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Letter

The acoustic emissions signature of a pressure-induced polytypic transformation in chlorite

David P. Dobson,[1,*] Almar A. De Ronde,[1] Mark D. Welch,[2] and Philip G. Meredith[1]

[1]Department of Earth Sciences, University College London, Gower Street, London WC1E 6BT, U.K.
[2]Department of Mineralogy, The Natural History Museum, Cromwell Road, London SW7 5BD, U.K.

Abstract

We present results of an acoustic emissions (AE) study of single crystals of chromian-clinochlore during compression to 10 GPa at room temperature. Distinct AE are detected associated with the type I*a* → I*b* transition at 6 GPa. Analysis of AE source locations and first motions at transducers are consistent with a rapid collapse of the *c*-axis of the sample and AE originating within the sample and not the surrounding pressure medium. This is the first time that AE have been detected directly from a phase transformation in the multi-anvil press and opens new possibilities for kinetic studies and studies of deep-seismogenesis.

Keywords: High-pressure studies, mechanical properties, new technique, chlorite