

A Journey to Quarternary Volcanoes of Andaman Subduction Complex - Tapan Pal, Geological Survey of India, North Eastern Region, Shillong. (E: paltapan62@gmail.com)

The Andaman Islands represent the central part of the 5000 km long Burma-Sunda-Java subduction complex. In west of Andaman islands Indian plate is subducting towards east below the Burma plate. The Andaman Sea, lying east of these Islands, is considered as a pull-apart basin rather than a typical back arc basin.

Within Andaman Sea two Quaternary volcanoes, one active Barren volcano and another dormant Narcondam volcano represent sub-aerial volcano in the middle part of the inner volcanic arc chain. This volcanic chain, containing about sixty potentially active volcanoes, extends Sumatra in south to central Myanmar in the North. The active Barren volcano throughout its history is erupting mainly tholeiitic basalt whereas the dormant Norcondam Volcano is made up of dacite and andesite volcanics.

In the Barren volcano caldera wall is made up of prehistoric (~35 Ka) subaqueous pyroclastics whereas the polygenetic tuff cone and valley fill are made up of subaerial pyroclastics and transient lava flow of historic (1787) to recent eruptions. Location of cinder cone

with about 400m height remained unchanged from historic to the recent time. The Barren volcanics are dominated by plagioclase phyric basalt and geochemically have neither typical island arc nor N-MORB tholeiitic character. A network of low viscosity conduits facilitated rapid transport of the basaltic melt for Barren Volcano. The Barren volcano lying at the northern tip of 90°E ridge perhaps has influence of both arc and ridge in its evolution.

The Narcondam volcano (1.8-3.5Ma) is a domal volcano with dacitic lava at the central-top part and andesite lava and pyroclastics at the periphery of the island. The petrographic features suggest that the dacite-andesite lava evolved through the mixing of rhyolite and basalt magma. LILE enriched Narcondam lava suggest crustal contamination during the ascent of magma. Pyroclastics of the Narcondam Volcano form basal avalanche, ash-cloud surge and base surge deposits. Although lying in the same arc line Barren and Narcondam volcano have distinctly different magma, eruption styles and their products.

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