

Abstract Submitted  
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**Shock compression of geological materials** SIMON KIRK, CHRIS BRAITHWAITE, DAVID WILLIAMSON, ANDREW JARDINE, Fracture & Shock Physics, SMF Group, Cavendish Laboratory, JJ Thomson Ave., Cambridge, CB3 0HE, United Kingdom — Understanding the shock compression of geological materials is important for many applications, and is particularly important to the mining industry. During blast mining the response to shock loading determines the propagation speed and resulting fragmentation of the rock. The present work has studied the Hugoniot of two geological materials; Lake Quarry Granite and Gosford Sandstone. For samples of these materials, the composition and microstructure was characterised in detail. The Hugoniot of Lake Quarry Granite was predicted from this information, as the material is fully dense, in good agreement with the measured Hugoniot. Gosford Sandstone is porous and undergoes compaction during shock loading. Such behaviour is similar to a granular material and we show how it can be described using shock compaction models.

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