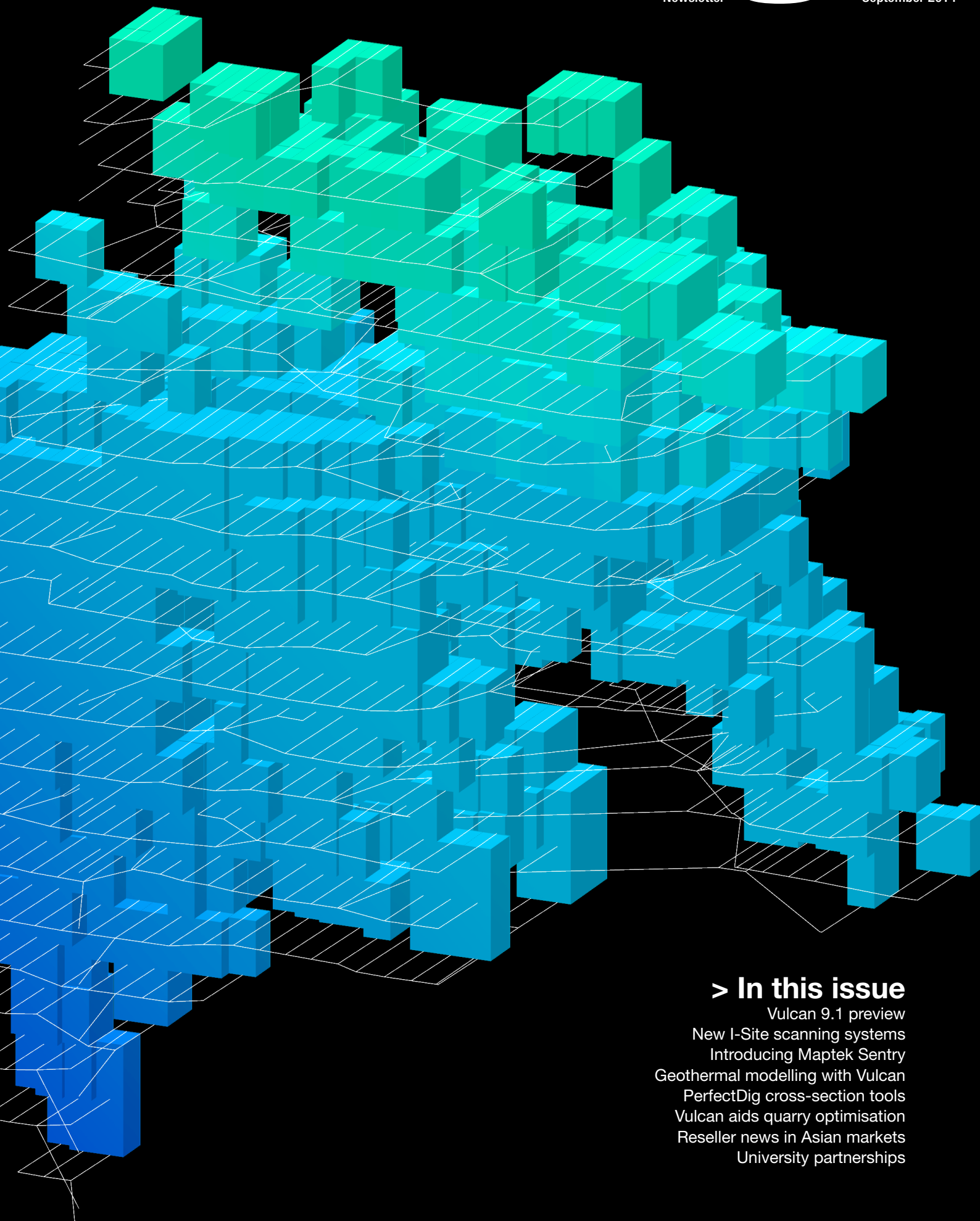
MAPTEK

Forge

Newsletter

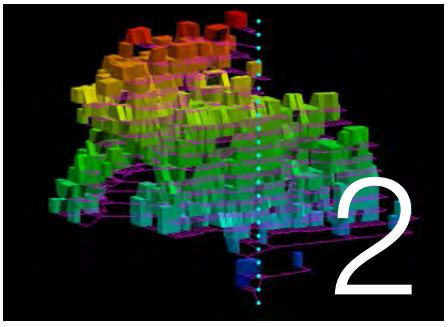
September 2014

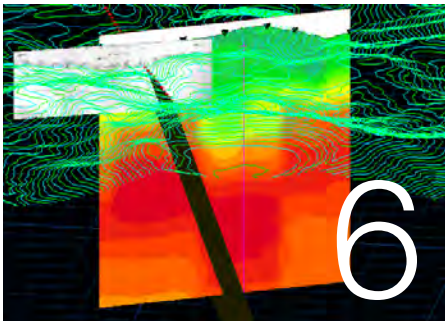


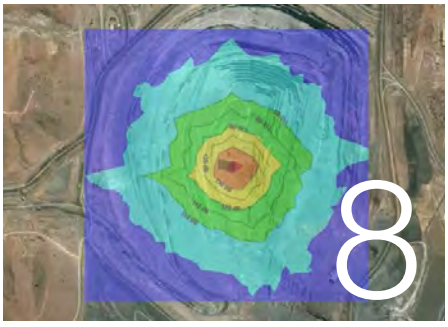
> In this issue

Maptek staff have been involved in professional and community activities around the world.

The calendar on page 13 shows events where we'll be during the next 6 months. Visit our booth!







In this issue

Maptek systems continue to develop in line with industry needs for exploiting digital data across operations.

Accurate survey for open pit and underground is assured with Maptek I-Site laser scanners. Data is easily assimilated into mine planning.

Maptek now provides a laser-based system for tracking surface movements. Read about Sentry in this issue.

Vulcan 9.1 includes new underground tools providing a truly integrated design and scheduling environment.

BlastLogic addresses challenges in drill and blast, helping customers identify savings through managing blast performance.

Automated conformance reporting in PerfectDig ensures good decision making in the production environment.

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Vulcan 9.1 preview

Maptek™ Vulcan™ 9.1 contains new tools for underground scheduling, stope access design, implicit modelling, pit optimisation and more.

The primary new features are Gantt Scheduler for underground, the second phase of the Implicit Modelling capability and Level Designer for stope access design.

Maptek™ Vulcan™ 9.1 also contains major enhancements to Borehole Geophysics, Stratigraphic and HARP Modelling tools and Pit Optimiser.

Eric Gonzalez, Vulcan Product Manager provides a preview of the upgrades and their impact.

Productivity

Vulcan 9.1 delivers improvements across the board. We want to ensure customers spend less time in processing data, allowing more time for critical analysis and decision making.

For example, with Pit Optimiser, a calculation that took 4 hours now takes 3 minutes in Vulcan 9.1.

Where previous versions of Vulcan had to simplify data to solve the problem, the new version will run a calculation in minutes.

Pit optimisations are considerably faster. Improved analysis and viewing tools allow more scenarios to be run in the same timeframe. The result is a superior design based on 'what if' scenarios.

With the new Gantt Scheduler users can create, sequence, allocate resources, animate scenarios and report activities efficiently and transparently.

With Implicit Modelling, users can set up large, multi-domain geology models with confidence that all the downstream processes can handle the complexity and size of the data. Enhancements take advantage of computing GPU. There's virtually no limit on what can be run.

Underground mine engineers will benefit from the faster, streamlined approach to long term strategic planning and detailed design tasks. The introduction of the Gantt Scheduler sets a new standard in integrating design and scheduling.

Underground mine design is fully automated. Click a button and create the mine design at a strategic level. Users can change parameters and get an alternative design in seconds. These scenarios would take days to run manually.

Users as experts

Vulcan 9.1 continues the direction Maptek set several years ago. We provide powerful tools that support geologists, mine engineers and other professionals in achieving their design and modelling goals.

Both Pit Optimiser and Level Designer provide quick previews before running calculations in detail. Users can decide which designs are worth developing.

Pit Optimiser quickly runs multiple scenarios. Users can identify the most effective design without spending days on it.

Level Designer, when coupled with Stope Optimiser, allows users to run totally different layouts without designing each level in detail. A combination of scenarios can be chosen for the final design.

New Implicit Modelling builds on tools delivered in Vulcan 9. Geologists have more control over the process and can have confidence in the results.

More integration

Vulcan 9.1 delivers tighter integration of geological modelling, mine design and scheduling. Gantt Scheduler is linked directly with Stope Optimiser and Level Designer tools.

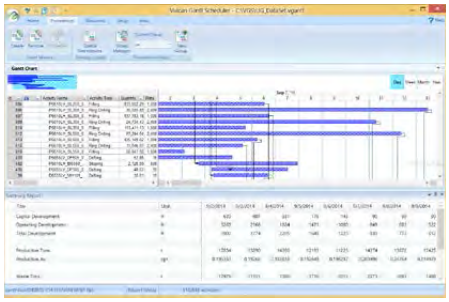
With Pit Optimiser everything is created directly in Vulcan. No need to regularise and manipulate models. No need to import/export data for processing.

Other features

In other upgrades, stratigraphic modelling allows users to combine different modelling methods into a 'hybrid' approach which makes best use of their available data.

A new interface streamlines interpretation of geophysical information in borehole databases. CAD data is now handled by graphics card drivers for improved performance, building on support for triangulations and block models introduced in Vulcan 9.

Vulcan 9.1 is in the final stages of beta testing. Release to customers is scheduled for November.



Gantt Scheduler

Vulcan Gantt Scheduler is a new resource and activity based tool targeting underground scheduling.

Gantt Scheduler is straightforward to set up and run. Users can create activities direct from mine designs in Envisage.

Attributes can be generated on the fly, allowing schedules to be seamlessly updated when designs are modified.

An animation option allows partial animations of designs for checking and publishing scheduling information.

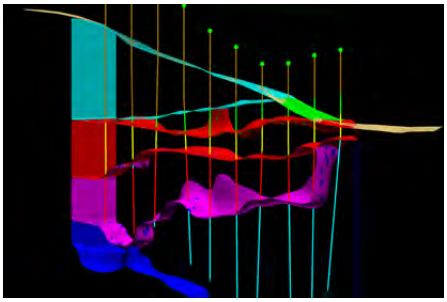
Direct connection between Envisage designs and Gantt Scheduler allows selected or filtered activities from the Gantt chart to be displayed on screen.

Resource levelling can be applied to activities. Users can prioritise activities when more than one is available.

Users can report summaries by varying timelines, and export to csv file format.

With geological modelling, mine design and scheduling all handled in Vulcan there is no need for import/export routines or dealing with different data and file types.

Gantt Scheduler improves workflow and scheduling output through an interactive design and scheduling experience.



Implicit Modeller

New Implicit Modelling tools provide more control for users generating complex geological domains.

New features include sample selection tools and triangulation output controls.

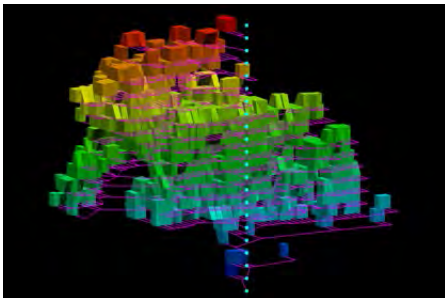
More complex settings can be modelled into domains, including faulted geometries and on the fly combinations of geological database codes.

A real-time instant feedback tool allows users to preview and validate parameters before creating models.

Quick access to section views allows users to adjust modelling parameters in real time. ‘What if’ scenarios can be previewed before building the entire model.

Implicit Modelling can be scripted to automate the design process based on changes in drillhole data. Users can also batch implicit modelling within larger processes, streamlining the modelling workflow.

Polygons are honoured for more accurate results. The ability to view and interactively manipulate ellipsoids reduces manual pre-processing and improves workflow.



Level Designer

Level Designer creates underground level development with hundreds of crosscuts in minutes, saving hours of manual drafting time.

Users can create long term strategic plans and detailed design phases.

Underground mine engineers can design multiple scenarios to determine an optimal plan to access stopes. Previously, each stope access crosscut was drawn manually, taking days or even weeks.

Engineers are still in control with Level Designer, using their expertise to finetune the design. The new option gives design strings and cost information for each scenario.

Engineers can make informed decisions, with the confidence that they have fulfilled their due diligence.

The full design-develop loop can now be done entirely in Vulcan.

Stope Optimiser generates optimised stope shapes. Level Designer leverages Stope Optimiser data to design access points, and information is then scheduled in Gantt Scheduler.

Vulcan Ring Design tools are used to drill out the stope for handover to production engineers.

Underground design time is now set to be significantly decreased.

New I-Site laser scanning solutions

The new Maptek™ I-Site™ 8820 laser scanner and improved range of the I-Site™ 8200 system offer surveyors the latest technology for acquiring and analysing spatial data.

The new Maptek™ I-Site™ 8820 long range laser scanner retains the rugged build and ergonomics of its predecessor and now boasts twice the data acquisition speed, a 25% improvement in range performance and increased accuracy.

Maptek's product differentiator is the optimised workflow which delivers the most efficient process from field data acquisition through to presentation of modelled results.

Performance upgrades in the I-Site 8820 laser scanner make the process even faster. New features in I-Site Studio 5.0 combine to ensure the best survey results.

Maptek recognises that surveying needs are not uniform. The new modular design of the I-Site 8820 enables customers to order a laser scanner with the optimal configuration for their requirements.

Each configuration is fully integrated in an IP65-rated dust and moisture proof enclosure, ensuring reliable performance.

Maptek now offers solutions aside from traditional survey tasks, such as geological analysis, change detection, underground and civil applications.

Underground operations demand survey systems that are safe and easy to set up. Comprehensive scan coverage and fast, accurate modelling are essential.

The I-Site 8200 laser scanner has a 500 metre range and can be used for underground and surface survey applications.

It can be coupled with purpose-built accessories for surveying underground drives, tunnels and stopes, and mapping development headings.

The I-Site 8200 has a scan window of -35° to 90° vertically, and 360° horizontally. Whatever the orientation of the scanner, integrated levelling automatically corrects scans before processing.

Maptek supplies an extendable boom for surveying stopes and voids. A 3D view on the scan controller allows the user to see inside the stope. The scan detail is ideal for geological mapping.

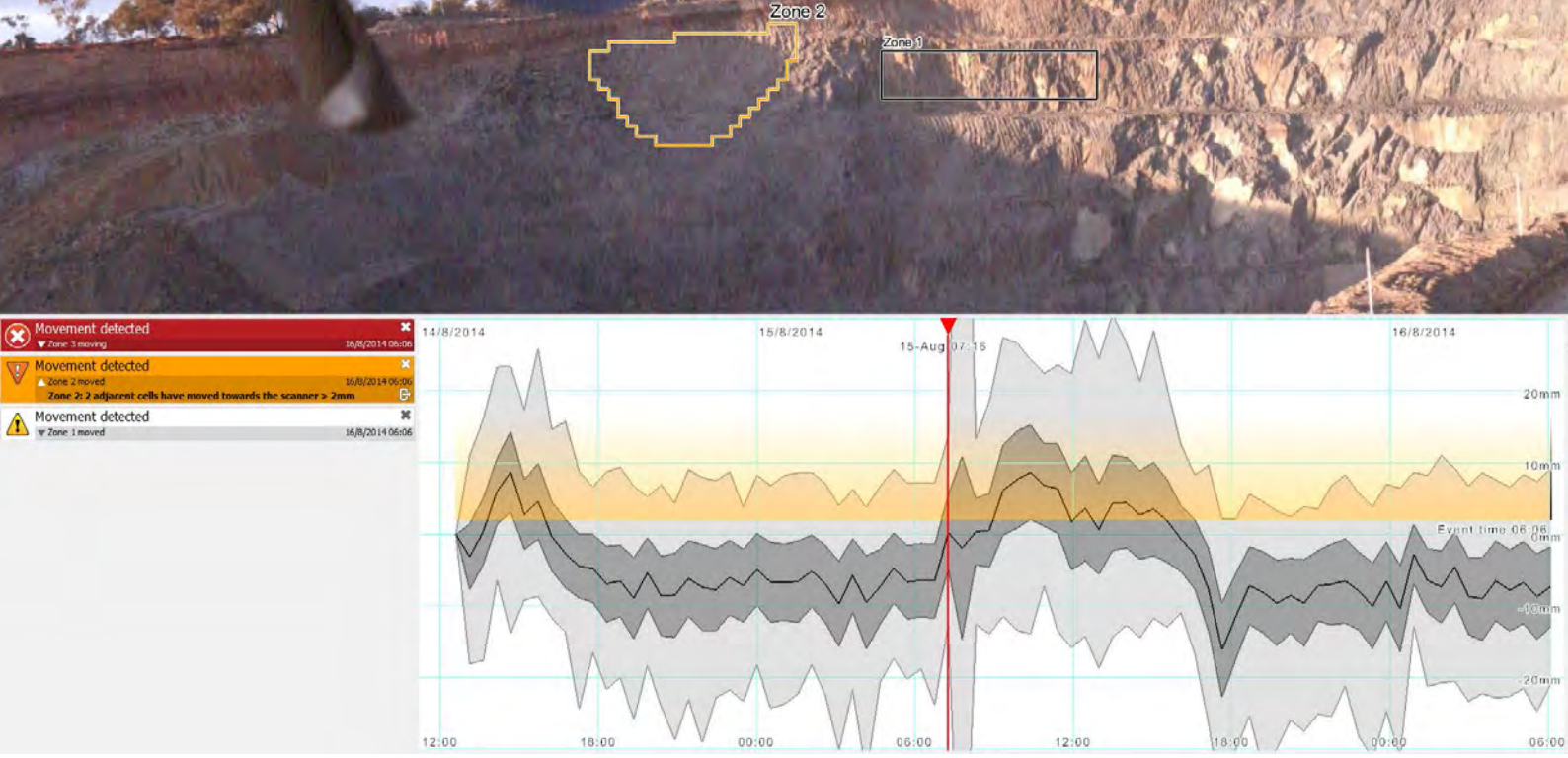
The I-Site 8200 laser scanner is versatile. It can be set up on a tripod for stockpile, tunnel, drive, topographic and civil survey.

A vehicle mount streamlines stockpile, waste dump, road and quarry survey.

Survey friendly workflows with easy to use software ensure users get repeatable, reliable results.

I-Site 8820 and I-Site 8200 laser scanners are available for order.
Email isite.sales@maptek.com.au

The new I-Site 8820 laser scanner has a range of 2000 metres



Track surface movement with Sentry

Maptek™ Sentry is an integrated system for capturing and monitoring surface change in mining and civil environments.

Maptek™ Sentry is a safe, flexible and cost effective solution for detecting surface movement. It combines Maptek I-Site™ laser scan data with sophisticated software to track and analyse movement over time.

Developed in association with industry, Sentry helps sites monitor and report on movements caused by surface instability that have the potential to interrupt operations.

Sentry workflow

An I-Site 8820 laser scanner is set up to monitor the area of interest. An overview scan provides a starting point for establishing multiple zones within that area. The user sets the frequency of scans in Sentry software; this can be done in the field or the office.

Sentry automatically monitors the laser scan data based on rules established by the user. Movement outside of set tolerances prompts automatic email notifications when connected to a network.

Analysis and reporting

Powerful analysis tools make reporting on surface movement easy. A heat map provides an overview of surface movement in the selected area. A user-defined colour palette facilitates quick identification of changes.

Sophisticated algorithms in Sentry decrease scan noise and improve accuracy, with data stored in a reduced format for fast analysis and processing.

Displacement, velocity and inverse velocity graphs are automatically generated, and PDFs can be exported for easy data sharing.

Sentry is a safe, cost-effective solution for acquiring surface change data over large areas, offering significant advantages for monitoring low wall stability.

Scans can be monitored in real time and a 3D viewing mode helps quickly identify movement.

Maptek Sentry proved effective during trials at Hillgrove Resources Kanmantoo Copper Mine

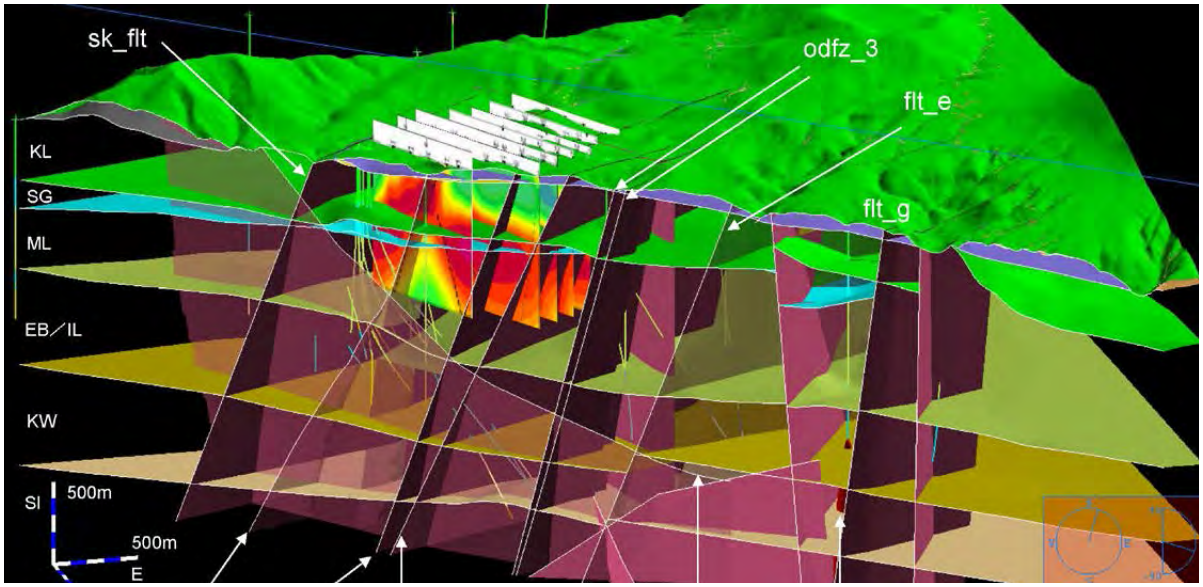
A time lapse video option allows movement information to be easily presented to management and other stakeholders.

I-Site laser scanners can be deployed for monitoring and other site survey tasks. The original scan data is easily exported to I-Site Studio software for generating surface models and calculating volumes, as well as detailed geotechnical analysis.

Sentry will be available from November 2014. Email isite.sales@maptek.com.au for further information.

Vulcan guides exploration best practice

Maptek™ Vulcan™ provides the ideal 3D modelling environment when exploring deeper into geothermal resources.



Cross-section showing 3D geological boundaries, fault planes and resistivity sections in the Ogiri exploration area

Exploration best practice should aim to reduce the resource risk prior to significant capital investment. For the geothermal energy industry, the high cost of proving the resource is a key challenge.

Understanding subsurface geological structures is critical for planning drilling programs and developing a new geothermal area. Nittetsu Mining used Maptek™ Vulcan™ to build a comprehensive database and model data from the Ogiri geothermal field for 3D analysis.

Nittetsu Mining Co., Ltd was established after separating from the mining division of the former Japan Iron & Steel Co., Ltd (now Nippon Steel & Sumitomo Metal Corporation, Ltd) in 1939. Nittetsu uses Vulcan for managing a copper mine in Chile, project evaluation and data analysis in exploration.

The Ogiri field is situated in the West Kirishima geothermal area, at an elevation of 700-900m on the western flank of Kirishima volcano on the Japanese island of Kyushu.

The Cretaceous basement rock is composed mainly of sandstone and shale, unconformably overlain by Quaternary andesitic lavas and pyroclastic flow deposits with minor interbeds of lacustrine sediments.

Geothermal signs

Surface geothermal indicators such as fumaroles, hot springs and related alteration zones are generally aligned ENE-WSW and NW-SE. This matches relatively well with the key regional lineaments and indicates that deep fracture systems may control the formation of the geothermal activity and alteration zones.

Active geothermal features are evidence of an existing geothermal system on some scale, although not proof of suitability for power generation. The first step in field exploration is to locate and characterise all existing geothermal features within the project area.

A thorough understanding of the geology of the project area and how it fits into the surrounding regional geological and tectonic setting is crucial.

Extensive surface geological surveys, electrical and electromagnetic geophysical surveys, and drilling were undertaken by both company and government explorers. From 1973 to 2012, 22 exploration wells, 14 production wells and 10 reinjection wells were drilled.

The location of existing drillholes, geological boundaries, fault plane contacts, downhole lithologies, silica formation temperatures, homogenisation temperatures of fluid inclusions, estimated equilibration temperatures, and magnetic susceptibility data were collected and compiled.

Microseismic monitoring data with interpolated hypocentre locations from surrounding geothermal fields were also collated.

Vulcan CAD tools were used to import existing mapping data, drillhole locations and attributes, enter new points, contours and lines in 3D and join them to form planes and curvilinear surface models of subsurface geology and fault structures.

Geophysical data imagery, including cross-sections showing resistivity and seismic reflections were registered in 3D.

Targeting reservoirs

The distribution of hydrothermal alteration strength and mineral distribution is key to targeting prospective geothermal reservoirs. This non-numerical data was coded into range bands and added to the database. Alteration minerals were classified in each alteration zone as acidic, acidic to neutral, neutral or alkaline. This data was compiled into a Vulcan database for modelling.

Contours imported from survey data were modelled to provide a terrain surface model which provided context when visualising the modelled well drilling, geological and geophysical data.

Drillhole observations of lost circulation during drilling and faulted ground are potential indicators of geothermal fluid traps. Their spatial locations were displayed using scaled disks.

Modelling identified a 1.3 km linear zone where no drillholes existed. This was targeted with magnetotelluric geophysical surveys to determine the orientation and inclination of the prospective zone.

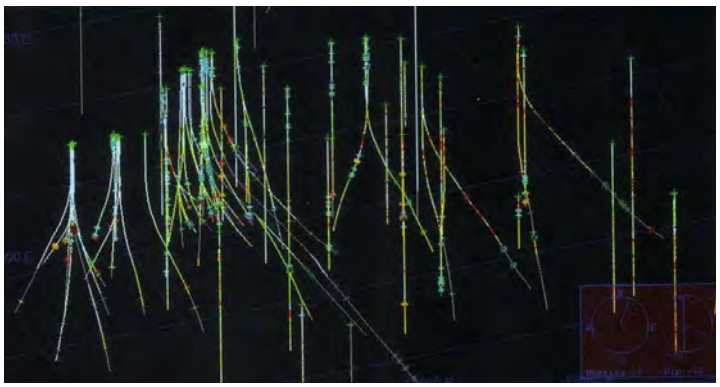
An exploratory drilling program was planned to intersect the 70° dipping fault plane at depth. The drillholes successfully intersected a geothermal reservoir at the predicted location.

This result indicates the value of conducting rigorous 3D modelling in Vulcan for efficient management of geothermal data for resource development.

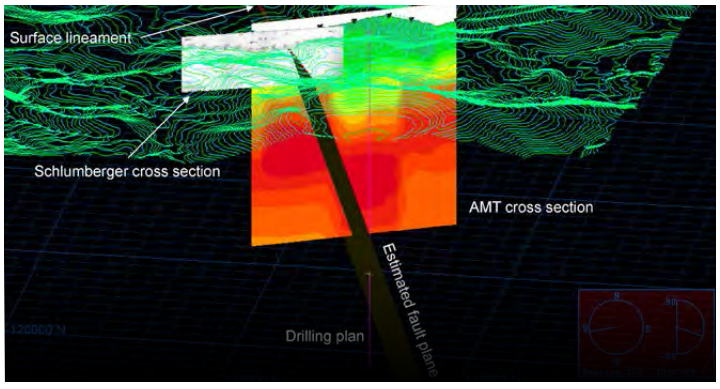
Further work is planned to use Vulcan data interpolation functions to build block models of temperature distribution and resistivity of the geothermal reservoir. This is expected to lead to identification of additional prospective exploration targets for future geothermal development.

Edited extract from 'Three dimensional geological modelling in a geothermal field' published in the Journal of Resource Geology

Thanks to Naoto Hiraga, Shinsuke Aizawa, Nittetsu Mining Co. Ltd and the Society of Resource Geology, Japan



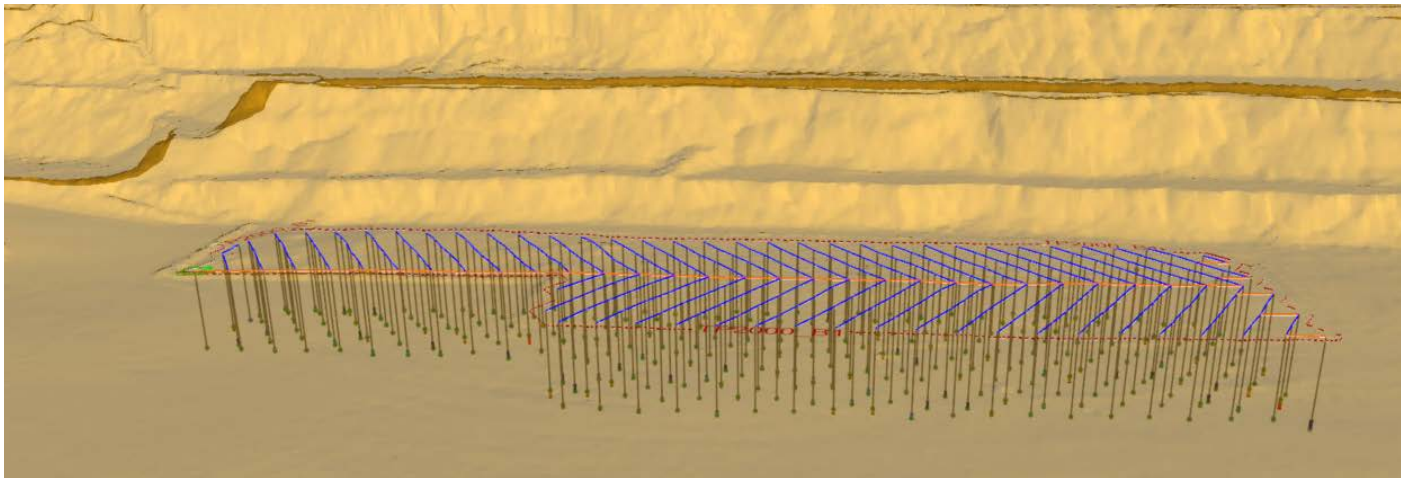
Contact with fault planes and lost circulation points represented as disks on the well trajectories indicating alteration rates



Targets for drilling with cross-section showing resistivity

Addressing challenges in drill and blast

Maptek™ BlastLogic™ enhances safety and productivity and allows operations to achieve continuous improvement by integrating drill and blast routines.



The challenge

Increasingly mines need to produce more with less. Streamlining drill and blast routines can improve safety and productivity, and reduce operational costs.

It can be a challenge to disconnect from old methods, but the outcomes are worth the effort.

Paper-based spreadsheets make sharing data and analysing results difficult. Errors are perpetuated when formulas are changed, undermining data integrity.

There is often little time to record much detail, and the lack of flexibility prevents teams from working effectively.

Known issues

Sites know the common issues that are faced on every blast.

1. Difficult areas that are not blasted due to:

- Holes not drilled to design, missing holes or short holes
- Excessive fall back
- Damaged or destroyed drillholes
- Drillholes not loaded

2. Areas within a shot that are over or under blasted.

3. Powder factors that vary throughout the shot due to inconsistent hole depth and dipping strata.

4. Areas within parting shots or ramps that are not able to be drilled due to geotechnical reasons and/or safety restrictions.

5. Expected dig performance and areas of concern that are not readily identified and communicated, such as known hard sections or areas of toe that cause excavation issues.

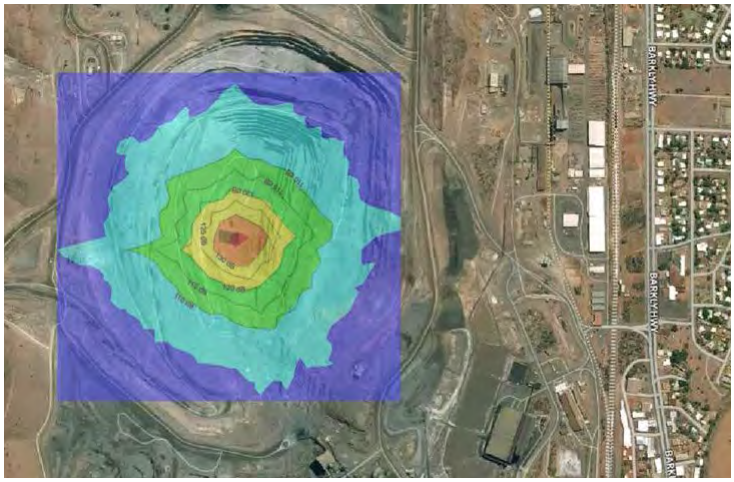
6. Poor record keeping and imperfect reconciliation of parameters and performance resulting in fragmented data, tedious data collation and analysis, and ineffective collaboration.

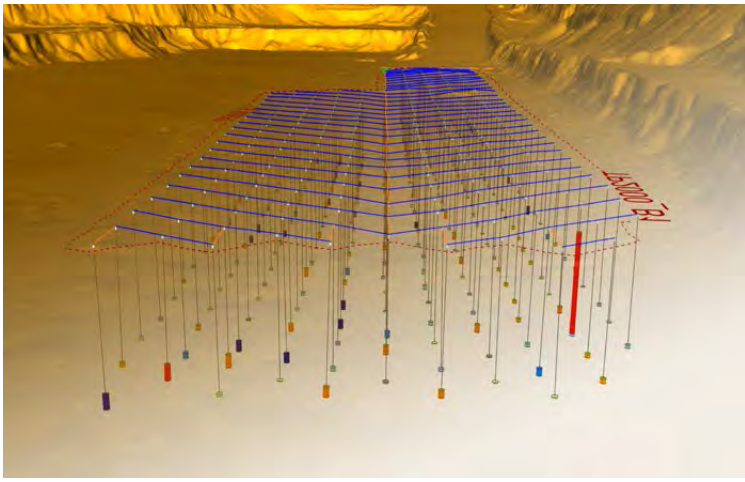
Finding a solution

Finding a better way to address these issues can make a huge difference to productivity. Given the short time between drilling and loading, the system must withstand pressure, which may be extreme when staff numbers are down.

Mines require a responsive and flexible system to perform blast design, dynamically track execution accuracy and make changes on the fly from drilling through to firing.

Further, mines need a simple way to compare historical blasts across operations so that design, execution and outcome can be correlated to support continuous improvement.





The results

For mining engineer Matthew Lawless, the transition to BlastLogic was the answer for his coal operation. This integrated system was able to drive improved drill and blast performance and accuracy.

Crucially, BlastLogic allows issues to be anticipated and productivity to be tracked in real time.

BlastLogic 3D visualisation and direct connectivity with site drill navigation systems allows engineers to track drill depth accuracy.

Easy reference to known material hardness means that broken ground and areas for re-drilling are immediately resolved before drills leave the bench.

Using the pre-split top of coal data, an accurate coal model for the production blast is quickly created and implemented.

Instant processing of dipping data saves significant engineering time. Reducing the turnaround for load sheets means blast crews are idle for less time. BlastLogic reduces the time between drilling and loading of holes in situations when loading is shadowing the drilling.

The wetness of shot and explosive product used is immediately passed on to blast crews to optimise dewatering and minimise product damage. Short holes which shot crews have decided to bypass remain on the dig plans so operational teams are aware of issues they may encounter during the dig.

Supervisors and operators now persevere in tight digging as they know its extent, reducing the need for secondary blasting.

A set of site-defined charge rules allows hole-by-hole load instructions to be readily created and checked.

Particular holes can be adjusted so that blasting minimises burden around uneven highwall faces.

Decks are automatically adjusted to known soft and hard digging bands, while the powder factor is optimised for all blasting types including through seam.

The actual explosives used are recorded in the field. The process of reconciling actuals to plan is accelerated, and reliable data recording ensures it is accurate.

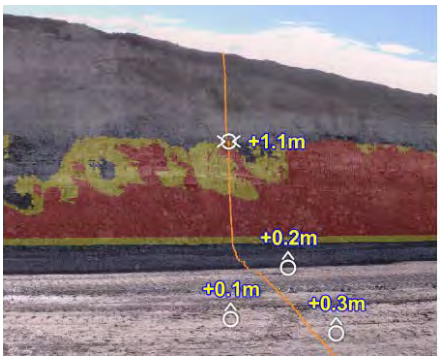
All of the critical drill and blast parameters are stored in BlastLogic. In the event a blast does not perform as expected, this record provides instant insight as to whether the design was accurately executed.

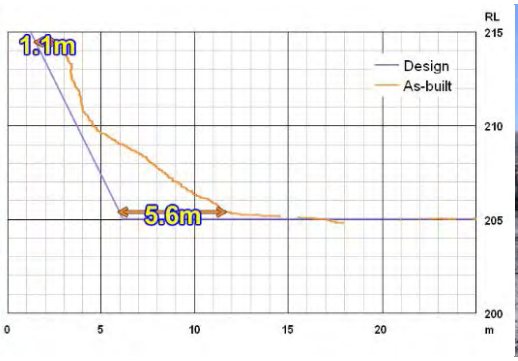
Importantly, this information is accessible to all stakeholders for transparency and agreement on steps for improvement.

Email blastlogic@maptek.com.au

Capitalising on cross-sections

Maptek™ PerfectDig requires minimal user input to check design conformance. Simple tools present the right information for making decisions in the production environment.





How do you take a computerised model and easily compare it to what you can see in front of you? Maptek™ PerfectDig captures a scene in 3D with the Maptek™ I-Site™ 8820 laser scanner, overlaying a design and then presenting the information as an interactive photograph so that you can relate it to the real world.

A fundamental benefit of using PerfectDig is that spatial data can be viewed and interrogated on mobile devices.

PerfectDig is easily controlled with a stylus on a rugged field tablet. Field users can distribute data online without having to return to the office for processing.

Enhancements in PerfectDig 1.1 allow users to create high resolution cross-sections over a nominated area, making it even easier to identify non-conformance and safety issues.

Cross-sections

Cross-sections showing as-built and design data are generated in seconds. The process is simple, merely clicking 1 or 2 points on a photograph. No data filtering is required prior to modelling.

Users can easily and accurately:

- Compare ramp gradient to design
- Identify a section of non-conforming wall
- Measure the distance between an active face and endwall
- Determine the offset between a toe and design

A protractor tool placed over the cross-section determines batter angles or grades. Uniquely, PerfectDig photographs can be annotated with the cross-section line to associate the relationship with the real world.

Safety by elimination

One of the greatest advantages of PerfectDig is the ability to measure and compare active faces and toe offsets from a distance.

A single laser scan captures detailed information across various parts of the pit and face. Multiple sections can be created from the one scan to precisely define how an as-built wall, bench, crest or toe matches a particular design.

PerfectDig Online allows interactive photographs to be shared. Online users can generate targeted cross-sections from the same scene on their own mobile devices.

Simple tools deliver value in the production environment, where critical decisions can be made to preempt risk and ore wastage. Overhanging material near the top of the wall is quickly identified, allowing safety measures to be taken to remove the risk to operators working in the area.

Accurate data is available in minutes, with 3D output in one click. The engineer retains control over the data.

New features

PerfectDig 1.1 allows the system to be used without having to set up and import reference data.

The distance to design tool combines vertical and horizontal measurements, and the 2-point cross-section tool allows precise sections to be generated.

Support for blocklines allows non-compliant volumes to be reported against blocks. New snapshot links can be created in PerfectDig Online for sharing specific views.

Automated conformance reports are ideal for summarising and sharing results.

To see all of the latest features, visit www.maptek.com/products/perfectdig/

Vulcan block models optimise blending

Maptek™ Vulcan™ helped Titan Roanoke produce low alkali cement, reducing waste while complying with stringent new emissions regulations.

The Titan America Roanoke Cement Company in Troutville, Virginia operates an open pit quarry specialising in limestone and shale production. Cement products are distributed to regional construction industries.

Since 2011, Titan Roanoke has focused on reducing waste from stripping, and at the same time producing low alkali cement for customers.

Low alkali cements are Portland cements with a total content of alkalis not above 0.6%. This is particularly beneficial where concrete is at risk of deterioration, for example when in contact with soil, groundwater or seawater.

Low alkali cement is also recommended when reactive aggregates are used to reduce the effect of alkali-silica reaction which can result in expansion leading to cracking.

Challenge

Recently proposed EPA regulations in the USA will require cement companies to drastically reduce sulphur emissions.

Seeking a way to better control these emissions, Titan Roanoke began using Maptek™ Vulcan™ to generate block models to identify concentrations of SO_3 gas in the host rocks.

Vulcan block models allowed Titan Roanoke to pinpoint seams of rock with different chemical compositions which could be mixed to achieve the target chemistry of raw material stack for cement kilns.

Solution

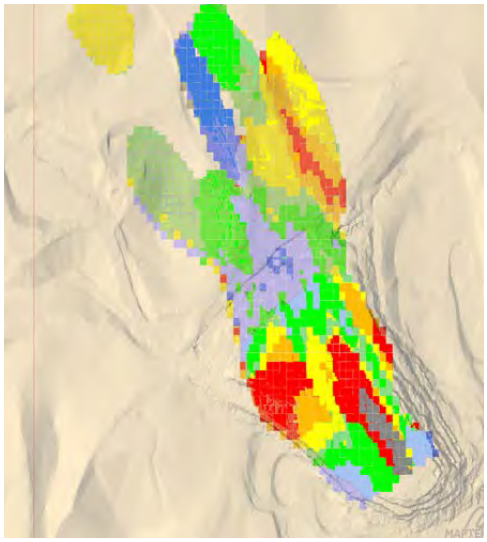
Geological block models ensure the chemical composition for each block is well known before mining.

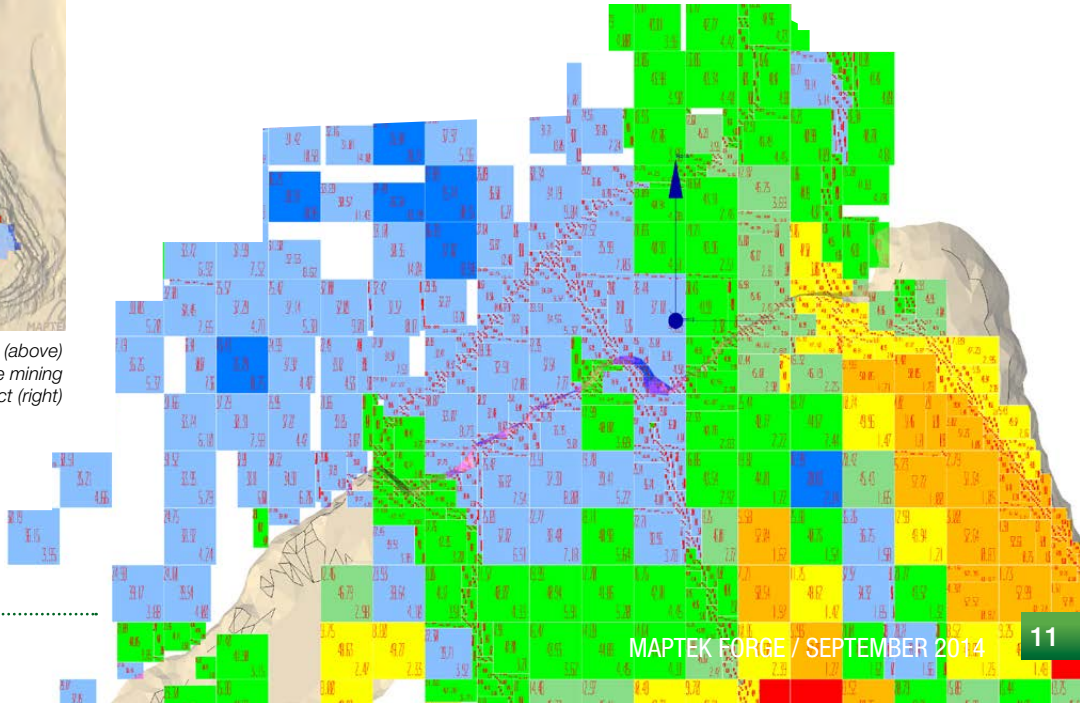
By blending material from different blocks mined, Titan Roanoke was able to reduce the alkali in the raw materials to 0.6%, and significantly reduce SO_2 emissions when the raw materials are burned in the cement kiln.

Results

In 2014, for the first time, Titan Roanoke was able to provide low alkali cement to meet customer requirements.

Thanks to
Stan Cosoreanu, Quarry Manager
Roanoke Cement Company
Titan America LLC

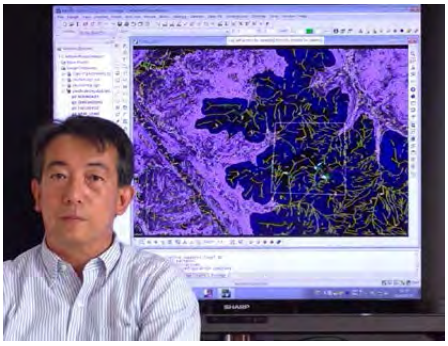




Vulcan block model defining geology in the quarry (above) and blocks by chemical characteristics guide mining to achieve optimum low alkali product (right)

Resellers forge ahead into Asia

Maptek resellers deliver products and services into some regions. Here they outline their experience with Maptek products.



KK Geosystem

KK Geosystem Pvt Ltd is the Maptek distributor for I-Site 3D laser scanners in India and surrounding regions.

In the last 2 years we have achieved almost 70% market share in India with installations across surveying, mining, ship building, as-built, BIM and reverse engineering applications.

India has been slow in accepting 3D laser scanning technology and part of our role has been to explain its capabilities.

India is a price sensitive market, so cost is a challenge. As I-Site technology is relatively new, few engineers are trained in its use, impacting industry adoption.

Our approach has included promoting 3D laser scanners to leading education and research institutes to build interest among academics and students.

The advantages of using I-Site for mine surveying include:

- Easy to use hardware and software
- IP65 protection rating, very important in India's dusty environment
- Operation at high temperatures ensures reliability in the Indian climate

We are looking to use the I-Site laser scanner with vehicle mount for surveying a road/canal corridor. If this project comes to fruition it will demonstrate I-Site suitability for non-mining applications.

PT Asaba

PT Asaba provides sales and marketing services in Indonesia for a range of survey equipment, including Maptek I-Site systems.

We provide in-house and on-site training for industry, as well as scanner repairs to a certain level.

We promote the latest technology to students and staff at universities, and hold seminars on laser scanning.

Challenges for high technology survey systems in Indonesia include humidity, heat and dust. I-Site systems can operate effectively in high humidity and extreme temperatures.

The equipment is tightly sealed against water and dust ingress. Having the camera integrated inside the I-Site laser scanner housing maintains factory calibration and integrity.

I-Site is currently in use at mining operations across Indonesia. We look forward to exploring how Maptek's new surface monitoring solution Sentry can provide additional benefits.

Office Pipi

Office Pipi, Inc. is the longstanding authorised distributor of Maptek Vulcan software in Japan.

We have close relationships with our customers and manage their software maintenance contracts. Our staff provide first level technical support for Vulcan with backup from Maptek in Australia.

We arrange Vulcan training for customers, which is generally performed by Maptek technical services staff from Australia.

Customers use Vulcan in underground gold mines, open cut base metal mines, geothermal exploration and groundwater modelling. Vulcan is used in mining consultancies and corporate head offices where technical teams manage their international mining assets.

We are looking to replicate the Maptek global role model as software of choice for mining engineering by introducing Vulcan into the Japanese mining schools. One challenge is that Vulcan is not yet available in the Japanese language.

Our staff maintain knowledge of the latest Vulcan software capability by attending Maptek training courses.

More companies will be featured in future newsletters.

Maptek representative Pieter Moller (left) with University of Pretoria Senior Lecturer Jannie Maritz

University of Pretoria

A donation of Vulcan to the University of Pretoria in South Africa will advance their aim to be recognised internationally for quality, relevance and impact.

More than 400 students are enrolled in undergraduate and post-graduate mining engineering courses at the University. The Vulcan installation recognises that exposing students to modern software will give them a better understanding of good mine planning principles.

Vulcan will be an integral component of their final semester mining engineering project. Students are required to use Vulcan to generate underground coal layouts with their corresponding qualities. Vulcan mine designs will form part of their submission for assessment.

Staff from the Maptek South Africa office provided introductory training and will continue to support the program.

The University is constructing a Virtual Dome training centre. Sophisticated simulation software such as Vulcan will provide an immersive experience in a 3D mining environment.

Universidad Tecnológica del Estado de Zacatecas

Maptek representative Brenda Meyer (left), State Governor Miguel Alonso Reyes and Rector of UTZAC Ana María Romo Fonseca at the handover ceremony

Students in Mexico will also benefit from a Vulcan software donation.

Mining engineering students majoring in industrial maintenance and production processes engineering at the Universidad Tecnológica del Estado de Zacatecas (UTZAC) will now have access to 20 Vulcan licences.

Brenda Meyer, Technical Services Mining Engineer at Maptek presented the licences at a ceremony attended by UTZAC students, teachers, mining companies and state authorities.

The Maptek donation illustrates the importance of cooperation between industry, academia and students. The aim is to strengthen mining education in Zacatecas, and through this, to improve vocational opportunities.

Maptek Calendar

2014

September 10
I-Site Geotech Users Discussion
Marriott Towne Place Suites
Elko, Nevada, USA

September 10-12
Expomina 2014
Lima, Perú - Booth E-202

September 16-18
China Mining Expo
Beijing, China

September 17-19
Mining World Central Asia
Almaty, Kazakhstan - Booth C175/3

September 27-30
Society for Exploration Geologists
Keystone, Colorado, USA - Booth 4

October 21-24
XI Seminario Internacional de Minería
Sonora, Mexico - Booth 300

November 5-6
AusRock 2014
Sydney, NSW, Australia - Booth 2

November 5-8
Convención Minera Ixtapa 2014
Ixtapa, México - Booth 51

November 10-12
Convención Nacional de Geología 2014
México City, México - Booth 319

November 17-20
Exposibram Amazônia 2014
Belém, Brazil - Booth D12

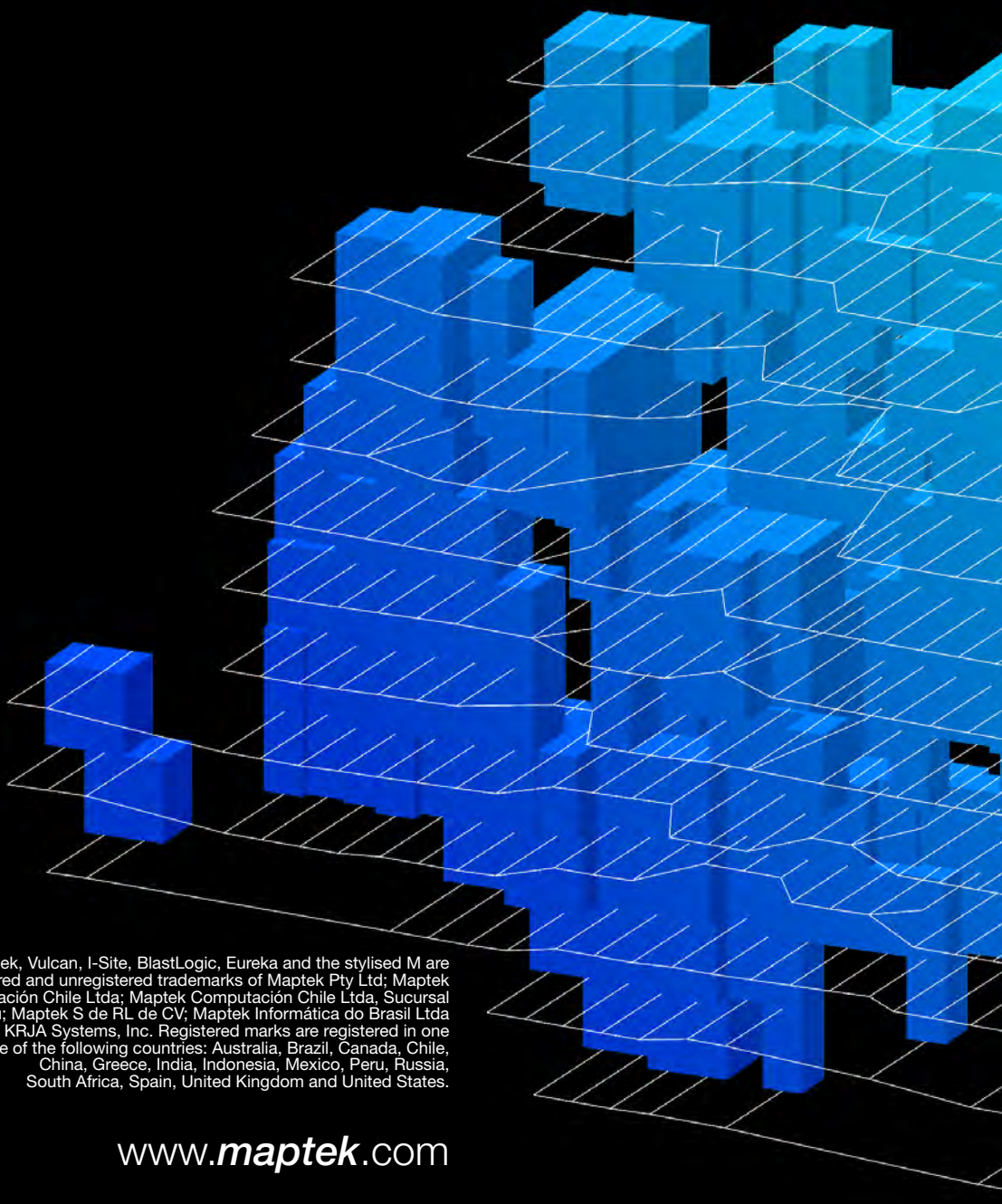
November 24-25
Orebody Modelling & Strategic Planning
Perth, Western Australia - Booth 1

December 3
American Exploration & Mining Association
Reno, Nevada, USA

December 3-6
International Mining & Machinery Exhibition
Kolkata, India

2015

February 1-4
International Society of Explosives Engineers
New Orleans, Louisiana, USA



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