

Evidence for the Long-term Stability of the Eppley Model PIR for Measurements of Broadband Infrared Measurements

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The Eppley Model PIR infrared radiometer has been the workhorse for measurements of upwelling and downwelling terrestrial radiation measured at the surface in many international programs including those in NOAA. Based on a consistent calibration methodology over the last 15 years we demonstrate just how stable the instrument has been with two of many examples. In one case the PIR had limited outdoor exposure and in the other the instrument was deployed most of the time in a wide range of conditions from tropical to polar. The results indicate that this instrument is suitable for detecting long-term trends in infrared radiation that may be associated with climate change.

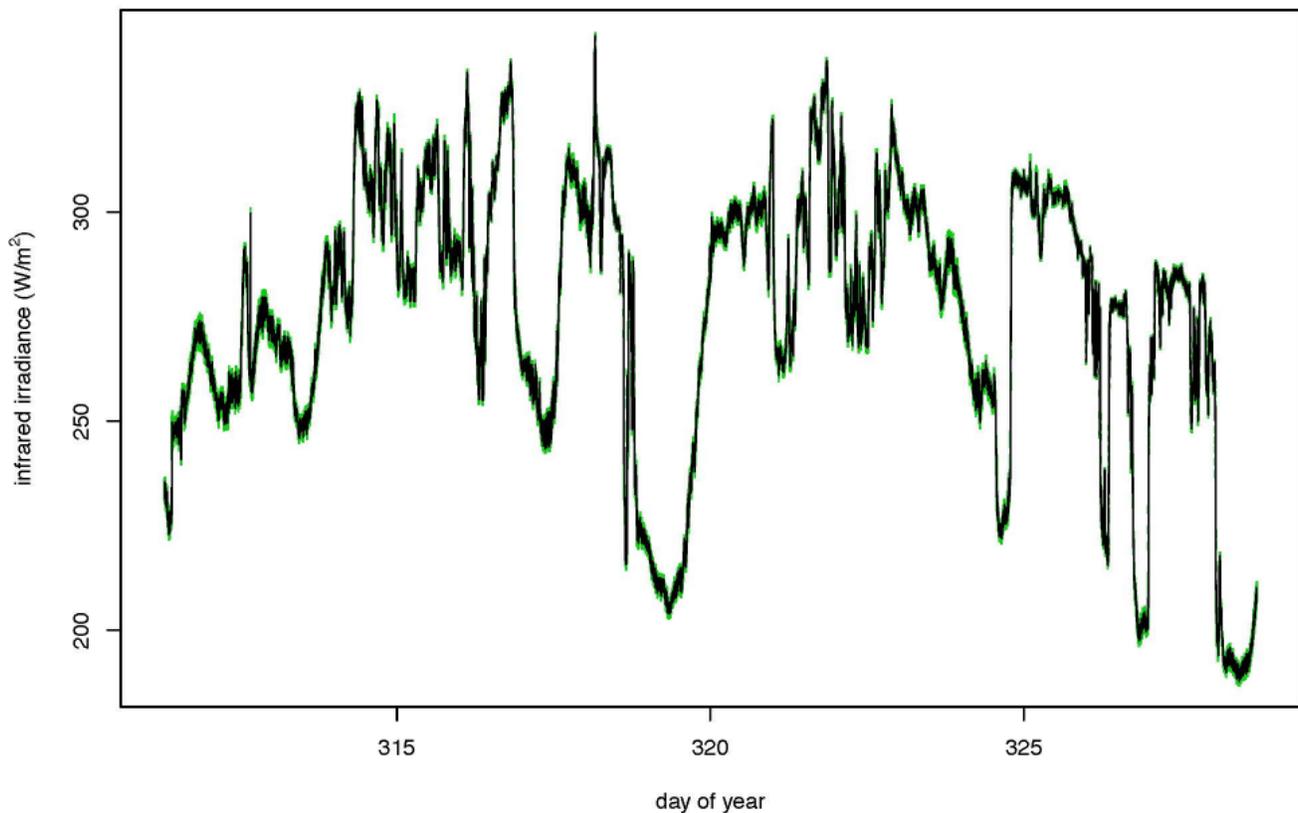


Figure 1. Multiple determinations of downwelling infrared irradiance over 17 days in November near Boulder, Colorado, using all 92 determinations of the calibration constants determined in the GMD blackbody.