SATELLITE DATA APPLICATION FOR ESTIMATION OF SOLAR ELECTRICITY GENERATION IN KHYBER PAKHTUNKHWA, PAKISTAN

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Abstract

The increasing demand of energy causing the evitable increase in use of fossil fuels which is taking part in extreme climate changes and also causing damage to the environment. Renewable energy resources are safe and easy to access giving the solution to problems caused by the non-renewable energy resources. Geographically, Pakistan is the region in the world which has the greatest solar insulation. The aim of this study is to find out the locations subjected to as high intensity as possible using the New CM-SAF - PVGIS database for solar energy radiations of 6 districts (Chitral, Buner, Peshawar, D.I Khan, Mansehra, and Dir) in KPK by analyzing the average monthly electricity production from the given system (E_m) with average monthly sum of global irradiation per square meter received by the modules of the given system (H_m) and average daily electricity production from the given system (E_d) with average daily sum of global irradiation per square meter received by the modules of the given system (H_d). Also the total year (annual) irradiation estimates and PV estimates values are taken for each district. The results manifested that for all the six districts there is a steady increase in the values of average monthly (E_m & H_m) and daily average sum of (E_d & H_d) in the months starting from March to October. The Peshawar, D.I Khan, Dir and Buner districts total year irradiation and PV estimates were higher. It is therefore concluded that Peshawar, D.I Khan, Dir and Buner districts appeared as the best locations for exploiting in terms of solar power. Satellite technology has proved to be best for the selection of solar potential sites.