

Calibration of the SBUV version 8.6 ozone data product

by DeLand et al.

This manuscript presents a detailed and comprehensive discussion of the various calibration procedures used to obtain a consistent radiance-level calibration for the SBUV instruments over a 32-year time frame. The paper is well written, clear and thorough in its discussion of the SBUV calibration steps and the resulting absolute overall albedo uncertainties in the version 8.6 data set. It will be a very useful reference for the user community of this important data set and should be published. The following observations and minor comments are provided for the authors to consider.

Specific Comments & Questions:

Section 2.2 - In discussing the snow/ice radiance method the authors explain that data over Antarctica is used because the radiance scenes are stable, have minimum aerosol contamination, and so forth. The implication is that short- and long-term temporal albedo changes over this region are small compared to the desired calibration accuracy. However, the useful area outlined in Figure 3 is very large – are there ground-truth measurements of the albedo over Antarctica that support this assumption? Are there potential long-term trends in the true snow/ice reflectivity due to dust, etc.?

Section 4.2 – It's not obvious to me how Figure 13 provides clear evidence that there is a long-wavelength contamination problem in the 240-290 nm signal. Suggest you make this more obvious. (the correlation between short- and long-wavelength albedo shown in Figure 14, on the other hand, makes the point very clearly). Also, regarding the derived OOB contamination levels shown in Figure 15 – how are these factors used in the retrievals? Is this signal level (e.g., 14% at 273 nm) subtracted from the data in order to correct for the OOB error? Are the errors parameterized in terms of the primary scene variables – SZA, reflectivity and ozone column density?

Minor comments and corrections:

Section 3.2 - The word “residue” is used several times in this section in place of “residual”. I think the latter should be used for consistency.