COMPARISON OF DIFFERENT MODELS TO ESTIMATE THE BEST SOLAR GLOBAL RADIATION FOR JAMSHEDPUR, JHARKHAND, INDIA

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ABSTRACT

In this study, linear regression model have been evaluated to find the monthly average global radiation on horizontal surface for the city Jamshedpur, Jharkhand, India by collecting the data from meteorological station. Six empirical models are evaluated from the Angstrom Prescott and performance is being compared in between predicted and measured monthly average global radiation. Several statistical test is performed to check the validation of models in term of coefficient of correlation (R^2), Root mean square error (RMSE), Mean bias error (MBE) and the t-stat. The results are within acceptable limits R^2 as 0.99, RMSE as 2.343, MBE as 2.272 and tstat with 13.177 shows the superiority of proposed model.

Keywords: Global solar radiation, Sunshine hour, Statistical boundary, T-measurement