

국내 종합일사량의 성분분석

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Analysis of Total Radiation Components in Korea

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Knowledge of the solar radiation components and classified wavelength are essential for modeling many solar energy systems. This is particularly the case for applications that concentrate the incident energy to attain high photo-dynamic efficiency achievable only at the higher intensities. In order to estimate the performance of concentrating solar systems, it is necessary to know the intensity of the beam radiation, as only this components can be concentrated, and The new solar system can generate electricity from ultraviolet and infrared light as well as visible light.

The Korea Institute of Energy Research(KIER) has began collecting solar radiation components data since January, 1988, and solar radiation classified wavelength data since November, 2008. KIER's solar radiation components and classified wavelength data will be extensively used by concentrating solar system users or designers as well as by research institutes.

Key words : Concentrating Solar System(집광식 태양에너지시스템), Total Radiation Components(종합일사량 성분), Classified Wavelength Solar Radiation)

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운량과 일조율에 의한 일사예측

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Solar Radiation Estimation Using Cloud Cover and Percentage of Possible Sunshine

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It is necessary to estimate empirical constants in order to predict the monthly mean daily global radiation on a horizontal surface in the developing areas for alternative energy. Therefore many different equations have proposed to evaluate them for certain areas. In this work a new correlation has been made to predict the solar radiation for any areas over Korea by calculating the regression models taking into account latitude, percentage of possible sunshine, and cloud cover.

From the results, the single linear equation proposed by using percentage of possible sunshine method shows reliable results for estimating the global radiation with average annual deviation of -3.1 to +0.6 % from measured values.

Key words : 운량(Cloud Cover), 일조율(Percentage of Percentage Sunshine), 태양에너지 자원(Solar Radiation Energy Resource), 수평면 전일사량(Horizontal Global Insolation)

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