Review of "An assessment of tropopause characteristics of the ERA5 and ERA-Interim meteorological reanalyses" by Lars Hoffmann and Reinhold Spang.

This paper describes the differences in tropopause (lapse-rate tropopause following the WMO definition) characteristics between the European Centre for Medium-Range Weather Forecasts (ECMWF) reanalysis data ERA-5 and its predecessor ERA-Interim based on data for the 2009-2018 period. The tropopause in ERA-5 is on average 150 m (in the tropics) to 300 m (around 30°) lower and colder by 1.5K compared to ERA-Interim. It is also shown that the tropopause field in ERA5 exhibits a larger variability which is attributed to the higher horizontal/vertical resolution of the ECMWF model used to produce the reanalysis data (30 km for ERA-5 versus 80 km for ERA-Interim, ~500 m in the Upper Troposphere-Lower Stratosphere versus ~1 km for ERA-Interim). As a result mesoscale processes such as gravity waves which play a large role in tropopause variability are better represented in the more recent ERA5 data. Further comparison of the reanalysis data with GPS satellite (COSMIC, MetOp) and radiosonde observations indicates that ERA 5 tropopause height has a lower difference (around 150m) with the obs than ERA-Interim and is thus more suitable for tropopause-related studies.

The paper is interesting and well written. The paper is suitable for publication in ACP. I would suggest providing more information to answer the following minor comment:

It is explained that the tropopause field in ERA5 has a larger variability because of a better representation of mesoscale processes due to the higher horizontal (~30km)/vertical (500m in the UTLS) resolutions used in the Integrated Forecasting System (IFS) model used to produce the ERA5 reanalyses. However, 30 km is still relatively coarse to resolve deep convection, which needs to be parameterized in the IFS model. In the tropics, where convection is the main source of waves, is it possible to disentangle the impact of data assimilation versus better representation of mesoscale processes on the representation of the tropopause? Especially, since you are focusing on a recent period (2009-2018) where more GPS satellite observations became available.

The higher vertical resolution in the UTLS certainly helps to better represent the wave vertical propagation and effects on the temperature field but maybe you could comment a bit more on the fact that the source of the wave is still partially resolved and that data assimilation may play a larger role? Have you considered comparisons of ERA5 with other modern reanalyses (e.g. MERRA2).