

***Interactive comment on “Stability of temperatures from TIMED/SABER v1.07 (2002–2009) and Aura/MLS v2.2 (2004–2009) compared with OH(6-2) temperatures observed at Davis Station, Antarctica” by W. J. R. French and F. J. Mulligan***

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We thank Referee#2 for these positive remarks on the manuscript and appreciate the time and effort given to comment and corrections.

With reference to the measured long-term trends for Davis, SABER and Aura-MLS we reiterate our response to Referee#1 that the long term trends in the Davis data set are the subject of another paper currently in production. We consider the satellite data sets presented here to be of insufficient length to warrant meaningful long term trend

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analysis which will adequately account for the solar cycle response.

Nevertheless, for the interest of the referee the current solar-cycle and long term trend coefficients for the winter mean temperatures in the Davis OH data set (1995-2009) are  $4.12 \pm 0.79$  K/100SFU and  $-1.03 \pm 0.82$  K/decade respectively.

For the 2002-2009 (SABER equivalent) interval, the Davis data give values of  $4.57 \pm 2.13$  K/100SFU and  $-0.68 \pm 4.2$  K/decade (ie. much greater statistical uncertainty over this limited time interval)

By comparison, the SABER (2002-2009) data yields a solar cycle of  $7.1 \pm 5.0$  K/100SFU and  $+7.8 \pm 7.4$  K/decade. As stated above, we don't believe this to be a particularly meaningful trend determination due to the limited length of the current data set, however the caution suggested in the concluding remarks refers to the indication of a significant warming trend in the SABER data, that is not present in the Davis measurements (or so far in Aura-MLS). In subsequent correspondence with J.-H. Yee (SABER science team) it was suggested that inaccurate representation of long term changes in CO<sub>2</sub> or O concentrations in the SABER non-LTE retrieval algorithm may contribute to this discrepancy, and this may be addressed in future data versions.

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