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Interactive comment on “Evaluation of methods for gravity wave extraction from middle atmospheric lidar temperature measurements” by B. Ehard et al.

Anonymous Referee #3

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This paper addresses the problem of extracting gravity wave parameters from temperature profiles that have been acquired over a finite height range and time period. Although the authors focus on temperature, this problem also exists when analyzing wind and constituent profiles and in computing gravity wave momentum, heat and constituent fluxes. So the problem is an important one and the analysis provided in this paper is enlightening. The paper is concise, well-written and adequately referenced, although the authors might considering adding a few of the references provided by Bob Sica in his comments.

I do believe the statement criticizing the use of the profile mean to extract the gravity

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wave parameters is too strong. Most studies utilize data collected over many hours of observations. Furthermore, most workers understand that to obtain an accurate sample mean profile requires many hours of observations because the gravity wave perturbations are large and the wave-spectrum correlation time is long. However, I do agree that the filtering method advocated by these authors has the advantage that it can be applied to short datasets.

In conclusion, the paper addresses a long-standing problem in gravity wave studies in a way that provides insight into how to properly extract wave parameters from the dataset. The paper is suitable for publication in this journal. I recommend the paper be accepted for publication after the minor comments of all the reviewers have been addressed.

Interactive comment on Atmos. Meas. Tech. Discuss., 8, 9045, 2015.

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