Geochemical characteristics of basalts from Shilipo and Heilongfeng native copper mineralized areas, eastern Tianshan, Xinjiang

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Shilipo and Heilongfeng native copper mineralized areas are belonging to Xinjiang native copper mineralized belt, which is in the south part of Later Paleozoic Qoltag island arc belt and about 3 to 5 kilometers away from north margin of Aqqikkuduk fault. The outcropped strata in the areas are the first member of Yamansu formation and native copper occurs in altered tuff and basalt.

Ore-bearing basalts from Shilipo and Heilongfeng native copper mineralized areas were collected and analysed. In comparison with Iceland basalts, they have relative low content of MgO (3.06% to 3.61%); Na_2O ranges from 0.68% to 4.10% and K_2O ranges from 0.03% to 2.37%. The basalts all have similar REE patterns showing slightly enrichtment of LREE, indistinct negative Eu anomalies and N-Mull positive anomalies, which is very similar to basalts from Iceland related to mantle plume, reflecting the characteristics of magma from mantle. The ratios of Zr/Nb, Rb/Nb, Th/Nb and Th/La are very close to those of N-MORB type oceanic basalt and HIUM-OIB type oceanic island basalt [1], but the ratios of La/Nb and Ba/La are close to continental crust, which is important geochemical sign of mantle plume. The basalts are depleted in Rb, Ba and Th.

Above all, ore-bearing basalts from Shilipo and Heilongfeng native copper mineralized areas, eastern Tianshan, were derived from mantle, with similar geochemical characteristics of mantle hot plume. Combined with close spatial relation between the occuring environment of large scale banding native copper and mantle plume, native copper from eastern Tianshan may be related to metallogenesis of mantle plume.

This research was financially supported by Key Technologies R&D Programme, P.R. China

[1] Wang *et al*. (1998) *Mantle plume and mineralization*, Beijing: SeismicPress, 1-60 (in Chinese with English abstract).

Global budget of organic aerosol from fungal spores

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The contribution of primary biological aerosol particles (PBAP) to the global budget of organic aerosol is poorly understood. Concentrations of mannitol, a biotracer for fungal spores, are used here to constrain the first global model (GEOS-Chem) simulation of PBAP from fungal sources. Emissions are driven by a combination of leaf area index (LAI) and atmospheric water vapor concentrations and are empirically optimized based on the geographical and seasonal variability of observed mannitol concentrations. Optimized global emissions total 28 Tg yr-1, with 25% of that total emitted as fine mode (PM2.5) aerosol. We will discuss here the geographical and temporal variability of this source of organic carbon aerosol, and compare the fungal spore contribution to the organic aerosol budget with other known sources.