

## **Referee Comment #1 - WES-2024-170**

*In this paper, the authors presented the system architecture of their ground station AWE testbed, followed by some practical discussions on tuning the controller to track a figure of eight motion. The paper is well-written and provides some interesting insights for further research.*

We are glad to know that the Reviewer found that our work provides interesting insights, and thank them for providing the minor comments we address below.

### **MINOR COMMENTS**

*1. The discussions surrounding the individual elements of each flight (lines 251-265) are a bit hard to follow. This makes it difficult to follow subsequent discussions, which are based on lines 251-265. I suggest keeping figure 5 but adding two more annotated figures for flights A and B, then expanding lines 251-265 to describe the components of flight A and flight B trajectories separately.*

In the reviewed version of the manuscript, Figure 5 has been subdivided into two subfigures representing Flights A and B separately, and the attractor and center points have been added to the figure. Additionally, Figure 5 and Tables 2 and 3 have been rearranged to present all relevant information to the discussion next to each other. We thank the Reviewer for this suggestion, which improved the quality of the manuscript.

*2. The authors mentioned the addition of a third tether line for pitch control, but there's not much (if any) discussion on the improved pitch dynamics. I assume that the window to do pitch dynamics flight tests has passed. If so, some comments on how the third line can improve flying qualities and/or direction for future studies regarding this would be appreciated.*

As pointed out by the Reviewer, the pitch control was not incorporated into the autonomous controller but rather tuned by the human operator if necessary. Following the Reviewer's advice, a paragraph has been added at the end of Sec. 3 (line 226) noting this circumstance and discussing future extension of the controller to leverage these capabilities present in the hardware. Our group has updated the Ground Station (we are now in the integration phase), and in the next flight campaign the pitch control will be tested.

### **TECHNICAL COMMENTS**

*Some suggested typo/grammar fixes:*

- 1. Line 83: we refer to CL and CR as the points where*
- 2. Line 134: please format the reference*
- 3. Line 291: same order of magnitude as*
- 4. Line 308: and as noted in the first paragraph*
- 5. Line 321: double use of it/its. Unsure which one is which.*
- 6. Line 331: Young's*

We thank the Reviewer for the thorough revision of our manuscript and the useful comments that improved the quality of our work. The typos were all fixed, including some additional ones which were detected in Eq. 10 and Table 2 during the revision of the manuscript.