Response to Reviewer 2 Comments

**Point 1:** The main conclusion from the study, namely, "Distance is the determining factor of the emission per capita caused by international air transport, while the component of tourist origin can influence the aggregated emission per capita to small island destinations." is obvious.

**Response 1:** Thank you. We have revised this conclusion with more specific number. In the conclusion, Line 356, it has changed to "Distance is the determining factor of the emission per capita caused by international air transport, while the component of tourist origin decreases the aggregated emission per capita to small island destinations by 0.5%-2%.”.

**Point 2:** The solution for the problem, namely, using Biofuel in place of traditional aviation fuel is substantiated in a limited way based on the assumptions made and the models the authors use.

**Response 2:** Thank you. We are aware of the limitation in biofuel production. However, due to current knowledge and the stage of the biofuel technology, it is not possible to come out with a very exact and quantitative result. In this study, assuming biofuel have the ability to reduce around 80% CO₂ emission compared to conventional jet fuel, we estimated the biofuel demand for emission mitigation and obtained results of its corresponding cost, which is totally plausible. Besides, considering the limitation of our study, we have added uncertainty in the discussion from the aspects of fuel consumption, scenario assumption and biofuel price.

At the begin of 4. Discussion, we added "In fact, there are four main mitigation pathways for air transport emission, such as mitigation policy, technology improvement, operation and management, and alternate jet-fuel, within which, the contribution of operation and management is very limited. Besides, considering the commercial cost of the aircrafts, it is not a realistic solution to upgrade the aircraft very quickly unless the improved technology in airplane design or engine regeneration. As a result, other mitigation methods besides biofuel will not create significant changes in the coming century [22]. The European Aviation Environmental Report 2019 also states that sustainable aviation fuels have the potential to make an important contribution to mitigating the current and expected future environmental impacts of aviation [23]. For this reason, biofuel was considered as the major factor responsible for future emission mitigation. However, till now the potential of biofuel and the detailed approach, are yet to be discussed thoroughly. This study also suffers from a lot of uncertainties, arising from the prediction of emission and corresponding cost."

**Point 3:** What is not discussed in the paper is the appropriateness of the choices the authors make. The biofuel price is assumed to be 2-7 times that of conventional fuel, this means very different scenarios to consider and not that the extra cost of implementing biofuel will vary between the amounts shown in Table 4, last column. Mitigation solution can not be justified based on these figures alone. There are other costs and implementation issues and constraints which are not considered.

**Response 3:** Thank you. As we reviewed in the introduction, the study on potential of biofuel for replacing the air transport emission is very limited. It is not possible to come out with a very exact and quantitative result. The reason we choose the assumption of biofuel price is 2-
7 times of conventional fuel is that this is value provided by IATA sustainable aviation fuel roadmap (2015), and widely the accepted by general. Therefore, we have revised the discussion adding the uncertainty of the bio fuel price in Line 341 "Here, it was assumed that the biofuel price is 2-7 times of conventional fuel, but there are other ratio assumptions about the biofuel price. For instance, the European Aviation Environmental Report 2019 assumed that the biofuel price is 1.6~1.7 times that of conventional fuel. Furthermore, Pavlenko N stated that the price of alternative jet fuels is two to eight times the price of petroleum jet fuel in the European Union [26]. Therefore, the cost estimated in this study contains a lot uncertainty, which can be reduced by further narrowing the range of the bio fuel price."

**Point 4:** The paper fails to connect the suggested solution and the case study emphatically.

**Response 4:** Thank you. But we respectfully disagree with your point. The case study of the two islands is an attempt to explore the biofuel mitigation pathway and its corresponding cost by a bottom-up method. Since Palau and Seychelles are two tourism-reliant islands, the article analysed the international air transport emission based on the international tourist perspective, and set three scenarios to seek the solution to realize the mitigation targets. Therefore, we are confirmed that the suggested solution (biofuel implements) and case study (two tourism-reliant islands emission mitigation) are connected.
This is to certify that the manuscript entitled
**Possible Mitigation Pathways of International Air Transport Emissions: Case Study in Palau and Seychelles**
commissioned to us has been carefully edited by a native English-speaking editor of MogoEdit, and the grammar, spelling, and punctuation have been verified and corrected where needed. Based on this review, we believe that the language in this paper meets academic journal requirements. Please contact us with any questions.

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