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Redrawing the solar map of South Africa for photovoltaic applications

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Abstract

The South African solar map has been redrawn to make it applicable to photovoltaic installations. This has been done with the aim of reducing the cost of solar PV installations in South Africa through accurate energy resource assessment and competent system design. Climate data software as well as solar design software was used to aid this process. The new map provides an alternative to the map in current use, which only considers radiation, whereas many more factors affect the output of a panel, such as wind, cloud cover and humidity. All these are taken into account when drawing the new map.

Keywords: Renewable energy; Solar radiation; Photovoltaics; South Africa

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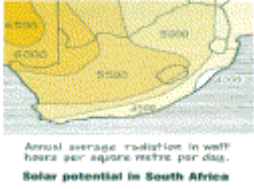


Fig. 1. The solar map of South Africa [4].

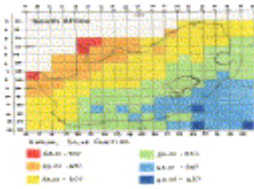


Fig. 2. Solar map for PV applications.

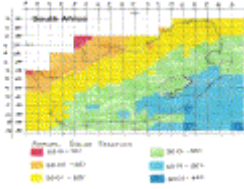


Fig. 3. South African solar map for PV applications.



Fig. 4. Solar radiation map of South Africa.

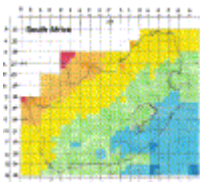


Fig. 5. Solar map for PV applications.

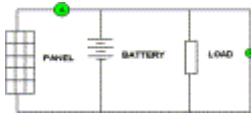



Fig. 6. Experimental set-up.

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