

GEOPHYSICAL AND GEOCHEMICAL INFORMATION SYSTEM FOR INTEGRATION EXPLORATION

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Integration interpretation to geophysical and geochemical anomalies has long been expected by many exploration geoscientists. Achievements made by 1997 in China had been some software packages named workstations and databases for data processing and management, such as gravity workstation, aeromagnetic databases, electrical methods workstation and provincial geochemical database. Integrated these data processing programs as modules with a commercial GIS package on the basis of digital geological maps of China, we constructed a geophysical and geo-chemical exploration information system (GEIS). The system makes it possible to integrate interpretations of geochemical and non-seismic geophysical anomalies in New-round survey of land and resources of China. Titan GIS 3.0 is utilized as a control mainly for spatial analysis in the development of GEIS1.0. We coded the main and sub interfaces, data processing, data viewing, synthetic analysis and standard map output modules, etc. in Visual C++ and Visual Basic. Applications this year in different areas for different purposes show that, with almost all the conventional data processing methods available, GEIS is now a high efficient and reliable integration tool for exploration geophysicists, geochemists and geologists. It is open to interface new approach modules. Artificial neural networks and gray statistics for feature recognition and synthetic analysis have been added on. GEIS is also useful in geological environment investigation, regional geological structure study and geodynamics,