

## **In-situ monitoring and modelling of the rock mass response to mining: Japanese-South African collaborative research**

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### **Abstract**

The Japanese-South African intergovernmental science and technology *project* “*Observational studies to mitigate seismic risks in mines*” includes seismological studies aimed at a better understanding of how a seismic event is prepared and strong motion is generated and amplified. This paper highlights another important aspect of mitigating the seismic risk, the improvement of geotechnical models, constitutive models, and the knowledge of boundary conditions to enable better numerical assessment of seismic hazard in South African gold mines. Some preliminary results of the activities of in-situ monitoring of the rock mass are documented, which include an attempt to constrain stress and strength on a rupture plane accurately delineated by AE monitoring. Optimized to the condition in South African gold mines, a Japanese technique is introduced to measure in-situ stress in rock mass.