We thank Ross Angel for his careful reading and detailed comments on our preprint. We have addressed part of his comments in our response to anonymous referee #2, in particular those concerning symmetry reduction on compression perpendicular to the *c*-axis, and we will reply here only to specific points raised by Dr Angel.

A disagreement exists around considering whether the Grüneisen parameters (γ) are constant or not. Dr Angel developed on a theory (Grüneisen) where γ is constant, hence Raman frequencies scale to lattice parameter variation or strain through a single parameter. We have shown here and agree that this is correct for one of the quartz Raman peak (464 cm^{-1}), and also show that is not correct for the two other major peaks at 128 and 206 cm^{-1} (Fig. 3b). Thus we fitted the relative frequency vs volume data for these two modes with a non-constant strain dependent γ. This was overlooked by Dr Angel in his re-analysis of our data, using our ambient pressure value noted as γ_0 as a constant γ or the sum of axial g that we assumed constant. We reproduce here the section of our text where the fit was explained: "*Grüneisen plot (Fig. 3b) shows that the assumption of constant Grüneisen parameters (Angel et al., 2019) is not valid in quartz, except for the 464 cm^{-1} peak. Grüneisen parameter (γ) dependence on volume is taken into account in fitting the data (Table 1) with two parameters (Reynard et al., 2012), the ambient pressure value γ_0, and its volume dependence q expressed as $q=(\partial ln\gamma/\partial lnV)$.*" One must include the *q* parameter to reproduce the data accurately. We have added a sentence to emphasize the difference in data analysis lines 171-172.

Constant γ were contradicted by experiments on quartz and on other materials such as olivines (Reynard et al., 2012; Gillet et al., 1997). This does not mean that we think the Grüneisen approach through strains is less valid than the one we use here through stresses, only that it should use accurate fits with variable γ when necessary.

Grüneisen parameters are of practical use when DFT calculations are performed at fixed strains. Here strains are inconvenient because experimental calibrations directly give pressure and stress (an experimentally determined parameter and the geologically relevant one) as a function of Raman frequencies (the other measurable variable). With the relationships we establish, we can analyze directly the effects of statistical fluctuations in the Raman measurements. We show that the minute uncertainties of 0.5 cm^{-1} can have a strong effect on the determined stresses, or equivalently on the determined strains if one prefers that approach. We provide supplementary figures with sensitivity tests to show how errors propagate. Using the constant Grüneisen parameters proposed by Dr Angel and coworkers gives a fair fit to the experimental data given that only theoretical DFT data were used. However the low-pressure data essential for applications to natural inclusions are missed by up to 1.5 cm^{-1}, introducing systematic deviations that are larger than the uncertainties on the Raman measurements.

Thus we preferred an approach that stays close to the measured quantities in our experiments, and propose an analysis that allows detecting and evaluating systematic deviations in the Raman data rather than obtaining an averaged value of pressure and deviatoric stress for each data point. A paragraph was added lines 235-252 that describes the approach, and at the beginning of the concluding remarks (lines 324-328). Accurate average pressure and deviatoric stress are obtained by showing that populations of inclusions belong to a single population formed at similar conditions, and averaging over this population (Fig. 6, suppl Fig. 2).

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