



Validation of simple Solar Radiation models for some sites in Bulgaria

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With the increasing utilization of solar energy as a renewable energy source in our practice, the assessment of the solar energy potential becomes more and more important. Solar radiation measurements are performed at only 3 sites in Bulgaria and many areas lack proper solar radiation information. A possible solution of the problem is a theoretical estimation of the solar radiation characteristics based on satellites and/or conventional meteorological measurements. Many radiation models of a different type could be applied for the purpose. The present study focuses on models that require limited ground base meteorological data, available usually at the majority of areas in the country. Several well known empirical formulas are considered. The total incoming solar radiation has been estimated by these formulas and conventional meteorological data for the three sites, where solar radiation is directly measured. The models' results are compared with the direct radiation measurements.