

The responsivity to diffuse radiation of a solar cell based pyranometer is studied. Diffuse measurements are made using a shade disk for a LiCor Pyranometer and an Eppley PSP pyranometer mounted side by side on an automatic tracker. The difference in the diffuse responsivity varies by 30 to 40% between cloudy conditions and clear skies. This difference is attributed to the spectral dependence of the LiCor pyranometer. A slight sensitivity in the diffuse responsivity was found for both ground based relative humidity measurements and ambient temperature. A simple method to estimate the spectral dependence of the diffuse responsivity of the LiCor pyranometer is presented. Implication of the spectral dependence of the solar cell based pyranometers is discussed for LiCor calibrations and for measurements made by rotating shadowband instruments using solar cell based pyranometers.