

## **Investigation of differences of topographical map and GIS-derived spatial map with actual ground data in Peninsular Malaysia.**

### **ABSTRACT**

In a geographical information system (GIS), digital maps usually used to show multiple views of geographical objects either through two-dimensional or three-dimensional, which topographical parameters are digitally generated. Digital maps are often used in extensively environmental application without quantifying the effect of their errors. This study was carried out to investigate the difference of elevation and slope of topographical map and GIS-derived spatial map with actual ground data. The analyses of differences were quantified from interpolation process, sampling and measurement in the field. The RMSE of the DEM creation for the test site was 0.62. The result was based on the 10 m DEM resolutions and 20 m contour interval. From the analysis of differences (elevation and slope) of topographical map and actual ground data, it's showed that the difference is only about 2 % and 28%, respectively. The great differences on slope may be due to error during data collection by different enumerators and also inconsistent reading of slope measurement and target. Despite the difficulty occurs during ground data collection, estimation method was applied and this relatively simple procedure but appears acceptable in regard to sufficient data sets at nominal map scale 1:50000.

**Keyword:** Peninsular Malaysia; DEM analysis; Validation; Elevation and slope differences.