

Abstract No: A-082

MAPPING THE DEPTH OF PEATLANDS USING NEURAL NETWORKS SPATIAL MODELS

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Peatland is known as a huge carbon pool which plays an important role in the global carbon cycle. One of the crucial properties of peatland is peat depth which can be used to estimate below ground carbon stocks and to develop policy for suitable peatland management. Because of lack of a clear methodology, only a few peat depth maps have been published. Meanwhile digital soil mapping techniques have been developed and successfully applied in mapping soil properties in many areas of the world. Thus, in this study we used a digital soil mapping methodology that used Artificial Neural Networks as a spatial model for estimating peat depth in two regions in Ogan Komering Ilir, South Sumatra and Kubu Raya, West Kalimantan, Indonesia. Peatlands were delineated based on the hydrological peatland unit. Environmental variables derived from SRTM such as elevation, wetness index, slope, aspect and river distance were used as covariates in the model. The model was trained based on peat depth data collected from peat drilling in the field. The neural network model produced peat depth maps with a great accuracy, explaining 90% of the data variation. We proposed this digital soil mapping methodology to be used for efficient mapping of peat depth.

Keywords: *digital soil mapping, artificial neural networks, peat depth map*