

Geological Structure Mapping of the Central Gold Belt, Peninsular Malaysia Using PALSAR Satellite Remote Sensing Data

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The Central gold belt of peninsular Malaysia is an important structural zone with high potential for gold mineralization along major lineaments. Digital image processing of the Phased Array-type L-band Synthetic Aperture Radar (PALSAR) satellite remote sensing data coupled with field investigations has helped to elucidate the structural elements in the Central gold belt. Adaptive local sigma and directional filters were applied to PALSAR data for geological structure mapping. The structural elements in the Central gold belt were enhanced using multi-polarization configuration of PALSAR data at both regional and districts scales. Analysis of the belt reveals that two distinct parts can be defined: a western part affected mainly by ductile fabrics in the Cameron Highlands, and an eastern part affected mainly by brittle deformation in the Bentong-Raub suture zone. Ductile deformation indicates several generation of folding in the Cameron Highlands. Several faults, joints, and fractures represent brittle deformation events in the Bentong-Raub suture zone.

Structural features along the Bentong-Raub suture zone have been identified as highly potential areas for gold prospecting. Four sets of mineralized trends, including N, NE, NNW, and ESE trending sets associated with fault-related rocks and hydrothermal alteration zones were identified in the Central gold belt. The results of this study demonstrates the usefulness of PALSAR satellite remote sensing data for mapping regional and district structural elements associated with epithermal and polymetallic vein-type mineralization in tropical environments.