Note to the Editor regarding the 'Comment' by Daniel Errandonea

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REPLY

Note to the Editor regarding the 'Comment' by Daniel Errandonea

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Errandonea, in his comment, has pointed out the drawbacks of the 'dislocation-mediated melting model' [1] and the 'Lindemann rule' [2]—used in our earlier publication [3]. However, his comment should not be treated as a 'Comment' on our paper [3]. Our work was on shock Hugoniot and was motivated by the fact that effects of shock melting were not addressed in the work of Wang *et al* [4]. Thus we calculated both the solid and the liquid Hugoniots, and used the existing melting curve models to indicate which parts of the Hugoniots were relevant. Our purpose was to verify whether shock melting had any effect on Hugoniots. Note that, in evaluating these Hugoniots, we had not used the two prescriptions of melting models referred to in Errandonea's comment. Our focus was never on the melting curve, as was evident from the fact that there was no mention of the melting formulation or intention to improve upon the existing melting models in the entire 'introduction' section of our paper [3]. We only used the readily available models of melting and, in particular, were not aware at the time of submitting the manuscript of the improvements carried out by Belonoshko *et al* [5]. As Belonoshko *et al* [5] used an improved model, it is not proper for Errandonea to highlight the differences in the results obtained by the dislocation-mediated melting model in the two calculations, as they are expected to be different. The error range was estimated as about 17% in the original work of Burakovsky *et al* [1].

Errandonea has pointed out the improvements needed on the original model of dislocation-mediated melting [1], and his work should be published as an independent paper—not as a 'Comment'. If the author wants to communicate it as a 'Comment', it should be a 'Comment' on the original work of Burakovsky *et al* [1].

We request that the editors make the contents of this note known to the referee when the Comment by Errandonea is sent for refereeing.

Apart from stressing the inappropriateness of treating Errandonea's communication as a 'Comment' on our paper [3], we do not like to reply to the 'Comment' in scientific terms, as all the reasoning for the discrepancy is given in his work.

References

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