

Volcaniclastic conglomerates of central Pahang

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Sporadic outcrops of pebble to boulder conglomerates are exposed in several roadcuts in central Pahang. These conglomerates are characterized by very well rounded clasts of acid to intermediate volcanics in addition to smaller quantities of other rock types such as sandstones, quartzites and chert.

The volcanic clasts seem to be from sources similar to volcanic rocks exposed in the vicinity of Jerantut. The coarsest conglomerate is exposed just at the eastern edge of Jerantut town and consists almost entirely of well rounded volcanic boulders averaging 30 cm and ranging up to more than 1 m across. A weathered outcrop of volcaniclastic pebbly conglomerate is found at Km 6.8 Jalan Gelanggi 1-2 about 20 km west of Jerantut showing a general westward transport direction if the source is the same for both of them. A third outcrop is located at Kg. Dato Sharif near Kuala Kerau at 21.2 km north of the junction from Mentakab to Jerantut. This outcrop is important as it exposes the unconformable contact between the Triassic Semantan Formation and the volcaniclastic conglomerate above it. The clasts are well rounded and range commonly between 5 to 15 cm across and up to 65 cm in size. A fourth outcrop of thick conglomeratic beds containing similar volcanic clasts which are pebble to cobble sized but in smaller proportion compared to sandstone and quartzite clasts is located at Taman Setia Jasa near Kg. Awah, about 30 km SSE of Jerantut, 10.3 km from the Pahang River on the main trunk road to Kuantan. Most of the clasts are between 2 to 15 cm in size and the largest clast was 45 cm across. The volcanic clasts are all weathered to clay and in some beds created the false appearance of the isolated more resistant quartzite clasts floating in a clayey matrix. The conglomeratic beds here are interbedded with whitish feldspathic muddy sandstones and a few beds of black carbonaceous mudstones. The source of the volcanic clasts in this outcrop was probably the agglomerates exposed at the JKR quarry near Kg. Awah or its equivalents.

These conglomerates have never been dated by fossils. The conglomerates in Jerantut and Kota Gelanggi had been placed in the Lanis Conglomerate of Late Jurassic to Early Cretaceous age while that at Taman Setia Jasa has been correlated to the Murau Conglomerate of suggested Triassic age in the Tembeling Group. There is a possibility that these assignments are wrong as there is no fossil evidence. The unconformable contact with the Semantan Formation at Kg. Dato Shariff points to a Late Triassic or younger age.

A somewhat paradoxical aspect of these conglomerates is their textural maturity as evidenced by the well rounded clasts coupled with their mineralogical immaturity as evidenced by the presence of unstable feldspars and volcanics. Under normal circumstances mechanical processes in breaking up the clasts must have been dominant to provide the rounding of the volcanic clasts and yet chemical weathering must have been inhibited in the environment of deposition. Since chemical weathering is inhibited only in dry or low temperature

environments and mechanical weathering needs water, this may lead to an erroneous interpretation that the climate was quite cold in order to produce fresh well rounded volcaniclastic conglomerates at the time of deposition. This paradox can be resolved by examining the likely pyroclastic sources exposed at Taman Perwira Jerantut Fasa 2, just about 2 km west of Jerantut on the road to Benta and another outcrop at Kg. Sg. Badak about 9.3 km from Jerantut along the same road. There is clear evidence at both the outcrops that the volcanic clasts were already well-rounded even before being freed from the parent outcrop and transported to be deposited in the conglomerates! The rounding could be accomplished by explosive volcanic processes where the blocks were tumbled about in a highly fluid magma in the volcanic vent knocking into each other and rapidly having their sharp corners worn off as the clasts were transported upward during the eruption. These rounded clasts were freed by selective weathering of the volcanic matrix which proceeded in a spheroidal fashion as was observed in a weathered horizon in the Taman Perwira quarry. This also explains how such well rounded conglomerates can be deposited so near to the source of the clasts. A long transport history is therefore not needed to explain the sedimentary anomaly observed in the volcaniclastic conglomerates of central Pahang.
