

Comment on “Investigation and amelioration of long-term instrumental drifts in water vapor and nitrous oxide measurements from the Aura Microwave Limb Sounder (MLS) and their implications for studies of variability and trends” by Livesey et al.

We would like to thank the authors for their work that will help to improve the time stability of the Aura MLS observations of H₂O and N₂O. We also would like to advertise them that the N₂O drift of the MLS v4 has already been discussed in the evaluation paper of the BASCOE Reanalysis of Aura MLS, version 2 (BRAM2, Errera et al., 2019) using observations from ACE-FTS v3.6, MIPAS IMK v5 and MLS N₂O from the 640 GHz radiometer. The N₂O drift is clearly visible on the Fig. 6 of Errera et al. (reproduced here below) which shows the time series of the monthly mean bias and standard deviation of the differences between BRAM2 and the above mentioned satellite data for several pressure levels and latitude bands. Also, Errera et al. wrote that “analyses of the deseasonalized time series of the biases [of BRAM2] reveal a significant drift of 5, 7 and 5% per decade against ACE-FTS, MIPAS and MLS_N2O_640 for the period 2005–2012 and 10 % against ACE-FTS for 2005–2017” (see on their page 14). We thus believe that Errera et al. could be cited in your paper.

Best regards,

Quentin Errera.

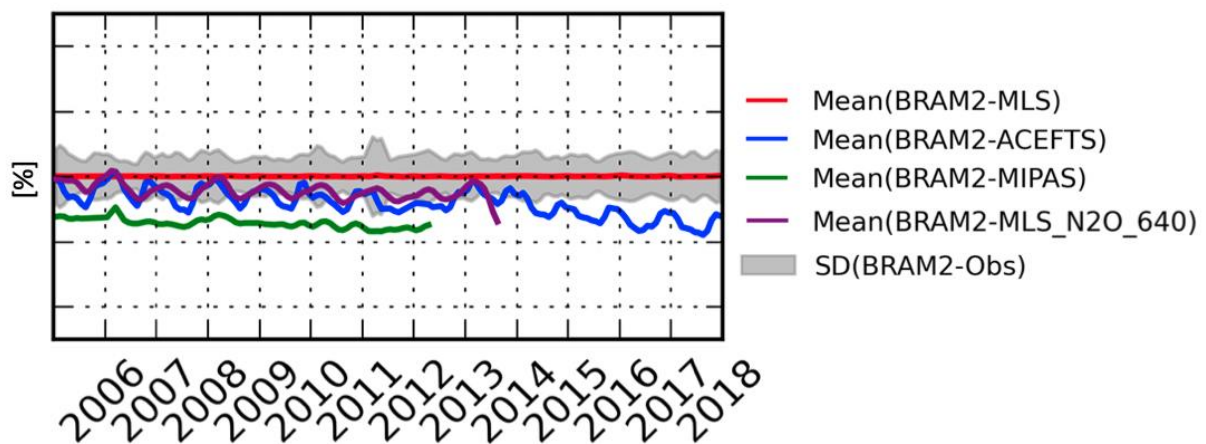


Figure 1: Time series of the monthly mean differences (%) between BRAM2 N₂O and the different observational datasets in the Northern Hemisphere mid-latitudes (30°–60°N) at 46 hPa. The grey shaded area represents the standard deviation of the differences between BRAM2 and ACE-FTS. From Fig. 6 of Errera et al. (2019).