

Effects of rapid environmental changes on groundwater dissolved organic carbon dynamics in Tropical peat swamp

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Tropical peatland forests in Southeast Asia are considered to be one of the most important parts of larger ecosystems due to the huge amount of carbon stock and biodiversity they contain. Yet, recent rapid and intensive deforestation to procure timber and land for commercial plants or crops (Oil palm etc.) must have induced fundamental changes in the material cycling. We focused on the effects of human impacts such as deforestation, plantation, and manmade fires on groundwater dissolved organic carbon (DOC) dynamics in the natural forest, secondary forest, and degraded peatland (shown in Photo; originally there was peat swamp forest) area in East part of Sumatra Island and Central Kalimantan, Indonesia. We measured dissolved organic and inorganic matters in peatland groundwater both in wet and dry seasons. We compared the results of both bare land site after the deforestation and the fires and oil palm site planted after the fire. Both DOC quantity and quality differences are investigated between different land use types.

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