

## ***Interactive comment on* “Technical Note: A time-dependent calibration correction for solar occultation instruments” by S. P. Burton et al.**

### **Anonymous Referee #1**

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Review of acp-2009-329 "Technical Note: a time-dependent I0 correction for solar occultation instruments" by S. Burton et al.

General comments: This paper addresses relevant scientific questions appropriate for an ACP Technical Note. It provides an explanation for a new algorithm used to improve the quality of a large data set that has been and will continue to be used for many investigations of atmospheric gas and aerosol behavior. Moreover, the authors point out its potential for more general use with other solar occultation data bases and make a recommendation for hardware improvement in future solar occultation instruments. Exposition is generally clear and sufficient to enable other scientists to implement a similar algorithm.

Specific comment: The caption of Fig. 3 says “At position approximately 1.1, there is a  
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large sunspot. . .” But the largest deviations from 1.000 appear to be at position 0.9. Is the caption correct?

Technical comments (recommendations for improved wording):

Abstract, 4th line from bottom: I think the word “data” is missing after “SAGE II and III”

Page 2, line 9: “impacts on” would be better replaced by just “impacts”

Page 2, line 22: “reduction. . . amount” should be “reduction . . . amounts”.

Page 2, First line of Section 2: “I think the word “The” is missing at the start.

Page 3, line 5: “The three SAGE instruments make” should be “The three SAGE instruments made”.

Page 3, line 6: “Earth’s limb” should be “Earth’s atmospheric limb”.

Page 3, line 7: “calibration; in” should be “calibration, in”.

Page 3, line 9: “event whose paths do not”: Consider instead “event on paths that do not”.

Page 3, 3 & 2 line from bottom: “step which results in the decrease of the variance in the transmission measurements and, concomitantly, results in the reduction of the”: Consider “step, so as to decrease the variance in the transmission measurements and, concomitantly, reduce the”

Page 7, 5 lines from bottom: Is “surprisingly” necessary?

Page 7, 3 lines from bottom: “represent time dependent” should be “represent the time dependent”.

Page 9, line 20: “scale from” should be “scale height, from”.

Page 10, first line of Section 4: Would “unaddressed” be better than “unacknowledged”?

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Page 13, Fig. 1 caption: Reversing the order of “narrow and wide” would better match what follows.

Page 14, Fig. 2 caption. “circles” should be “ellipses”. “instruments FOV” should be “instrument’s FOV”.

Page 19, Fig. 7 caption: “channels 1 at 1020 nm and channel 7” should be “channel 1 (1020 nm) and channel 7 (386 nm)”.

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Interactive comment on Atmos. Chem. Phys. Discuss., 9, 20259, 2009.

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