

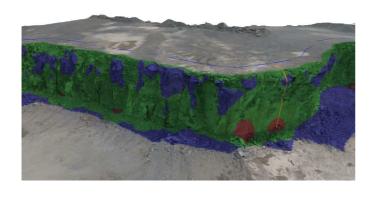
BlastMetriX

Blast Optimization using drone imagery





Reproducible Design



Objective Analysis

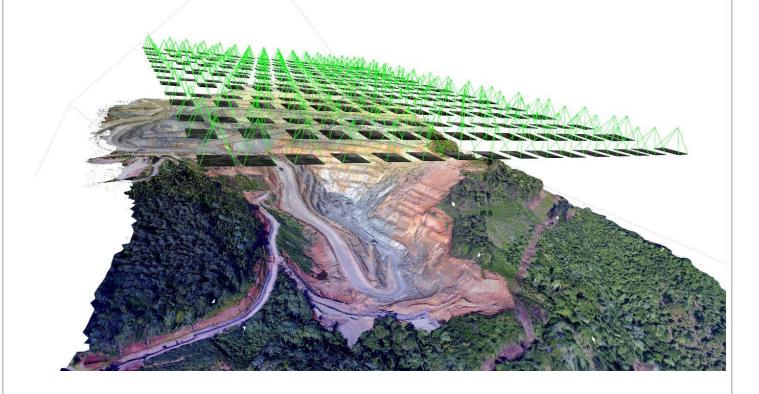


3GSM - Simply Measure!



Multiphoto

Powerful 3D model generator for digital imagery



Used on surface



Used underground



3GSM - Simply Measure!

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BlastMetriX



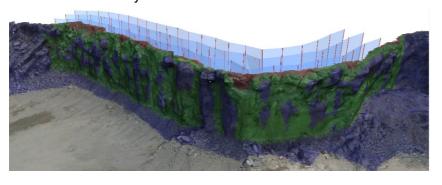
Blast Optimization

Blast design and analysis using aerial 3D models



Save money!

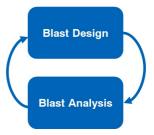
- Suboptimal blasting results lead to additional costs for loading, hauling, crushing, or secondary breakage.
- Besides, there are safety issues such as fly-rock or excessive vibrations to expect.
- Optimized blast layouts reduce the drawbacks and production costs sustainably.



Procedure

Use 3D models pre- and post blast. Adapt the blast layout based on the quantification of former blasting results. Improve successively!

Blast Optimization

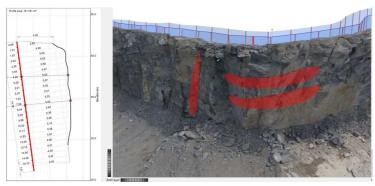


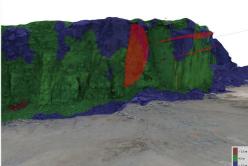
Features

- Face profiles (burden diagrams and maps)
- Automatic borehole placement
- Quantification of muckpile (movement, volume, swell)
- Automatic fragmentation analysis in 3D
- Discontinuity Mapping

Avoidance of

- Fly rock
- Poor fragmentation
- Poor diggability
- Wall damage
- Excessive vibrations





3GSM - Simply Measure!

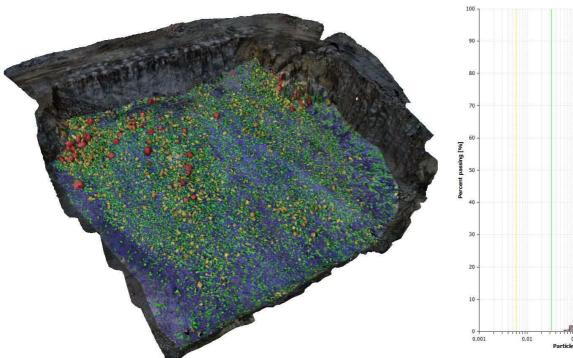
Fragmenter

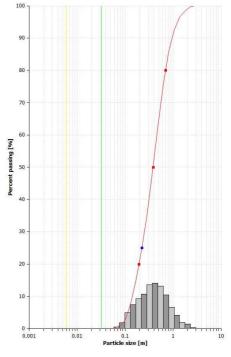


Fragmenter

First real 3D fragmentation analysis from drone imagery





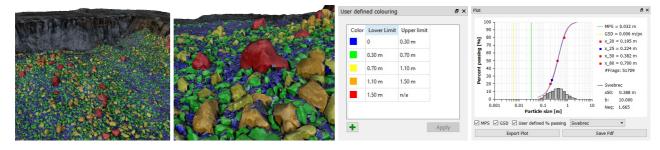


Features

- Combined 2D and 3D analysis
- Fully automatic
- Scales automatically
- Oversize detection
- Fragmentation modelling
- PDF report

Benefits

- Overcomes drawbacks of pure 2D analysis
- Fits perfectly for blast quality control
- Heavily stronger statistics due to larger amount of detected particles
- Integrates seamlessly with BlastMetriX UAV



3GSM - Simply Measure!

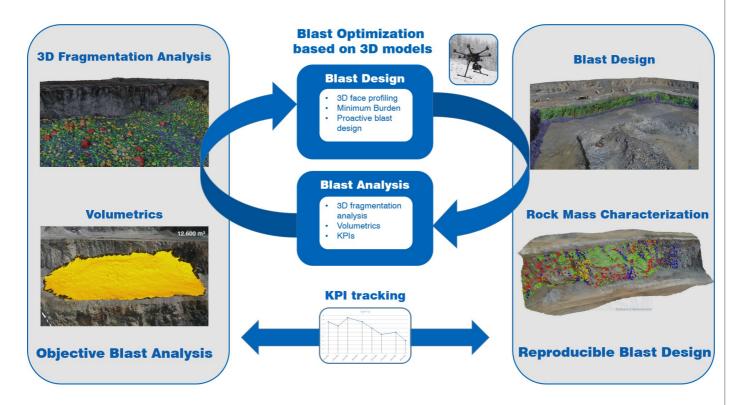
Commander



New Component

Commander

KPI Tracking and Data Management



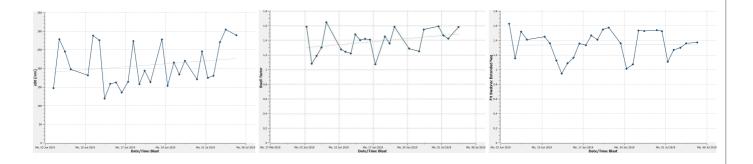
KPI Tracking

BMX Commander connects the blast design with the blast result. Tracking of according KPI's delivers an objective quantification of the quality of blasting works and enables

→ Stepwise Blast Optimization

Data Management

- Blast sites and users
- Simplified collaboration
- Dashboard
- Easy querying of production data over time and regions



3GSM - Simply Measure!

BlastMetriX



Blast Optimization

Pro-active blast design and objective blast analysis using aerial 3D models



Blast Optimization Cycle

Automatic KPI generation Product: Commander 2022 Drone flight Several off-theshelf drones supported



Automatic 3D fragmentation analysis Product: Fragmenter 2019

The synthesis of developments

Our latest development links blast design with blast analysis and leads to a closed loop that enables optimization based on tracking of key performance indicators (KPIs).

Optimized blasts lead to reduction in production costs, increased safety, and reduced environmental impacts.

Includes the unique combination of rock mass characterization and blast design

Includes the first automatic analysis of the blast result from drone imagery

Semi-automatic rock mass characterization Product: ShapeMetriX 2015 Blast Design adapted to the actual rock conditions Product: BlastMetriX 2016



High end 3D model generation Product: Multiphoto 2015

