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

G. Sanchez-Arriaga

gonzalo.sanchez@uc3m.es

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This manuscript tackles a hot and important topic for the airborne wind energy community: the aerodynamic identification of soft kites. As firmly explained in the Introduction, it is a hard problem due to the intrinsic difficulties arising in both CFD and experimental analysis. In this regards, this manuscript is helpful because it highlights the importance of aeroelastic effects and their consequences on the aerodynamic coefficients for later use in AWE dynamic simulators and optimizers. I fully agree with the main conclusion of this work in the sense that a good aerodynamic characterization of a soft kite should take into account the deformation of the kite.

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Regarding the accuracy of the experimental data, which exhibits certain degree of dispersion, is difficult for me to make an assessment because the methodology is far from my expertise at UC3M. The authors used vanes attached to the two power lines and a quasi-steady model that relies on several assumptions to estimate the forces. Our group is working on a multi-hole probe on-board a long pole attached to the central strut and an extended Kalman filter to estimate the aerodynamic forces and torques. I agree with the authors that the two power lines are generally well-tensioned but I am not sure that the plane spanned by them is a good choice for characterizing the orientation of the kite. In any case, it is necessary to try different methods, compare them, and learn about their advantages and disadvantages. From this perspective, it would be interesting to mount both experimental setups in the same kite and compare the measurements of all the instruments.

Minor comment 1: β is normally used to denote the side-slip angle. Several works on AWE systems used Γ for the elevation angle of the tether.

Minor comment 2: if possible, a diagram C_L versus C_D would be interesting. How far is the drag coefficient from a polar $C_D = C_{D0} + kC_L^2$?

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