AIRBORNE GEOPHYSICSAT A THRESHOLD OF THE 21ST CENTURY

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Airborne geophysics has always been different from other geological-research technologies in a special promptness, practical ease, economy, ecological cleanness, unified methodology, relative simplicity of combining methods, and an exceptional high statistical representativeness of data. However, in the 1980s, when the level became incredible high (multi-channel, large-volume scintillation gamma-ray spectrometry, proton and quantum magnetometers, various EM equipment, digital recording systems, and others), airborne geophysics was not so successful. The thing is that after the discovery of large, highly contrastive deposits in simple geological-geophysical environments the next target of airborne geophysics was weak-contrasting sites in complicated geological environments. Under these conditions, identification of geophysical anomalies alone, where they were largely similar to background field variations, became ineffective. The survey pattern targeting only at identifying anomalies induced by end survey targets did not yield expected geological results. The obvious way out of this situation was to increase the measurement accuracy and combine different methods on the same aircraft. However, in parallel with this approach, particularly in domestic geophysics and especially in AeroGeoPhysica, another process took place: the transition to staged surveying and target-oriented airgeophysical, geological research technologies. The crux of the approach was to identify a natural hierarchical line of intermediate exploration targets and respective stages of work and define for each of them its own preconditions and indications, coupled with area zoning by landscape-geological exploration conditions and reliability of performed exploration. AeroGeoPhysica demonstrated the efficiency of such an approach in the 1970-80s in exploration of diamonds, gold, bauxites and other mineral resources.