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## Special Feature

### Presenting FragMetrics™ at the 37th ISEE Conference

At this year's 37th Annual Conference on Explosive & Blasting Technique presented by the International Society of Explosive Engineers (ISEE), Motion Metrics' FragMetrics™ Product Engineering Manager, Edmond Chow, presented his paper titled, "Measuring Blast Fragmentation by Analyzing Shovel Bucket Contents."

In this enticing talk, the FragMetrics™ shovel-bucket-based automatic rock fragmentation collection and analysis system was introduced to an audience of explosives engineering experts. The talk emphasized the importance of sensing the rock sizes in the shovel bucket, before they are dumped onto the haul truck and passed through crushers and conveyors.

The advantage of this unique approach is that the rock sizes are analyzed very close to the blasting area, prior to the breakdown of the rocks due to handling. To optimize their blast designs, blast engineers require fragmentation data with minimal breakdown in order to obtain a precise relationship between blasting and rock fragmentation.

The talk was well-received and several attendees visited Motion Metrics' booth at the conference to learn more about FragMetrics™.



## Story

### Grasberg: The golden giant

In the mountains of the Papua province in Indonesia, the epic Grasberg mine contains one of the world's largest gold and copper reserves. Reaching heights of over 4,000 metres above sea level and experiencing an average rainfall of 10 millimetres per day, working at the Freeport mine is anything but trivial. To reach the mine village from the nearest city, Timika, takes a 15-minute helicopter ride, but only if the weather permits, otherwise, a 5-hour bus ride is the only way up.

"To avoid crusher downtime due to bucket teeth delays, Freeport has used the Motion Metrics' ToothMetrics™ technology to monitor bucket teeth." (International Mining, Dec. 2009) To increase their productivity, PT Freeport has recently equipped an additional 4 shovels with ToothMetrics™ and ViewMetrics™ systems at their Grasberg mine. The on-site Motion Metrics Installation Specialist described the mine as one of the deepest mines he has ever visited. We are glad to report that the ToothMetrics™ system commissioning was completed on schedule and are fully operational.



For more information visit:  
[www.motionmetrics.com/installations/](http://www.motionmetrics.com/installations/)

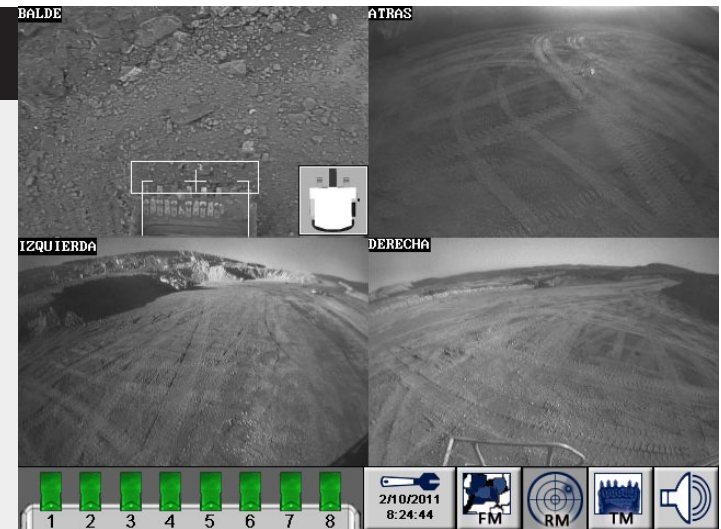
## Product News

### Multilingual support now available

In response to requests by our customers, multilingual support has now been integrated in the new "*Precision Release*" of the Motion Metrics suite of solutions.

The language of all system menus and dialogs can now be changed according to the preference of the user. For users who are not fluent in English, the system becomes more natural and intuitive, thereby allowing all users to take full advantage of the system.

A Spanish language version of this release is now available, with more languages on the way. Contact our sales department to find out how you can upgrade your existing systems.



## Product News

### The 'Precision Release': More precision where it matters

After a year of development since the 'Olympic Release', Motion Metrics is now ready to release the revolutionary '**Precision Release**' of the ToothMetrics™ and WearMetrics™ shovel monitoring solutions. The '**Precision Release**' makes great strides in improvement in both the precision and accuracy of the image analysis system.

The enhanced ToothMetrics™ image analysis system in the '**Precision Release**' can now analyze the status of the shovel dipper's teeth with greater precision than ever before. The enhanced level of precision allows the system to adapt to changing environmental conditions and differentiate between levels of tooth-wear with WearMetrics™.

The '**Precision Release**' also introduces the addition of the 'Smart Filter' to the ToothMetrics™ image selection algorithm, which significantly reduces the number of false alarms in conditions with poor visibility. The 'Smart Filter' intelligently discards images which are considered to be of poor quality, such as images with excessive dust, poor lighting, or obstructions.



Contact our sales department to find out how you can upgrade to the new '**Precision Release**'.

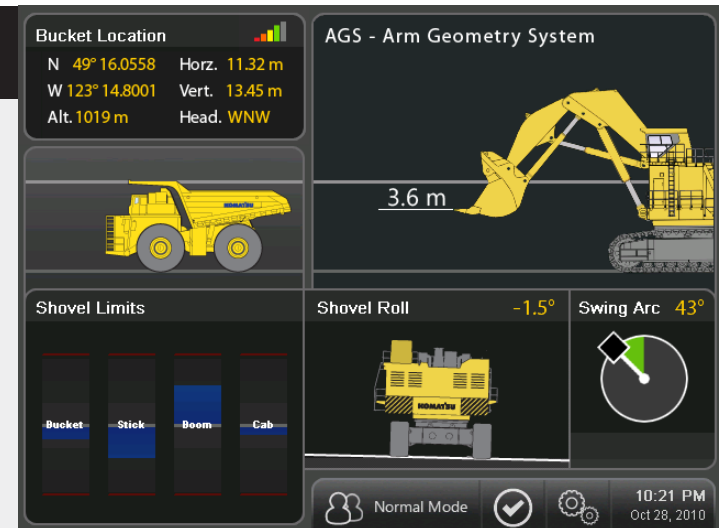
## Product News

### High precision shovel GPS with Wenco and Motion Metrics

Motion Metrics recently collaborated with fleet management systems provider, Wenco International Mining Systems, to enhance their BenchManager High Precision GPS system for an oil-sands mine. With the integration of Motion Metrics' Arm Geometry System (AGS), Wenco's BenchManager system is capable of providing the precise GPS position of a shovel's bucket with up to centimeter accuracy.

According to Wenco, this robust combination works to eliminate staking and ribbon boundaries, calculate load grade on the trucks, automatically record shovel progress, and maintain smooth benches according to design.

For more information visit: [www.motionmetrics.com/products/ags](http://www.motionmetrics.com/products/ags)



## Company Highlights



### Motion Metrics expands its R&D

Motion Metrics has recently acquired a new research and development facility and has expanded its workforce. This bold initiative is aimed at accommodating the development of a number of exciting new solutions, which Motion Metrics will be unveiling later this year.

### Chilean copper mega-pit sees the delivery of 13 systems

One of the world's largest copper mines in Chile recently received their purchase of 13 Motion Metrics systems, which included ToothMetrics™, WearMetrics™, and FragMetrics™. The installation and commissioning of these systems will be managed in collaboration with our exclusive agent in Chile, TTM Chile ([www.ttm-chile.cl](http://www.ttm-chile.cl)).

### Canadian copper mine upgrades to RadarMetrics™

After a successful trial installation and the growing importance of safety in the mine, a Canadian copper mine has decided to upgrade their existing Motion Metrics systems to include the RadarMetrics™ collision avoidance system for all their mining shovels.

## Upcoming Events

Look for Motion Metrics at the following upcoming events.

### Arminera 2011

May 4-6, 2011, Booth #211  
Buenos Aires, Argentina



### Haulage & Loading 2011

May 15-18, 2011, Booth #29  
Phoenix, Arizona, USA



### CIM Montreal 2011

May 22-25, 2011, Booth #1219  
Montreal, Quebec, Canada



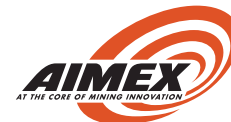
### Exponor 2011

June 13-17, 2011, Booth #261  
Antofagasta, Chile



### AIMEX 2011

Sept. 6-9, 2011, Canadian Pavilion  
Sydney, Australia



### Extemin 2011

Sept. 14-18, 2011, Booth #522  
Arequipa, Peru



### Exposibram 2011

Sept. 26-29, 2011,  
Booth C25 & H12 (P&H MinePro)  
Belo Horizonte, Brazil



### Expomineria Mexico 2011

Oct. 26-29, 2011, booth #911  
Acapulco, Mexico



## ToothMetrics™

An automatic missing tooth/adaptor detection system



The ToothMetrics™ system prevents broken or missing teeth or adapters from reaching the crusher by continuously monitoring the shovel's dipper teeth/adapters while the shovel is in operation.

## LoadMetrics™

A dynamic arm geometry, digging force and payload monitoring system



The LoadMetrics™ system provides bucket-by-bucket payload monitoring from the shovel to increase operation efficiency by reducing over- and under-loaded trucks.

## WearMetrics™

A real-time tooth-wear monitoring system



The WearMetrics™ system monitors the status of each of the shovel's dipper teeth to allow mine engineers to determine when a change-out is required.

## Arm Geometry System

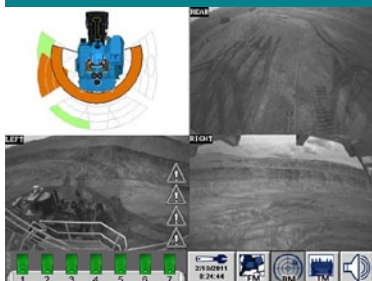
A dynamic shovel arm geometry and bucket positioning system



The AGS arm geometry system provides high-accuracy, real-time shovel bucket positioning so that operators know exactly where to dig.

## ViewMetrics™ & RadarMetrics™

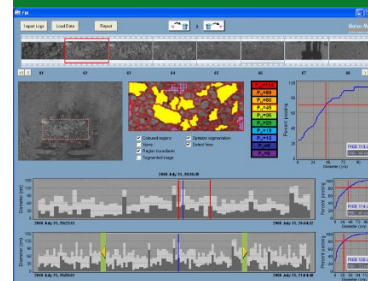
A radar and camera-based collision avoidance system



The ViewMetrics™ and RadarMetrics™ system offers the most advanced proximity detection system for mining shovels by incorporating both camera and radar sensors, and accounting for the shovel swing action.

## FragMetrics™

A shovel-based fragmentation analysis system



The FragMetrics™ system provides rock fragmentation data straight from the dipper of the shovel to obtain blasting results before the material is broken down further from handling and processing.

For more information on Motion Metrics products visit: [www.motionmetrics.com/products/](http://www.motionmetrics.com/products/)