



## **Experience using of DEM's as a basis for landscapes classification at selection of geochemical methods of prospecting.**

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The results high-precision satellite sensing of the Earth and the rapid development of GIS-technology can are open new areas of application of the DEM's. One such example is the landscape zoning is an integral component during geological and geochemical exploration at any scale. The main goal of zoning is rational choosing of geological and geochemical methods of prospecting, which are effective in different landscape environments.

Degree of territory openness plays an important role during geochemical explorations, especially lithochemical ones, both after the primary and secondary halos and leakage streams (Sokolov S.V. and Yurchenko Yu.Yu., 2010). Practice proves that the most effective method of territory zoning after this indicator is morphometric analysis on the basis of DEM. Particularly, the use of DEM for landscape-ecological zoning was tested by B.A. Nowakowski et al (2003). The basic elements of DEM are maps of angles inclination and slopes exposure, as well as maps of basal surface of n-order streams and others. Introduction of available geological data (structural-tectonic scheme, maps of the Quaternary deposits and others) in the DEM structure allows us to make zoning of territories after the conditions of geochemical explorations by the most correct way both on qualitative and quantitative levels.

Using of the morphometric analysis basic elements in total with modern GIS-technologies and integrated analysis of geological and geochemical information allowed us to make landscape zoning after the conditions of geochemical explorations of the individual sites and areas in general (the Karelian-Kola Region, Taimyr Peninsula and Amur Region). Based on the obtained results, typical landscape surroundings after their degree of openness were defined. The primary measure of their openness is the angle of the slope.

The proposed technology based on digital elevation models allows to conduct landscape zoning of areas and separate sites both on the regional stages of prospecting and at detailed exploration.

### References

- Nowakowski B.A., Prasolov S.V., Prasolova A.I. Digital elevation models of real and abstract geofields. Moscow: Scientific World, 2003. 64 p. (in Russian)
- Sokolov S.V., Yurchenko, Yu.Yu. Digital elevation model as a basis for zoning under the terms of reference of geochemical studies (exemplified by the Maly Hinggan, Far East) // Geoinformatics, 2010, № 4. P. 54-60 (in Russian)