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Modelling multi-seam interactions for longwall mining

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ABSTRACT

This paper provides a case study of a multi-seam longwall operation, experienced conditions due to working interactions and the method used for understanding the changes in the stress regime. Vertical stress changes are modeled and the experiences used to validate the parameters and properties. The software chosen (LaModel) is a numerical modelling package designed to model stresses and displacements on thin deposits. It utilises a displacement-discontinuity variation of the boundary-element method and has been used extensively throughout the United States and Australia in multiple seam mines. Analysis of the model presented here demonstrates a clear correlation with the above workings and regions of significant deterioration providing the opportunity going forward to analyse this data and incorporate into mine planning and geotechnical designs.