

Interactive comment on “Climatology of mesopause region nocturnal temperature, zonal wind, and sodium density observed by sodium lidar over Hefei, China (32° N, 117° E)” by Tao Li et al.

Anonymous Referee #2

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The paper reports a multi-year data set in mesopause region that is important for upper atmosphere studies. The work also demonstrates the great capabilities of the USTC Na lidar. For this paper, I think it is also important to illustrate the differences among the three mid-latitude sites and discuss the geophysical implications these differences reveal. It would be quite helpful if plots of the climatology from the other two mid-latitude sites could be added along side that of USTC, provided that they are available. I also hope the author could spend some extra ink on the discussion of this topic. For example, if the diurnal tide dominates the altitude range below 100 km and could ac-

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count for the difference of the climatology among the three sites, there is a possibility that different diurnal tidal components dominate the midlatitude of east Asia and north America. The most recent tidal wave climatology is open to public (both GSWM and CTMT), should be an easy check. The author also mentions the differences between the lidar and the nearby radar wind measurements, and attribute them to different resolutions. The lidar data can, then, be processed using the radar resolution, and see how it affects these differences. For the momentum flux measurements, it is critical to process the lidar data with the same temporal and spatial resolution as those in the literature for comparisons, due to the sensitive of these results to the GW spectrum.

The presentation is very clean and figures are easy to understand. There seems to be a typo in line 164 of $w'u'$ under the par, however. Please correct.

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