

**Title:** Correlations For Estimating Solar Radiation Using Sunshine Hours And Temperature Measurement In Oshogbo, Osun State, Nigeria.

**Author(s):** O.S. Ohunakin, M.S. Adaramola, O.M. Oyewola and R.L. Fagbenle

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**Abstract:** In this study, the global solar radiation on horizontal surface in Osogbo, Osun state, Nigeria was analyzed using 11-year data (1997–2007). Correlations using linear and quadratic expressions were developed to relate the global solar radiation on horizontal surface based on relative sunshine hours and temperature measurements for evaluating the monthly average daily global solar radiation. The calculated monthly clearness index values indicate that the prevailing weather condition in Osogbo is heavily overcast. All the developed quadratic correlations gave better correlation coefficients (0.834, 0.872 and 0.823 respectively) than the linear models. However, the Hargreaves and Samani related based quadratic model gave the best among the three developed quadratic expressions and is therefore suggested for estimating the monthly global radiation in this site and its surroundings.