SYSTEM APPROACH IN STUDYING OF HEAVY MINERAL PLACER DEPOSITS

A. A. Bochneva, A. V. Lalomov

Institute of Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry Russian Academy of Sciences (IGEM RAS, Russia)

bochneva@mail.ru

In the present work we applied system approach in study of placer deposit, which include creation of expert system for estimation of lithologic-facial zoning of placer deposits and geological interpretation of results of statistical analysis of mineral data. It allowed at high level to reveal potentially placer-bearing sediments on the basis of internal interrelations of mineral space. To create expert system we used obtained characteristics for reconstruction of litho-facial conditions Umytia district of Trans-Ural placer area, that became foundation for approbation and further development of determination of facial conditions with microcomponents of placer deposits. Using revealed features we made recommendation on optimization of exploration works for Ti-Zr placer deposits on the territory of Umytia district. The technique based on introduction of the statistical analysis in studying and forecasting of heavy minerals placer deposits, allowed to soar to qualitatively new level of sediments research. It was determined not only consistency of placer mineral content of the Umyt'ya site and a high maturity of mineral assemblages, but also prospects of a zone of sea shoal with active wave dynamics on the titan-zirconium raw materials on the basis of the method of the principal components and the correlation analysis. This work was done under financial support of the RFBR № 12-05-90413-Ukr_a.