

ESTIMATION OF EVAPORATION AND EVAPOTRANSPIRATION IN MALAYSIA USING PENMAN AND CHRISTIANSEN METHODS

Ng Meng Wai, Alejandro Camertengo, Ahmed Khairi Abdul Wahab & Sabri Harun
Faculty of Civil Engineering, Universiti Teknologi Malaysia
81310, Skudai Johor, Malaysia

ARSTRACT:

The objective of this study is two fold. On one hand, to introduce (in Malaysia) the Christiansen's model for evaporation and potential evapotranspiration (PET) that provided exceptionally good results in Central America. On the other hand, the above mentioned model is compared with Penman's model and pan evaporation values. The monthly pan evaporation and PET, and that estimated via Penman and Christiansen models are plotted. The correlation coefficient, the root mean square error (RMSE), mean bias error (MBE) and t-statistic test (t) are performed to evaluate and compare the estimation models. Climatic data (pan evaporation) of Kuala Lumpur and Kota Bahru for the year 1998 and 1999 indicate that both Christiansen and Penman models provide reasonable results of evaporation and PET. However, in this study the Penman model presents better results in estimating the evaporation and PET. In conclusion, within the Malaysian context, the Penman model shows better performance than the Christiansen model.