![Maptek logo]

MAPTEK™

June 2022   Newsletter

Forge

In this issue

Welcome to our Forge newsletter June 2022

When Maptek revisited our purpose in 2021, the pandemic-led disruption to the economy and the way we work were fresh in our minds. Initially many companies were making decisions to get to the other side, while at the same time recognising that new strategies would be needed long term.

Maptek is confident that we can help our customers maximise project value, by staying true to our goal to develop decision support technologies that change forever the way mining is done.

It's always good to hear about miners who challenge traditional workflows. The geology team of the IGO Nova underground metals operation trialled machine learning in parallel to their standard annual resource modelling update, finding value in the approach.

Evolution scheduling tools and workflow help Novo Resources to plan their Pilbara gold project, where it is critical to commence mining of a dispersed deposit in the right place to ensure value is maximised.

Maptek laser scanner accuracy means global chemicals and logistics solutions provider Natrio can strengthen auditing and enhance customer confidence regarding stockpile inventory levels.

Environmental considerations that drive mine planning, and practical conformance to design tools that enable timely milestone reporting are other topics explored.

We hope you enjoy this issue and look forward to sharing more success stories during 2022.

Eduardo Coloma
CEO

On the cover
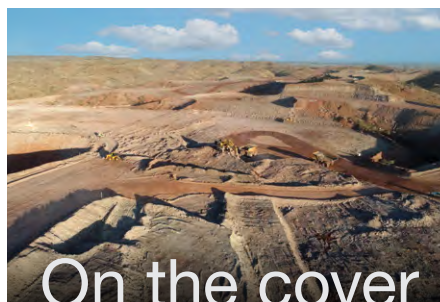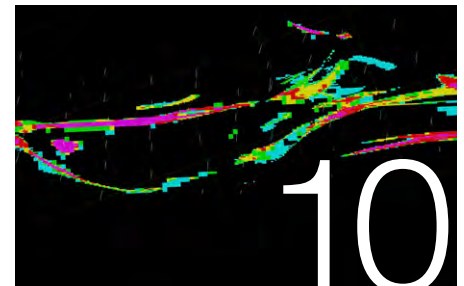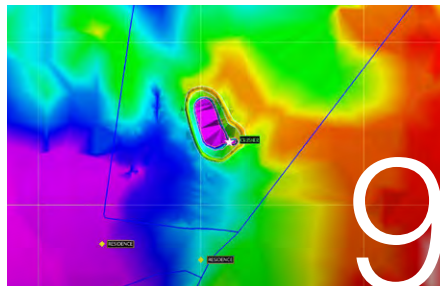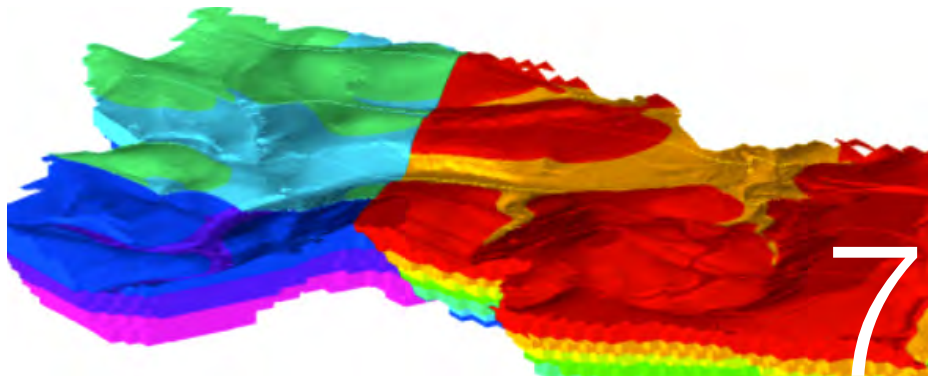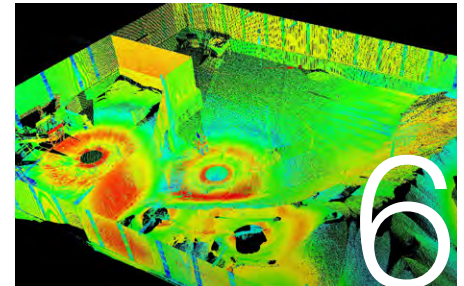
Novo Resources operates over a vast area in the Pilbara, Western Australia

Contact us: forge@maptek.com

Contents

12

Improving on traditional modelling

A trial of Maptek™ DomainMCF at an underground metals mine concluded that machine learning will most likely become the preferred modelling method for mineral deposits.

Geologists at an underground mine have trialled Maptek™ DomainMCF machine learning for modelling their resource in Western Australia.

The IGO Limited Nova-Bollinger deposit is 700 km due east of Perth. The Nova operation mines and processes nickel-copper-cobalt sulphide ores.

Traditional resource modelling is based on a drillhole database containing 99 lithological and 11 sulphide mineralisation logging codes. From this database the mine geologists use implicit modelling to interpret 22 different domains – 21 sulphide domains and one all-encompassing waste halo domain.

The block modelling process is undertaken annually by a team of geologists on site and in the Perth corporate office, and takes several months to complete. They trialled DomainMCF in parallel to their standard workflow as part of the 2020 resource update.

The required inputs for DomainMCF are a csv file comprising drillhole database or composite data, and an optional upper and lower surface to define the spatial extents of the region to be modelled. A block model parameter file details the origin of the block model, the 3D spatial extents and the block/sub-block dimensions.

Grade estimates are done on a 6m x 6m x 2m block size and sub-blocks are permitted down to a quarter of the parent block size.

During the trial three primary tests were run using different versions of the drillhole file to explore the capabilities of the application and see how they compared to the existing workflow.

Test 1 provided DomainMCF with the drillhole composite file for the 22 different domains. Six chemical elements (Ni, Cu, Co, Fe, Mg and S) were provided to assist with the training phase of the machine learning algorithm.

For Test 2, the data used in the first test was augmented with lithology coded data from the drillhole information outside the estimation boundary limits. The chemical variables were again used to help train the algorithm.

The purpose of this test was to determine if a combined sulphide and lithological model could be produced, and to see if giving DomainMCF additional information would impact the prediction of sulphide domains.

A hands-off approach was used in Test 3 to see how DomainMCF modelled a file containing only mineralisation codes and the grouped lithology used for Test 2. None of the domain codes from Test 1 were used.

Test 3 examined if the DomainMCF model was comparable to a manually coded domain model and whether it was useful in the mineral resource estimate process.

IGO Senior Mine Geologist Fletcher Pym presented the trial results in a paper to the AusIMM International Mining Geology Conference 2022.

'We were able to run Test 3, which was a relatively complicated model, in 45 minutes,' said Pym.

For Pym, Test 3 also showed that machine learning can produce very comprehensive models without the strong influence of a geologist.

> Getting the data right from the start produces a high quality deposit model, which opens up new possibilities.

Because machine learning made resource modelling so much faster, senior staff had more time to focus on training less experienced core loggers. Improving the processes resulted in better quality drillhole logging.

'Machine learning will become particularly attractive if the process can not only model geological domains, but also return reliable grade estimates for mine planning across the full range of mineralisation styles,' said Pym.

'Providing a well-understood confidence measure can assist in risk quantification of both geology and grade.'

The study highlighted several advantages of machine learning:

> The inputs required for machine learning processing can be readily prepared in most resource modelling software.
> Machine learning modelling times are relatively short.
> The pay-by-use business model is more cost-effective than maintaining implicit modelling software systems.
> The machine learning model returns an objective measure of uncertainty in the geological model, which is likely to be useful in mineral resource classification and mining reconciliation work.
> Multiple different geological models can be prepared in parallel, meeting the JORC requirement to investigate *'the effect, if any, of alternative interpretations on mineral resource estimation'*.

Maptek Technical Lead for DomainMCF Steve Sullivan is excited at the potential of machine learning for revolutionising resource modelling.

'I'm amazed at the response – we are already seeing companies subscribe to DomainMCF for use in domain modelling for their 2022 resource reports,' said Sullivan.

'Machine learning works best when all the available data is presented, as shown in Test 3. The more data the better.'

'The industry is struggling to find experienced personnel during the current mining boom, so embedding years of experience into smart systems helps get the job done on time and under budget.'

Maptek continues to work on proposed enhancements to DomainMCF following feedback from industry trials. Grade trend prediction was added in the March 2022 release and a strong uptake by customers will drive further advances.

Thanks to
Fletcher Pym
Senior Mine Geologist
IGO Limited
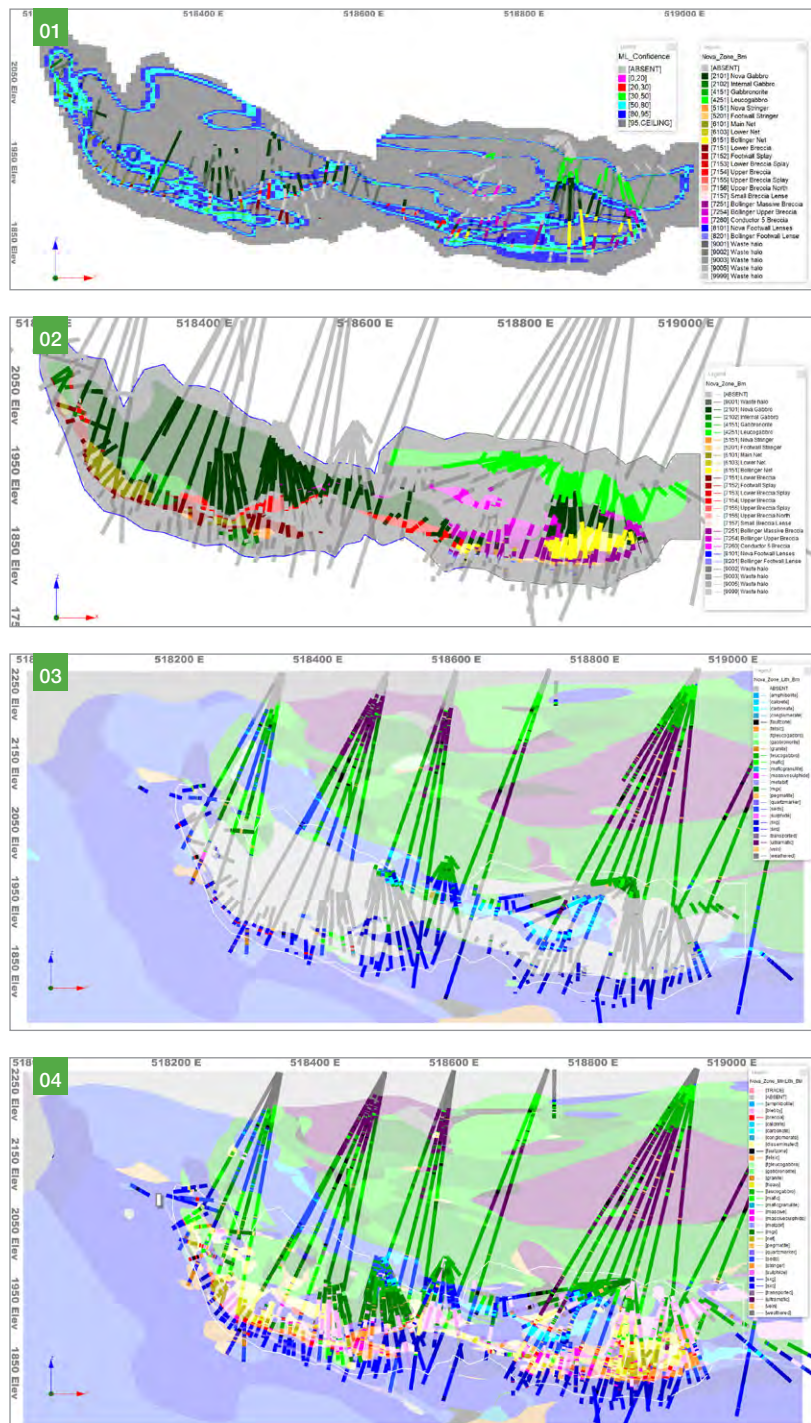
01 Machine learning confidence metric on long section looking north

02 Data modelled using domains only

03 Data modelled using lithology only

04 DomainMCF model section

Accurate stockpile inventory

Maptek™ laser scanning technology gives a global chemicals and logistics solutions provider auditing and inventory confidence, while reducing wastage and saving time.

Natrio specialises in the import and distribution of high volume dry chemicals, efficient logistics and supply chain solutions. In Australia Natrio distributes 550,000 tonnes per year, with the capability to store up to 230,000 tonnes.

Key services range across chemical sourcing, bulk shipping, warehousing, freight forwarding and transport, handling products including soda ash, feldspar, alumina, limestone, fertiliser, grain, soybean meal, clinker, sodium bicarbonate and quicklime.

Since 2013, Natrio has contracted Maptek™ to take regular laser scans of stockpiles and provide volumetric analysis. Several generations of Maptek laser scanners, including the current R3 series, have been used in conjunction with Maptek™ PointStudio™ point cloud processing software across Western Australia, South Australia and Victoria.

A Maptek representative uses laser scanning technology to accurately scan large indoor stockpiles within minutes and quickly create volumetric reports in PointStudio to present to Natrio.

With much of its product imported via bulk vessels, Natrio had to implement an auditing process that ensured internal processes were accurate and streamlined.

The auditing process starts from the point of a vessel being discharged, through how material is weighed, transported, deposited, handled, then delivered to the end user.

> Maptek laser scanner technology has enabled Natrio to provide an extra level of auditing to ensure the internal measures are accurate. It also gives customers confidence regarding inventory levels.

'Auditing and inventory confidence are the immediate outcomes from the service – additional benefits across the organisation include waste minimisation and time gained through the efficiency of the technology used,' Natrio Supply Chain Analyst Blake Dutta said.

'Given the accuracy and reliability of the technology and service provided by Maptek, all recipients have confidence in the results.'

Accurate data is paramount to providing reliable reports. Maptek is a key partner in enabling this.

Since Maptek first captured and reported stockpile volumes for Natrio, new laser scanner models have been released, with advantages such as increased scanning speed and lighter systems making for faster, easier surveys.

'Partnering with Maptek has been a breeze. They are quick to respond, professional in their approach and always willing to assist the local team when required,' Dutta said.

A high level of transparency around operations at all sites means Natrio can streamline their quantitative processes and manage logistics to deliver efficient supply chain solutions.

Thanks to Natrio

01 Maptek SR3 laser scanner capturing interior stockpile data
02 Resultant point cloud of all scans
03 Modelled stockpile surface ready for volumetric calculation
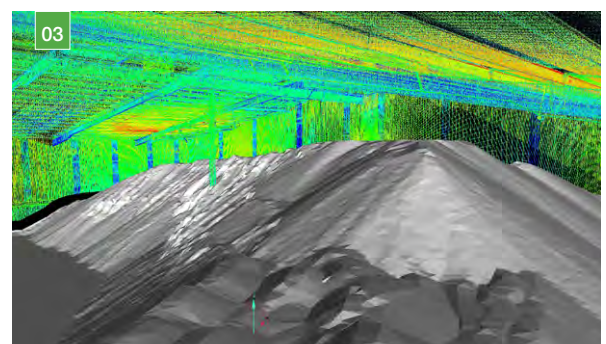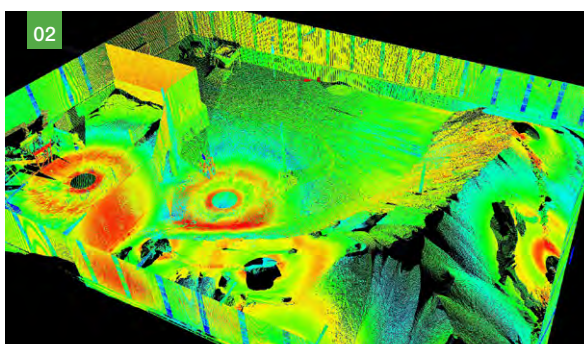
New scheduling resources

Maptek™ solutions provide Novo Resources with a reliable, repeatable workflow to plan the where and how of mining a gold project in the Pilbara region of Western Australia.

Novo Resources explores and develops gold projects in the Pilbara region across an area of about 13,000 square kilometres.

Novo Resources holds a 100% interest in the 160 km² Beatons Creek gold project near Nullagine, which hosts a resource of 457,000 indicated oz Au at 2.1 g/t and 446,000 inferred oz Au at 3.2 g/t.

The company uses Maptek™ Vulcan™ software for geological and geostatistical modelling, drill and blast, grade control and mine planning. Maptek Evolution Origin is used for block scheduling.

As the Beatons Creek deposit is spread over a vast area, the initial block model is huge – some 150 million blocks – making the data challenging to work with.

> Having a dispersed deposit makes it critical to commence mining in the right place to ensure the value of the deposit is maximised.

Vulcan reblocking reduces the data to a more manageable 25 million blocks and Novo uses Pit Optimiser, which rapidly generates pits using multiple parameters of multiple scenarios and pit shells, to further focus the area of interest.

The optimised pit shells are loaded into Evolution to investigate scheduling options based on desired strategic targets and outcomes, such as controlling mill feed or delaying production stages.

The advantage of Evolution's powerful genetic algorithms and cloud processing is that multiple sequences are investigated in parallel. Unfit solutions are disregarded and the best of the best solutions are considered against each other to quickly find an optimised result.

Evolution Origin block scheduling provides greater granularity and flexibility than other methods as it can create schedules on a block by block basis, rather than bench by bench.

The speed and power of the software means engineers can analyse a range of optimised schedules and focus on finding value in the data. Traditional scheduling approaches involving massive spreadsheets to manage data can inherently introduce error.

Integration between Vulcan and Evolution is important for keeping consistency of data and ensures a seamless workflow. This avoids manual handling and manipulation of data.

Novo Resources Senior Mining Engineer Steve Zhou says Maptek technology provides comprehensive tools which are logical and easy to use to achieve desired results across the entire mining pipeline.

'Communicating accurate information quickly plays a key role in such a dynamic operational environment. User-friendly 3D design, editing, visualisation and plotting tools, plus advanced calculation tools more than meet the requirements,' Zhou said.

'On a corporate level, Vulcan and Evolution working together can achieve strategic plans that comply with business priorities, providing evidence and 'what if' scenarios to assist the board in decision making.

'Both tactical and strategic personnel appreciate tools to tackle their obstacles successfully – especially the production teams who are working under pressure most of the time.'

Future steps include looking to manage haulage fleet capacity as part of the scheduling process.

Thanks to
Steve Zhou
Senior Mining Engineer
Novo Resources
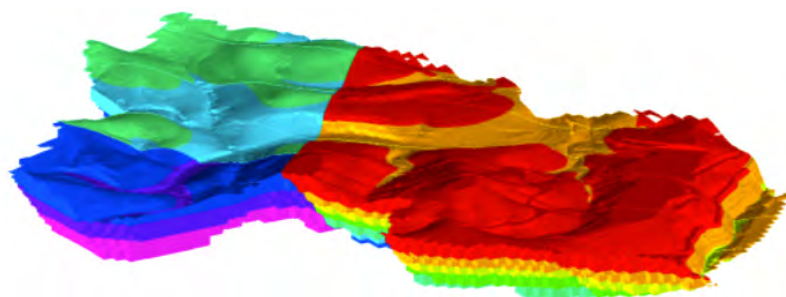
Maximising limestone extraction

Maptek™ knowhow has helped a South African limestone operation produce a comprehensive reserves report in a timely manner.

In late 2021, Continental Resources (Pty) Ltd commissioned Maptek™ Southern Africa to conduct a reserves estimation study and compile a reserves report for a limestone deposit.

The 574 hectare study area is in the Limpopo Province, 100 km north-west of Pretoria. The landscape is relatively low lying with gently undulating topography.

The deposit strikes NE and the dip varies between 45° and 60° SE. The limestone occurs interbedded with shale, dolomite and chert.

The proposed project entails quarrying limestone over a surface area of approximately 120 ha on portions of the Krokodilkraal and adjacent farms as two separate open pits. The total indicated mineral resource calculated for the two blocks is 25 Mt, with an estimated life-of-mine of 30 years.

Open pit mining methods will use drill and blast, load, haul by truck and excavator. The quarried limestone will be processed by existing crushers before being transported to market.

Collar, survey and assay data from 231 drillholes was used to compile a single block model of the entire resource area.

Grade estimation was conducted using Ordinary Kriging for all the grade variables. The block model was constrained by deleting blocks above the topographic surface and unsampled drillholes were flagged as waste and therefore excluded from the estimation.

The resource was classified as measured at 65 m radius and indicated at 130 m radius. The classification was further constrained using cut-off grades of CaO>38%, MgO<3.5% and SiO_2<10%. A bulk density value of 2.77 t/m^3 was used to calculate the resource tonnages. No variation in bulk density by rock type was applied.

A practical mining depth of 130 m was used for this project, primarily to maximise extraction of the orebody and to serve as a mode of sampling to further understand and increase knowledge of the deeper lying deposit.

The pit shell was created using Maptek™ Vulcan™. Maptek started doing project work for Continental Resources in 2018, initially to review a feasibility study conducted by third-party consultants.

As the working relationship grew Maptek began to update the resource reserves annually.

Continental Resources prefers to use Maptek consulting services because of the timely delivery and accuracy of the results, which matched its internal audit checks.

'This project took two months to analyse and complete a summary report. The main challenge was a lack of geological data,' said Maptek Mine Planning Solutions Specialist, Brilliance Mabhena.

Indicator kriging and grade shelling were repeatedly trialled in an effort to create a more realistic orebody domain for block modelling and grade estimation. The effort resulted in a satisfactory reserves report.

The long-term working relationship with Continental Resources is a testimony to satisfaction with Maptek deliverables. The customer enjoys the continuous, interactive consultative environment.

Thanks to
Continental Resources

Considering mining impacts

Environmental, social and governance considerations drive mine planning for a small scale miner in the historical goldfields of eastern Australia.

Dunolly Gold Development Pty Ltd holds a mining licence in the goldfields of Victoria, which covers an underground mine at Burkes Flat that operated in the 1880s.

The gold resources are not large but are sufficient for small scale mining, providing local skilled employment and boosting the regional economy.

Maptek™ solutions helped in planning an efficient and safe mining operation.

When planning the small shallow open cut mine, ESG considerations were foremost. Topsoil will be stored near the operation for post-mining restoration. Overburden waste rock will be stored adjacent to the pit to form a bund wall to shield noise from mining activity.

No blasting is required and the earthmoving equipment will generate limited noise. A water truck will be used to suppress dust and a mobile jaw crusher will crush the mineralised ore at the mine site.

The crusher will be on tracks, set 5 m below the land surface and surrounded by bund walls at least 5 m above the natural surface. These walls will act as a visual shield as well as a noise and dust barrier around the crusher. This set-up is good practice for mine safety and also for minimising fuel use.

Three residences lie within a radius of 385 to 650 m around the mine. There are no industrial buildings between the mine and the residences and no stands of large trees to impede propagation of sound from the operation.

Victorian EPA guidelines indicate a maximum noise level for mining of 45 decibels during the day when an occupied rural residence is nearby.

The mobile crusher was assigned a maximum of 110 dB at the origin site, and a model was created to understand the impact of the crusher noise. The iNOISE modelling software is published by a leading Netherlands industrial noise analysis company, DGMR Software BV.

A detailed land surface is required to build an accurate noise propagation model.

Maptek laser scanning hardware and software was used to create an accurate mine topography. Other elevation data was added to extend the model over a larger area.

This data combined to create a very detailed terrain model, which was also used to design the excavation and bund walls in Maptek™ Vulcan™ mine planning software.

The terrain and noise models are shown below. Comparing the noise levels with and without the bund walls and recess demonstrates the significant dampening effect of siting the crusher below the ground surface, bringing a reduction of around 25 dB. The predicted noise levels for the nearby residences is between 33 and 35 dB, well under the EPA figure.

Thanks to
Dunolly Gold Development
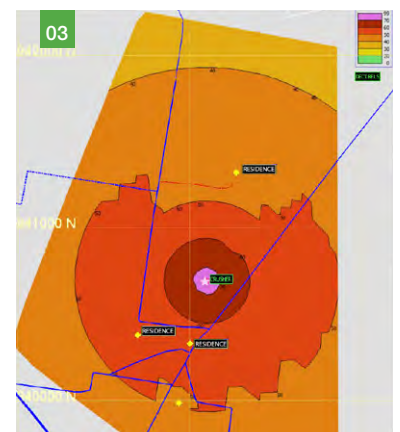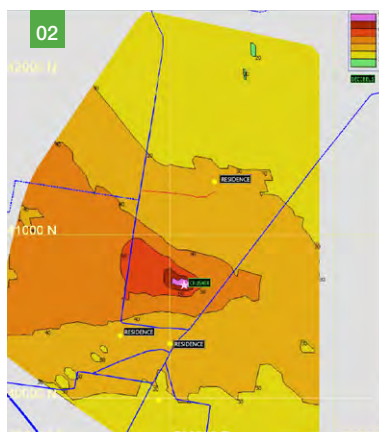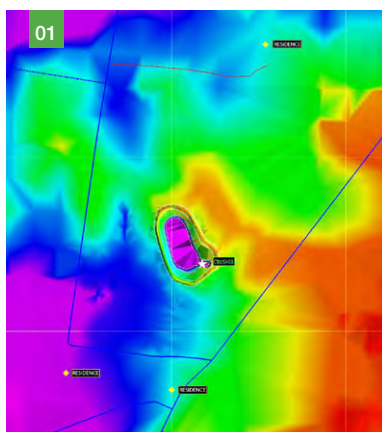
01 Digital Elevation Model showing bund wall location, mobile crusher site and nearby residences
02 Modelled Noise Envelope from the crusher shielded by the bund and recess
03 Modelled Noise Envelope without shielding

Introducing grade trends

Maptek™ DomainMCF uses machine learning techniques to quickly and cost-effectively produce resource models – now attention is turned to grade trends.

Maptek™ DomainMCF has demonstrated success in the use of machine learning techniques to produce repeatable and reliable results for modelling domains.

Successive versions of DomainMCF have provided geologists with the ability to rapidly build domain models directly from a validated geological database. This approach has proven useful in many applications including grade control, resource modelling and geotechnical domain generation, across a range of commodities in underground and open cut mines.

The 2022 release takes data-driven model generation to a new stage, with functionality incorporating prediction of numeric variables in the block model output. Numeric attributes could represent analytical grades from a chemical laboratory such as gold grades or coal quality, or they could be geometallurgical or geotechnical variables such as bond index or rock mass rating.

Numeric data is included with the relevant domain code. Attention is required to manage missing data within the numeric fields, as not all geological intervals will have valid information for specialised tests such as csn (crucible swelling number) for metallurgical coking coals or paf (potentially acid forming) for ore or mineralised waste material.

The prepared data file is sent to the DomainMCF compute engine for validation, analysis and processing. Domain and numeric data is output as a conventional regular or sub-blocked block model. The geological domain boundaries are predicted in 3D and then the prediction of grade trends is constrained within these domains.

This is analogous to what are termed hard boundaries in conventional resource estimation practice. The grade trends are predicted using machine learning and are not to be confused with grade estimates for resource reporting.

Grade trends generated by DomainMCF display the 3D distribution of any modelled attribute. It may be the distribution of gold or copper grades in stockwork mineralisation or the penetration rate from blast hole measurement while drilling data.

In areas of uncertainty, grade trends can be used to target where to drill and collect data to improve confidence in the geological model.

DomainMCF grade trends can also be used as input to locally varying anisotropy (LVA) estimation techniques. The grade trend vectors in x, y and z replace the standard sample search ellipsoid orientations and facilitate grade estimation around fold hinges and curved domains.

DomainMCF easily processes big data. It has been tested with more than 100 million data attributes from one of the largest ore deposits in the world and delivered a 3D domain model with grade trends for 25 different variables in less than four hours. The interplay and correlation between grade trends are preserved in the machine learning workflow.

Noting that miners have 60 years of confidence in kriging and its variants and 30 years of experience in different forms of simulation for resource estimation and reporting, Maptek Technical Lead for DomainMCF Steve Sullivan does not challenge the old order lightly.

Future research and development is required to tune the underlying processes to convert these grade trends to grade predictions.

A new technique requires extensive comparison and validation against existing accepted practice before becoming the new standard. DomainMCF is set to do just that.

Acknowledgment to Chris Giles, Havilah Resources for imagery.
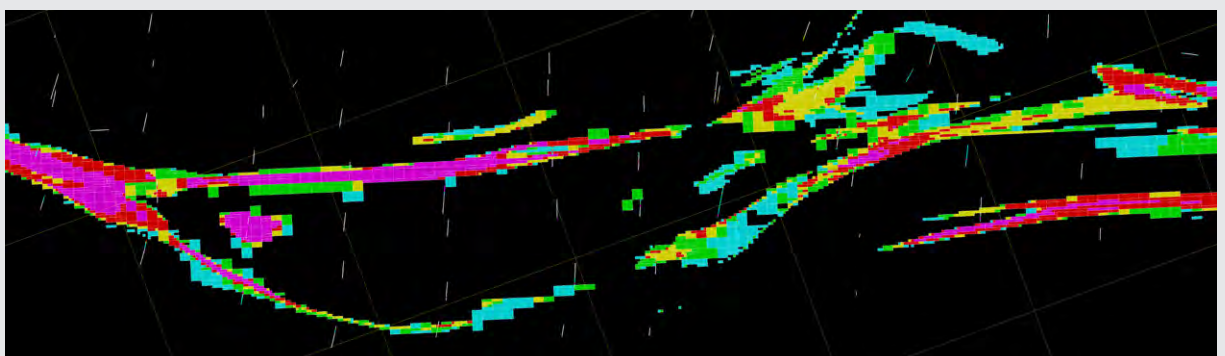
Learn online as you earn onsite

Maptek™ experts are helping customers turn challenges arising from the post-pandemic 'great reshuffle' into opportunities to upskill online.

A global post-pandemic trend sees people explore new roles and careers. As a result, companies are facing challenges on several fronts, including retaining experienced talent, hiring new staff with vital skills and upskilling new hires.

Maptek™ delivers superior, convenient, effective training to help both new and experienced users leverage software to improve processes and site workflows. Seasoned employees can balance site duties with achieving technical development goals. An online course helps new hires get up-to-speed quickly.

Experienced geologists, mining engineers, geological engineers and surveyors deliver the training, sharing their expert knowledge of our software and how the functionality can be applied in multiple mining environments.

A team of professionals with diverse teaching and training experience supports all of our programs. They follow solid instructional design practices and current learning science to develop engaging content.

More than 10 years ago, long before remote work was an accepted standard, Maptek offered clients the ability to gain new skills in an online environment. Even then, Maptek recognised that more flexible training programs would help them meet professional development needs while attending to site priorities.

Unlike emergent online learning, our programs have evolved over many years to meet specific client needs. Every training program plan is backed by a team of engineers with solid mining and instructional design experience. We consistently adjust our courses to meet current industry program planning standards to ensure the best learning outcomes.

> The Maptek goal is to empower users to embrace new software skills with immediate real-world application to site scenarios encountered every day.

Maptek analyses the latest learning trends and researches technology to enhance the learner experience. Re-evaluation and upgrades to our content reflect training metrics as well as feedback from surveys and live interviews.

Our dedicated approach has helped us offer remote and online programs that set the industry standard.

Whatever program you choose, you will learn relevant concepts while following along in a live software environment. You can learn a new skill in a short time, fitting in with your site schedule.

'Hybrid training programs are a great way to gain the skills and knowledge you need to tackle complex site challenges and meet your unique professional development needs,' said Maptek Global Online Training Manager, Chris Johnson.

'In May, we expanded our library of videos, courses and learning paths to include PointStudio. You can get started with PointStudio, Vulcan and BlastLogic at no cost through our Online Training platform.'

Courses are listed on the Maptek website or contact your local Maptek office to discuss a custom Remote or Hybrid training program.

No matter your learning style or current knowledge, Maptek staff are here to support your professional development journey.

Choose your style

Learn at your own pace with industry-standard Online Training videos and courses.

Interact live with a professional instructor via an Instructor-Led Remote course.

Let Maptek develop a Hybrid program that blends several types of training to suit your needs and learning style.

Safety by elimination

Accurate, timely data around conformance to design eliminates problems before they escalate and dramatically improves operational safety and productivity.

Transforming the volume of data collected on a site into timely decision support information presents a challenge. It is not sufficient to complete mine design compliance checks after excavation has finished. Understanding what went wrong after the fact does not resolve issues. Feedback about design compliance must happen during excavation.

Maptek™ conformance solutions are based on comparing detailed point cloud information captured daily against the short term design. Multiple sections can be created from one scan to precisely define how an as-built wall, bench or drive matches a particular design.

One key advantage of the laser scanning approach is the ability to measure and compare active mining faces from a distance. Reviewing critical data in the field allows teams to act safely and efficiently to keep mining on track.

All underground and open pit mines, including quarry and dredging operations can use Maptek design conformance tools.

Short term design requires constant refining on a daily basis. Timely conformance reporting has implications for key design decisions on parameters like depth to floor or wall angle.

Feedback available at the stages where it can have a positive impact on the quality of the design delivers maximum benefit to the design process.

Design conformance creates a robust quality feedback loop around one of the critical production processes in a mine. It reduces variance and provides timely, accurate information about conformance to design along production quality principles.

When functional stakeholders and management can quantify material variability at each stage, confidence is boosted in the business proposition.

Business costs associated with implementing digital conformance systems are relatively low. Workflow processes do not change significantly for stakeholders. Only the tool being used to guide a process changes, offering a result that is much faster and easier, more accessible and accurate.

Planning assumptions are improved by monitoring and optimising the modelling, design and execution of a mine plan. It is no longer necessary to delay milestone reporting. Maptek provides the technology to make this achievable for day to day operational improvement.

Work safely in the field

Design conformance on the Maptek FieldHHC supports production goals through an intuitive field process that delivers immediate and accurate conformance data, allowing staff to make informed decisions in the field. Conducting in-field conformance directly from laser scans allows operations to:

> Actively monitor conformance without interrupting production
> Increase highwall and bench safety, with improved wall stability
> Resolve issues quickly without waiting for in-office processing
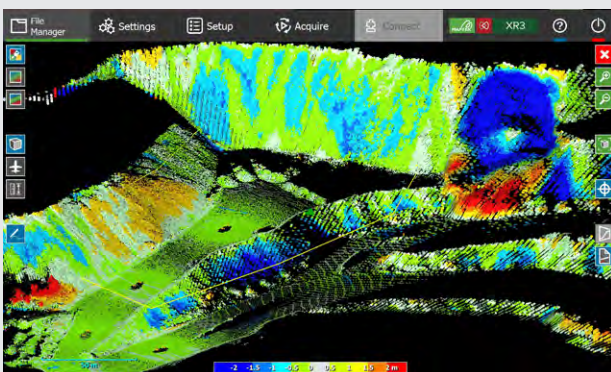
Work confidently in the office

Streamlined, easy-to-use reporting tools help ensure that decisions are based on the latest data. Panoramic scene creation provides instant visual confirmation of conformance to design. Reporting from a single source of data promotes confidence in decisions:

> Improved communication between engineers, surveyors, supervisors and operators
> Timely feedback of useful information to other teams
> Evaluation of mine performance and improved resource recovery
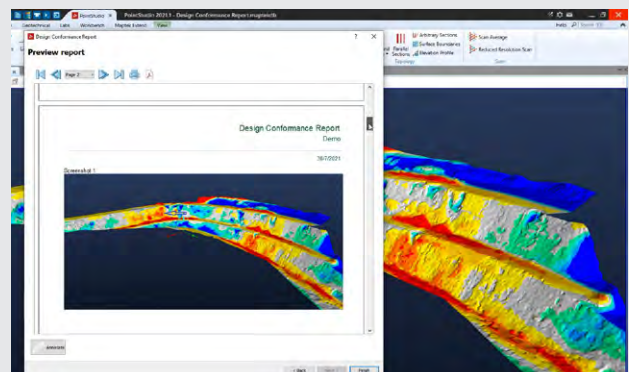
# Work where you are with the tools you need and experience the benefits
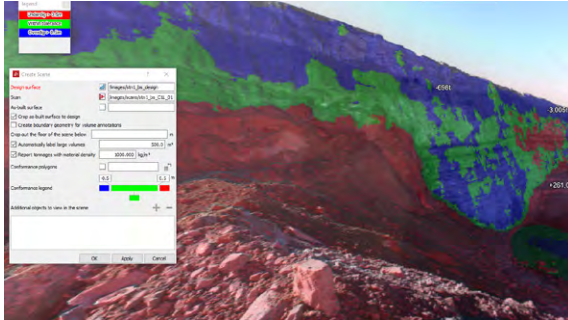
Design conformance

Decision support – Accurate, reliable data supports confident decision making across geology, geotechnical and mine planning teams

Streamlined workflow – Built-in workflows, advanced analysis and easily customisable reporting

Safety – Meet operational KPIs for increased safety and risk management through comparing designs to digging
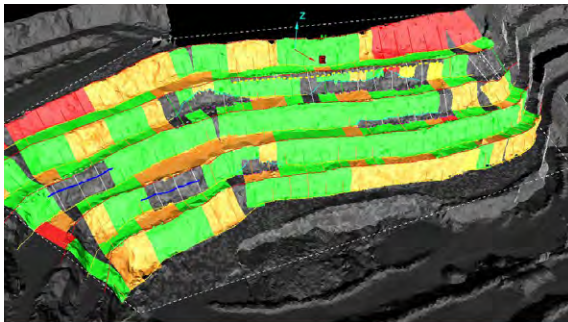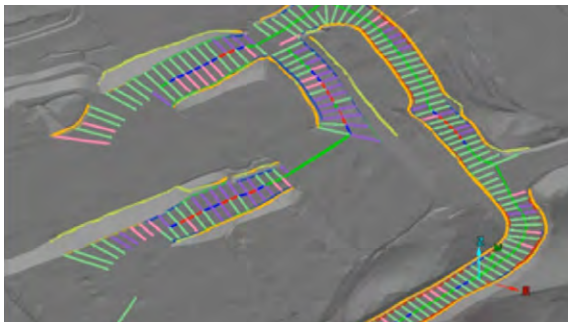

Inter-ramp compliance

Decision support – Data to support daily digging requirements for pit supervisors or open cut examiners

Compliance – Engineering studies comparing as-built to design and ongoing compliance

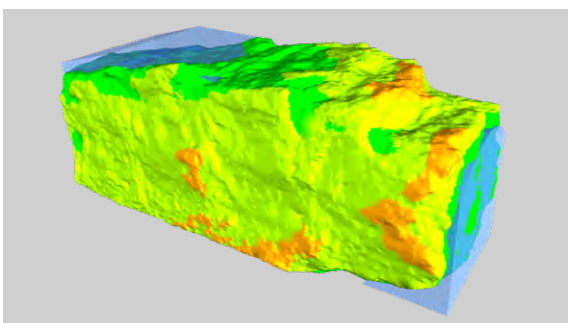**Safety** – Geotechnical monitoring helps minimise risk to people and machinery

Haul road conformance

Decision support – Easily identify non-conformant areas for quick resolution

Flexibility – Apply to as-built surfaces and design models

Efficiency – Minimise operational costs and improve productivity

Safety – Better road designs lead to safer operations

Underground reporting

Decision support – Quickly generate customisable reports for confident decision making

Multiple applications – Minimise grade dilution, highlight unstable areas and analyse shotcrete thickness to reduce development costs

Safety – Apply to development drives, stopes or crosscuts to quickly identify areas requiring attention

'Dynamic and easy-to-understand conformance tools make this complex task easy to present to my team to address concerns before they become real issues.'

University partnerships

Maptek™ helps students across the world, working in partnership with universities to shape future careers and create a bright tomorrow for industry.

University of Adelaide students joined a select global group to receive training in Maptek Evolution. Final year Mining Engineering students learnt about Evolution Strategy as part of their Mine Design and Feasibility studies. Instead of using spreadsheets for scheduling, students can now conduct trade off analysis on a massive scale. Course coordinator Chaoshui Xu said it was great to have students exposed to industry software.

'Access to Evolution will prepare students better for industry careers, particularly in strategic mine planning and production scheduling,' Dr Xu said.

Evolution training is already in place at Curtin University in Western Australia, Dalhousie University in Nova Scotia, Pennsylvania State University and Missouri University of Science and Technology.


The 2022 Maptek Prize for Computer Science was presented to Emily Duhne by Head of Experimentation at Maptek Simon Ratcliffe. The University of Adelaide student is studying Electrical and Electronic Engineering, majoring in autonomous systems, and ideally wants to work in machine learning and artificial intelligence.

Sydney Kamerman won the Maptek award for achieving top marks in Hard Rock Mine Design and Feasibility studies at the Western Australian School of Mines, which was presented by Dr Mehmet Cigla at the graduation ceremony in May.
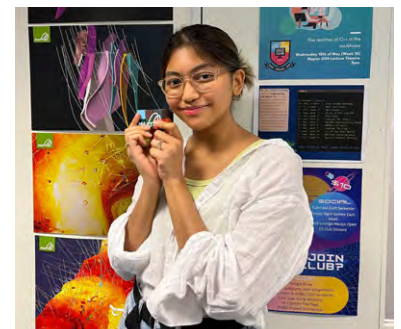
Maptek sponsors University of Adelaide Computer Science Club activities including quiz nights, hackathons and panel discussions. New president Aniza Abdul Halim is pictured in the refurbished club room featuring Maptek displays.
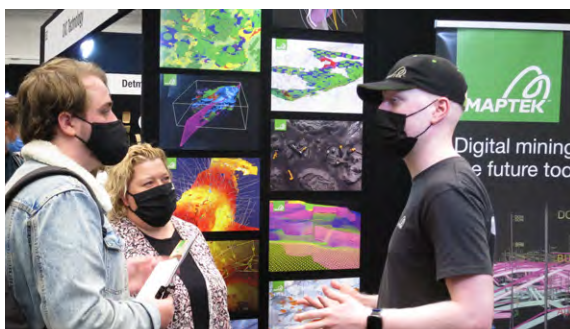
Maptek technology display at the SA Big Meet expo at the end of March helped showcase why we are an employer of choice.

Luke Berry and Dallas McNeil welcomed visitors to the Maptek booth at the Engineering, Computing and Mathematical Sciences Industry Night at the University of Adelaide in April.

Now a Software Engineer on the Vulcan Core Technologies team, Dallas remembers his own intern experience: 'The knowledge I gained in computer graphics was fantastic and the real software engineering experience was invaluable.'

Congratulations to members of the Roblox team on winning best project for their year level at the recent University of Adelaide Computer Science awards.

Their motivation for doing well in the Software Engineering Project was having it gamified by Maptek mentors. The winning algorithm devised for block model coalescing is being implemented in DomainMCF.

Putting principles into practice

Maptek staff in our Australian offices have enjoyed exploring what our new principles mean in practice. During February, we participated in activities around Create Tomorrow, where we aim to make tomorrow better for our customers and employees by encouraging change and new thinking.

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