Response to the comments of Anonymous Referee #1 (RC1)

We thank the reviewer for the constructive comments. Changes in response to the comments are marked in blue in the revised manuscript.

(1.0) Line 126: Instead of "Every object belongs to a class", consider "Every variable has a type, and the type of an object is its class. A class specifies..." Consider also breaking up this paragraph to emphasize the explanation of objects/classes and to highlight the examples.

> *We changed the text as suggested by the reviewer. It now reads (line 133): "As with all variables, every object has a 'type,' also called its 'class.' A class specifies...". We also broke up the paragraph to separate the examples of objects from those of classes.*

(1.1) Line 127: Regarding class hierarchies: the term hierarchy is used to describe a great many things. If you want to discuss polymorphism, consider this explanation or something like it: "Unlike other variables, objects have behaviors implemented by their functions. For example, chemicals reactions can be classified into Arrenhius and Troe types that share a common interface but have different implementations. This classification can be accomplished using a "base class" that defines the interface, and "subclasses" that implement different ways of satisfying it. So a Reaction base class could have Arrhenius and Troe subclasses that calculate reaction rates in their respective ways." Thereafter, you can refer to a subclass w.r.t. a base class for clarity. E.g. "Parameter subclasses" instead of "Parameter-extending classes".

> *We thank the reviewer for the good suggestion to use "subclass" rather than "...-extending class". We have changed this throughout the text. The paragraph in the introduction now reads (lines 133–138): "A class specifies a minimal set of data and functions that the object must have. For example, we will have a* `Process` *class, which specifies that all objects of this type must have a* `calculate_derivative_contribution()` *function to compute the rate of change of each species. Classes can be organized into a hierarchy, with a 'base' class that defines which functions must be supported, and 'subclasses' for specific implementations. For example, we will use* `Process` *as a base class with subclasses* `Arrhenius` *and* `Troe`*, which will implement those particular types of reactions."*

(1.2) Line 155: worth citing a link to CAMP's documentation here?

> *We added the citation (line 163).*

(1.3) Table 2: the equations for aqueous reversible reactions and for Henry's Law should each have a "K" after the 298 in the argument to the exp function.

> *We corrected this.*

(1.4) Line 243: Is it worth providing a reference or link that describes the JSON format and/or its use in software (ideally in a scientific context)?

> *We added a reference to the book: Introduction to JavaScript Object Notation: A To-the-Point Guide to JSON (line 248).*

(1.5) Figure 6: This is a very instructive figure. However, its orientation is a bit awkward for reading. To me, it seems like flipping it by 180 degrees might be better, if it doesn't go against journal guidance.

We will check if this is possible with the typesetter.

(1.6) Line 315: Consider, for clarity: "as determined by the aerosol scheme's representation."

We updated the text as the reviewer suggests (lines 327–328)

(1.7) Line 329: Consider providing a link to a description of GitHub Actions, since it's mentioned in a couple of places.

We added a link to the GitHub Actions documentation (line 342).

(1.8) Figure 8: the text in the legends for the plots does not display using two PDF renderers on my system.

Figure 8 properly rendered in the submitted PDF version of the manuscript but did not properly render in the finalized version that appeared online. We have included the figure below as Figure 1.

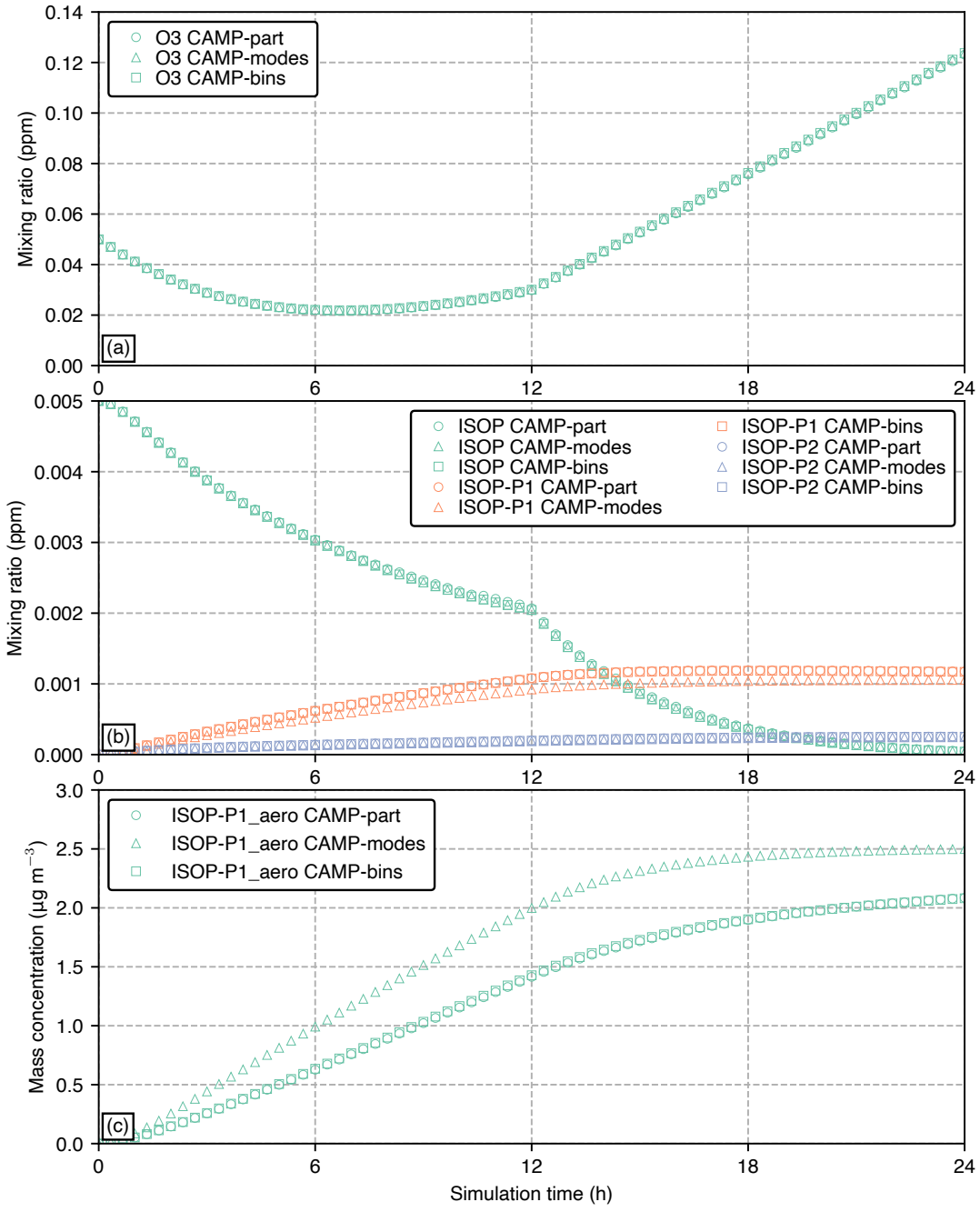

Figure 1: Comparison between CAMP-modes, CAMP-bins, and CAMP-part for (a) ozone mixing ratio, (b) ISOP, ISOP-P1 and ISOP-P2 mixing ratios, and (c) ISOP-P1_aero mass concentration for the 24-hour simulation period.