

DEVELOPMENT OF ELECTROANALYTICAL INSTRUMENTATION FOR PHYSICO-CHEMICAL CHARACTERIZATION OF TRACE METALS IN THE MARINE ENVIRONMENT

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In the framework of EUREKA - EUROMAR Project, the ELANI EU-493 project entitled: Electroanalytical Instrumentation Development for Physico-Chemical Characterization of Trace Metals in the Marine Environment has started in 1989, with the following objectives:

- development of a new electrochemical instrumentation for the
- direct electroactive trace metal determination
- metal complexing capacity determination
- determination of correlation of different species of trace metals (of natural and anthropogenic origin) and their physico-chemical properties in the aquatic environment.

The intention of this project is to give a contribution in elucidating of the appropriate water samples treatment, taking into account the entire process from sampling of the natural waters to the analytical treatment, including procedures for determination and final evaluation of relevant information from the experimentally obtained data. Field observations and theoretical and experimental laboratory work is devoted to the development of sensitive and specific instrumentation for establishing the governing mechanisms and the influence of various parameters on the fluxes and transformations of different forms of trace metals on the natural concentration level as well as on the level of metal pollutants in the European continental and marine aquatic environment.

The cooperation between the laboratories and a firm from the countries participating in this project (University of Liverpool, Liverpool, UK; The firm Eco-Chemie, Utrecht, The Netherlands; Forschungszentrum Juelich, Juelich, Germany and Rudjer Boskovic Institute, Zagreb, Croatia), resulted in a construction of a prototype of a portable instrument "ELANI-1", which will be described.

The results obtained for the determination of electroactive trace metals will be demonstrated in the case of Cu, Pb and Cd as well as the corresponding possibilities of metal complexing capacity determination in the model solutions as well as in the samples from the marine environment.

The development foreseen in the near future will be also discussed.

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