

## **Magma Fragmentation in Fluidal Peperite: Implications for Morphological Complexity of Vitric Clasts in Hydrovolcanic Tephra**

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Clasts of fluidal basaltic peperite are locally common within voluminous debris-flow deposits, which were erupted at the onset of flood basalt volcanism in the Karoo LIP. The peperite comprises decimeter and centimeter-scale, lobate, poorly vesicular glass domains, intimately and convolutedly mingled with a mud to medium-sand host. The magma domains underwent initial plastic disintegration, probably due to mechanical stresses during movement of the magma and/or sediment-fluid mixture. The disintegration surfaces are broadly curvilinear but have a globular surface texture, suggesting breakup at temperatures close to  $T_g$ . Fragmentation to ash and lapilli size clasts took place along the margins of these surfaces, mostly by a delamination process in the plastic state. These clasts display a complex range of morphologies, including sliver, platy, blocky, globular and ragged types. Many of them appear folded and most have smaller-scale globular surfaces. Explosively-generated hydrovolcanic and experimental analog tephra commonly include a wide range of similar clast morphologies. This suggests that non-explosive processes, such as those described here, could contribute to the morphological complexity of explosively-generated hydrovolcanic tephra. This oral presentation is also linked to a poster.