Materials of Conferences

THEORETICAL AND METHODICAL BASES OF IDENTIFICATION AND MAPPING OF THE GEODYNAMIC ACTIVE ZONES INFLUENCING ENGINEERING-GEOLOGICAL AND GEOECOLOGICAL PROCESSES

Kopylov I.S.

Natural-science institute of the Perm state national research university, Perm, e-mail: georif@yandex.ru

One of the priority directions of a science in the Russian Federation is « Environmental management: foresight of forecasting and management of natural and socio-economic systems technologies», within which in NSI PSNRU (Perm) since 2011 researches are carried out: «Development of the theory, methods and technologies of identification and mapping of geodynamic active zones (GAZ), assessment of their influence on engineering-geological and geoecological processes». The purpose of researches – rational environmental management at complex development of territories, ensuring geological and ecological safety of the cities, the industrial enterprises and engineering constructions. Main objectives: development of methods and technologies of identification and a mapping GAZ, application of space geological methods of researches and geoinformation technologies in engineering, ecological and search geology; modeling GAZ, assessment of their influence on engineering-geological and geoecological processes; development of theoretical and methodological bases of the doctrine about geodynamic active zones of Earth, their engineering-geological and geoecological role; approbation of results of scientific researches in educational process of students.

Geodynamic active zones are understood as crust sites, various on volume, a configuration and the area on a terrestrial surface, active at the present stage of the neotectonic development, being characterized by the lowered durability of a bark, increase in cracks, permeability, and, as a result, manifestations of explosive tectonics, seismicity and other processes. A basis of methodology of studying GAZ can be the system lineament-geodynamic analysis on the basis of remote methods in a complex with geophysical, space geological, structural-geomorphological, hydrogeological, geochemical and biological methods. Criteria of an assessment of geodynamic (neotectonic) activity are various settlement indicators. One their major indicators GAZ is very high density of breaks and tectonic lineaments. The analysis consists in receiving lineament-block model by interpretation of space pictures, territory ranging on degrees of geodynamic activity and creation of its cartographical models of different level of detail. Convergence GAZ with geophysical and geochemical anomalies is noted. Within these zones deterioration of mechanical properties soils, increase in intensity of dangerous natural and technogenic processes is marked. The classification GAZ including planetary, regional, zonal and local levels is developed. Knowledge about GAZ, methods and technologies of their mapping, has big practical value for many fields of activity and economy development, especially for the solution of engineering-geological, geoecological, hydrogeological, mineragenical and seismological tasks.

The work is submitted to the Scientific International Conference «Research on the priority of higher education on-directions of science and technology», on board the cruise ship MSC Magnifica «Around Europe», 22 May-2 June 2012, came to the editorial office on 23.04.2012.