

## Temporal Variation of Energy Fluxes During Dry Season in Tropical Lowland Rice

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**Abstract:** Temporal variation of 'surface energy balance' was quantified on tropical lowland rice for 4 years (2013–2016). High response (10 Hz) eddy covariance system was used to estimate real time data on net radiation (NR), sensible heat (Hs), latent heat (LE), air and soil temperature. Annual, monthly, diurnal as well as phenological crop stage wise variation were analysed. Majority of radiation received from sun was partitioned into latent heat (LE, 44–73%) followed by soil heat (G, 13–42%) and sensible heat (Hs 3–16%) in dry cropping season. This was primarily due to presence of stagnant water in this ecology throughout the cropping period except few days during harvesting. Average Hs was negative in the month of April because of higher evapotranspiration during full grown crop at its reproductive stage as well as stagnant water in field. LE was the major contributor of energy balance and consistently increased from active tillering to grain filling stages then gradually decreased in harvesting. Hs contributing more at the initial stages of rice. Diurnal variation showed maximum Hs during 12:00 to 13:00 hours, whereas, highest LE and G were noticed during 13:00 and 11:30–12:00 hours, respectively. LE and G regressed well than Hs with air temperature and NR.

**Keywords:** Sensible heat; Latent heat; Net radiation; Energy partitioning; Lowland rice paddy