New low-cost methodology of mapping the hydrocarbon deposits in Black Sea shelf and Azov Sea

Ihor Bagriy,
Candidate of geological sciences, the Assistant Director of Geo-Ecology and Research Department at the Institute of Geological Sciences of the National Academy of Sciences of Ukraine

The methodology of thermo-atmo-geo-chemical research methods (TAGCRM) is based on the interconnecting of structural-tectonic and space-geo-ecological data, as well as thermometric, emanation, gas-geochemical surveys and the wide range of lab measurements.

TAGCRM is applied on the strictly defined network of survey stations, that are strictly localized and are characterized by high density (which facilitates further interpretation of the results).

The advantages of the proposed methodology are predetermined by thermometric, emanation and gas-geochemical aspects of the survey being carried out simultaneously at the chosen survey stations. Both the versatility and the well-grounded character of the proposed methodology for defining the potential areas for hydrocarbons allow obtaining the highly exact survey data**.**

The key research methods of TAGCRM are:

- emanation;
- gas-geo-chemical method;
- warmth survey.

The basic premise of our research is that above any oil deposits there exists the unintermitted flow of diffusionally scattered hydrocarbons that fixes on the land surface in the form of geo-chemical anomalies in soils, sub-soil, and above-soil air; the upper layer of the geological cleft of mountain breeds, subterranean waters etc.

The application of thermometric research is based on the premise that in the area over the deposits of hydrocarbons there exist positive thermal anomalies.

TAGCRM is a set of both direct and indirect research methods used for the estimation of the oil-gas potential.

The modifications and the structure of TAGCRM, the scale and the detail of the research, the methods and the interpretation techniques of the obtained data, the conclusions and recommendations are directly dependent on the following issues:

- the level of examination of research area, its structural–tectonic localisation, and the landscape-chemical conditions;
- the presence of oil-gas deposits and potential structures;
- at the preliminary stage of research – the existence of the results of decoding the aerospace survey data, necessary for structural-tectonic, seismological, geo-physical and geo-chemical materials as well as the use of the special equipment for conducting both field and analytical research.

The effectively of TAGCRM application was proved by field research on more than 15 areas, typical of the Black Sea Shelf and the Azov Sea.