

U-Pb zircon dating of Creaverville Formation, Pilbara, Australia

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The Dixon Island - Cleaverville formations section of the coastal Pilbara terrane, Western Australia, is one of the most complete sections of a submarine sequence of the immature island arc. The Creaverville Formation, which is situated above the Dixon Island Formation (3195±12 Ma) and Dixon Pillow Basalt (Port Robinson Basalt), contains very famous mesoarchean banded iron formation in Pilbara. The Cleaverville Formation consists of the Black shale-Tuff and BIF Members.

We measure felsic volcanics in upper part of the Bedded Chert-Tuff Member at western portion of Cleaverville Beach. Sample was crushed more than 1 ton and preparation was conducted in the Kyushu University and the National Museum of Nature and Science. Zircon grains size is about 70-100 micrometer. The grains were grouped euhedral and rounded shapes. Samples were dated by SHRIMP at The National Institute of Polar Research.

More than 80% metamict of the zircons were observed by Backscatter Electron (BSE) SEM. Total of 46 analyses were obtained. In these zircons, 19 grains had concordant ages. The 9 ages were concentrated around 3108(+14/-7) Ma of the tuff from the youngest 9 zircons. Other ages were between 3200-3700 Ma of reworked round shape grain. We interpreted that the sedimentation timing of the Cleaverville Formation is about 3.1 Ga.

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