# Estimation of evapotranspiration in oil palm catchments by short-time period water-budget methid



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Abstrak

Short Time Period Water Budget (SPWB) and Catchment Water Balance (CWB) methods were used for estimating evapotranspiration (ET) rates in oil palm catchments in Johor, Malaysia. Three catchments of different oil palm ages were established, namely C1 (2 years), C2 (5 years) and C3 (9 years). Eight months data of rainfall and runoff were used in the analysis. By adopting no rainfall conditions (Pse=0) at the start and end days of analysis, we obtained water budget periods of 209 days for C1, 111 days for C2, and 158 days for C3. A higher Pse of 2 mm, has prolonged the water budget periods to 218, 206 and 195 days for C1, C2 and C3, respectively. The larger Pse (2mm) also increased the number of samples for analysis. The SPWB method showed more consistent monthly ET compared to the WBC method. The projected rates of annual ET show remarkable variations between catchments, from 927 to 1405 mm/yr for the SPWB method and 1098 to 1365 mm/yr for the CWB method. Although the annual ET rates from C1 (1405 mm/yr for SPWB and 1365 mm/yr for CWB) are reasonable, the ET values in C2 and C3 seemed to be grossly underestimated. Both methods have weaknesses in dealing with distinct dry and wet conditions, most likely due to rapid fluctuation in the soil moisture. This problem is more obvious in the smallest catchment, C2