3D geochemical anomalous model in the Liuju sandstone-type Copper deposit, Yunnan, China

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The Liuju deposit controlled by the Upper Cretaceous (K_2ml_1) is the typical one of sandstone-type copper deposits in the Chuxiong basin. Ore-bodies (average grade: Cu 1.25%, Ag>20g/t) are located in the interface between purple bed and grey bed. From purple bed to grey bed, the ore minerals follow the law of hematite, chalcocite, bornite, chalcopyrite and pyrite. According to the geochemical features, the contents of Na_2O, Cu, Ag, As, Hg, Pb are higher in the grey bed, of Al_2O_3 is higher in the purple bed, but the contents of Li, Be, Sc, Co, Ni, Rb, Zr, Nb, Sn, Cs are lower in the grey bed. The ore-forming elements association is Cu, Ag, As, Sb, Hg.

The vertical zonation of indicator elements in K_2ml_1 from the top to the bottom is V, Ni →Cu, Ag, Hg, As, Sb→ Pb, Zn, V, Ni and the transversal zonation from purple belt to grey belt is Sb→Hg→V→Cu, As, Sb→Ag, Co, Ni→Pb→Zn. 3D geochemical anomalous model has been established, that is, the anomaly of Co, Ni, V appears above the orebodies, the anomaly of Pb, Zn under the orebodies. The anomaly of Cu, Ag, As, Sb, Hg and the ratio of Cu/Ag>315, Cu/(Pb+Zn)>320, Cu/(As+Sb+Hg) 1000-5800 are concomitant with rich orebodies; the anomaly of Pb, Zn, Co, (Ni) and Cu/Ag<105, Cu/(Pb+Zn)<7, Cu/(As+Sb+Hg)<36 implies barren. The contents of Cu, Ag, As, Sb, Hg and the ratio of dual elements reduce longitudinally, and it shows that the copper minealization becomes weaker or the position of the orebody is displaced. The model is an important accordance for the depth ore-forming prognosis.

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The distribution characteristics of Potassium and Sodium in the soil of marine tidal-flat with various plants

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Study Site and Materials

The study was conducted on marine tidal-flat in East China. Four types of plots (without plants (NP), with *Sesbania cannabina* (SC), with *Artemisia halodendron* (AH), and with *Gossypium hirsutum* (GH)) were selected. Soil samples were seasonally taken from 0-5, 5-10, 10-15, 15-20, and 20-25 cm depths.

Results and Discussion

The REE distribution pattern in various soil-layers and plots is coherent, and there is obvious negative Eu anomaly (0.62). It suggested that the soil in all soil-layers and plots were homogeneous. The distribution characteristics of Na varied with various soil-layers and plots. The Na content of 0-5 cm depth topsoil in NP is significant higher than that of other soil-layers in the same season (except topsoil in SC, winter), and the highest value occurred in winter. It suggested that the adaptability to salinity and desalinization varied plant species, and the desalinization of *S. cannabina* is the strongest. The K content in summer is almost higher than that of each season in same plot and soil-layer. The K/Na ratio in winter is little, and that in summer/autumn is great. Therefore, the movement of Na, which involved with environmental temperature, was directed to topsoil in winter, and to subsoil in summer and autumn. These findings offer a theoretical foundation for the planting in marine tidal-flat.

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