

## **Genesis of Platinum-group minerals in the Yubdo ultramafic rocks, Ethiopia**

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The 9 km long and 4 - 5 km wide ultramafic intrusion of Yubdo strikes NNE-SSW, The ultramafic rocks are underlain by Precambrian basement consisting mainly of gneisses, mica schists, quartzites, amphibolites and chlorite schists. Acidic rocks (syn-tectonic granodiorites, hybrid granites, quartz-diorite) intrude the ultramafic rocks.

Several Pt-Fe primary grains were identified enclosed in chromite phases and along alteration zones Pt-Fe alloys found in serpentinised zones have variable sizes and shapes. Some are elongate and relatively large (ca. 20-30 $\mu$ m) compared to the rounded small grains in the chromites.

Nuggets contain a wide variety of inclusions ranging from hollingworthite, irarsite, erlichmanite, laurite, genkinite, stibio-palladinite, and osmium laths with iron oxide coatings. The embayed and sculpted surfaces of the platinum-iron nuggets and their intimate association with fine grained iron oxides in the cavities of the nuggets documented from Yubdo are also features of gold grains considered to have grown in a lateritic environment indicating that the processes of formation of gold in laterites are likely to be paralleled by comparable development of platinum-group minerals (PGM). Based on the investigation made one can conclude that 1) the occurrence of droplets of PGM in chromites from bore hole ultramafic samples at depth suggests a magmatic origin; and 2) a remobilization and transport of the Pt-Fe alloys have taken place from a possible dunitic source and concentrated them in the laterites.