EGUsphere, referee comment RC1
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Comment on egusphere-2022-757

Anonymous Referee #1

Referee comment on "Evaluation of tropospheric water vapour and temperature profiles retrieved from MetOp-A by the Infrared and Microwave Sounding scheme" by Tim Trent et al., EGUsphere, https://doi.org/10.5194/egusphere-2022-757-RC1, 2022

The Meteorological Operational satellite (Metop) series of platforms operated by the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) have provided valuable observations of the Earth's surface and atmosphere for meteorological and climate applications. These datasets will provide a continuous data record out to 2045. Therefore, Metop data products are an invaluable source for climate data records (CDRs). The authors present a comprehensive assessment of profile data produced using the Infrared and Microwave Sounding (IMS) scheme with the European Space Agency (ESA) Water Vapour Climate Change Initiative (WV_cci) against radiosondes from the Global Climate Observing System (GCOS) Reference Upper-Air Network (GRUAN) and Analysed Radio Soundings Archive (ARSA) data records, and found that the results from this study demonstrate the real potential for tropospheric water vapour and temperature profile CDRs from the Metop series of platform. The manuscript is generally well-written and the scope is well-within the journal. I have two minor comments below, some focused on data visualization that I hope will help the authors as they consider a revision of their manuscript before recommending acceptance.

- First, I don't learn more about the Metop series of platform, but I think it would be better to show global distributions of tropospheric water vapour and temperature profile CDRs from the Metop data against the ARSA or ERA5 reanalysis, which can help us see how well the Metop data match other references for a global scale.
- Second, the reference data, i.e., the GRUAN and ARSA also have certain biases. The differences between them would be better to be addressed somewhere in this manuscript.