

A Successful Example of a Shallow Ore-body Imaging by Surface 3D Seismic

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Surface 3D is now a widely imaging tool used in the Western Bushveld in South Africa to derive continuous **structural image** for ore bodies with a depth ranging from 600m to 1700m below surface.

The cost of such surveys is directly linked to the source and receiver **surface sampling**.

Such structural model was requested for the Modikwa Platinum mine, in the Eastern Bushveld, with an ore body whose depth is ranging from 200m till 450m. In order to balance the costs versus the expectations, a trial was conducted in 2004 whose main focus was to determine the most **optimum surface sampling scenario** and also benchmark the results of surface seismic versus initial model derived from boreholes. This test has delivered as expected an acquisition model for shallow UG2 surveys in Eastern Bushveld and also a structural model with reliable small features such as fault throws down to 12m due to the achieved **vertical resolution**.

In 2006 the main survey took place and the expected structural image was achieved after processing. The fault network when compared to the initial model had its accuracy and reliability push down till **fault throws** around 12m for a cost balancing current density of boreholes.