Geomorphological mapping: a case study in the southern parts of the Langkawi Islands

JUHARI MAT AKHIR & YONG HOY LEONG

Jabatan Geologi
Universiti Kebangsaan Malaysia
43600 UKM Bangi

This study involves the geomorphological mapping in the southern parts of the Langkawi Islands which include Pulau Dayang Bungting, Pulau Tuba and Pulau Singa Besar. Geologically the area consists of the Setul Formation which is compose of mainly limestone with minor sandstone and shale (Detrital Members), the Singa Formation which is consists of mainly mudstone and shale with minor sandstone, the Chuping Formation which is compose of limestone and granitic rocks. In addition, approximately 30% of the study area is covered with unconsolidated Quaternary sediments.

The classification of the geomorphological units and subunits is mainly based on the degree of steepness and morphogenesis of the landform respectively as suggested by van Zuidam (1985) through aerial photographic interpretation. Geomorphological units are classified into flat to gently sloping terrain, moderately sloping terrain and extremely steep terrain according to its degree of steepness. The dominant subunits in Pulau Dayang Bunting is of karstic origin that include karst hills and mountains, star karst zones, conical karst zones, tower karst hills, sinkhole, karst alluvial plains and karst marginal plains. Non-karstic subunits include denudational hills, denudational mountains, sandy beaches and fluviol-marine backswamp. The geomorphological subunits in Pulau Tuba consist of denudational hills, talus, fluviol-marine backswamp, sandy beaches, marine terraces, tidal flats, karstic denudational slopes, tower karst hills and sinkhole. The geomorphological subunits of Pulau Singa Besar consist of denudation hills, denudation valleys, sand beaches, fluviol-marrine backswamps and tower karst hills. This study produces a 1:20,000 scale geomorphological map of the study area.