

Interactive comment on “Advanced hodograph-based analysis technique to derive gravity waves parameters from Lidar observations” by Irina Strelnikova et al.

Anonymous Referee #2

Received and published: 29 July 2019

The author presents an algorithm that simultaneously conducts 2D-FFT and hodograph technologies on single time lidar profiles to derive GW parameters. The technique is almost completely based on the spatial structure in vertical direction of these gravity waves, and it is amazing to see the so many number of gravity waves (4507) existed during 60 hours of lidar operation. To test this approach, I suggest the author combine the reconstructed upward and downward perturbations for temperature and wind fields in Figure 10 and 11, and compared with the real perturbations shown in Figure 2,3,4. The total reconstructed perturbations should be quite close to the measured perturbation. It would also be helpful, if the author could test the results in temporal domain by looking at the wavelet (or lomb-scargle) results (in time) of the real perturbation and

C1

the total reconstructed perturbation, to see if the algorithm does not lose the temporal variations of these waves. I would also like to know the measurement uncertainties during this lidar campaign, although I am aware that the author treats (weights) every lidar measurement the same (without error?). This is a numerical technique based upon lidar observations, so, I think it is important to know the data quality.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2019-79, 2019.

C2