

Evapotranspiration has been estimated using high-resolution thermal remote sensing data from Landsat-8 alongwith optical data using single-source surface energy balance model. This requires generation of land surface temperature (LST), albedo and NDVI as satellite-based inputs and external inputs such as atmospheric transmissivity, wind speed. Cold and hot pixels are identified in a given sub-scene (1000 x 1000 pixels) that represent highest latent and sensible heat fluxes within the sub-scene. Pixel-by-pixel estimation of sensible heat fluxes were estimated through iterative solutions from surface energy balance model. Evapotranspiration is computed in terms of latent heat fluxes as a residual from surface energy balance. The entire steps have been programmed in Interactive Data Language (IDL). The process has been demonstrated for rice-based cropping system surrounding CRRI, Cuttack, Orissa. This information is useful to know crop water use. Patches of high crop water use are clearly seen.