

## The related granitic intrusion events of an outcrop in Dongshan area, Anshan of the North China Craton

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The Anshan area in northeastern part of North China Craton is one of a few places, where over 3.8 Ga crustal materials are found, in the world. Previous works reported *ca.* 3.8 Ga zircons from the Baijiafen and Dongshan gneisses [1, 2]. But, Wu *et al.* [3] emphasized that the protolith of granitic gneisses was formed at 3.3 Ga, and that the older zircons, up to 3.8 Ga, are inherited. Recent U-Pb dating, Cathodoluminescence (CL) observation and Hf isotope analyses of the zircons from the Baijiafen and Dongshan gneisses criticized the presence of the 3.8 Ga rocks in the Anshan, but it is still controversial [1, 2, 3].

We carried out a comprehensive investigation of detailed observation of an outcrop in Anshan area, and mineralogy and geochronology of the zircons from the outcrop. The outcrop consists of highly altered metamorphosed mafic rock and orthogneisses with three generations: pale-gray gneiss, white gneiss and white granitic intrusion. The occurrence of these rocks indicates that the mafic rock (1) was intruded by the pale-gray gneiss (2), the pale-gray gneiss (2) was further intruded by the white gneiss (3), and all of them were, finally, intruded by the white granitic intrusions (4). We studied CL imaging and U-Pb dating of zircons carefully separated from each rock type. The results follow: (1) the metamorphosed mafic rock yields only metamorphic zircons with *ca.* 3.3 Ga ages, (2) only the pale-gray gneiss contains 3.8 Ga zircons, (4) the white gneiss has *ca.* 3.3 Ga zircons and (4) the white granitic intrusion contains very young, *ca.* 500 Ma, zircons.

We will report their protolith ages and the related granitic intrusion events based on the CL images, U-Pb dating with LA-ICP-MS, Hf and O isotopes and REE patterns of the zircons and whole rock compositions of the host rocks.

[1]Liu *et al.* (1992) *GEOLOGY*. v.20, 339-342. [2]Song *et al.* (1996) *Precamb. Res.* **78**, 79-94. [3]Wu *et al.* (2008) *Precamb. Res.* **167**, 339-362.