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Comprehensive Information Metallogenic Prospecting on Carlin-type Gold Deposits in Northwest Guangxi

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The northwest of Guangxi is an important part of the China's famous Dian-Qian-Gui golden triangle area (Youjiang basin), and also one of the most important gold metallogenic, so far, the gold deposits, mine sites and mineralizations found in the area have over 50, among them the main is the type of Carlin gold mine. Although the gold mineralizations in northwestern have great quantities, which has been formed on the scale not so much and existed mines are facing serious resource crisis. Therefore, the search for new gold deposits in particular large-scale gold mines to meet the needs of economic development in Guangxi is an important task for geologists.

To promote the micro disseminated deposits metallogenic prediction theoretical studies in Guangxi's northwest, and effective guidance for prospecting work, this study adopted the comprehensive information based on GIS platform metallogenic prediction theory and technology, on the basis of a summarizing the mineralization and geological background, delineated metallogenic prospective areas from the perspective of quantitative, comprehensive, then indicated a favorable prospecting area. The Research results would have a demonstration significance for that the comprehensive information of the micro disseminated deposits metallogenic prediction work in northwest Guangxi region in the future.

In this paper, which used the MRAS system as the method of the metallogenic prediction that developed by the Institute of Mineral Resources Chinese Academy of Geological Sciences and based on the MAPGIS platform mineral resources comprehensive information evaluated system (Xiao Keyan, etc, 2000). The new technique has got a very good application in Shangri-la Yunnan (Xue Shunrong etc, 2008) and Gang-disi Tibet copper (Li

Guangming etc, 2009) polymetallic metallogenic province after years of practice. This metallogenic prediction was based on the multiple source information database such as geochemical, remote sensing, mines and the northwest of Guangxi 1:50 geological map etc, and according to summarizing the regional metallogenic regularities, extracting the prediction index system and using evidence weight method to given the weight of each index quantitatively, then conducted the prediction of deposit location and got the evaluation of potential resource in the MRAS resources evaluation system.

This paper has done something about Spatial and statistical analysis to the following 9 predictor variables such as the Ore-bearing strata (the lower and upper Baifeng formation and Luo Louzu formation), ore-controlling fracture (the NW and NE to the ore-controlling tectonic fracture of Fault Interchange), fornix edge ore-controlling area, geochemical anomaly and remote sensing anomaly, the edge of Grey greenstone ore-controlling area etc. In combination with regional geological metallogenic regularity and metallogenic geological conditions, established the evidence weight model of Carlin-type gold deposit comprehensive information metallogenic prediction in the northwest of Guangxi, then spread to the entire area and realize the multi-source information for delineating metallogenic prospect area.

Based on the mentioned evidence weight model of comprehensive information metallogenic prediction, This paper draws out the posterior probability graph of Carlin-type gold deposit resources prospect forecast area in the northwest of Guangxi, each of them a posteriori probability (P) represents the cell of prospecting. According to the comprehensive weights of evidence anomaly contour map and a posteriori probability values, used the probability of 0.1, 0.4 and 0.47 as three critical value to mark out the A, B, C grade prospecting prospect

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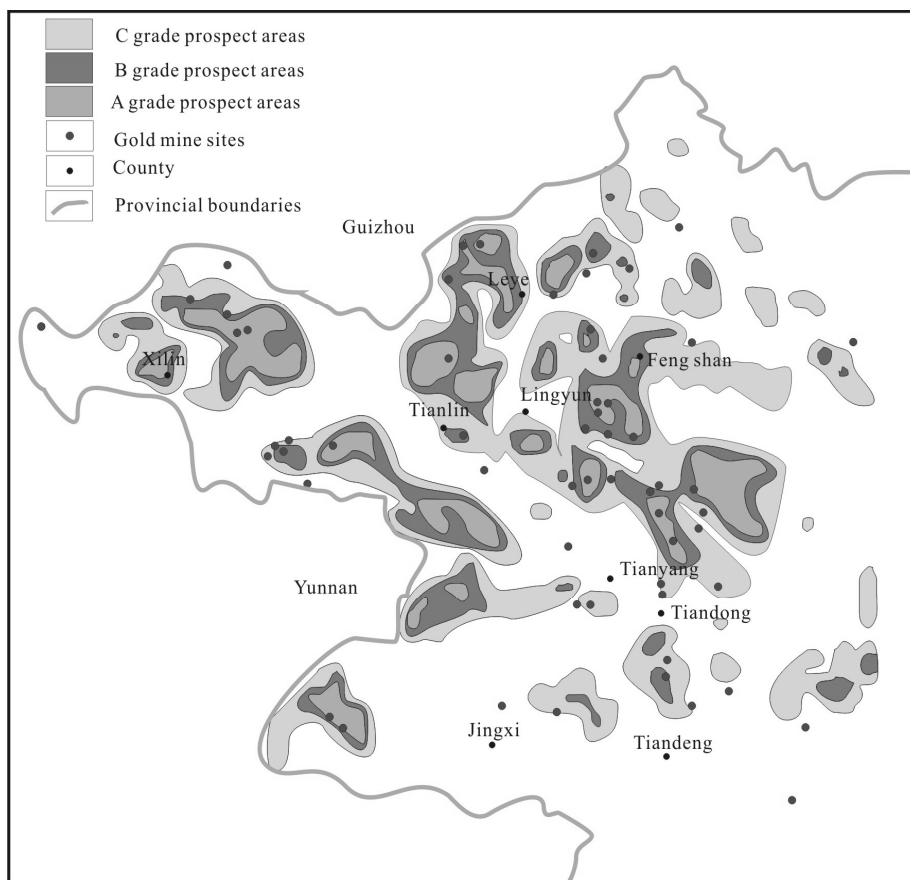


Fig. 1. The posterior probability graph of Carlin-type gold deposit resources prospect forecast area in the northwest of Guangxi

and background area, which means make the region of domain ($P > 0.7$ as A grade prospecting prospect areas; $0.7 > P > 0.4$ as class B, and $0.1 < P < 0.4$ as class C. The circled each prospecting area as shown in Fig. 1.

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