CERAMAH TEKNIK TECHNICAL TALK

The provenance of the Belaga Formation through heavy mineral studies

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15 Feb 2014
Heliconia, Kuching, Sarawak

The Technical Talk cum Geologists' Night was held in collaboration with Minerals and Geoscience Department Malaysia, Sarawak on 15 February 2014 at the Heliconia, Kuching, Sarawak. The programme was organised by Dr. Richard Mani Banda, the GSM Regional Representative for Sarawak, together with Mr. Freddy Heward Chinta, Mr. Clarence Anyau Tibu, Mr. Kennedy Mohd Imran and Ms. Delen Jalil. Mr. Alex Unya Ambun, the Director of Minerals & Geoscience Sarawak, has graciously served as the patron for the night.

Mr. Thomson Galin, Geologist from the Minerals and Geoscience Department Malaysia, Sarawak gave an informative talk entitled "The provenance of the Belaga Formation through heavy mineral studies". A total of 43 participants comprising geologists and their spouses attended the event. Among the geologists present were from Minerals and Geoscience Department Malaysia, Sarawak, Sarawak Energy Berhad, Sarawak Natural and Environmental Board, CMS Quarry Sdn. Bhd., Global Minerals (Sarawak) Sdn. Bhd., Jurutera Jasa (Sarawak) Sdn. Bhd., Ukin Engineering and Antap Georesources Sdn. Bhd.

Abstract: The provenance of the Belaga Formation was studied in 2012-2013 in collaboration with the Southeast Asia Research Group (Royal Holloway, University of London). The study utilised heavy mineral analyses and zircon dating by U-Pb laser ablation (LA-ICP-MS) method. From this study, the heavy minerals in the Belaga Formation sandstones consist mostly of zircon and tourmaline with small amount of rutile, garnet, apatite, chlorite and traces of chrome spinel. The zircons are mostly colourless, although purple and brown zircons are present. The zircon shapes vary from euhedral and anhedral to rounded. U-Pb zircon ages obtained from the Layar, Kapit, Pelagus and Metah members of the Belaga Formation have shown that the Belaga Formation zircons are predominantly Cretaceous and Permo-Triassic grains with few Precambrian grains. The youngest age of zircon from each member analysed seems to support the previously assigned age and a northward younging of the Belaga Formation. Various sources have been suggested for the Belaga Formation: from the south, Schwaner Mountains, Indochina, Thailand, Malay Peninsula, Sundaland, Sunda Shield and the north. In this study, the zircon age data implied two main sediment sources. The Malay Peninsula source is characterised by a mature tourmaline-dominated heavy mineral assemblage with abundant Precambrian zircons. The SW Borneo source has more diverse heavy mineral assemblages, including zircon, tourmaline, rutile, garnet, chlorite and apatite and is typically zircon-dominated. Both source areas were active throughout the deposition of the Belaga Formation, with variable contributions from each of these source areas through time.

Mr. Alex Unya Ambun, the patron for Geologist Night 2014 giving his speech.

Presentation of souvenir to the speaker, Mr. Thomson Galin by Dr. Richard Mani Banda, the GSM Regional Representative for Sarawak.

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