# Estimating actual evapotranspiration from remote sensing imagery using R: the package 'TriangleMethod'.

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Actual evaporation (Eta) is an essential variable to assess water availability, drought risk and food security, among others. Measurements of Eta are however limited to a small footprint, hampering a spatially explicit analysis and application and are very often not available at all. To overcome the problem of data scarcity, Eta can be assessed by various remote sensing approaches such as the Triangle Method (Jiang & Islam, 1999). Here, Eta is estimated by using the Normalized Difference Vegetation Index (NDVI) and land surface temperature (LST). In this study, the R-package 'TriangleMethod' was compiled to efficiently perform the calculations of NDVI and processing LST to finally derive Eta from the applied data set. The package contains all necessary calculation steps and allows easy processing of a large data base of remote sensing images. By default, the parameterization for the Landsat TM and ETM+ sensors are implemented, however, the algorithms can be easily extended to additional sensors. The auxiliary variables required to estimate Eta with this method, such as elevation, solar radiation and air temperature at the overpassing time, can be processed as gridded information to allow for a better representation of the study area. The package was successfully applied in various studies in Spain, Palestine, Costa Rica and Canada.