

TECHNOLOGY HELPS CHILE MINE RESCUE

Maptek™ expertise was part of the critical process in the rescue of 33 trapped miners at the San José copper-gold mine near Copiapó in Chile recently.

The rescue at the San José mine has become a worldwide phenomenon with the survival of all 33 miners who were trapped underground for 69 days.

Entombed over 700 metres below the surface and five kilometres from the entrance of the mine, the miners managed to survive 17 days before they were found.

After many attempts, a drillhole entered a work area close to the refuge where the miners had looked for shelter, and contact was made. This was the start of an amazing rescue operation which took almost two months and the combined efforts of many people.

Maptek became involved after receiving a call on August 11 from the rescue team working in San José mine. It was six days into the rescue operation and the team

needed help to create a 3D model of the mine and to design and visualise the deviation measurements of the drillholes.

By this time six holes had been drilled. Using the I-Site™ laser system Estíbaliz Echevarría from Maptek surveyed the area to create an accurate topographic surface.

The scanned surface information along with the 3D underground data in Vulcan™ allowed the development of the first 3D video of the situation, which was used to three-dimensionally explain the relativity of the workings and the efforts being undertaken.

This data provided the rescuers with the confidence to plan and control the correct design of drillholes, and better understand the location of the 33 miners.

Drilling proceeded slowly, stopping every 100 metres to check progress. A gyroscope was lowered into the hole to capture accurate readings of the direction and orientation of the hole.

The result was that the first two drillholes intersecting the underground workings showed a distance of 1.12 metres between them. The people underground measured a distance of 1.45 metres, which means a difference of 0.052% in 629 metres - amazing!

This data was fed back to the database established by Maptek Mining Engineer Alvaro Quezada. He and Maptek Geologist Sandra Jara, along with Nicolás Cruz from Minera La Escondida reviewed the available data against the 3D model, projecting the drilling lines to the target to adjust the direction and orientation of the drillhole as required by the geologists and drilling personnel on site.

This information was conveyed to the drilling team who used their experience to correct the drilling rig accordingly. This process was repeated every 100 metres of the 700-metre deep hole to ensure the hole would intersect the tunnel at the targeted position.

The accuracy of the Vulcan 3D model, and subsequent control of each of the three drillholes, were critical factors in the success of the operation.

The first drillhole which discovered the miners was named Esperanza (Hope). The first and second drillholes were used for communications and delivery of supplies to the trapped miners. The third hole was enlarged to 71 cm to enable the Fenix (Phoenix) rescue capsule to access the trapped miners and bring them to safety. >



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Maptek's Sandra Jara, working at the rig site at 5.45 am on August 22, witnessed the first contact with the miners when she heard the men tapping on the drill as it entered the chamber where they were trapped. She immediately telephoned Maptek South American vice-president Marcelo Arancibia and exclaimed, 'Marcelo, there is life down there!'

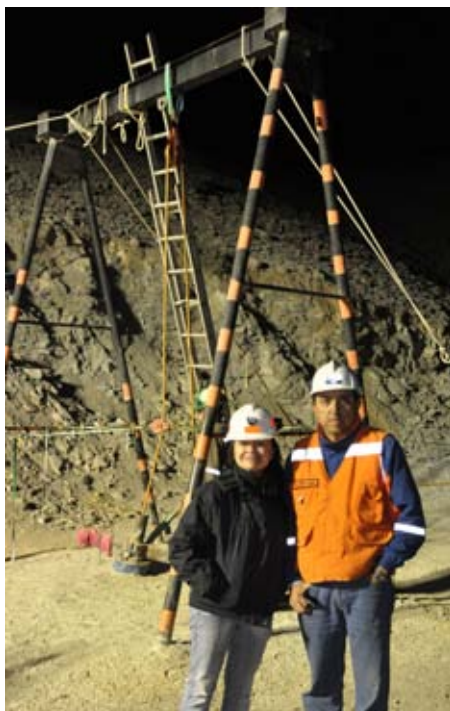
Marcelo Arancibia said Vulcan was used to design various other scenarios where holes could be drilled to potential locations.

'We were using our technology while the drill rigs were drilling to depth,' he explained.

The third drillhole was surveyed every 30 metres to subsequently analyse the deviation experienced by the trajectory and determine where the drilling would intercept the target. This allowed the specialists to take the necessary action during drilling.

The teamwork between staff from companies such as BHP Escondida, Codelco, Collahuasi, Geoatacama, Geotec and Maptek, was carried out discreetly and efficiently, with the sole focus on achieving a successful outcome. Maptek was honoured to participate and to be able to use our skills and technology to help. 🎯

Thanks to Walter Véliz, Nicolás Cruz and Marcos Bermúdez (BHP Escondida), Oscar Castro and André Sougarret (Codelco), and Felipe Matthews (Geoatacama)



... Sandra Jara (Maptek) and Walter Véliz (BHP Escondida) in front of the drill rig at San José

LA TECNOLOGÍA AYUDA A RESCATE MINERO DE CHILE

Las habilidades de Maptek fueron parte del proceso crítico del rescate de los 33 mineros atrapados en la mina de cobre-oro San José cerca de Copiapó, Chile.

El rescate de los mineros de San José se transformó en un fenómeno mundial luego que los 33 mineros atrapados sobrevivieran durante 69 días.

Enterrados a más de 700 metros bajo la superficie y a 5 kilómetros de la entrada de la mina, estos mineros fueron capaces de sobrevivir 17 días antes de ser encontrados.

Luego de muchos intentos, un sondaje penetró una labor cercana al refugio donde estaban los mineros y desde donde se hizo contacto. Este fue el inicio de una operación de rescate increíble que llevó casi dos meses e incluyó los esfuerzos combinados de muchas personas.

Maptek se involucró luego de recibir una llamada del equipo de rescate en la mina San José el pasado 11 de agosto. Ya habían pasado seis días desde que había comenzado el rescate y dicho equipo necesitaba ayuda para crear un modelo 3D de la mina y diseñar y visualizar las medidas de desviaciones de los sondajes.

Para ese entonces, ya se habían realizado más de seis perforaciones. Mediante el uso del Sistema láser I-Site, Estíbaliz Echevarría del equipo de Maptek realizó un levantamiento del área para crear una superficie topográfica precisa.

Con la información de superficie escaneada más la información 3D subterránea en el software Vulcan, se realizó el primer video 3D de la situación, el cual fue utilizado para explicar tridimensionalmente a los familiares, acerca del estado de los trabajos y los esfuerzos que se estaban realizando.

Estos datos dieron confianza suficiente para planificar y controlar el diseño de las perforaciones correctamente y comprender de mejor forma la ubicación de los 33 mineros.



... Maptek's Sandra Jara [seated front left], and BHP Escondida's Nicolás Cruz [seated front right], with the drilling team at San José

Las perforaciones se realizaron lentamente, deteniéndolas cada 100 metros para verificar el progreso. Se introdujo un giroscopio por la apertura para capturar lecturas precisas de la dirección y orientación de la perforación.

Producto de las reorientaciones de los sondajes las dos primeras sondas que cortaron las labores subterráneas proyectadas en Vulcan poseían una distancia de 1.12 metros entre ellas. La gente abajo midió una distancia de 1.45 metros, esto es una diferencia de 0.052% en una longitud de 628 metros!!...increíble!

Estos datos se retroalimentaron a la base de datos establecida por el Ingeniero en Minas de Maptek, Alvaro Quezada. Alvaro y la Geóloga de Maptek, Sandra Jara junto con Nicolás Cruz de Minera Escondida, analizaron los datos disponibles, comparándolos con el modelo 3D, proyectando así las líneas de perforación al objetivo para así ajustar la dirección y orientación de la sonda, conforme lo requerían los geólogos y perforistas de cada máquina perforadora en el sitio.

Esta información se transmitió al equipo de perforación quienes con su experiencia corregían al máximo la desviación para lograr el objetivo lo más exacto posible. Dicho proceso se repitió cada 100 metros en la perforación de 700 metros, para así asegurar que ésta intersectara el túnel en la posición determinada.

La precisión del modelo 3D de Vulcan y posterior control de cada uno de los tres sondajes resultó ser uno de los factores clave para el éxito de la operación.

El primer sondaje que encontró a los mineros se denominó Esperanza. El primer y segundo sondaje se utilizaron para la comunicación y entrega de suministros para los mineros atrapados. El tercer sondaje se amplió a 71 cm para permitir que la cápsula de rescate Fenix llegara donde los mineros y los llevara a la superficie de manera segura.

Sandra Jara de Maptek, quien se encontraba en la zona de la plataforma de perforación a las 5.45 am el 22 de agosto, pudo presenciar el primer contacto con los mineros y escuchó que los hombres golpeaban la sonda cuando ingresaba al lugar donde estaban atrapados.


Inmediatamente llamó al Vice-Presidente de Maptek Sudamérica, Marcelo Arancibia, diciéndole '¡Marcelo, hay vida en la mina!'

Marcelo Arancibia explica que Vulcan se utilizó también para diseñar otros escenarios donde poder realizar perforaciones para potenciales localizaciones.

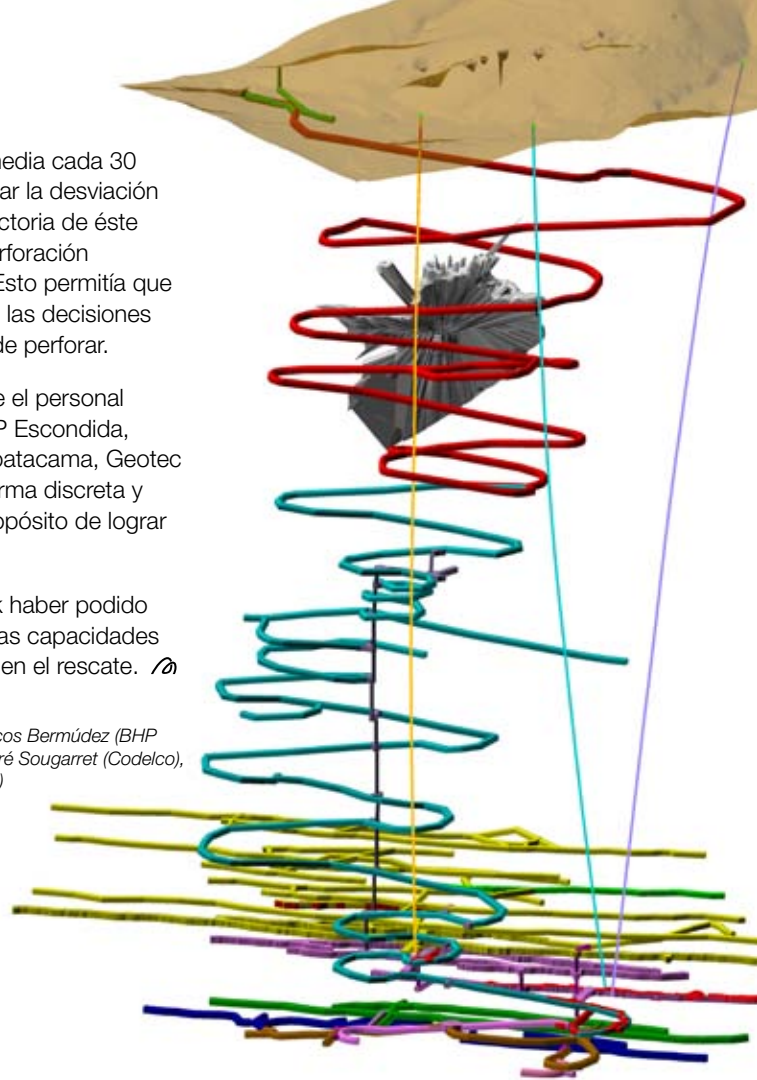
'Estábamos utilizando nuestra tecnología mientras las plataformas perforaban en profundidad', expresó.

En el tercer sondaje se media cada 30 metros, para luego analizar la desviación que iba tomando la trayectoria de éste y determinar donde la perforación interceptaría el objetivo. Esto permitía que los especialistas tomaran las decisiones adecuadas al momento de perforar.

El trabajo en equipo entre el personal de compañías como BHP Escondida, Codelco, Collahuasi, Geoatacama, Geotec y Maptek se realizó en forma discreta y eficiente, con el único propósito de lograr el maravilloso resultado.

Es un honor para Maptek haber podido participar y utilizar nuestras capacidades y tecnología para ayudar en el rescate. 

Agradecemos a Walter Véliz, Nicolás Cruz y Marcos Bermúdez (BHP Escondida), Oscar Castro y André Sougarret (Codelco), y Felipe Matthews (Geoatacama)



USERS CONFERENCE

Anticipation was high as the 70 attendees from Chile, Argentina, Perú and Brazil gathered for the Maptek users conference in Viña del Mar in November.

The conference opened with a video of news footage and interviews with Maptek technical staff Alvaro Quezada, Sandra Jara and Estíbaliz Echevarría who participated in the San José rescue operation in Copiapó, Chile.

Maptek's V-P of South America Marcelo Arancibia, Chairman Bob Johnson and CEO Barry Henderson presented plaques to these staff and colleagues from other companies who all worked together in the rescue operation. They were thanked warmly for their commitment to what was a very difficult task.

This led into the opening address by Felipe Matthews, Operations Manager of Geoatacama, who outlined the process of measuring the drillhole deviation to ensure the target location was reached.

Felipe then joined Eduardo Hurtado from Terra Services Drilling and Walter Véliz from BHP Billiton's Escondida, who coordinated the Plan B rescue effort, on a panel to answer questions. Conference attendees appreciated their generosity in sharing their insights, including some of the challenges they faced and overcame.

The remaining technical sessions covered user applications of Vulcan tools, such as short term planning, grade control, block modelling and conditional simulation. Maptek product demonstrations included the I-Site 8800 laser scanner, features to come in Vulcan 8.1 and a preview of new products scheduled for release in 2011.

Participants expressed strong interest in Vulcan's short term scheduling application, saying they could implement it at their sites for immediate workflow benefits.

'The best thing about meeting with customers in this environment is that we can exchange ideas and practices in a very frank and open manner. They can see how we operate and we can learn from them how our products fit with their daily work,' said Marcelo Arancibia.



Alvaro Quezada, Estíbaliz Echevarría & Sandra Jara

'Forging strong customer ties is very important to Maptek, and it was never closer to our hearts than after we had worked side by side for the successful outcome at San José,' he concluded.



SUPPORTING THE TOURIST INDUSTRY

The Maptek I-Site™ 8800 laser scanner was used to develop a detailed model to assess the geotechnical features of one of Australia's most famous stretches of coastline.

The Great Ocean Road stretches between Geelong and Portland in south west Victoria, and is one of the most scenic drives in the world. Thousands of tourists visit the area each year.

Formed over 15 million years ago, the Twelve Apostles are rock stacks created as a result of erosion of the headland. The rock is predominantly limestone and is horizontally bedded. Over the years the rock has been gently uplifted due to marine erosion and only nine of the original 12 stacks remain standing today.



The I-Site 8800 laser scanner was commissioned to create a visual representation of the area surrounding the Twelve Apostles. The cliff face is being eroded at a rate of 2.5 centimetres a year, with platforms, arches and bridges formed which develop into undercuts. Undercutting causes collapse along vertical joints resulting in steep slopes along the cliff face. Scanning the area using the I-Site 8800 will monitor these undercuts for change.

The initial scan of the headland conducted in July 2010 will be used as the baseline for future change detection, to monitor erosion and volumetric change along the cliff face. Accessing the beach to scan the cliff face was not an easy task.

Maptek I-Site Manager, Jason Richards explains, 'The beach was only accessible at low tide and strict timing was essential to ensure we collected all of the data.'

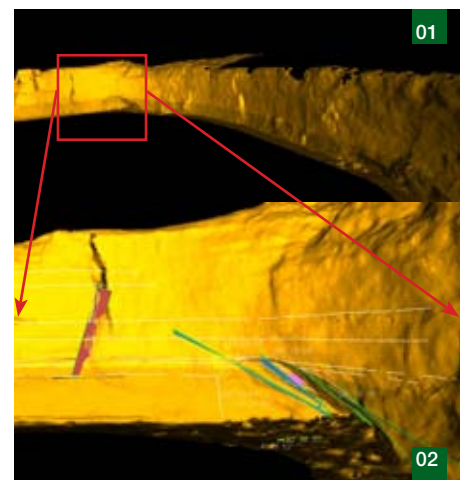
'We scanned an area of 850 metres, which was predominantly the cliff face and headland below the lookout, in 1.5 hours. From 13 setups we collected more than 18.5 million points.'

As there were no survey locations, Google Earth was used to extract the longitude and latitude of prominent features. This was then converted to UTM coordinates which allowed the data to be located within a couple of metres of the true position.

From the scanning and subsequent 3D model, a base surface of the area has been developed allowing for continual comparison of weathered features. Major structures have also been defined and


angles of the structures in the cliff face can be calculated. In addition, structural features within the cliff face can now be exported to Maptek Vulcan™ software for further geotechnical analysis.

An overview model was developed in less detail for visualisation. A detailed model was also created to model the major focal points, such as caverns and undercuts. This provided the client with information in two different formats.



01 Scanned cliff face
02 Detailed model showing geotechnical features

The I-Site 8800 laser scanner achieved all objectives and excelled in challenging conditions. Its portability was much appreciated by the operator who had to crawl through caves when the tide came in!

Maptek will return to scan the coastline on a regular basis. Changes in the cliff face will be monitored with continued scans and comparison to this baseline 3D model of the area. 

SHORT RANGE PLANNING IMPROVEMENTS

Iron Ore Company (IOC) has implemented new geology models using Maptek Vulcan™ grade control and block modelling tools.

More accurate short range (SR) mine plans are produced by incorporating physical parameters from diamond drilling combined with chemical analysis and ore waste interpretation from more densely populated blastholes.

IOC is Canada's second largest metal mine, majority owned by Rio Tinto. It began mining the orebodies near Labrador City in 1962 and currently employs more than 2000 people in Newfoundland, Labrador and Quebec.

The production equipment at the mine includes 6 loading units, 30 haulage trucks and 8 rotary drills. Annual capacity is 39 Mt of crude ore, 60 Mt of total mined material, 17 Mt of concentrate and 13 Mt of pellets.

IOC has been using Vulcan since 1998 for grade control, modelling, pit design, blasting, survey and other mine planning and geological processes.

The geology is folded and typically well understood and predictable. However, more complex areas within the Luce deposit have many unexpected structural challenges which cause large deviations from plan, making a blasthole SR block model essential for short range planning.


Updated geological reserve block models are created from resource and infill diamond drilling and blasthole mapping conducted twice a year. The models are then manipulated using Vulcan to add grade control variables which are created from blasthole assays, and to subtract parameters which are not used in the short-range planning process.

Using a simple .csh file and command editor all the parameters can be adjusted at one time, creating the basis for the new short range model.

All the blasthole assay results from a particular bench are loaded into the Isis database. A mini block model is created for each bench using grade control, similar to the blast grading procedure.

The model is flagged based on the blasthole geology using the block calculation, selecting particular triangulations if the geology is different from the resource model.

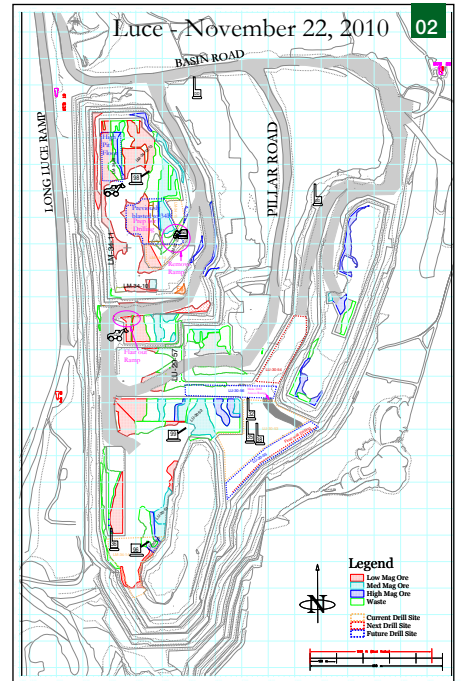
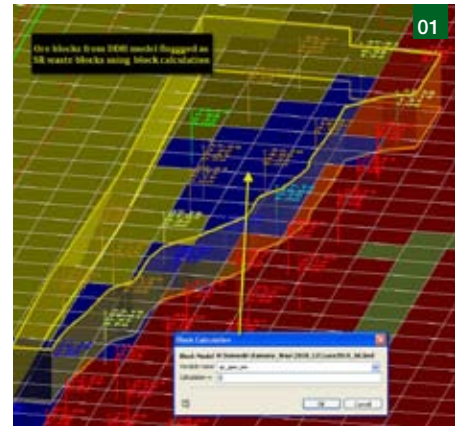
IOC now has a dynamic geology model with new blasthole information for incorporation into the mine scheduling program. This has assisted IOC to create and implement more accurate short range plans while understanding mill requirements and mining sequence options when geological surprises occur.

Using Vulcan software and future technology, IOC will continue to strive to achieve a self-reliant short range model that will not require expensive diamond drilling information to produce functional and precise short range mine plans. 

*Thanks to
Ramsey Way
Senior Geologist, Ore Control
Iron Ore Company*

'VULCAN HAS PROVIDED IOC WITH A SOLUTION TO IMPROVE OUR SHORT RANGE PLANNING PROCESS AT NO EXTRA COST OVER OUR EVERYDAY QUALITY CONTROL SYSTEM.'

Ramsey Way, IOC



- 01 Ore blocks flagged as waste
- 02 Short range block models are exported for ore/waste scheduling and planning presentations
- 03 IOC blasting operations
- 04 Analysis of blast cuttings forms the foundation for the short range model - a 5 Mt blast is shown below.



I-SITE LASER SCANNER GOLD

Maptek has been awarded the South Australian Technology Industry Association's (TIA) Gold Cup for developing the I-Site 8800 laser scanner.

This prestigious annual award is for a company that excels at taking an innovative idea from development through to national and global markets.

I-Site Research & Development Team Leader, Mark Pfitzner explained, 'The Gold Cup criteria considers the engineering innovation, reliability, marketing and job creation as a result of the product.'

The driver for creating I-Site laser scanners was the need to have a time-of-flight range-finding system that incorporated panoramic imaging, a survey grade telescope and a levelling sensor.

Maptek aimed to break the mould and develop a product that differed from the 'rangefinder in a box' model common in the industry. The result is a scanning system mindful of the surveyor's workflow.

The I-Site 4400 laser scanner first entered the market in 2000. Experience gained in hardware development since then was applied to the I-Site 8800, along with direct user input.

'All the sensor technologies necessary for survey work are integrated into a single package, ready for any environment', said Mark Pfitzner on accepting the award.

Maptek employs 42 people to develop, manufacture and produce I-Site hardware and software. Significant funding is committed to the research and development of new technology each year.



The I-Site hardware research & development team with the 2010 TIA Gold Cup for innovative technology, at the awards dinner in October 2010

UNFOLDING VULCAN PLANS

A seminar in October in Perth highlighted new approaches in Vulcan to handle structurally deformed stratigraphic deposits.

Anisotropy in a deposit refers to an attribute having variable continuity in different directions. If the direction and magnitude of anisotropy are well understood not only globally but also locally, they can be taken into account to improve modelling.

Traditional interpolation techniques, such as inverse distance or kriging consider only simple global anisotropy scenarios, and thus cannot capture the continuity or otherwise of complex deformed deposits. It follows that more geologically realistic results can be obtained by considering local variations in anisotropy.



Maptek has initiated the development of a new unfolding method to account for these variations. The project status was tabled at the seminar and feedback was sought to incorporate customer suggestions in the new tool, which will be introduced in a future version of Vulcan.

'The seminar was a great opportunity for face-to-face discussion. Customer needs must guide product development. There is no point in designing software in a vacuum', said Mike Husbands, Technical Services Manager, Western Australia.

Customer feedback is important for Maptek because it really drives the development of our tools. If we don't have products that are useful for the customer then we are not going to be in business. It is a simple equation.

TRADESHOWS 2011

January 24-27
AME BC Roundup
Booth C15 (January 24-25)
Vancouver, BC

February 7-10
INDABA 2011
Cape Town, South Africa

February 27 - March 2
SME
Denver, Colorado - Booth 817

March 6-9
PDAC
Toronto, Ontario - Booth 1039

May 17-18
AustMine
Brisbane, Queensland

May 22-25
CIM
Montreal, Quebec - Booth 1904

June 13-17
Exponor
Antofagasta, Chile

August 17-19
Australian Institute of Mine Surveyors
Melbourne, Victoria

August 22-24
VIII International Mining Geology Conference
Queenstown, New Zealand

August 26-30
APCOM
Wollongong, New South Wales

GEOSTATISTICS COURSE

The 10th Citation Course in Applied Geostatistics will be held in Chile early next year.

This intensive course covers the theory and use of modern geostatistical tools, with an emphasis on mining applications.

The course will be taught by Dr Clayton Deutsch of the University of Alberta, Canada, and will take place at the Maptek South America office.

Classes from 7 March to 1 April 2011 will be followed by 4 weeks of independent project work. The final theoretical sessions, project reviews and graduation ceremony will take place from 25-29 April.

Register via email at cursos@maptek.cl

USERS CONFERENCES

NORTH AMERICA

Maptek customers left the recent users conference in Denver, Colorado with insights from each other's experience. Maptek staff gained a better understanding of how our products are being used.

'One benefit of the networking process at conferences is that we can see if we are actually delivering the product that the customer expects. This helps us to make sure that we have proper project management, and that we are scoping things correctly,' said Jon Larson, General Manager, Maptek North America.

'It is critical to establish that customers are able to implement the tools into their business processes. This integration at the customer end is what delivers efficiency gains and increases the value of the products they invest in,' he added.

'Being able to export data as a 3D pdf in I-Site 3.4 is going to help in communicating our month end reconciliation reports. I also want to take a closer look at the new scheduling tools coming in Vulcan 8.1.'

Brandon Lende, Cliffs Natural Resources

'It is great to get together with fellow Vulcan users. I have gained new perspectives. Light bulbs went on during a couple of the presentations. One was a modelling technique for creating watertight solids which I hadn't thought of and the other, a rather novel approach to getting ore density values.'

Al Renaud, Cameco

'The conference allows me to meet other users and find out how they are using Maptek products. Getting face to face with Maptek is a better way of seeing what tools will be available in the future.'

Audra Walsh, Barrick Gold Corp.

'I-Site has already streamlined our operation, and I was interested to pick up information about what Vulcan has to offer for mine planning.'

Robert Clifford, Thompson Creek Mine



AUSTRALIA

4-6 April 2011 Perth, WA

Partnering for innovation & success

Share success stories with industry colleagues and learn about future product developments from Maptek staff. Hear first-hand about the story of cooperation between companies involved in the San José mine rescue.

Visit www.maptek.com/australia_2011 or email register@maptek.com.au

AFRICA-EUROPE

8-10 September 2011

Scotland, UK

Maptek is pleased to announce that the next Africa-Europe Users Conference will be held in Scotland in September 2011.

Mark your calendars (and budgets) now for this great opportunity for presentations, discussion forums and networking.

More details available soon!

VULCAN

BONYTHON METALS GROUP is using Vulcan for evaluation of their iron ore projects in South Australia.

CAPSTONE MINING CORPORATION Minto Mine has purchased Vulcan for grade control at the open pit copper operation near Whitehorse, Yukon Territory, Canada.

EASTERN COAL SUPPLIES is using Vulcan for evaluation of coking coal deposits on the Denniston Plateau near Westport, New Zealand.

FIRE RIVER GOLD has purchased Vulcan for its Nixon Fork Mine. The underground gold operation in the Tintina Gold Belt in Alaska will use the software for modelling and mine planning.

HUDDY'S MINING SERVICES recently converted to Vulcan to improve their mine design capability at Baralaba Mine in Queensland, Australia.

'Given the difficult geometry of six steeply dipping coal seams, and a fast paced mine sequence, an efficient and easy to use mine design tool is paramount to the success of mine operations. The quick and accurate creation of drill, dig and dump designs, and the ability to visualise the complicated geometry using Vulcan's design strength is a great asset in driving the operation in a cost effective way, minimising errors and rework, and promoting understanding of operational requirements.' Huddy's Mining Services

INTEGRAL RESOURCE CONSULTING is using Vulcan for geological modelling and resource estimation, as well as database validation, interrogation of downhole geophysics, exploration planning and management, coal quality, grade control and overburden modelling.

KHURGATAI KHAIRKHAN LLC, a fully owned subsidiary of Aspire Mining Limited, will use Vulcan for evaluation of the coking coal projects in Mongolia.

MOLYCORP MINERALS, LLC purchased Vulcan for the Mountain Pass Mine. The open pit molybdenum operation in California, USA, will use the software for modelling, mine planning and geomodelling.

PHOENIX COPPER will use Vulcan at their newly acquired Leigh Creek Copper Mine in South Australia.

RIO TINTO will use Vulcan for modelling and mine planning of its Kennecott Eagle underground copper and nickel mine in Ishpeming, Michigan, USA.

RIO TINTO Resolution Copper will use Vulcan for geomodelling of the underground project in Superior, Arizona - one of the largest copper resources in North America.

SANDONG MINING CORP, a Woulfe Mining subsidiary, will use Vulcan for their tungsten-molybdenum project in South Korea.

SILVER OPPORTUNITY PARTNERS Sunshine Mine underground lead and silver operation in Kellogg, Idaho, USA will use Vulcan for modelling and mine planning.

TOREX GOLD RESOURCES INC., in Toronto, Ontario, Canada, has purchased Vulcan for geomodelling. Torex works with exploration and development of precious metal resources with a focus on gold.

WARDROP ENGINEERING in Sudbury, Ontario, has acquired Vulcan for consulting.

I-SITE

AFRICAN MINERALS has purchased an I-Site 8800 system for the Tonkolili site in Sierra Leone, reported to be potentially the largest magnetite deposit in the world. African Minerals will initially use I-Site to survey the test pit and the surrounding steep slopes to accurately map the topography.

BHP BILLITON PAMPA NORTE division has acquired an I-Site 8800 system for the Spence and Cerro Colorado copper operations in Chile, for mine reconciliation and dynamic lixiviation stockpile survey.

COLLAHUASI, owned by Xstrata and AngloAmerican, will implement the extra long range I-Site 8800 for end of month survey and face mapping at their copper operation in northern Chile.

GOLDER ASSOCIATES, located in Lakewood, Colorado, USA, will use I-Site Studio in consulting work to process aerial and terrestrial lidar data for geotechnical analysis at Yosemite National Park.

MULZER CRUSHED STONE will use I-Site Studio for processing MDL mobile scan data for their six quarries across Indiana, USA.

TECK - QUEBRADA BLANCA MINE has upgraded to the 8800 system for rapid mine surveying at the open pit copper mine, 4,400 metres above sea level in northern Chile.

LEIGHTON CONTRACTORS has purchased two I-Site 8800 laser scanners to ensure accurate volumes for reconciliation and payment. Initially the scanners will be deployed at the Duralie open cut coal project in New South Wales, and later shared between several sites in Queensland.

LUMINANT BIG BROWN MINE has purchased a second I-Site Studio license to meet the data processing demands for their I-Site 4400LR vehicle mounted system.

RIO TINTO IRON ORE YANDICOOGINA will use the I-Site 8800 scanner and vehicle mount system for day to day and stockpile survey. Safety benefits include helping to eliminate heavy/light vehicle interaction.

XSTRATA - ALUMBRERA MINE has upgraded to the I-Site 8800 scanner for conducting monthly volume reconciliations at the copper operation in Argentina.

XSTRATA COAL GLENDELL MINE will use the I-Site 8800 plus vehicle mount for pre- and post blast analysis, dozer push and end of month surveys.

MINESUITE

ANGLOAMERICAN METALLURGICAL COAL PTY LTD has implemented MineSuite's production management information system to help monitor and report on underground coal production at the re-opened Aquila site in the Bowen Basin of Queensland, Australia.

