

EDITORIAL

Reviews and Responses for Generation of Parametric Climb Trajectories Considering Operational Inputs for Aircraft Engine Thrust Extraction

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Reviewers: Emy Arts and Enrico Spinielli

Editor: Martin Strohmeier

1. Original paper

DOI for the original paper: <https://doi.org/10.59490/joas.2023.7216>

2. Review - round 1

2.1 Reviewer 1

The topic of this research is very interesting, especially in the bigger picture presented. However, the source code for this publication is not provided, nor are there other methods that allow for reproducibility, such as pseudo-code or specific formulas/hyperparameter settings. The authors state, "As the generated model is not valid globally but within the boundaries of the specific use case, the outcome of the study should be the method presented. " The code and model are to be shared with a statement regarding these boundaries. These boundaries do not seem to be stated clearly in the submitted text.

Assuming the authors will provide elements for the reproducibility of their work, the following are further comments that should be addressed:

Layout and Readability:

- The figures are not always understandable and often lack a legend and proper explanation in the text.
- Typos: Line 128 "decent", L254 "accuracy".

Content:

The introduction lacks some information in the form of references or background for readers without specific domain knowledge:

- Reference for Lines 24-26
- Why is thermal load important for degradation?
- How/Why do hybrid systems impact thermal load?
- How are thrust settings impacted by ambient conditions?
- Reference for Lines 86-88

Formulas for the different conversions and calculations are missing in sections 2.1 and 2.2.

Table 1 could be described more in the text, including the parameter names.

Regarding the presentation of the results:

- Figure 5 does not show the strong relations mentioned in the text and seems to contain more artefacts than trends.
- The distribution of flights should be addressed (Is it flight count or route count? How many flights are there in total? What time period is taken into consideration?)
- Lines 211-212 need more explanation
- How come there is no comparison of the generated distributions to actual ADS-B data?
- What are the OpenAP default values in comparison to the range of values provided for the generation?
- How is the thrust calculated?
- Why is the take-off not considered or addressed?

Overall, I hope the authors will be able to make the necessary changes to this work, as I do believe it to be valuable to the scientific community.

2.2 Reviewer 2

The paper is interesting but needs some review, especially since it is missing data/code for reproducibility.

General:

- positioning of citations, i.e. line 16 "... maintenance status. [1] For modelling engine...". I think it should be "... maintenance status [1]. For modelling engine..."
- use "Figure" rather than "figure", see also line 16, 31, ... Missing "Figure" line 22.
- acronyms should be in proper order and only once, i.e. CAS lines 56-57 is in full text and acronym in lines 139-140, TO both in 57 and 137...
- IMHO too many "on one hand ... on the other hand"

Typos/(suggested) rewording:

- line 27: substitute "...the frequency of take-offs becomes less." with "...the frequency of take-offs reduces."
- line 34: remove "As an example": there was already a "For example" just 2 lines before.
- line 63: substitute "...and the accessibility to the..." with "...and the availability of the..."
- line 64: find synonyms to avoid too close repetitions, i.e. line 64 "...adapte..." line 65 "...adap[ta]tions..." (typo too)
- lines 93-94: rephrase to active tense.
- line 124/131: "Firstly"/"Secondly" -> "First"/"Second" (or "Then")
- line 150: avoid repetition of "the course"
- Line 184-185: "latin hypercube sampling"? I guess "latin" is a typo

- Figure 5: missing legend for the different colors in the bar plot (also not too clear the x-axis of the bottom plot is flight distance)
- Also, in aviation, nautical miles are generally used rather than km...
- Figure 6: missing legend for the different colors in the bar plot (also not too clear the x-axis of the bottom plot is temperature).
- Would it make sense to have the top x-axis to report temperatures in Celsius?

3. Editorial notes

The above comments have been addressed by the authors in the revision.