

Interactive comment on “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.

Anonymous Referee #1

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This paper describes unique observations of vertical wind speed and island induced trapped waves using airborne Doppler lidar during SALTRACE. The paper contains novel and interesting data so that it should be publishable after consideration of the following points: 1. On P5, L9-10, the statement “for the retrieval of vertical 10 wind speed, the LOS vector $L \hat{=} DWL$ is set pointing approximately in nadir direction”, how is the effect from the airplane movement if the laser beam is not exactly perpendicular to the flight direction? 2. On P11, L15, “Fig. 4” should be Fig. 3b. 3. On P12, L22-24, the statement “. . . lower pressure level. . . For the upper pressure level the wind changes to easterly direction” is confusing according to Fig. 5. The lower pressure level should

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be 1000 hPa and the upper pressure level should be 700 hPa. 4. On P15, L21, “cone” should be core. 5. On P16, L15, The phase difference of 90 degrees between the aerosol concentration change and the vertical wind velocity need further explanation. 6. On P18, L28-29, the statement “A wave structure can be identified in the boundary between the SAL and the mixed layer at an altitude of 2000 m.” It is not obvious, to my opinion, to recognize a wave pattern, especially in Fig 13a. The leg 2 measurement in Fig 13b does show some wave structure. 7. Table 2., Some estimated mounting angle has large deviation value in rolling and yaw angle, eg. 0.11° on 18.06.13, -0.04 on 13.07.13, 0.20° and 11.52° on 14.07.13. Does it have any influence on surface distance measurement?

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