

MinePortal™

Powers Real-Time Geoscience for the Global Mining Industry

MinePortal™ is DataCloud's intelligent, cloud-based earth model platform.

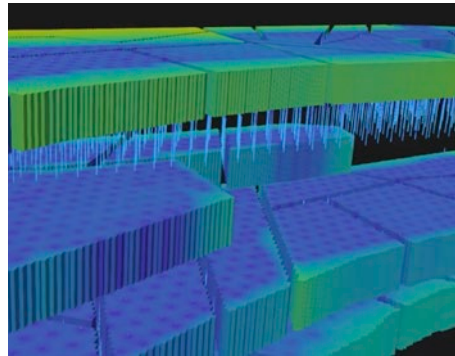
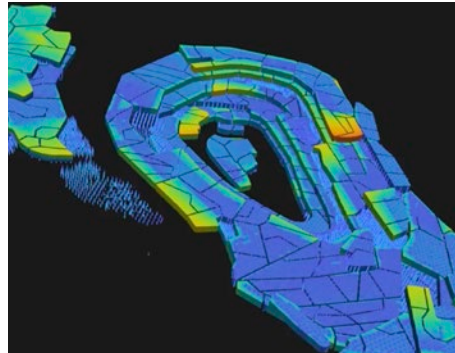
It significantly improves real-time orebody knowledge for the mining industry. With MinePortal™, mining companies can use real-time geoscience to master the subsurface and drive significant improvements in mine productivity and profitability.

Utilizing artificial intelligence and advanced geostatistics, DataCloud's MinePortal™ platform enables mine operators to process massive volumes of drilling and geosciences data to create actionable insights in real-time. The resultant subsurface data improves orebody delineation and leads to more consistent fragmentation profiles. In addition to artificial intelligence, MinePortal™ leverages the following best-in-class technologies: geophysical Internet of Things (IoT) sensors, machine learning, modern data management techniques, and sophisticated signal processing; all utilized in real-time.

Featuring the most advanced 3D visualization capabilities ever developed for the mining industry, the MinePortal™ platform can be conveniently accessed via any internet-connected device, including browsers, tablets or smart phones.

The highly extensible data model used by MinePortal™ combines multiple disparate data sets from the mine to deliver insightful subsurface information. By analyzing all of this critical data in real-time, mine operators are making faster, better drill and blast decisions that materially improve productivity, while reducing their environmental impact and strengthening their license to operate.

MinePortal™ is the platform for integrating all DataCloud products, including DigitalGeology™ and the new RHINO™ seismic while drilling sensors.



MinePortal™ Pulls From Multiple Data Sources

MinePortal™ leverages the following data sources to deliver the best possible answers for mine operators:

- » DigitalGeology™ and DataCloud's new RHINO™ IoT autonomous geophysical sensors
- » Long-term and short-term block model(s), core, Reverse Circulation, and production drill data
- » Measurement While Drilling (MWD) information
- » Assay Information
- » Mine site material tracking information which is used for Drill-to-Mill energy reconciliation efforts

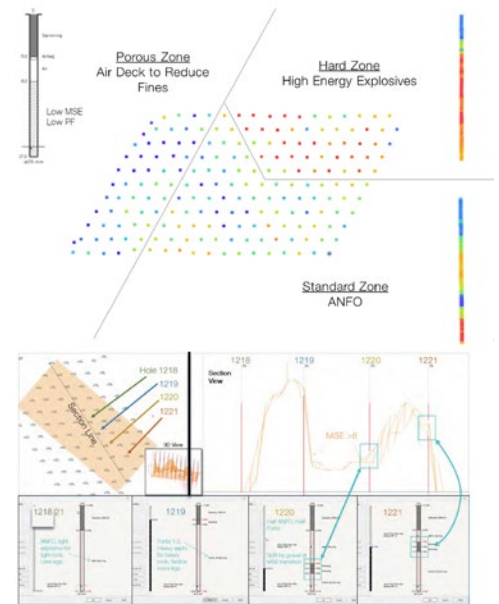
BUILT ON

3 KEY FEATURES

1. Rules-Based-Loading

Improves fragmentation profiles by optimizing powder factors and stemming decisions

- » Normalized Mechanical Specific Energy (MSE) calculations for rotary drills with erroneous data discarded, and preconditioned areas removed
- » Incorporation of all available RHINO™ IoT acoustic and mechanical rock data
- » Geostatistics and machine learning used to estimate rock properties between blast holes in real-time
- » With client input, adaptive loading plans are developed to match explosive energy to rock properties and improve fragmentation

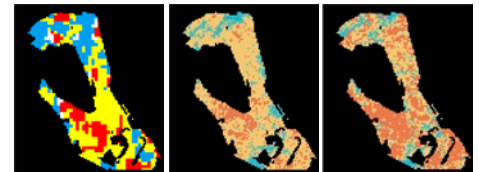


Rules Based Explosives Loading

2. Next-Bench-Down Predictions

Improves future operations by identifying heterogeneity in benches below

- » Uses artificial intelligence trained on the entire existing data set to provide an MSE and assay map for undrilled benches below — ideal for optimizing burden and spacing
- » Leverages existing block model, MWD, and rock quality designation data to provide high resolution images of patterns before they are drilled
- » Correlates assay data and the block model to MWD data to estimate grade distributions for undrilled benches — ideal for finding ore/waste boundaries and minimizing dilution

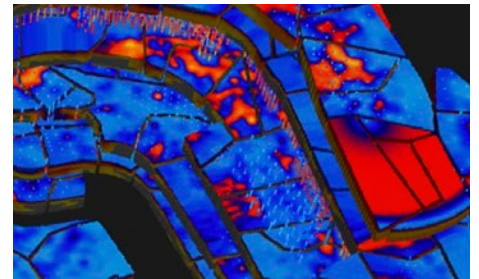


[L-R] Block Model, Next-Bench-Down predicted MSE, and Actual MSE

3. Drill-to-Mill Energy Reconciliation

Increases mill throughput while reducing processing costs

- » Correlates rock properties measured during blast hole drilling, with the resultant fragmentation profiles, and the energy required to mill that same volume of rock
- » Applies artificial intelligence to these legacy datasets, in order to optimize and time the delivery of fragment sizes to the processing facilities in future
- » Goal is to create steady-state, predictable, and efficient operations at the processing facilities



MSE for a pattern, used for differential blasting, according to customer specified cut offs



Learn more on how MinePortal™ can enhance your orebody knowledge
 Download *Revolutionizing Mining by Enabling 'Differential Blasting'* and view our videos at
DataCloud.com/resources