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**MAPPING THE DEPTH AND CARBON STOCK FOR PEATLAND IN MERANTI,
RIAU INDONESIA**

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Accurate estimates of below ground carbon stocks in peat land strongly depend on the peat depth, bulk density and carbon content of peat. The range values of bulk density and carbon content are well known, while peat depth is quite variable depending on locations. This study was addressed at mapping peat depth and estimation of belowground carbon stocks in Meranti, Palawan Regency, Riau Province, Indonesia. Two regression models, artificial neural networks (ANN) and support vector machine (SVM), were compared in modelling and mapping of peat depth. The peatland was delineated according to peatland hydrological unit (PHU) bounded by rivers. The digital elevation and nearest distance to rivers, used as covariates, were derived from DEM SRTM 1 arc (about 30.7 m) and Euclidian distance to rivers, respectively. Peat depth observations were obtained from field transect surveys. Based on training results, while ANN (RMSE = 0.68 m and $R^2 = 0.92$) is superior to SVM (RMSE = 0.85 m and $R^2 = 0.88$), both models show excellent agreement. The peat depth map resulting from ANN seemed influenced by nearest distance to river rather than elevation; conversely the shape of the peat depth map by SVM is similar to elevation rather than nearest distance to river. The range estimates within the 90% confidence interval are 99.635 to 125.553 Mt ($\times 10^6$ tonne) with the best estimates of 112.594 Mt for ANN; while SVM resulted in slightly higher estimates ranging between 121.472 to 153.071 Mt ($\times 10^6$ tonne) with the best estimate of 137.272 Mt.

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