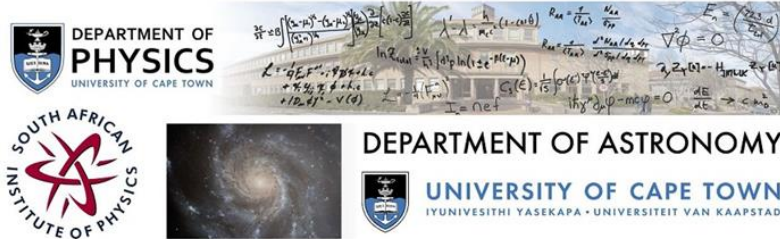


SAIP2016



Contribution ID : 8

Modelling the Linke Turbidity for solar irradiance in South Africa

Wednesday 06 Jul 2016 at 16:10 (01h50')

Abstract :

Solar irradiance losses in the atmosphere are traditionally quantified by the Linke Turbidity parameter. This paper analyses the measured energy yield of a tilted solar panel in Gauteng as a function of the relative solar position. The collected energy depends on a range of factors, including the panel size, spectral sensitivity and orientation, as well as the atmospheric composition. The analysis attempts to reproduce the measured irradiance through basic modelling of the spectral opacity of the atmosphere in terms of the Linke Turbidity. This includes estimating direct beam attenuation and the diffuse component, which are then combined with the panel spectral response in an attempt to match the measured and modelled energy yield. The Linke Turbidities determined in this manner are then compared with corresponding values given in online solar irradiance calculation tools such as PVGIS.

Award :

Yes

Level :

MSc

Supervisor :

Prof. H Winkler, University of Johannesburg

Paper :

Yes

Permission :

Yes

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