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We would like to thank Dr. Spaargaren for his constructive feedback and suggestions. The manuscript will be adjusted accordingly:

[reviewer comments in blue font, replies in black font]

1. In my view, the authors could improve how they present the use cases of PlanetBuilder and the general scientific niche they are occupying with it. There is no mention at all of the scope, niche, or usage of this model in the Introduction, and it is unclear what scientific question or gap the authors are attempting to address with this manuscript. In addition, while PlanetBuilder is clearly a well-built and sound model, it is not clear how it compares to other, similar models in literature. By my knowledge, there is no open-access equivalent of PlanetBuilder, and that should be emphasized in the manuscript.

We acknowledge this could be presented better, and we will make changes to Sect. 1 (Introduction) to reflect this.

2. In a similar vein, Section 4 (assumptions and limitations of the model) does not describe how these assumptions and limitations compare to the literature. Most of the assumptions lined out in this section are perfectly reasonable and in line with the current state of the field; this needs to be discussed, alongside appropriate references.

We will add several literature comparisons to provide a better perspective of the position taken in PlanetBuilder in terms of assumptions, in comparison with previous studies, in Sect. 4.

3. While the authors present some potential use cases in Section 5 (Model possibilities), I believe these cases can be presented more convincingly, thereby emphasizing the impact of this modelling effort. The authors focus their use cases on two major directions: as a general tool for geochemists to test experimentally determined partitioning coefficients and metal activity coefficients, and as a module for geochemists, geophysicists, and astrophysicists to incorporate in modelling frameworks describing the chemical and physical evolution of planetary interiors, which would be applicable to the early stages of planetary evolution, the evolution of lava worlds, and of sub-Neptune planets. I would highly recommend the authors to expand upon these use cases with appropriate references. For the former use case, I'd also highly recommend presenting some examples; for the latter, I'd suggest a comparison to the work of Schlichting&Young (2022).

We will add more information and references to emphasize the use of PlanetBuilder in Sect. 5.

4. Sect 2.2: I understand why there are no mass balance equations for Mg, Ca, and Al, but the minor elements also require mass balance equations. Where are the minor elements initially placed? All in the mantle or all in the core?

To allow direct comparison, we use the initial division of both major and minor elements between mantle and core from Rubie et al. (2011). That means that initially 99% of all Co and 90% of all minor elements are in the core. Similarly, the minor elements are presented as elements rather than oxides in both mantle and core. We will add the generic form of the minor element mass balance to represent this in Sect. 2.4.

5. In Eq. 29 the authors include the variable L_{new} ; however, I am confused as to how the variable L ($\text{MgO}+\text{CaO}+\text{Al}_2\text{O}_3$) would change during metal-silicate partitioning, since the authors treat these elements as purely lithophile. If the variable L does change in this step, I would like to ask the authors to include the appropriate equation in the manuscript.

The reviewer is correct: variable L does not change in this part of the partitioning process. We will remove the “new” in Eq. 29 to reflect this assumed consistent lithophile behaviour.