The Geochemical Characteristics of Longchuan Gold-bearing Mafic Rocks in Guangxi, South China

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The Permian mafic rocks (e.g. diabase and basalt) are concentrated in the Longchuan of western Guangxi, economically significant gold mineralizations are genetically associated with these mafic rocks. These ores have many features in common and can be grouped into a single type of lode gold deposit widespread throughout mafic rocks. However, the causes of magmatism and related gold deposit background are controversial. Based on petrographic, major and trace element data, the geochemical characteristics of the bulk of mafic rocks displayed ocean island basalt (OIB)-like signatures (Figure 1). Their trace element concentration patterns enriched in highly incompatible elements, Nb and Ta, which was akin to those of the Emeishan flood basalts. On the Th/Yb and Ta/Yb trace element ratios co-variation diagram, Longchuan mafic rocks plot in the OIB mantle array, indicating mantle plume origin. Owing to the Longchuan located in the outer zone of Emishan flood-basalt province, we suggest the Longchuan ore forming events and related magmatism were probably associated with Emishan mantle plume.



^{1.0} RbBaTh U NbTa La CePbPr Sr NdZr Hf SmEuTi GdTbDy Y HoEr TmYbLu Figure 1. Primitive mantle-normalized incompatible element concentrations of Longchuan mafic rocks.

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