

## **Response to Referee #2**

Another reference for the description of instruments has been added:

Kouremeti, N., Bais, A., Kazadzis, S., Blumthaler, M., and Schmitt, R.: Charge-coupled device spectrograph for direct solar irradiance and sky radiance measurements, *Appl. Optics*, 47, 1594–1607, 2008.

The input optics were not aligned in any specific direction, so the azimuth error cannot be corrected in retrospect but is treated as a measurement uncertainty.

We considered the effect of sastrugies again in more detail (see also response to reviewer #1) and found that the effect is smaller than 1% and is insignificant here.

Page 17, lines 22-27. We agree and changed the sentence accordingly

This asymmetry is qualitatively reproduced in the ‘standard’ model scenario but with a much smaller magnitude.

The technical corrections have been implemented.