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Geochemical Mapping across the boundary regions of China and Mongolia

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China and Mongolia Geochemical Mapping across the boundary regions (CMGM project) has been carried out since 2006. The project aims to get the geochemical database for applications in mineral resources, environments and grazing land.

The landscapes were divided into 3 types of mountains, desert and grassland for sampling design (Wang 2007, Xie 1997). Stream sediments in mountains, catchment basin sediments in desert and seasonal lake sediments in grassland were used as sample media respectively. Sampling density is 1 sample per 100 sq. km (10 km by 10 km cell). Approx. 13 000 samples have been collected in the surveyed area of nearly 1.3 millions of sq. km (Fig. 1). All samples were sieved to -100 mesh in the field and pulverized to 200 mesh for analyses of 69 elements (Ag, As, Au, B, Ba, Be, Bi, Br, Cd, Cl, Co, Cr, Cs, Cu, F, Ga, Ge, Hf, Hg, I, In, Li, Mn, Mo, N, Nb, Ni, P, Pb, Rb, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Zn, Zr, Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Si, Al, Fe, Mg, Ca, Na, K, C).

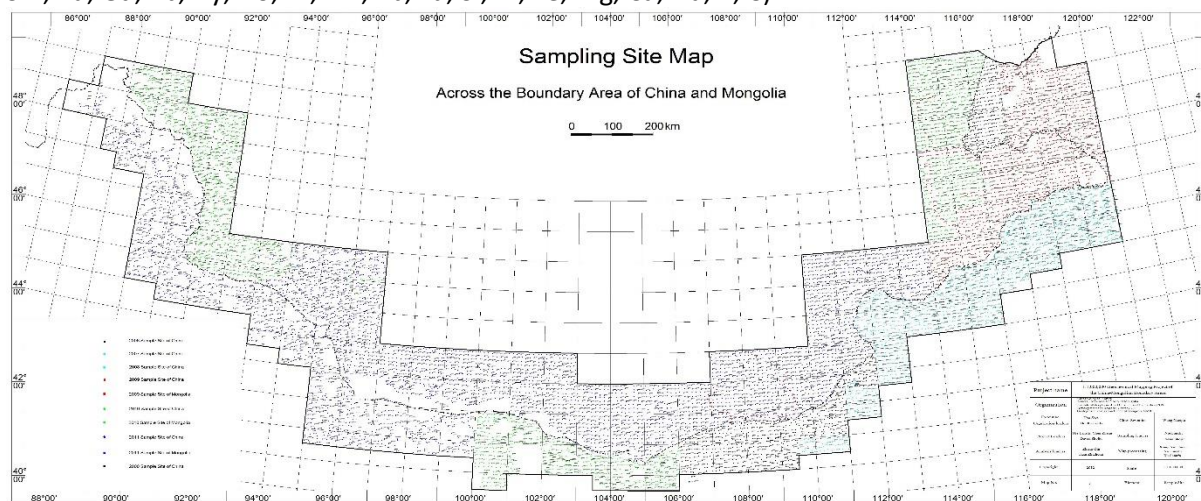


Fig.1 Sampling Site Map

The results show that geochemical distribution patterns are related to large-scale tectonic provinces, metallogenic provinces, and geomorphic landscapes. Generally, As, Sb, Bi, Hg, Cu, Mo, Au, W, Sn, Y, P, Ti, Zr, Hf, Cs, Se, Cr, Cl, Br, I, B, S contents in China-Mongolia border areas are higher than the crust background values. Geochemical anomalies of Ag, Pb, Zn and Cu are correlated with polymetallic ores in the eastern part of the surveyed area, Cu, Au, Mo, Ag and Zn are correlated with large-scale porphyry copper deposits in south Gobi metallogenic belt in middle part, W, Sn, Li, Be are mainly distributed in the west Altai metallogenic belt, Ni, Co, Cr, V are mainly distributed in the west of the Altay metallogenic belt, REE are mainly distributed in Bayan Obo belt and Altai metallogenic belt.

References:

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