

SCG065-P02

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## Tectonic development of Buchan metamorphic unit in NE Scotland,UK

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Buchan metamorphic unit in NE Scotland has been argued relations between Barrovian metamorphic unit. Fettes et al. (1976) suggested that the Buchan zones were the part of a progressive decrease in the pressure of metamorphism from the southwest to the northeast Highland. On the other hand, Read (1952) regards the Barrovian and Buchan metamorphisms as quite separate events. Dempster (1985) and Dempster et al. (1995) reported certain gap metamorphic age between Buchan and Barrovian, and Kawai et al. (2008) reported pressure gap between those unit. Newer gabbro proximity Portsoy area is relation with sub-arc lower crust (Droop et al., 2003). To ascertain the above-mentioned uncertainty of geotectonic attribution between the Buchan and Barrovian metamorphic unit, in this study I investigate U-Pb age populations of detrital zircons from Buchan and Barrovian metasedimentary rocks, with using LA-ICP-MS. Detrital zircons in Buchan metamorphic unit and Highland Boundary Fault yield U-Pb ages ranging from 3400 Ma to 400 Ma. Detrital zircons separated from metasandstone in the Argyll Group, Southern Highland Group and Highland Boundary Complex yielded ages which are predominantly of Archaean to Mesoproterozoic. In contrast, zircons from Fintna Group, top sequence of Buchan metamorphic unit, yield ages ranging from late Paleoproterozoic to Archaean and Phanerozoic grains rare. This result constrains tectonic development of Buchan metamorphic unit. Based on result of zircon age distribution, it was rejected that possibility of intra-oceanic arc history or resting on large scale ocean that interrupted sediment from Laurentia. I contribute explanation of Buchan metamorphic unit based on result of this study and already reported expertise of petrology.