UP 9: Methoden - Messverfahren und Datenauswertung

Time: Wednesday 13:45–14:15 Location: MAG 100

Invited Talk UP 9.1 Wed 13:45 MAG 100

New possibilities for UV research by simultaneous spectral radiance measurements — •Gunther Seckmeyer, Stefan Riechelmann, Michael Schrempf, and Ansgar Stührmann — Institut für Meteorologie und Klimatologie, Herrenhäuserstr. 2, 30419 Hannover

The knowledge of the angular distribution of solar radiance and its spectral characteristics is required for many applications including solar energy and the impact of UV radiation on humans. Sky radiance has been found to be the dominant factor for the solar UV exposure of humans, both with respect to positive and negative effects of UV radiation. We recently developed a novel method to calculate vitamin D3 weighted exposure by integrating the incident solar spectral radiance over all relevant parts of the human body. Our calculations show that the UV index is not a good indicator for the exposure which depends on the orientation of the body (e.g. vertical (standing) or horizontal (lying down) posture). At the winter solstice vitamin D3 cannot be obtained with realistic clothing even if the exposure were extended to all daylight hours. Since clouds play a crucial role in determining the actual exposure of humans and the yield of solar cells, new instruments that measure sky radiance in dependence of zenith and azimuth angle in more than 100 directions simultanuously have been developed in recent years.