

CO2 flux measurement in Thailand and associated problems

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The AIST is conducting CO2 flux measurement with eddy covariance method at some tropical sites in South East Asia. Sakaerat (SKR) and Mae Klong (MKL) are two sites of them in Thailand. SKR is located in 14degree 29minute 32.5second N, 101degree 54minute 58.7second E, and its elevation is 563m. MKL is located in 14degree 34minute 34.6second N, 98degree 50minute 38.0second E, and its elevation is 160m (http://www.asiaflux.net/network/017MKL_1.html). Both sites are in different type of complex terrain. The forest ecosystem at SKR is dry evergreen forest and the canopy height is approximately 35m. MKL is in the mixed deciduous forest and the canopy height is approximately 30m. Both sites have clear dry and wet season, however, the period changes year by year.

CO2 flux measurement by eddy covariance method has been developed to analyze the relation between relatively short time variation of phenology and ecosystem and environmental parameters such as temperature, humidity, soil moisture and so on. Eddy covariance method succeeds in the analysis in other climate regions, however, it is difficult to obtain the data with good quality above tall canopy and complex terrain in tropical sites. For example, Net Ecosystem Exchange obtained from flux measurement at SKR shows very big annual uptake of CO2 (Hirata et al., 2008), which is unrealistic from biomass observations there. An example of highly quality control led data will be shown.

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