

Nd-Sr isotopic geochemistry of fossils from the bottom of Cambrian in the Yunnan, Sichuan and Xinjiang region, China

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This paper the results of Rb-Sr and Smi-Nd isotopic date from phosphatic fossils and colophonites collected from three important Precambrian-Cambrian boundary section in China. The samples under study were collected from three important sections in China, namely, the Meishucun section at Yunnan Province, the Maidiping section at Sichuan province and the Wushi section at Xinjiang Uygur Autonomous Region.

$\epsilon_{Nd}(T)$ and $^{87}Sr/^{86}Sr$ values of small shelly fossils from maidiping section are -6.5 to -7.1 and 0.709624 to 0.709812, respectively. $\epsilon_{Nd}(T)$ and $^{87}Sr/^{86}Sr$ values of small shelly fossils from Meishucun section are -6.1 to -7.1 and 0.709310 to 0.709700, respectively. $\epsilon_{Nd}(T)$ and $^{87}Sr/^{86}Sr$ values of small shelly fossils from Kalpin section are -6.1 to -6.5 and 0.709436 to 0.709576, respectively. $\epsilon_{Nd}(T)$ and $^{87}Sr/^{86}Sr$ values of small shelly fossils from three section are very similar.

The palaeoseawater in the three areas of China was co-oceanic during the Precambrian-Cambrian transitional period, with an average $\epsilon_{Nd}(T)$ value of -6.6 ± 0.5 . The Nd model age of the tested samples is about 1.8Ga, which represents the mean age of the continental source sres surrounding China's seawater.

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[1] Yang Jiedong *et al.* (1989). *Chinese Science Bulletin*, Vol. 34, 63

Surfacial geochemical features of elements in Qinghai-Tibet Plateau

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Qinghai-Tibet Plateau in China covers the area about 2,400,000km². Different landscapes including high-cold mountain, high-cold lake and swamp plateau, desert, deep valley are developed in the area. National geochemical mapping results show that there are typical distribution patterns of elements in different terrains.

High-cold mountain landscape, which is about 900,000km², over 4,000m high and less than 0°C annual temperature, is situated in the heart of the plateau. Most elements including Ag, Au, Ba, Be, Bi, Cd, Co, Cr, Cu, F, Hg, La, Li, Mn, Mo, Nb, Ni, P, Pb, Sn, Sr, Th, U, V, Y, Zn, Zr, SiO₂, Al₂O₃, TFe₂O₃, MgO and Na₂O in the stream sediments are quite close to the average value of the whole area and only As, B, Sb, W and K₂O are slightly enriched.

High-cold lake terrain is over 800,000km², 4500m high, 100-400mm rainfall and 0°C-4°C annual temperature. Most elements including Cr, La, Li, Nb, P, Sn, Sr, V, Zr, Al₂O₃, TFe₂O₃, Ag, B, Ba, Be, Bi, Cd, Co, F, Hg, Li, Mn, Mo, Ni, Pb, Th, U, W, Y, Zn, K₂O, MgO, Na₂O in the terrain are decreased and only CaO is strongly enriched and As, Sb, Sr are slightly increased.

Desert is widespread in west part of China and over 800,000km² in the plateau, in which annual rainfall is less than 400mm and the annual temperature is about 0 °C. The many elements like As, B, Cd, Hg, Li, Ni, Sb, Ti, U, V, W, Zn, Ag, Be, Bi, Co, Cr, Cu, F, La, Mn, Mo, Nb, P, Pb, Sn, Th, Y, Zr, TFe₂O₃ in the terrain are low than the average value of whole plateau; but Ba, Sr, CaO, MgO, Na₂O and K₂O are increased.

Deep valley landscape, which is 640,000 km² and over 1500m relief, is distributed around the plateau. The average contents of most elements including Ag, Au, Be, Cd, Co, Cr, Cu, F, Hg, Mn, Mo, La, Li, Mn, Mo, Nb, Ni, P, Pb, Sn, Th, Ti, U, V, W, Y, Zn, Zr, Al₂O₃, Tfe₂O₃ and K₂O in the terrain are much higher than that in whole plateau.