

PROJECT DESCRIPTION

LKAB

Malmberget Mine, Sweden

LKAB plans to increase the production in Malmberget mine to 20 million metric tons of iron ore per year. The objective of this work was to create a detailed model of all orebodies to study the stress situation with continued ore production at depth.



FLAC3D™



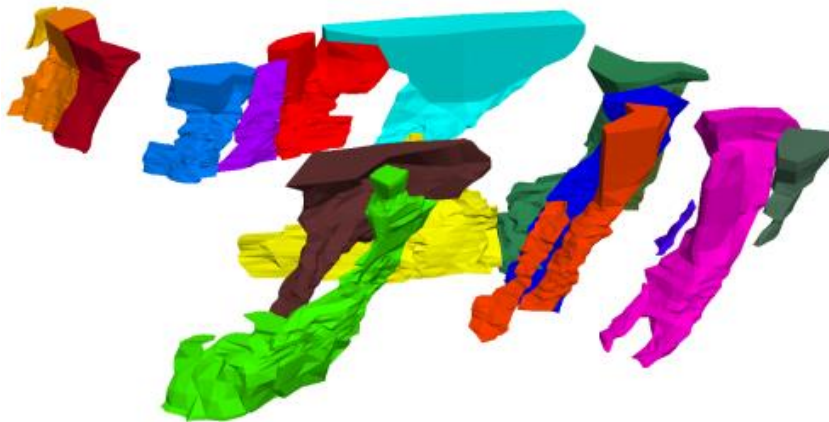
KUBRIX Geo®

ITASCA'S ROLE

Itasca constructed a three-dimensional mine-scale model for the Malmberget mine, including all orebodies (active and previously mined). The model was created in the CAD-program *Rhino* and using the element generator *KUBRIX* and analyses were conducted with *FLAC3D*.

PROJECT RESULTS

The stresses around the orebodies due to mining at depth were evaluated. Evaluation of seismic moment for all possible orientations of the shear plane was made at locations of seismic events in the mine. The ESS (Excess Shear Stress) was calculated on the shear plane and the circular area with positive ESS was determined.



FLAC3D model of the Malmberget mine, showing orebodies included in the model.