Contribution ID: **258** Type: **Oral Presentation**

Evaluation of Garcia Regression Constants using Meteorological Data in Pretoria Arcadia, South Africa.

Wednesday, 5 July 2017 10:20 (20 minutes)

The success of the harnessing of solar energy at its best depends on the availability of accurate global solar radiation data. Due to high costs of the meteorological measuring equipment and lack of technical skills for calibrating these instruments in many developing countries like South Africa, an alternative method has to be employed. The use of the developed solar models to estimate the global solar radiation data becomes vital in this regard. In this study, the Garcia regression constants α “and “ β from the relation, G/G_0 =α+ β*ΔT/N_p , of Pretoria Arcadia station at Western Cape were evaluated. The model uses the possible sunshine hours, N_p and the air temperature, T at the study area. Two years’ meteorological data was used to determine the regression constants. The estimated global solar radiation data was then computed for the period of ten years and compared with the in-situ data. For the validation of the model, statistical analysis was also performed and reflected good relationship between the estimated and the measured global solar radiation data.

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

No

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

N/A

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

Yes

Primary author: Ms MULAUDZI, Sophie (University of Venda)

Co-author: Dr MALUTA, Nnditshedzeni Eric (University of Venda)

Presenter: Ms MULAUDZI, Sophie (University of Venda)

Session Classification: Theoretical and Computational Physics 1

Track Classification: Track G - Theoretical and Computational Physics