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ASSESSMENT OF SHUTTLE RADAR TOPOGRAPHIC (SRTM) ELEVATION DATA OF LOJING AND HULU LANGAT, PENINSULAR MALAYSIA

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ABSTRACT

The availability of digital elevation model (DEM) is limited in many developing countries including Malaysia. This has changed when the Shuttle Radar Topographic Mission (SRTM) released data with near global (80% of the landmass) coverage that can be freely downloaded over the internet in 2003. The SRTM data has since been used globally in a wide range of research, including geoscience studies. In this paper, the quality and vertical accuracy of 3 arc-second SRTM data (~90 m resolution) has been evaluated against reference digital 1:50,000 topographic maps for 2 areas in Peninsular Malaysia. The results shows that the contour lines and topographic profiles derived from the SRTM data appear to be comparable to those from the topographic maps. There is an average bias of 15.0 m in the hilly and densely forested area of Lojing and 8.1 m for the undulating low hills covered by rubber plantation, forest and developed area of Hulu Langat. The accuracy of the SRTM data is better in less rugged terrains and terrains with slope gradient less than 10° compared to hilly terrains and terrains with slope gradient greater than 10°. The derived SRTM slope gradients show average bias of -1.9° for Lojing and -1.1° for Hulu Langat. The drainage network derived from the SRTM data is comparable to that in the topographic maps but most first and second order streams are not delineated.