ABSTRACT

The intensity of solar radiation received by the surface of the earth can be known through the path of the sun. The level of radiation intensity is influenced by many factors, the most important is the potition, pattern, and distributon of clouds. This research analyzes the relationship between clouds and the intensity of solar radiation using the Support Vector Regression (SVR) method. Cloud data were obtained from METARs and solar radiation intensity data from PySolar and the University of Oregon. The calculation results show the coefficient of determination (R^2) is 0.80022. Model is able to calculate the global solar value in clear sky and cloudy sky conditions with the percentage error value expressed in NMBE of 10.38%, and CVRMSE of 21.03%. The data from this study can be used in making building design to obtain good thermal conditions.

Keywords: *machine learning, radiation intensity, cloud, support vector regression (SVR)*