Contribution ID: **8** Type: **Poster Presentation**

Modelling the Linke Turbidity for solar irradiance in South Africa

Wednesday, 6 July 2016 16:10 (1h 50m)

Abstract content
   (Max 300 words)
Formatting &
Special chars

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.

Apply to be
 considered for a student
   award (Yes / No)?

Yes

Level for award
 (Hons, MSc,
   PhD, N/A)?

MSc

Main supervisor (name and email)
and his / her institution

Prof. H Winkler, University of Johannesburg

Would you like to <br> submit a short paper <br> for the Conference
 Proceedings (Yes / No)?

Yes

Please indicate whether
this abstract may be
published online
(Yes / No)

Yes

Primary author: Mr NETHWADZI, LUTENDO CHRISTOPHER (SAAPMB)

Co-author: Prof. WINKLER, Hartmut (Dept. Physics, University of Johannesburg)

Presenter: Mr NETHWADZI, LUTENDO CHRISTOPHER (SAAPMB)

Session Classification: Poster Session (2)

Track Classification: Track F - Applied Physics