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Comment

## ***Interactive comment on “Pointing errors in solar absorption spectrometry – correction scheme and its validation” by A. Reichert et al.***

### **Anonymous Referee #1**

Received and published: 29 July 2015

This paper describe a method to evaluate the pointing error occurring in solar absorption atmospheric measurements. The knowledge of this error will allow a posteriori correction of the measured trace gas vertical columns or profiles. This method has been applied to spectra recorded at the Zugspitze, resulting in a improvement in the quality of XCH<sub>4</sub> measurements. This paper is suited for publication in AMT after some minor comments have been addressed.

Comments :

Page 6180 (abstract) and page 6195 (summary and conclusions): although regularly mentioned in the other sections, the fundamental condition required for the method to be applicable, i.e. a shift that is constant with time, is not mentioned in the abstract nor

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in the conclusions.

Page 6183, line 17-18 : This hypothesis (constant mispointing) is the fundamental assumption upon which the entire paper is based. It would be interesting to have an estimate on how often this condition is fulfilled in solar instruments ? In the instruments I know, the mispointing rarely remained constant throughout a single day.

Page 6183, line 24: after "Neglecting differential solar rotation", add something like "(addressed in Section 3)".

Page 6184, line 11: suppress "in" (last word of the line).

Page 6184, lines 22 to 24: you mention that you compared the shifts retrieved in 2 different wavenumber ranges, but do not mention any result/conclusion about this comparison: were the shifts different, similar, to what extent... ?

Page 6188, line 3, formula (5): this formula is a crude approximation of the airmass; at  $80^\circ$  SZA, it gives a 3.3 % error on the airmass.

Page 6188, line 20: replace "is located in an astronomical dome above the spectrometer that is opened" by "is located above the spectrometer, in an astronomical dome that is opened".

Page 6192, line 19: maybe you should mention how many days of observations are typically included in a bin size of 20 spectra (or what period of time between the first and the last day of the bin size).

Page 6196, line 21: "sun axis" - I suppose this is "sun rotation axis" ?

Page 6196, lines 25 and 26; page 6197, lines 4, 5, 6... : uniformize "Earth rotation axis" or "Earth's rotation axis".

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Interactive comment on Atmos. Meas. Tech. Discuss., 8, 6179, 2015.

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