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Influence of Solar Cycle Variations on Solar Spectral Radiation

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ABSTRACT

The climatic changes associated with solar variability are largely caused by variations in total solar irradiance and solar spectral irradiance with solar activity. Thus the spectral composition of solar radiation is crucial in determining atmospheric structure. The variations in solar spectrum depend on the varied solar spots. Recently, evidence for a strong effect of solar activity on terrestrial isolation on ground-based measurements carried out by the National Research Institute of Astronomy and Geophysics (NRIAG), Helwan, Egypt (lat. 29°52'N and long. 31°20'E) during (1990-2000) were presented. Specifically, a strong increase of terrestrial isolation with sunspot number as well as a decline of the solar spectrum with solar activity was reported. Daily measurements of the solar radiation between 280 nm and 2800 nm were made by Eppley Pyranometer and Pyrhelimeter instruments. The decreasing at the range 280 - 530 nm and 530 - 630 nm are represented less than 50% of direct solar radiation and the stability of at the range 630 - 695 nm and 695 - 2800 nm it mean that; some of difference radiation is appear in diffused radiation which allow to height of the temperature as much as the largest associated with significance as it appears from the curves of relative humidity.

KEYWORDS

Sunspot Number; Solar Radiation Spectrum; Total Solar Irradiance; Global Solar Radiation; Meteorological Parameter; Solar Cycle

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