
The Mulu Shear zone — a major structural feature of NW Borneo

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A major regional trend in the geomorphology, geology and hydrocarbon fields of NW Borneo is aligned NE-SW and parallel to the Mulu shear zone, a tectonic feature which has imposed a cleavage only on the lower part of the massive Melinau Limestone in north Sarawak. The cleavage dies out at higher stratigraphy levels towards the northwest. The Mulu shear zone can be traced northwards to Brunei where it forms a narrow belt of intensely sheared rocks in the Temburong Formation as well as causing overconsolidation in younger, softer sediments. Evidence of other shear zones which are possibly the displaced continuation of the Mulu shear zone or major shear zones parallel to it, occur in central and southwest Sarawak between Miri and Bintulu, in the Tatau and Kuching areas. In west and central Sabah, NE-trending faults are prevalent and at least one fault between circular sedimentary basins has associated dioritic plugs, indicating a deep structural weakness.

In addition to cleavage, other manifestations of the shear zone are a hardening of Tertiary sediments which spall on exposure, ptgymatic folds associated with quartz veins and the imposition of schistosity with the development of sericite. The various manifestations probably represent differing reactions to shear according to depth.

Offshore, particularly in Sabah, seismic sections across the main NE regional trend show splayed fault patterns which converge at depth to what is assumed to be a major tectonic fracture zone in basement.

Fault systems in Indonesian Kalimantan also are examined to determine the extent of NE-trending transcurrent movement. Age relationships and genetic connotations of the Mulu Shear Zone and its associated structures are discussed. It seems probable that a remnant transform system underlies northwest Borneo.

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