



Effects of climate and drainage networks on tropical peatland carbon balance

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Tropical peatlands store partly decomposed organic matter in peat domes, gently mounded landforms kilometers across and ten or more meters high. Peat domes get their mounded shapes because peat accumulates where waterlogging inhibits decomposition in areas of topographic convergence of groundwater. Peat domes have a stable morphology in which divergence of groundwater balances net precipitation and peat decomposition balances peat production. This stable morphology is a function of climate and drainage network. We show how the stable morphology of a peatland can be computed, and how stable morphologies can be used to predict the effects of changes in climate and drainage networks on tropical peatland carbon stocks. We then discuss how calculation of stable morphologies can be used to support decision-making in tropical peatland management by predicting the impacts of land use change or restoration measures.