Reviewer Comments on amt-2022-114
Anonymous Referee #4


The paper presents the comparison of MIPAS/Envisat v8 profiles of temperature and trace gases with balloon measurements by MIPAS-B instruments

The paper has a high similarity index (63%) due to overlapping with the ESA report available online.

The paper contains the detailed description of MIPAS-E measurement history and processing versions. It presents intercomparison results for all MIPAS retrieved species. The paper is generally well written. Below are my minor comments.

DETAILED comments

Please try to improve the quality of Figures 2-22 by increasing figure resolution, using distinct colors, optimizing line widths, or using shading. For example, blue dashed and dash-dotted lines overlap in many cases. It might look more clear if total error intervals will be indicated by shading.

Line 181: "The primary vertical coordinate of MIPAS-E is pressure whereas for MIPAS-B it
is altitude.” Please specify which temperature/pressure profiles are used for pressure-altitude conversion.

Lines 182-183: “vertical profiles refer to the MIPAS-B pressure-altitude grid”. It is not clear what is used as the vertical coordinate. For "pressure-altitude", please give a formula or a reference.

Lines 200-201: “A bias between both instruments is considered significant if the SEM is smaller than the bias itself.” The significance is meaningful only at a specified significance level, which should be specified. Please justify also why you selected a low confidence level (for example, 95% confidence level corresponds to 2-sigma interval).

Line 224: Please define the used threshold for the maximum error

Line 273: reference to WMO ozone assessments would be also appropriate here.

Table 1 is informative and good. An analogous table for MIPAS/Envisat would be useful.