

Mine blast using infrasound and Remote Sensing Technologies

Namibia, rich in resources has a number of open pit mines. We have an infrasound station 15 km North of Tsumeb that forms part of the International Monitoring System, (IMS). Explosions used in mining operations have similar signal forms to that of nuclear explosions. Change in the topography is monitored by remote sensing techniques (satellite images). The objective is to know if the Geophysical station in Tsumeb can pick up local mine blasts and if it is possible to distinguish land subsidence by using satellite images. Henning Crusher and B2Gold were the two known mines used. For the infrasound a filter of 0.4 to 0.5 Hertz were used to see if both blasts can be identified. Sille and RUS Copernicus was used for both areas to analyse for land subsidence. A clear infrasound signal was obtained for Henning Cursher but not for B2Gold mine. For the Remote sensing, Sille indicated clear subsidence especially for B2Gold, however, RUS Copernicus using Sentinel images has to large resolution to indicate the small mine blast. In conclusion due to the distance and size of mine blast it may or may not be recorded by Infrasound. High resolution images are need for detailed indication of Subsidence.

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