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## Impact vesiculation – a new trigger for volcanic bubble growth and degassing

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**Abstract.** We highlight a potentially important trigger for bubble growth and degassing in volcanic bombs. We have successfully triggered bubble growth in previously unvesiculated samples of silicate melt during experiments to simulate volcanic bomb impact, by firing pellets at, and dropping weights onto, melt samples. We call this phenomenon "impact vesiculation". Further work is required on real volcanic bombs to establish the extent to which impact vesiculation occurs in nature. However, our experiments are sufficient to demonstrate that impact vesiculation is a viable processes and should be borne in mind in analysis of bubble populations and degassing histories of bombs and spatter-fed lava flows. Degassing caused by impact vesiculation can occur only at ground-level, so any attempt to calculate the amount of erupted gas available for transport high into the atmosphere by convection above the source of a fountain-fed lava flow that is based on subtracting the volatile content of fluid inclusions from the volatile content of the resulting lava flow would be an overestimate if significant impact vesiculation has occurred.

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