

***Interactive comment on* “On the quality of MIPAS kinetic temperature in the middle atmosphere” by M. García-Comas et al.**

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This intercomparison paper about the kinetic temperature in the middle atmosphere is constructed well using four satellite observations, four ground-based measurements, and rocket experiments. The comparison results of MIPAS and other instruments can help scientific community understand and evaluate them.

There are some minor issues and suggestions for further analysis.

Page 24234, line 19-20 : The explanation about large differences over poles in high altitudes is weak. Systematic error, uncertainty, or co-location mismatch would be better to interpret the large differences. I would suggest to remove or rephrase this sentence.

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Page 24234, line 26 : change to "Also, the kinetic temperature is ..."

Page 24235, line 23 : "one day each mode every 10 days" should be rephrased

Page 24236, line 13 : change to "and lower atmosphere ..."

Page 24237, line 14 : missing a word, N. "74S-74N"

Page 24237, line 20 & 21 : typo errors, HIDRLS -> HIRDLS

Page 24249, line 20 & 21 : Selections in space and time of coincident measurements (1000 km - 2 h for space-borne measurements, 1500 km - 4 h for ground-based measurements) are too large to avoid atmospheric perturbations such as a gravity wave. There are numerous publications about short period oscillations in temperature and density. Especially, 4, 6, and 8 hour oscillations have been reported in the polar MLT region. The amplitude of these short period oscillations, a half of peak-to-peak variation, is more than 5 K in temperature. It means the atmospheric perturbation is seriously an additional noise source in the comparison of different measurements. It is important to increase the number of co-located measurements, but the reasonable selection criteria are also required.

Page 24249, line 23 & 24 : What is the meaningful statistical significance?

Page 24253, line 26 & 27 : missing comma? "...January, and February..." and "...July, and August..."

Page 24255, line 29 : needs to expand acronym of vmr, "...volume mixing ratio (vmr)..."

Page 24257, line 18 : "...per a calendar day."

Page 24262, line 3 : "... from 1 to 0.316 hPa, and 14 km at 0.1 hPa."

Page 24262, line 16 & 17 : "For each year" is not a complete sentence. Please, rephrase it.

Page 24264, line 5 : "That average of negative difference..."

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Page 24264, line 24 : What is the pressure/altitude conversion formula used?

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