

PRINCIPLES OF DEVELOPMENT AND APPLICATION OF TARGET-ORIENTED AIRBORNE-GEOPHYSICAL AND GEOLOGICAL RESEARCH TECHNOLOGIES

Tsyganov Vladimir A. (Ph.D., Sc.D.) Kontarovich Rafail S. State scientific-production enterprise «Aerogeophysica», Moscow, Russia

The current level of airborne geophysics enables changing the technological use of airborne geophysics to solve different applied geological problems. Apart from the traditional direct search for a standard set of airborne methods, prior to regional research and geological mapping, whose results are often simply applied to geological reports, the current state of geophysics makes it possible to carry out comprehensive geology-airgeophysical survey and mapping of many regions on the basis of high-quality airborne geophysical data. Instead of traditional direct prospection for deposits, using local geophysical anomalies, and occasional, irregular attempts to identify other forecast factors, the current state of geophysics allows the development and use of target-oriented airborne-geophysical forecast-exploration technologies, designed to effectively discover specific commercial types of deposits in specific landscape-geological environments. The said circumstances encourage the development of standard, target-oriented airborne-geophysical-geological research technologies fully designed to resolve specific applied problems in the most efficient way. In each particular instance, the technology focus must be supported with - 1) target-specific choice of required work stages, airborne geophysical methods and modifications, measurement accuracy, survey scales and flight altitudes for different work stages, 2) target-specific methods of data processing and presentation, a set of required additional information, 3) target-specific flowchart for general and forecast data interpretation. In accordance with the main geological applications, these technologies are subdivided into geological survey, forecast exploration, engineering-geological, hydrogeological, environmental research, and others and further subdivided by problem (prospection for specific types of deposits in specific landscape-geological environments, identification of specific environmental control targets, etc.). It's discuss and illustrate the general principles of development of target-specific airborne-geophysical forecast-exploration technologies, with exploration applications as an example.