Dear Editors,

Enclosed please find the revised article “**‘Depths in a day — A new era of rapid-response Raman-based barometry using fluid inclusions " (ID JPET-Apr-24-0074)** submitted to Journal of Petrology along with all supporting information for consideration as an original paper. We appreciate the reviewers’ positive and constructive comments, which have helped greatly improve our original manuscript.

The editor as well as two reviewers recommended that we extend the manuscript into a longer traditional format article, with particular emphasis on expanding our discussion of the limitations of the method and applicability to other systems. We have carefully incorporated their recommendations in the revised manuscript and address all their specific comments in the response to reviewers attached.

We summarize here the biggest changes to our manuscript:

1. We have reorganized the text to improve clarity, included two new sections and added appropriate references where needed. We reformulated our Introduction to better describe the breadth of pre-existing knowledge on fluid-inclusion barometry using appropriate references and clarify our goals for the study.
2. The new Section 4 now discusses in detail the advantages and disadvantages of fluid inclusion barometry (including, for example, as requested by the reviewers, re-equilibration, sample type, inclusion composition and the effect of Temperature and XH2O on pressures).
3. Section 5, also new, discusses the relevance of fluid inclusion barometry as a monitoring tool for observatories, as requested by reviewer #2.
4. We expanded the discussion on how to approach systems with variable amounts of data available in section 3. We added two new figures to the main text (Fig. 3 and 5) to aid in this discussion. Fig. 3 shows how XH2O varies with saturation pressure at various recently active volcanic systems where fluid inclusion barometry could be applied, and Fig. 5 shows the difference in XH2O depending on the magma composition for tholeiitic and alkalic OIB volcanoes. These relationships, drawn from our compilation, could be used to provide a reasonable educated guess on XH2O for systems with no pre-existing melt inclusion data.

Thank you for your consideration,

Dr. Charlotte LJ Devitre and Dr. Penny Wieser