Beard’s (2008) welcome Comment offers us the opportunity to discuss and clarify certain aspects of our paper (Jagoutz et al., 2007). Beard raises points about our reinterpretation of his originally postulated genetic link between albitite clasts recovered from a breccia and a coarse-grained kaersutite pegmatite intrusive into peridotites (site 1070, Ocean Drilling Program [ODP] leg 173) (Beard et al., 2002). It is essential to first review the geological and petrological aspects of the albitite clast and pegmatite. However, we emphasize that our model is not affected by the relationship between the albitite clasts and the pegmatite.

The albitite clast was recovered from a breccia drilled at ODP site 1070 on the Iberia Margin (Fig. Supp. 1, Data Repository item 2007270 of Jagoutz et al., 2007). The breccia is a heterogeneous assemblage of clasts containing calcite, serpentine and possibly amphibolite clasts together with gabbroic and albitite clasts (Whitmarsh et al., 1998), and it is unknown whether it is composed of locally derived components. It is separated by an ~20-cm-wide gouge zone from the underlying unit, which contains the kaersutite pegmatite. A genetic link between the albitite clast and the pegmatite is thus an interpretation that awaits further investigation.

It has been shown that albitites (or plagiogranitites) might be substantially younger than gabbros (Costa and Caby, 2001). Recent work proposed that hydrous partial melting of mafic rocks is an alternative mechanism to form plagiogranites (Koecke et al., 2007). The proposed magmatic link is the key of to the interpretation of Beard et al. (2002), who equated the U-Pb data on a single zircon from an albitite clast to the intrusion age of the pegmatite intrusion age. However, the inferred ambient temperature of >1000 °C at the time of pegmatite emplacement (Beard et al., 2002) is a strong speculation, as this high ambient temperature would leave almost no temperature window for amphibole crystallization.

Finally, we agree that the magmatic history of the Iberia-Newfoundland margin needs more high-resolution U-Pb ages to resolve temporal differences between different magmatic pulses.

REFERENCES CITED


