The characteristics of platinum-group elements and comparisons for the typical Ni–Cu sulfide deposits, Western China

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Most of sulfide deposits discovered in China occur in the Western China except Hongqiling deposit. From north to south are Kalatongke, Huangshandong**,** Jinchuan and Baimazhai deposits. The former two situated in the Central Asian Orogenic Belt, Jinchuan deposit is located in the Southwestern margin of the North China Craton, Baimazhai deposit is associated with the Late Permian Emeishan large igneous province, SW China.

The total concentrations of PGE in rock and ore samples are their dominanted by PPGE, this is consistent with their primitive mantle–normalized PGE modes with positive slopes. Rocks have lower PGE contents than the primitive mantle, deposits within the Orogenic Belt are more depleted in PGE than those in the other tectonic setting.

Research suggests that their primary magmas are maybe fertile in PGE. Thus, we propose that minor sulfide pre–segregation in the deep is the control factor leading the parental magmas depleted in PGE. The different quality sulfide segregated from the primary magmas is responsible for the different composition of PGE rather than the lower R factor. A first stage sulfer saturation event may be an import pre-requisite for the formation of deposits, but dominant controls is repeated injection or nourishment of fresh melts.

Selenium fractionation in Se-rich soils and rock spoils in Enshi by alkaline extraction

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Enshi, one of the high-Se areas in China where the human Se poisoning began to occur in 1963, is located in southwest of Hubei Province. In this study, A new classification scheme and analysis method for organic matter bound Se (OM-Se) was developed. OM-Se extracted by NaOH was divided into FA (fulvic acid)-Se and HA (humic acid)-Se after water soluble and ligand exchangeable Se extracted, and FA/HA-Se was further divided into the weak bound (reacted with hydride) and strong bound (hydride inert) FA/HA-Se using reverse hydride generation technique (Samples first mixed with KBH_4 +NaOH and then reacted with HCL). This method was applied to investigate the distribution and speciation of OM-Se in the weathering Se-rich carbonaceous rocks, uncultivated and cropland Se-rich soils. The results showed that FA-Se was the predominant form of OM-Se in all samples. The proportion of FA-Se decreased ranked by weathering carbonaceous rocks (93.1%), uncultivated (74.8%) and cropland soils (70.1%), while HA-Se was contrary.This indicated that FA-Se may be preferentially bioavailable and easier migrate, and HA-Se may be relatively stable and tend to enrich. In the FA-Se, the weak bound FA-Se was the dominant form, which accounted for 88.2%, 86.7% and 72.8% in weathering carbonaceous rocks, uncultivated and cropland soils, respectively, while the weak bound HA-Se accounted for 83.0%, 62.7% and 45.7%, respectively. The proportion of strong bound HA-Se was relatively higher in comparison with strong bound FA-Se, which showed the weak bound FA-Se was easier bioavailable and transported. However, the strong bound FA/HA-Se presented in FA/HA-Se suggested Se could be incorporated with FA/HA in a very stable mode. The separation of strong bound FA/HA-Se in Se-rich samples is probably to provide the chance for further studying the molecular complex characteristics between the Se and humic substances in the natural samples.

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