

Review on ACP

“Vertical wind retrieved by airborne lidar and analysis of island induced gravity waves in combination with numerical models and in-situ particle measurements” by F. Chouza et al., submitted to ACPD.

General:

Excellent paper introducing the advantages of airborne LIDAR measurements investigating gravity waves on the basis of measurements of the vertical wind velocity and backscatter coefficient, validation by in-situ measurements and comparison to LES modeling.

The experiment is described well. Two case studies are well analyzed and validated.

Tools: LES modeling, wavelet analysis, comparison to in-situ measurements of meteorological parameters and aerosols.

Interesting results relying on the topic of the special issue of ACP and ACP at all.

For the scientific community new interesting case studies on airborne LIDAR application.

Review recommendation points 1-12 are fulfilled.

Number and quality of references is good.

Minor technical comments

Page 2 line 23-27 sentence too long split off into two or three sentence to clarify the statement

Page 5 line 13-17 split off the sentence

Page 5 error introduced by the horizontal wind into the vertical wind component

Page 6 time resolution of angle measurements

Page 9: Eq (7) is missing

Page 9: line 3-6 split off the sentence

Page 11 line 15: fig. 3b instead off fig. 4

Page 12: line 26 fig S1=?

Page 13: please introduce first the Scorer-parameter, (Eq. 7) earlier (at line 5)

Page 16: line 23: fig S2=?

Figure S1 and S2 are not clear

Page 19: line 9: what is meant by low humidity conditions? (free troposphere?) please specify

Figure S1 and S2 are not clear

Figure 1: abbreviation DEM?