
Significance of cleavages in the Singa Formation strata

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Penecontemporaneous folds, lineations, foliations and other related structures are common in the Singa Formation strata of south-western Langkawi Islands. Some of the slump folds show axial planar cleavages defined by:

- 1) stringers of sand-silt domains parallel to the axial planes of slump folds.
- 2) parallel alignments of inequant grains especially phyllosilicates. The cleavages are believed to have developed during slumping. Folding during slumping could have resulted in compaction and rapid expulsion of water which expedite the rotation of inequant grains and the disruption of the sand-silt laminae giving rise to the development of the axial planar primary foliations.

Superimposed on the primary foliations and the slump folds are two sets of cleavages. The first set of cleavages commonly occur as crenulation cleavages but where they are well developed they occur as slaty cleavage. These cleavages (S1) make low angles with bedding. The other set (S2) occur entirely as crenulation cleavages. They are generally weakly developed and occur at the hinges of minor folds and make higher angles with bedding.

From these observations it is concluded that the Singa Formation strata have undergone an early phase of soft-sediment deformation as a result of downslope gravity driven slumping and two phases of tectonic deformations. The soft-sediment deformational structures in places were well developed and may resemble those of tectonic origin and may be mistaken for tectonic structures. Failure to recognise them in strata that have undergone multiple deformations like the Singa Formation may lead to the interpretation of a more complicated history of deformation than it should be.