

Electromagnetic research in the Altai–Sayan mountain region

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Abstract A new software-measuring complex has been developed for recording non-stationary electromagnetic soundings based on mobile modules created on the basis of 24-bit ADCs, with built-in GPS receivers, with recorders located directly at the field sensors, arithmetic sampling step and recording of all signal realizations. The deep structure of the Uimon depression in Gorny Altai has been studied based on the time-domain electromagnetic sounding. Research is relevant due to the high seismic hazard of the area, and is also in demand for prospecting and exploration of predicted minerals here. To construct geoelectric models, data from several years of measurements were used, during which more than 60 soundings were performed. At this stage, the interpretation was performed using computer systems within the framework of a horizontally layered model. The interpretation results are presented in the form of sections and three-dimensional visualizations, which clearly reflect the structure of the depression. Further, three-dimensional modeling and additional measurements are planned to verify and refine the results obtained.

Keywords electrical exploration station “Baikal-512”, Uimonskaya depression of Gorny Altai, non-stationary electromagnetic sounding, geoelectric models, earthquake hazardous area.

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