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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Intercomparison of erythemal broadband radiometers calibrated by seven UV calibration facilities in Europe and the USA" *by* Hülsen et al.

Anonymous Referee #1

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General Comments

This study reports the results of careful cross calibrations and inter-comparisons between broad band instruments that measure erythemally weighted UV irradiance. Together, the research groups are responsible for a significant fraction of the erythemally weighted UV data that are available. Several of the participating authors are recognized leaders in this field, and the quality of the paper reflects their high standing. The material presented is well organized and succinct, and the quality and information content in the figures is excellent. The paper is particularly useful because it assesses the accuracy of the results as applied by the 7 different research groups involved, and

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as calibrated by a central calibration facility. It is of interest to compare the performances of the three different instrument types involved, which together represent the vast majority of such measurements available world-wide. They also report larger than expected differences between instruments of the same type, which underscores the need for calibration protocols to include careful analysis of the angular and spectral responses of each instrument when highest accuracy is required. Although the details of the study will be of interest to a relatively small group, the results are nonetheless useful. It is important to carefully document studies such as this so that future generations of investigators can understand and appreciate the calibration accuracy of the various groups and instrument types. The authors note that some of the differences in spectral response, as measured by different laboratories, are attributable to differences in the spectral band pass of the calibration system. They should specify at least the band pass at full width half maximum (fwhm) of each system used to help the reader assess the importance of those differences. It would very interesting to see a more detailed analysis of this effect, and to verify whether the observed differences between laboratories are consistent with theory.

I recommend that the paper be accepted for publication in Atmospheric Chemistry and Physics, but note that it would be improved if it were expanded to include the additional analysis described above.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 2249, 2008.