

D-34 Geological evolution and mineralization along the thrust boundary between Highland Complex and Vijayan Complex with special reference to Haputale 1:50,000 sheet

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Proterozoic high grade metamorphic terrain of Sri Lanka has been divided into 3 major tectonic complexes, Highland Complex (HC), Wannai Complex (WC) and Vijayan Complex (VC). HC and VC are bounded by a thrust boundary. Sri Lanka has comparatively less amounts of economic mineral deposits and most of them are concentrated along the thrust zone. Quartz-feldspar bearing pegmatites vein quartz, mica vein, serpentinite, hot water springs and calcite etc. are found in this zone.

The boundary between the granulite facies 2.0 - 1.85 Ga HC of Central and South-Western Sri Lanka and the dominantly amphibolite facies grade 1.1 - 1.0 Ga VC in the East, pass through the South-Eastern (Haputale) quadrant of the map sheet. This tectonically imbricated thrust boundary is clearly evident in the Walawe area where the 2 sequences are intersliced within a belt several km wide. In this area the rocks mostly dip 25° - 35° NNW and exhibit a consistent stretching lineation plunging shallowly almost down dip to NW (320°). This mapping shows clearly that large scale open fold structures in both VC and HC are mostly NW-SE trending and all the structures in the thrust zone trend NE-SW or parallel to thrust boundary. Therefore the thrusting and tectonic imbrication of the HC and VC is a post tectonic event of NW-SE trending structures.

Economic mineral deposits of quartz-feldspar pegmatite, quartz vein and mica are derived mainly from melting of Vijayan granitoid rocks and other mafic rocks. Field evidence shows that prior to and at the initial stages of thrusting a melt was formed due to changes of fluid (H₂O activity). This appears to be the reason for calcitization in the marble bands along the boundary and formation of calcite patches. All these economic mineral deposits show a highly structural controlled nature.
