

## Nomenclature, diagnosis and origin of High-Magnesian Andesites(HMA) and Magnesian Andesites(MA): A review from petrographic and experimental data

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There is different nomenclature for the same andesitic rock with higher Mg# or MgO wt% as one pleases, and sometimes the term of HMA and MA may be considered to be used interchangeably. This paper is tried to discuss on the nomenclature, diagnosis and origin of HMA and MA in the basis of experimental data and type-location andesitic rocks and interms of petrochemical and petrographic characteristics. (1) Different origins of the HMA and MA have been determined, i.e. the HMA and the MA are considered to be formed by the partial melting of hydrous peridotite, and the interaction between the basaltic slab-melt and the mantle wedge peridotite, respectively. (2) Within the HMA and MA, the increasing of MgO wt% and Mg# and the decreasing of the intensity of the basalt-melt and peridotite interaction, respectively. Thus, the HMA and MA are regarded as two separated and independed rock-type series, and the term of HMA and MA may be not used interchangeably. (3) The variable MgO wt% and FeO/MgO with SiO<sub>2</sub> wt% are required to be considered for distinction the HMA from the MA, and the MA from the basalt-melt, i.e. the divided boundary lines are required rather than only one value of the boundary, e.g. >8 or 6 wt% MgO, or >0.6 or 0.7 Mg#. (4) Both the MgO wt% and FeO/MgO at given SiO<sub>2</sub> wt% are required to be used all together as the diagnostic parameters in order to be distinguished the HMA from the MA, both the diagrams of SiO<sub>2</sub>-MgO, and SiO<sub>2</sub>-FeO/MgO relations are suggested to be used.

## Cenozoic gold metallogenesis in Yunnan Province, Southwestern China

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Yunnan province is one of the most remarkable regions in China of Au-Cu deposits' exploration for the recent 20 years. However, the metallogenesis of gold deposits mainly occurred in Cenozoic. Based on the studies of the space-time evolution of tectonic-thermal dynamic regime and gold metallogenic system in Cenozoic, we discussed the mechanism of large-scale Cenozoic gold mineralization. The results show that the endogenic gold metallogenesis in Cenozoic in Yunnan province has the following characteristics [1, 2]: 1) Short time and strong intensity. Yunnan province is one of the most developed Cenozoic metallogenesis areas in China. The known number of deposits is largest, with the most complicated ore-forming types, numerous large and super-large deposits. 2) The ore-forming environment is dominated by tectonic-thermal dynamics. The uppermost gold mineralization occurred during the period when extrusion tectonic dynamic regime transformed into extension tectonic dynamic regime. 3) There are various deposit types, but the mineralized areas are concentrated in space. A continuous distribution of large-middle scale, or even superlarge deposits, is formed in some regions. 4) Although metallogenesis complicated, there exists relatively prominent regional circularity zonation. One of the most remarkable regional features of Yunnan area is the superposed complex coexistence of multi-mineral and multi-type deposits.

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