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The tectonic significance of transform faults within a portion of the Greater Sarawak Basin

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Synthetic Aperture Radar (SAR) data was utilized to aid in the recognition and tectonic importance of transform or major strike-slip faulting within the Baram Delta area of the Greater Sarawak Basin.

High resolution SAR data acquired over northern Sarawak, East Malaysia was utilized as a preliminary reconnaissance of regional tectonism and its effect on the surficial expressions of the structural elements and its spatial control on lithostratigraphic terrain units. SAR is an excellent remote sensing tool for structural interpretations, particularly in the dense jungle forest covered terrain of tropical latitudes. Since SAR is an active remote sensor, it can penetrate cloud cover and tropical haze. In addition, SAR's side-looking geometry enhances subtle but significant topographic features that in addition to its fine resolution enhances geologic interpretation.

The identification of major northwest to north-northwest trending transform faults are interpreted from SAR imagery to impart local strong tectonic foliation and to warp major regional fold axes. These major strike-slip faults border the tectonostratigraphic provinces within the Greater Sarawak Basin, both onshore and offshore. It is postulated that the recognized West Baram Line and the Tinjar Fault Trend may be the southerly extensions of the sinistral Red River Fault zone identified in mainland Asia. Transform faults also act as loci for volcanic activity, subvolcanic and igneous intrusion, shale diapirs, mud volcanoes and hydrocarbon seepages. The depositional facies edge of the Middle Miocene Setap Shale Formation is controlled by the transform fault Belait Line with a deeper marine facies to the northeast. SAR is an effective remote sensing tool for interpretation of the complex evolution of a Tertiary sedimentary basin margin under difficult exploration conditions.

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