3D Mineral prospectivity mapping of Lannigou gold deposit in Guizhou province, China

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Geological settings

The Lannigou gold deposit in Guizhou Province is known as the largest Carlin-type gold deposit in the 'Golden Triangle Area' of Guizhou, Guangxi and Yunnan. It is located on the northern side of Youjiang Basin on the southwest margin of Yangtze paraplatform as well as at the northern apex of the triangle structural deformation area composed of Laizishan anticline, Banchang thrust fault and Danheng tectonic belt. The structure is very developed, and the overall distribution is NW and NE. Faults are important ore controlling factors in this area.

Geological modelling and prospecting

The prospecting model was summarized based on the geological settings of mineralization and genetic type of the Lannigou gold deposit were systematically analyzed. The 3D geological model was built based on the data foundation, such as sections and drillings. The mineralization information and 3D spatial information of geological anomaly ore-controlling factors were quantitative extracted and reconstructed under the guidance of the prospecting model.

The results were calculated through "Cube prediction model". In order to reduce the uncertainty of the prediction results, we combined the results between 3D WofE and Information contents(figure 1). This research provides a reference for further exploration of the study area.
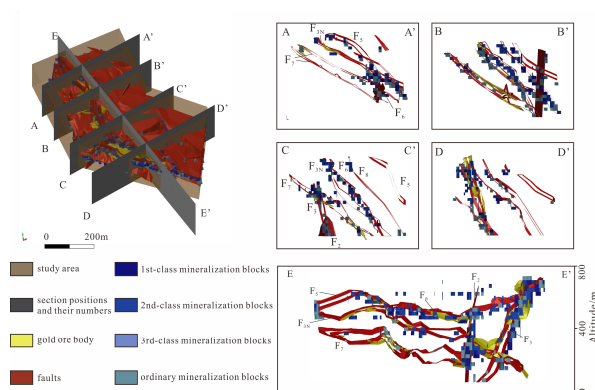

Figure 1: Prospecting results and geological sections