

Interactive comment on “Aerodynamic characterization of a soft kite by in situ flow measurement” by Johannes Oehler and Roland Schmehl

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Received and published: 29 August 2018

In the paper a technique to measure the flow direction and speed for a soft kite is introduced. The flow sensors are attached below the kite in the bridle lines. To compensate for bridle sagging a simple force balance is solved. The measured angles and flow velocity show oscillatory behaviour which originates from the ground station. The oscillations induce highly unsteady aerodynamic behaviour and, in order to reduce this effect the measured data is smoothed over three periods. The resulting glide ratio during flight is presented and exhibits a strong dependence on power setting, and heading angle. Overall this paper shows a clear methodology and interesting results from a

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flight test. In the reviewer's opinion it is ready for publication with minor changes.

Page 13, lines 6-8: "The effect is different for every kite/bridle combination but a ratio of 3:1 for the forces in front and back bridles seems like a good average value."

Is there a source to cite or an argument to support this statement?

Page 15: "In order to minimize this effect, the data is smoothed over an interval of $T = 2.5$ s which is equivalent to 3 periods of the oscillation."

From a practical point of view the smoothing is a simple and logical approach to obtain results. Can the authors comment on the magnitude of error introduced by the smoothing, e.g. compared to other filtering techniques?

Page 22: "A change in power setting causes a complex deformation of the wing and thereby affects the aerodynamic coefficients, while a change in angle of attack affects the aerodynamic coefficients by changing the flow field."

This statement is not entirely true. As stated in the introduction the soft kite also deforms during flight for different flight speed and angles of attack. Nevertheless, it is correct to assume two different wings for powered and de-powered configuration.

Interactive comment on Wind Energ. Sci. Discuss., <https://doi.org/10.5194/wes-2018-46>, 2018.

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