

UV Protection and Shade Structures

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Abstract

Broadband field measurements were conducted beneath three different sized public shade structures at a sub-tropical Southern Hemisphere site for relatively clear skies and for a changing solar zenith angle (SZA) of 13° to 76° . These data were compared to the diffuse UV to quantify the relationship between diffuse UV and the UV in the shade of the structures. On the horizontal plane, the ultraviolet protection factors (UPF) for the shade structures ranged from 1.5 to 18 for a decreasing SZA. The data from this research is significant, because it shows that as the SZA of the sun increases so does the relative proportion of scattered UV beneath the shade structures which in turn decreases the shade structures UPF. In Australia, erythemal UV in full sun can reach levels of approximately 2.5 MED/h or more in the middle of the day during winter. Therefore, it is necessary for people that live in similar latitudes to minimise UV exposure in all climatic conditions throughout the year. Based on this research, a standard for reporting the UV protection provided by shade structures is essential for the public to make an informed decision on the efficacy of particular structures in reducing personal UV exposure.