

Measurement of soil CO₂ and CH₄ fluxes in tropical peat swamp forests using automated multi-chamber systems

*Ryuichi Hirata¹, Kiwamu Ishikura², Takashi Hirano², Frankie Kiew², Wong Guan Xhuan², Lulie Melling³

1. National Institute for Environmental Studies, 2. Hokkaido University, 3. Tropical Peat Research Laboratory Unit, Chief Minister's Department of Sarawak

Large carbon has been stored in organic soil in tropical peat swamp forests, which has various types. We measured soil CO₂ and CH₄ fluxes two tropical peat swamp forests using automated multi chamber system, which consists of 16 chambers. Difference of two tropical peat swamp forests is depth of ground water level (GWL). GWL in CMC site is lower and that in MLM site is higher.

Both CO₂ and CH₄ fluxes were strongly regulated by GWL. CO₂ flux in both sites increased with decreasing GWL. However, CO₂ fluxes in CMC site became plateau below -0.3 m of GWL.

On the contrast, CH₄ in both sites decreased with decreasing GWL. In CMC site, CH₄ is almost zero below -0.3 m of GWL.