Archean chromitite in the Palaeozoic Sartohay ophiolite from the Asiatic Orogenic Belt, China

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A typical high-Al podiform chromite deposit occurs within the Sartohay ophiolitic mantle peridotite block, which locates in the Asiatic Orogenic Belt separating the Siberian Plate on the north from the Sino-Korean Archean Craton on the south. Previous geochemical data including PGE indicate that the Sartohay ophiolite was formed in a back-arc setting [1], and Sm-Nd analyses of gabbro and troctolite and radiolarian of cherts yield Paleozoic ages [2].

This SHRIMP U-Pb analysis of zircons from the troctolite give a narrow age range from 0.4 Ga to 0.5 Ga, this further supported that the Sartohay ophiolite was formed in the Palaeozoic time.

But, Re-Os analysis of chromite in the Sartohay ophiolite gives a range of Paleo-Proterozoic and Paleo-Archean model ages. The $^{187}Os/^{188}Os$ compositions of the chromites are ranging from 0.1030 ±5 (1σ) to 0.1165 ±6 (1σ). The mantle extraction ages (T_{MA}) for these chromites range from 1.8 Ga to 3.8 Ga, indicating depletion from primitive mantle as early as 3.8 Ga, some 3.4 Ga before the age of the Sartohay ophiolite. An alternative possibility is that the early Archean depleted mantle region could have remained within the convecting mantle for a few thousand million years before being become the Palaeo-Asian oceanic mantle.

Perturbations of the Re-Os isotope systematics in the chromites can be best explained as a result from interaction with hydrothermal fluids or melt percolating in the Sartohay chromitite, possibly genetically related to the emplacement of 0.4 Ga troctolite veins.

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[1] M.F. Zhou. *et al.* (1998) *Geochim. Cosmochim. Acta*. **62,** 677-688. [2] C. Zhang & X. Huang (1992) *Geol. Rev.* **6,** 509-522. (in Chinese with English abstract)

Elemental distribution of air dust near ground in Chengdu Economic Region

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Air dust near ground (ADNG) gathers from the average breath height to people. Through the study of chemical composition, mineral composition, the granularity analyzes, we can obtain the influence factor to the health directly. Chengdu Economic Region, located in west Sichuan basin China, includes six districts of Chengdu, Mianyang, Deyang, Meishan, Leshan and Yaan.The paper based on invesgation of the chemical composition of ADNG in small scale (regional) and lage scale (typical city), the spatial distribution of elements in ADNG was discussed in detail.

The results show that:

Road dust is the main source of ADNG. The mineral composition of ADNG includes quartz, feldspar, illite, dolomite, calcite and gypsum etc, and the total content of quartz, feldspar, illite, chlorite is above 80%, which is close to the main mineral composition of soil; The mineral composition of ADNG is influenced by city functional zoning and soil pH, indicating that road dust contributes most to ADNG.

The minerals with regular shape mainly are the secondary product of atmospheric chemical reaction. The average amount of gypsums in mineral components is up to 8%, gypsum has played a role as sulfur-fixation agent.

Elemental distribution of ADNG in Chengdu Economic Region is primaryly influenced by geological background and geographical conditions. Based on the results of small scale research, the contents of heavy metals in middle-east part is higher than that in west part, in heavy industry-city is higher than in comprehensive city and tourist city. The heavy metal content is totally high in industry and mine influenced area. As a whole, the main heavy metal content in different geomorphic unit have features as: the highest in plain, lower in hill country and the lowest in mountain area.

Geological background, mineral exploitation, industry and civil life are the main factors influencing on elemental contents in ADNG.