

Platinum group elements related to mafic and ultramafic complexes from Argentina

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Several mafic-ultramafic complexes crops out as parts of Proterozoic and Paleozoic basaments in central-western Argentina. Some of them were studied for PGE contents and four different fractionation patterns were separated. A first group includes the ophiolitic complexes of Precordillera and Cordillera Frontal belts. At Precordillera Belt, the basal tectonites sections (PGE:7.1ppb), shows PGE patterns characteristics of the Lherzolite fields compositions of ophiolitic complexes of slow spreading oceanic settings, they are similar than Cordillera Frontal belts (Pt: 9.9ppb) outcrops to the south. A second group, at Córdoba Pampean Ranges (PGE:1ppm of Pt) shows chondrite normalized curves with steep negative slope curves of high spreading rates oceanic crusts of high partial melting ratios. San Luis Pampean Ranges mafic-ultramafic complexes PGE patterns, constitute a third group and shows enrichment in Rh and Pd that represent fractionation of these elements on basaltic melts in a zoned mafic-ultramafic complex. At Sierra de Fiambalá crops out an immature arc complex with stratified structure, each cumulate composition shows different PGE fractionation patterns representative of their petrographic composición and showing crystal fractionation proceses, the highests Pt contents are (21 ppb) in lherzolites and websterites layers.

Four major geotectonic settings may be described based on the PGE trends, from west to east: a)an oceanic rift in an early stage of development in an retroarc or pasive margin setting at Frontal-Precordillera belt, b) an immature arc complex at Fiambala outcrops, c) an extentional ensialic environment at San Luis and d)a major ocean suture zone at Cordoba Ranges.