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YOUNG FAULTS ACROSS THE QUATERNARY LUCIA-MAGDALENA VOLCANIC COMPLEX, TAMAN BUKIT TAWAU, SEMPORNA, SABAH

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The volcanic mountains crowned by the peaks Lucia (1210 m), Magdalena (1320 m), and Maria (1090 m) consist of Quaternary pyroclastics and lava flows of dacitic, andesitic and basaltic character. Some of these products have become silicified, probably through hydrothermal action. Evidence of the most recent volcanicity consists of a 24 ka old carbonised tree trunk embedded in a lava flow. In spite of its geologic youth, the complex, including the extensive lava surfaces, is transected by numerous long lineaments that occur either as single strands or as zones several kilometres wide. Common lineament directions are 340 degrees, approximately north, 10-15 degrees, 75 degrees, and east. Several of the volcanic peaks are also aligned along three of the mentioned directions, spanning distances between 4 km and 22 km. Along a few northerly trending lineaments normal faulting downthrowing to the west is suggested by triangular facets (more than a hundred metres high) and scarps facing west. A major fault zone, 3 km across and traceable over almost 30 km, is indicated by strongly developed lineaments trending approx. 10 degrees across Mount Magdalena. This interpreted fault zone is transected by many east-striking lineaments that reach lengths of 5 km.

The lineament map of the Lucia-maria-Magdalena complex should be useful for delineating mineralisation targets (along certain lineament directions or in certain rock types; at lineament crossings; in densely "fractured" terrain or otherwise) and geothermal centres (related to radial and/or polygonal lineament patterns in addition to the earlier mentioned indicators).