

Solar Radiation Studies for Islamabad, Pakistan

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Abstract : Global and diffuse solar radiation studies have been carried out for Islamabad (Lat: 33° 43' N, Long: 73° 07' E) to access the solar potential of the area using sunshine hour data. A detailed analysis of global solar radiation values measured using several methods is presented. These values are then compared with the NASA SSE model. The variation in direct and diffuse components of solar radiation is observed in summer and winter months for Islamabad along with the clearness index K_T . The diffuse solar radiation is found maximum in the month of July. Direct and beam radiation is found to be high in the month of April to June. From the results it appears that with the exception of monsoon months, July and August, solar radiation for electricity generation can be utilized very efficiently throughout the year. Finally, the mean bias error (MBE), root mean square error (RMSE) and mean percent error (MPE) for global solar radiation are also presented.

Keywords : solar potential, global and diffuse solar radiation, Islamabad, errors

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