

***Interactive comment on* “Quality assurance of the Brewer UV measurements in Finland” by K. Lakkala et al.**

Anonymous Referee #1

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General comments:

The paper constitutes a very useful contribution to UV spectroradiometry with Brewer spectroradiometers, providing also a model for performing such detailed assessment in other instruments operating worldwide. It is a technical report but deals with the quality of spectral UV measurements and thus its contents fall well within the scopes of ACP. The paper is well organized, and presents clearly the followed methodologies. The author shave cited adequately the relevant literature, although some more critical discussion should be included with respect to similar results presented in other papers (see "specific comments" below).

Specific comments:

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Title: I would suggest a slightly revised version: "Quality assurance of Brewer-derived spectral UV irradiance measurements in Finland", or something along this line.

Page 1418, Line 12: This statement is not correct. Previous studies have discussed a lot the quality of spectral UV measurements with Brewer spectroradiometers. Some of these papers are cited already: Bais et al., 1996, 1998, 2001; Cappellani and Kochler, 2000.

Recently a very similar paper has appeared (Garane, et al., 2006, "Monitoring of UV spectral irradiance at Thessaloniki (1990-2005): Data re-evaluation and quality control." *Annal. Geophys.* 24(12), 3215-3228), dealing with 2 Brewer instruments operating at Thessaloniki. As the 2 cases have many similarities, it would be worth discussing how the results of the 2 papers compare (e.g. in temperature effects, long term sensitivity degradation, etc).

Page 1419 Line 2: The UVB and UVA detectors were used for of the lamp stability in time or during the calibration only?

Page 1420, Line 15: Please define PFR or, better, provide a reference.

Page 1421, Line 19: A recent paper by Bais, et al. (2005), Portable device for characterizing the angular response of UV spectroradiometers, *Appl. Opt.*, 44 (33), 7136-7143, shows among other instruments the angular response of the two Finnish Brewers. How these results are compared to the results presented here?

Page 1422, Line 11-18: I suggest to include here a short discussion on the differences between the slit function measurements of the Brewer MKIII, as well as on the differences between the 2 Brewers.

Page 1422, Line 19: How the wavelength calibration is made?

Page 1423, Line 15: Were any measurements performed at temperatures below 15°C? In Finland the outside temperature can be much lower and the temperature of the dome and to a large extend of the diffuser below can reach much lower temperature

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from the stabilization temperature of 80C.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 1415, 2008.

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