B. Witschas   13.02.2023

The thoughtful comments resulting from the additional review performed by the anonymous reviewer #1 (Referee #1, received on 13 February 2022, shown in black) are highly appreciated. We are delighted that reviewer #1 is happy with all the modifications we performed, compared to the original version of the manuscript. The answers to the remaining technical corrections can be found below, whereas the blue color indicates our answer and the green color the corresponding change in the manuscript.

Interactive comment on "Airborne coherent wind lidar measurements of the momentum flux profile from orographically induced gravity waves" by B. Witschas et al.
(Author response)

Reviewer statement:
I was acting as Reviewer #1 on the previous version of the paper. I would like to thank the authors for taking into account all the remarks of the reviewers. The improvement of the paper has been, in my opinion, substantial. I, therefore, support its publication, with only a few technical details that need to be corrected:

- l 111: you probably rather want to provide the longitude of the Falcon turn, since FL3 took place at 61°N altogether.
  Indeed, it makes much more sense to mention the longitude position here.
  61° N was replaced by 3° E
- Eq 1: there should not be a negative sign in the vbi equation. Indeed, if one assumes that theta_bi = -theta_fi, as suggested on the following line, equations for vfi and vbi would be similar! Eq. (2), which are used for the wind retrieval, are correct as long as there is no negative sign in the vbi equation too.
  Thanks again for another detailed verification of this equation. Of course, this is correct and was changed accordingly in the manuscript.
- Fig 6d): the insert indicates a negative bias, whereas the mean value looks positive on the figure. I suspect a sign error. If so, please also correct l. 281.
  This is absolutely correct. The bias calculated as the difference between the Halo in-situ winds and the DWL measurements is positive. This was corrected accordingly in the figure insert as well as in the text (line 281). The absolute value was proven to be correct.