



Mapping the cooling effect of vegetation using physically-based method

Seok Hwan Yun, Dong Kun Lee, and Chae Yeon Park

Seoul National University, Lab of Landscape Ecology & Climate Change Adaptation, Korea, Republic Of
(ysw330616@snu.ac.kr)

As the impact of urban heat island gets worse, the ratio of latent heat among radiation entering city becomes very important. Vegetation can play a significant role to mitigate the urban heat by reducing radiation reaching the surface or increasing the latent heat caused by transpiration and evaporation from interception. Currently many research has been using a Penman-Monteith equation to calculate amount of evapotranspiration for computing the latent heat, and it requires daily mean temperature, wind speed, relative humidity and solar radiation as input variables. However, despite the strong connection between vegetation and hydrology, many research, like a Penman-Monteith equation, do not reflect detailed characteristic of plant processes, only using constants to represent the vegetation. So we aim to calculate latent heat considering the characteristic of vegetation by computing the transpiration and evaporation from interception by using physically-based method. The results from the physically-based method will also enable to simulate spatial distribution of latent heat.