

PRECAMBRIAN AND LATER LINEAMENT TECTONIC EVENTS IN SRI LANKA

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Recent studies of the lineaments in Sri Lanka indicate that both Highland and Vijayan Series are dissected by about 4330 lineaments with lengths varying from 1.25 km to over 100 km in an investigated area of 30,000 sq. km. The main trends are along N30° to 59°E (32%), N60° to 84°E (25%), and N30° — 59° W, (21%). Most of these lineaments show well-developed vertical and horizontal displacements (wrench-fault type).

Large scale vertical movements reflected in the morphology of the island with 3 eroded "uplifted terraces" have been recognized by the earlier workers. More recent morphotectonic studies show a probable cymatogenic upwarping along a SW-NNE-ENE zone from Galle—Nuwara Eliya to Batticaloa and downwarping in the NW and SE of Sri Lanka. Both vertical and horizontal movements of Sri Lanka have taken place along these differently oriented lineaments. The deep offshore drilling data, the results of the seismic and other geophysical surveys indicate intensive Post-Precambrian lineament tectonic activity in the north-west graben horst structures along the Gulf of Mannar and Palk Bay and along the subduction zone in the SE off Little and Great Basses. The recent seismic activity close to these off-shore lineaments confirms that some of the megalineaments are currently active.

Surface geology and a combined analysis of gravity anomalies and Landsat linears show a series of N-S trending megalineaments which are probably Precambrian deep faults — (i) Mahaweli shear zone (thrust fault) along the Vijayan and Highland Series contact, < 1100 my? (ii) Minneriya augen gneiss shear zone, (iii) NW-SE Negombo-Hambantota air-borne magnetic anomaly lineament, (iv) Welagedara-Puttalam shear zone associated with gravity lows, (v) Kurunegala-Vavuniya shear zone marked by gravity lows.

The results of the analysis of lineament tectonic activity associated with (i) arrested charnockitization, (2) geothermobarometrical changes, (iii) subsurface pegmatites, and (iv) the arena tectonics, are also discussed.