

# Extracting Topographic Information in Tropical Rain Forest Using IfSAR

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## SUMMARY

Recently, low-cost information from Interferometric Synthetic Aperture Radar (IfSAR) is widely used for the purpose of creating topographic information such as landforms map. Theoretically, the synthetic aperture radar (SAR) images with 32-bit floating number are using a different phase of waves so that the deformation of surface (digital elevation) can be generated. However over high density vegetation coverage, this data has limitation to produce a better accuracy of terrain elevation such as in Tropical Rain Forest. Thus, this study is attempted to analyze the topographic information at Pasoh Forest Reserve (PFR) such as contour extraction and tree height from correlation of two IfSAR products namely digital surface model (DSM) and digital terrain model (DTM). Tree height patterns which calculated from isometric allometric equation is also been used to gain the digital elevation accuracy of the study. The 50ha of experimental area in Pasoh Forest Reserve has been divided into 20m x 20m and 5m x 5m in grid in order to extract the Canopy Height Model (CHM) or tree height. In this study, the CHM of SAR images are extracted by DSM and DTM. Analysis by fourteen random point of tree height samples that derived from IfSAR give a good confident accuracy (RMSE = 1.29) regression analysis ( $r^2 = 0.7$ ) compare to biometric height. The outcomes of the study is then can be used in enhancing further analysis in forest ecosystem conservation studies such as extraction of tree biomass from remote sensing satellite data.