

Response to Anonymous Referee #1

We thank referee #1 for thoughtful and insightful questions. There are three areas where the referee asks for more detailed information.

First, we are asked to compare our derived trend to other published results. Second, to describe more precisely how the trend uncertainty estimates are derived. Third, to discuss the effect of the mesospheric diurnal variation on the ground-based measurements.

All three of these areas are discussed at length in the Supplement, to which the Referee is referred.

Specific comments:

P 30573, 13-4: addressed in the Supplement

P30575, 115:

Other than the 2009-10 period illustrated, there have been no such clear, sudden changes in instrument baseline observed. However, baselines have not been routinely measured for the Mauna Kea instrument because of funding limitations. The notionally identical instrument at Scott Base, Antarctica has had routine baseline measurements made since 1996. The baseline of that instrument has been observed to drift with time and is subject to ‘discontinuous’ changes from time to time when the instrument is serviced.

P30576, 19: addressed in the Supplement

P30576, 110: addressed in the Supplement

P30576, 125: No such variation is evident in Jones et al., 2011

P30577 : MLS data: v3.3 for Aura and v5 for UARS

P30577, 15: addressed in the Supplement

P30577, 118-19: this cites the conclusion of Nedoluha et al, 2011, where its background and qualifications are discussed at length; we will add “within the limits of the uncertainties of the ground-based measurements” to a revised manuscript.

Summary and Conclusions: will be rewritten, along with the Abstract, in a revised manuscript

We thank the referee for pointing out typos, which will be corrected.

Table 2: will be superseded by Tables 2 and 3 from the Supplement