

Dear Editor,

We have uploaded the manuscript and a track-changes file where the modifications with respect to the version uploaded on May 11th are marked.

We have included the changes from May's version in order to clarify many of the changes that we implemented to solve the issues you raised in your response of 28 June.

These changes are as follows:

Equation 2: Although one can understand from the text that the F here is different from F in Eq. 1, but again, for consistency, use a different notation for each.

The font in Eq. 1 and the corresponding references in the text have been changed to emphasize the difference.

Lines 21-23: first, I don't think there is a need for a new paragraph. Second, I understand why you keep the sentence, "But first it is worth recalling that several authors have previously considered the energy-residence time relation in other type of problems." However, in its current form, it feels unrelated and awkward. Either elaborate on this point or move it to the next paragraph to explain why you describe the residence timescale in the sun.

This paragraph has been modified.

Equation 8: I do not see how this contributes to the manuscript.

Eq. 8 has been suppressed.

Line 67: no need to be in a separate paragraph.

Change accepted.

Section 3 title: Why did you add Residence time at the end of the title? Maybe and residence time in planetary atmospheres?

Section 3 title has been changed to "Energy fluxes absorbed and emitted by the planetary atmospheres and residence times."

Line 73: The case of Venus is Fig.6 in Read et al. 2016, not 3.

Yes, it was a mistake. Changed.

Line 133: at the end of the line, change "The result" to "The radiative timescale ..."

The paragraph has been re-written.

I feel Sections 4 and 5 may need some introductory and concluding remarks to make them better integrate with the rest of the study. Why these items are discussed and what the implications are for the study may need to be better outlined at the start and end of these sections.

Following the comments of referee #1, we have modified Section 4. We have emphasized the analogy between KH timescale and the residence time of energy in the planetary atmospheres. Also, we have modified Section 5 to justify the introduction of this Section.

Rev. 2 also commented on the lack of a critical review of possible uncertainties in the input numbers (flux and energy content) you use in your calculations, and their effect on the results, this is something you may want to respond to.

Comparison between the different forms of energy and considerations about their relative magnitudes have been introduced in Table 2 (new) for Earth. Section 3 has been rewritten to include in the text quotes and figures about the uncertainty of energy fluxes. We also discuss some approximations that were made for Titan and Mars in lines 53-56. These uncertainties have been summarized in Table 4.