

Interactive comment on “High resolution observations of small scale gravity waves and turbulence features in the OH airglow layer” by René Sedlak et al.

Anonymous Referee #1

Received and published: 19 September 2016

See attached pdf for review.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2016-292, 2016.

C1

Review of Sedlak "High resolution observations of small scale gravity waves and turbulence features in the OH layer".

This paper describes a new fast airglow imager with high horizontal resolution. This imager is suitable to study gravity wave related small features. Two case studies are reported. One shows wave fronts broke into eddies. Another shows a homogeneous brightness became filament. The paper is very well written. I would recommend a moderate revision.

The paper could connect better with previous work on "ripples" [Hecht] and turbulence [Yamada] and stress what's new here. It is likely that all the "waves" discussed are not regular gravity waves, but secondary waves already from wave breaking.

When discussing the observations with numerical modeling, more specific discussions are needed.

Minor comments

1. line 29: define SWIR
2. line 39: "frequently observe..." not really from past literature.
3. Line 44: "Energy transported" also momentum.
4. Line 56-58: this paragraph reads odd here. Suggest remove it.
5. Line 92: you mean "299 km²"?
6. Line 140: might the instability (wave) package be advected by the background wind?
7. Line 161-162: "raised to 36" what does this mean?
8. Figure 6: can hardly see the vortex and filament the paper mentioned. Some help is needed.
9. Figure 7: Figure 6 does not fit into the small box in Figure 7. Maybe some rotation is needed?

Fig. 1.

C2