



Effects of selective cutting of large trees on transpiration and surface temperature: a predictive study of evergreen broad-leaf forest in central Cambodia

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Most of the evergreen broad-leaved forest in the Indochina peninsula has been replaced by agricultural land or deciduous forest as a consequence of reclamation or timber cutting, and only a small area of evergreen broad-leaved forest now remains in Cambodia. This remaining forest is under development pressure caused by Cambodian reconstruction. The evergreen broad-leaved forest in there is reported to transpire 6 mm day⁻¹, even in the late dry season, which is almost the same as the rate in the rainy season, despite the surface soil. It is thought that tall trees with extensive root systems use soil moisture from soil layers deeper than 250 cm. When these tall trees are cut, the remaining forest is unable to access the deep soil moisture. Consequently, transpiration is expected to decrease, while the surface temperature will increase. In this report, we used our observations to estimate these effects using the Jarvis–Stewart model. As a result of cutting large trees, it is estimated that the transpiration rate will decrease to around 25% in the late dry season, while the daytime average surface temperature will rise between 1.9°C and a maximum of 6.2°C.