

## **METHANE AND CO<sub>2</sub> FLUXES FROM OIL PALM PLANTATIONS IN SARAWAK, BORNEO**

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Oil palm plantations have been expanding rapidly on tropical peat soils. However, there are large uncertainties as to the soil C dynamics, due to a shortage of available data. Here we present CO<sub>2</sub> and CH<sub>4</sub> fluxes from two oil palm plantations in Sarawak, Malaysia. Data were collected continuously for one year from different surface microforms within each plantation that experienced different surface management practices. These included the area next to the palm, in bare soil harvest paths, beneath frond piles, underneath cover crops, from the surface of drains, and from palm stems. Environmental data were collected alongside carbon fluxes.

Carbon fluxes varied spatially within the plantation – total soil respiration ( $R_{tot}$ ) was highest by the palm and CH<sub>4</sub> was highest from field drains. Soil moisture best explained the variation in  $R_{tot}$ , whilst soil temperature and water table depth best explained the variation in partitioned peat oxidation fluxes and CH<sub>4</sub> drain emissions.