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The Metamorphic Processes and Its Geological Implications of Gneisses from the Duoba Terrane of Xizang(Tibet) Plateau, China

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A suit of metamorphic rocks experienced amphibolite and partly granulite facies metamorphism exposed on the Lhasa block, which are recognized as the basement of the Lhasa block named as Nyainqentanglha Group in the former literature. Although the rocks are thought to be part of the Nyainqentanglha Group, however, it is still lack of reliable geochronological data in some area. By means of the petrological and mineralogical investigations on the gneisses exposed on the north part of the Lhasa block in this paper, it shows that the gneiss suit is composed of mica schist and garnet-bearing plagioclase gneiss which has experienced amphibolite facies metamorphism. The garnet in the studied gneiss does not have core-rim structure and with homogenies composition. The

traditional mineral-pair geothermobarometer shows that the metamorphic P-T conditions are around 640 ~ 660°C, 0.60~0.67 GPa, which belongs to amphibolite facies metamorphism. LA-ICP-MS U-Pb zircon dating technique has been used for the first time to date the metamorphic age of the gneiss in the Duoba area and yielded 847±5.7 Ma Proterozoic metamorphic age, which can be compared with the Nyainqentanglha Group in the area, exhibiting strong evidence that the gneiss in Duoba area is also part of the Nyainqentanglha Group.

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