Abstract: The sanukitoid is a kind of high-Mg andesites, distingushed from normal andesites that typify arc magmatism in their elevated MgO contents and Mg# [=100 Mg/(Mg+Fe)], which is special and rare subduction-related rock types that reserved in modern arc settings as well as accretionary orogenic belt (Tatsumi, 2006). The term sanukitoid was first used by Koto (1916) for all textural modifications of volcanic rocks with the composition of Weinschenk’s sanukite suite (bronzite-bearing glassy aphyric andesite), which mainly composed of glass, orthopyroxene, magnetite and plagioclase, and may contain a small amount of olivine, orthopyroxene or monoclinic pyroxene (Weinschenk, 1891). The sanukitoids mainly occurred in the Miocene Setouchi volcanic belt (SVB), SW Japan, which are mostly the aphyric andesite with the chemical composition riching in SiO2 (>52%), MgO (>5% or Mg# is 45-75) and high Cr (>100ppm), Ni (>100ppm) and K/Na (0.33-0.52), trace element signature characterizing by enrichment of large ion lithophile elements (LILE) and light rare earth elements (LREE) and depletion of high field strength elements (HFSE), usually weak negative Eu anomaly displaying, mainly produced in the island arc environment related to subduction (Tatsumi, 2006).

The Central Asian Orogenic Belt (CAOB), also known as the Altaid Tectonic Collage is a giant accretionary orogen and the most important area of Phanerozoic continental growth around the world. It is evolved through a long-lived orogeny involving multiple episodes of subductions and accretions marking a major phase of continental growth during the Paleozoic (Xiao et al., 2015). The West Junggar, northwestern china, is situated in the southwest of the CAOB, it is a composite terrane composed of ophiolitic mélanges, island arcs, accretionary complexes, and seamounts as a result of Paleozoic intraoceanic subduction and accretion (Wang et al., 2017). The occurrence of sanukitoids in Hamutusi area of West Junggar is of particular importance to a better understanding of tectonic setting and evolution history of CAOB. In this paper we reported zircon U-Pb ages, major elements, and trace elements for the Hamutusi sanukitoids from the northern part of the West Junggar, NW China. U-Pb analyses of zircon grains from a representative sample by laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) yielded crystallization age of 324.4 ±6.9Ma, suggesting its formation during the Carboniferous (Fig.1). Geochemically, the rocks are calc-alkaline, enriched in SiO2 (58.10-59.01 wt%),

Fig. 1. LA-ICP-MS zircon U-Pb analyses and Primitive-mantle-normalized trace element for the Hamtusi.
TiO₂ (0.75-0.92 wt%) and characterized by high MgO (6.09-6.99 wt%) with Mg# range from 60.7 to 62.2, Cr from 147 to 403 ppm, Sr from 192 to 374 ppm and Ba from 321 to 724 ppm. Moreover, all samples are enriched in LILEs (e.g. K, Rb, Ba and U) and LREEs, but strongly depleted in HFSEs (e.g. Nb, Ta and Ti), with geochemical features analogous to those of sanukitoids of Setouchi volcanic belt, Japan. We suggest the sanukitoids were generated by the partial melting of subducting oceanic slab and/or sediments, which induced by high heat flow through a slab window during the ridge subduction, thus, the tectonic background of the sanukitoids possibly associated with ridge subduction of CAOB in late Carboniferous.

Key words: Zircon U-Pb dating, sanukitoids, calc-alkaline, ridge subduction

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