Using ClimGen to Calculate Penman-Monteith Reference Crop ET with Limited Data. (A03-stockle103643-Oral)

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Abstract:

The weather generator ClimGen was used to estimate solar radiation (Rs) and vapor pressure deficit (VPD) from temperature data, and to calculate Penman-Monteith reference ET (PMETo) at 5 locations (tropical, temperate, semi-arid and arid). ClimGen was calibrated using most recent 2, 5, and all years of complete daily weather records. The ClimGen estimates for both daily Rs and VPD in semi-arid and arid sites were acceptable to good, with marginal to poor results in other locations. Analysis for weekly periods showed improved performance for both Rs and VPD; good to excellent in semi-arid and arid sites, acceptable to good in temperate and tropical sites. The daily PMETo results were mixed while analyses for weekly periods showed acceptable to good performance at all sites. In addition, a calibrated version of the Hargreaves method (HGETo) that requires only temperature data was also evaluated. HGETo performance for weekly periods was acceptable to good at all locations. The estimation methods appeared suitable to calculate PMETo for weekly periods at all sites tested provided that at least two years of complete weather records were available for parameter calibration.

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