

عنوان مقاله:

A Model-derived comparison of global solar radiation in South and North coasts of Iran

محل انتشار:

پنجمین همایش بهینه سازی مصرف سوخت در ساختمان (سال: 1385)

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خلاصه مقاله:

Using three radiation models (Sabbagh; Paltridge; Daneshyar), the monthly average daily solar radiation (R_{sc}) on horizontal surface in various coastal cities of south (25.23° N) and north (38.43° N) of Iran are estimated. The above models are also modified to consider the effects of albedo, altitude and Sun–Earth distance. Model validation is performed using up to 13 years (1988-2000) daily solar observations. Errors are calculated with MBE, MABE, MPE and RMSE criteria. The model results show that for either regions with different climate, the modified version of Daneshyar model (MD) estimates the daily solar radiation better than other models. On average, The difference between the model stimations (MD) and measurements is less than 7%. If cloud factor (CF) data are not available to employ (MD) method, an alternative method is suggested. It is shown that due to the latitude effect and the different climate conditions, the daily global solar radiation (R_{sc}) in north is always much lower than (R_{sc}) in southern cities. Accordingly, the mean meridional gradient of annual solar radiant energy between south and north coasts of Iran will be presented. The seasonal variations of total monthly global radiation in north and south coasts are also discussed.

کلمات کلیدی:

Daily solar energy; Model predictions; Humid and semi-humid regions; Coasts of Iran

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