Anonymous Referee #1

This paper considers the system identification and fuzzy control of an airborne energy system based on a tethered kite. The paper presents a research problem interesting to the community. However, the paper is not well written. It needs a lot of revisions to be clearer. For example, words like "very" and "thing" are not scientific, "got" should be replaced with "obtained" and so on.

The paper had been revised and a lot of modifications were added based on the reviewer comments.

Although the literature survey is comprehensive, it did not weave a good story. It is more of stating who did what than making a case.

In the literature survey, I tried to move from the general topic then move to be specific to my problem which I am trying to solve as following:

- General introduction for the AWE (page 3, lines 5-10).
- Presenting the benefits of the AWE from the side of power density (page 3, lines 11-19).
- Describe different concepts for power generation from the AWE systems (page 3, lines 20-26).
- Discuss the previous models and control theories, system identification, robustness of simulations to overcome the uncertainty of the model (page 3, lines 27 - page 5, line 10).
- Work achieved in the presented paper with the novelty of my work (page 5, lines 11-20).
- The structure of the paper (page 5, lines 21-26).

The novelty of the paper is not very clear. The system identification algorithm is well known and the paper does not have a strong modeling, experimental, or computational component.

- This part was rewritten to be more clear for the reader in the end of section (1 Introduction) as following:

  (In this paper, the least square estimation (LSE) was used as a system identification to get a more accurate description for the steering dynamics of the kite in real-time; the characteristics of the kite are varying with time because the wing is inflatable and flexible. Also, the wind speed can't be measured in real-time, thus it is impossible to obtain the lift and drag forces during flight. This technique especially is used to identify the system parameters as it can calculate them without iteration (one directional calculations) which means no time loses and low chance of singularity in the solver.

  The novelty of this work is to use an algorithm that is valid for any kite size and any tether length. So it can overcome the problems of the uncertainty. The LSE algorithm needs the steering values from the motors and the course angle from the sensors. Thus, no additional information is needed such as the wind speed or the mathematical model of the kite to identify the system that shall be controlled. Therefore, this paper tries to stabilize the kite using fuzzy control based on the LSE in real-time.

  This paper is divided into five main sections. The first section is the introduction1, which gives an overall view of the previous research related to the paper's work. The second section shows the mathematical model2used to describe the kite's motion. The third section gives the system identification derivation and details the sequence of the code3. The fourth section describes the main parts of the fuzzy control and explains the choice of the fuzzy control parameters4. Finally, the last section shows the simulation results of the classical control and the fuzzy algorithm. The comparison also includes varying wind conditions and their effects on system stability5.)

- The modelling for the kite motion was added in section (2 Mathematical model) to make the paper more clearly for the reader.
- In general, this paper just presented the concept of system identification to the kite system supported by simulation and fuzzy control, moreover, a comparison between the classical control (which had been achieved in TU Delft), and the LSE with fuzzy control was presented in this paper to show the reliability of the presented work in different wind conditions.