

Dear Reviewer #1

Thank you for your useful comments. Please find our answers below.

Main comment

The paper is basically acceptable for publication but as the authors may wish to add a few points of clarification for interested readers. First it might be worth mentioning in the paper that GOMOS had several other potentially independent means of making temperature profile measurements in the region as described in Bertaux et al., (2010), but that the Rayleigh scattering techniques seems the most reliable.

We agree with this comment. Bertaux et al. (2010) identified seven possible methods to determine temperature profiles from GOMOS data. Among them the two most promising are the vertical inversion of the Rayleigh scattering profile at limb presented in this study and the time delay between blue and red scintillations due to chromatic refraction, with an improved algorithm described in Sofieva et al. (2018). The two methods are complementary. The Rayleigh scattering method covers the altitude range 35-85 km during daytime and the chromatic refraction method covers the altitude range 15-32 km during nighttime. We added a paragraph in the revised version.

Minor comments

Secondly, page 4 near line 30, the “et al., (2018a)” reference is missing.

Corrected, the reference is Wing et al. (2018a).

A comma is also missing on page 4 line 21.

Corrected.