West Neck Bay Study Area, Shelter Island, USA and Marina Di Ragusa, Sicily, Italy obtained confirm the importance of such an experiment for the future study of the salt/water interface in the different area of the coastal zone for creation the operative system for long-term monitoring of the natural subsurface ecosystems into the coastal zone.

Y. R. Ozorovich¹

¹Space Research Institute, Russian Academy of Sciences/Stichting "InterECOS",
84/32 Profsoyuznaya str., Moscow, 117810, Russia
Tel: 7-095-333-3177; Fax: 7-095-333-2177; e-mail: yozorovi@iki.rssi.ru
<http://www.iki.rssi.ru/MARSES/english/info.htm>