

Interactive comment on “Seasonal changes in gravity wave activity measured by lidars at mid-latitudes” by M. Rauthe et al.

Anonymous Referee #1

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Specific minor comments and suggestions to the text (cf first comment for general comments):

P13743 L12: In order to avoid that people may mistake this for 'the lidar is the only instrument which can measure ...' I recommend reformulation: The lidar is the only technique which has an appropriate time ... for resolving low and ...

P13744 L03: Please use sampling instead of resolution. You later describe that a 1h running mean is used.

P13745 L01: Sugestion: depending on the width of the potassium layer

P13745 L04: Sugestion: omit 'through integration'

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P13745 L12: Do you mean ' Typically the statistical error of the measured profiles is dominated by the instrument noise' ?

P13745 L17: Case studies demonstrated ... would result in temperature errors of ...

P13746 L01: ... are also called ... Probably the text is easier to read if you use only one notation.

P13746 L19 enormous -> very large

P13747 L03 Besides measurements ... The daytime measurements are not shown in F2 and at that place distract. Could be either moved up to the lidar description or down.

P13747 L17 ... modes have wavelengths ...

P13747 L19 What means 'possible'?

P13747 L25 'or' -> 'for'

P13747 L25 'already visible' -> 'evident' ?

P13748 L02 of semi-diurnal tides

P13748 L04 which we interpret in terms of GWs

P13748 L06 lower than *8* K (green color)

P13748 L11 Why does it 'produce' more smaller scale wave structures? Because one better sees them? Is there a real mechanism? Suggestion: In the absence ... we observe ...

P13748 L17 What exactly was done? Did you allways use the same hours every night? Why does the restriction isolate GWs? Also a quarter of a wave cycle could still impose larger fluctuations than the shorter time scales. Please give a complete and concise explanation at the start of section 3 (following) and omit these two sentences.

P13748 L25 measurements -> nights ? On any account you need to choose a different

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term, or do you really mean only 15-minute vertical profiles?

P13750 L18 First sentence is trivial -> omit

P13750 L20 cf. Krebsbach and Preusse, GRL, 2007

P13750 L22 See above -> omit

P13751 L23 of the nightly-mean temperatures

P13752 L17 is identifiable, but

P13752 L21 What are monthly mean temperature fluctuations? Monthly means of temperature fluctuations, the latter as defined above?

P13753 L08 variability -> annual cycle ? and their fluctuations

P13754 L07 You need to briefly explain the 'theoretical conceptions'

P13755 L01 HIRDLS

P13756 L06 check sentence

P13756 L17 This is much too short. Please show the results.

P13756 L18 Can back-tracing be performed based on your measurements? You do not have the propagation direction.

P13757 L16 Possibly, but not necessarily! Both depend in a similar way on the background winds.

Fig 3, consider finer color-scale increments for low values, maxima cannot be identified

Fig 4, y-axis period (not periode)

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 13741, 2008.

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