

Second review of Sha et al., Intercomparison of low and high resolution infrared spectrometers for ground-based solar remote sensing measurements of total column concentrations of CO₂, CH₄ and CO

I would first like to thank the authors for adding a substantial new piece of work in section 5.7. It strengthens the paper to show comparisons with PROFFAST and GGG. However, I have a few concerns about the way in which the results are presented:

1. Several other groups successfully process the CO channel in the EM27/SUNs using the EGI/GGG software. It is unclear what the problem is here, but the authors could reach out to other EGI/GGG users for help in processing the CO channel.
2. You state that "The intraday scatter generated by GFIT is noticeably higher than that achieved with PROFFAST." You cite a private communication with Niki Jacobs to confirm this observation. However, from what I understand, the PROFFAST software typically averages forward and reverse spectra, thus decreasing the scatter. Has this forward/reverse averaging been done here in the PROFFAST retrievals in this comparison? GGG does not typically perform this averaging.
3. You show the xair diurnal variability for the PROFFAST and GFIT retrievals in Fig 13. The GFIT retrievals show what you call a bifurcation. Is this bifurcation between consecutive forward and reverse spectra, or does xair vary smoothly by time of day? If the latter, this could indicate that the ZPD times are listed incorrectly in the GGG runlog. Please check and fix the error. Also in this figure, are forward and reverse scans averaged for the PROFFAST results? It would be appropriate to show (both in Figure 13 and 12) results that have been filtered identically and averaged identically.