

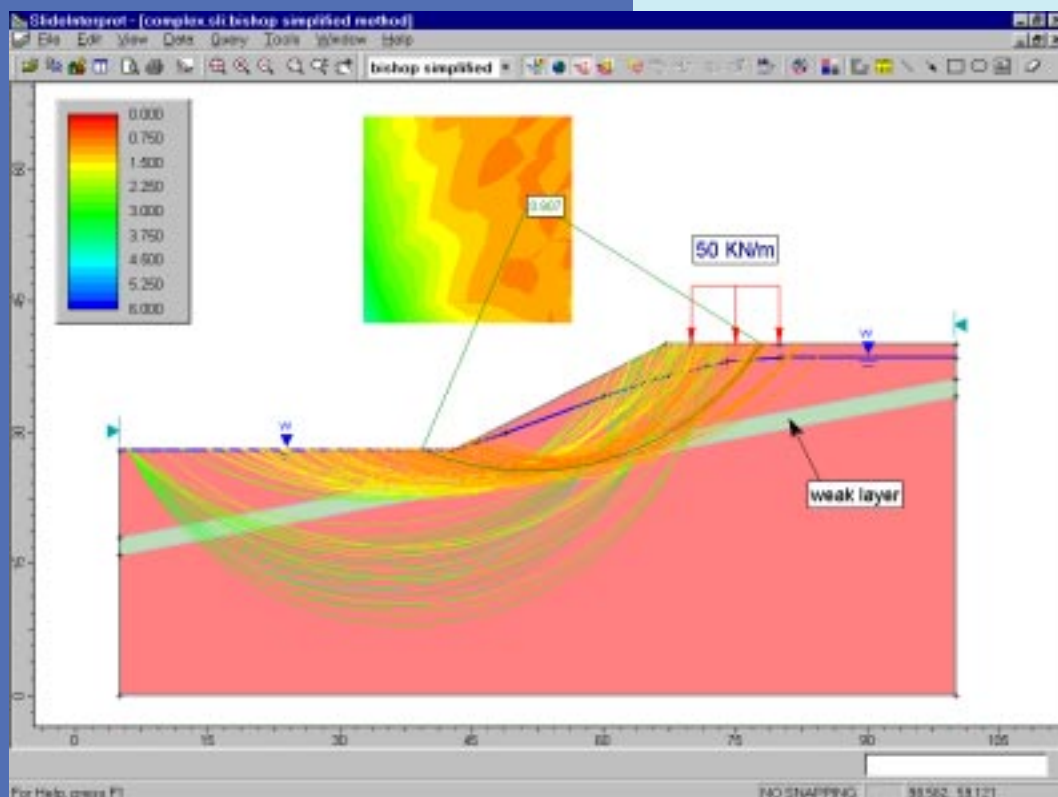
Slide (3.0) for Windows

Rocscience Inc. is pleased to announce the release of Slide 3.0 – an all new program for analyzing the stability of soil or rock slopes. We have been busy at Rocscience over the last year working on several different software projects, including Slide, RocFall, Phase² and RocSupport. Slide 3.0 will be our first major new release for the year 2000.

Many Rocscience customers have been waiting for a Windows version of Slide. We are confident you will find that this new version was worth the wait. Slide 3.0 for Windows replaces Slide 2.0 for DOS, and incorporates the features most often requested by geotechnical engineers involved with slope stability. In particular, Slide 3.0 now analyzes arbitrary non-circular slip surfaces, or composite circular / non-circular slip surfaces.

Not only does Slide 3.0 include many new analysis options and data interpretation tools (see inside for details), but we think that engineers will find Slide 3.0 to be the easiest to use and the most intuitive slope stability software available today. Complex models can be created and analyzed in a matter of minutes, saving users time and money. Download a demo from our website today, and see for yourself!

- Import / export geometry in DXF format
- Import geometry from SLOPE/W or XSTABL files
- Very easy and flexible geometry input and editing; modeling and interface consistent with Phase²

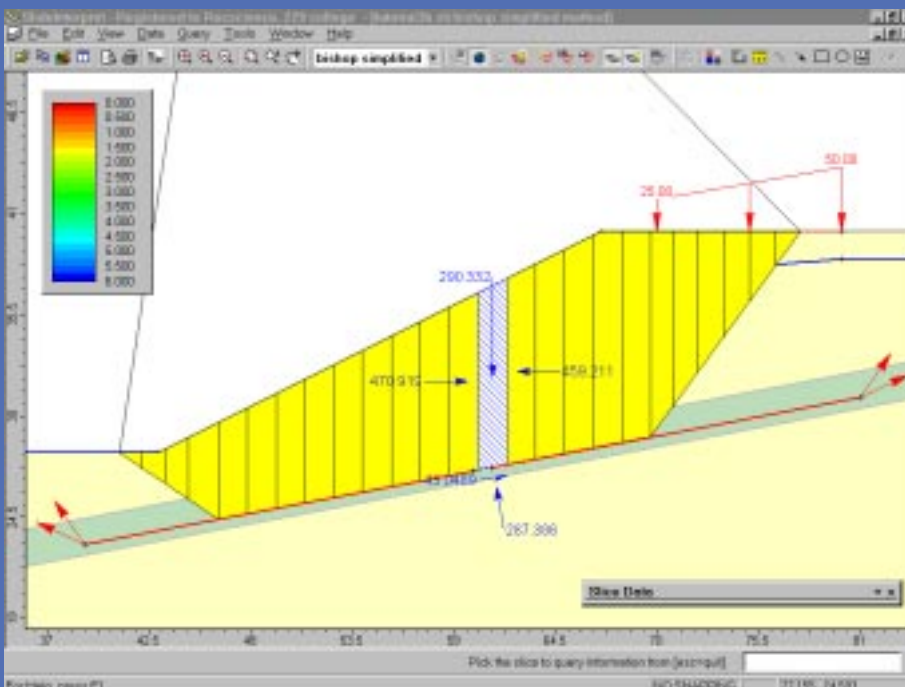
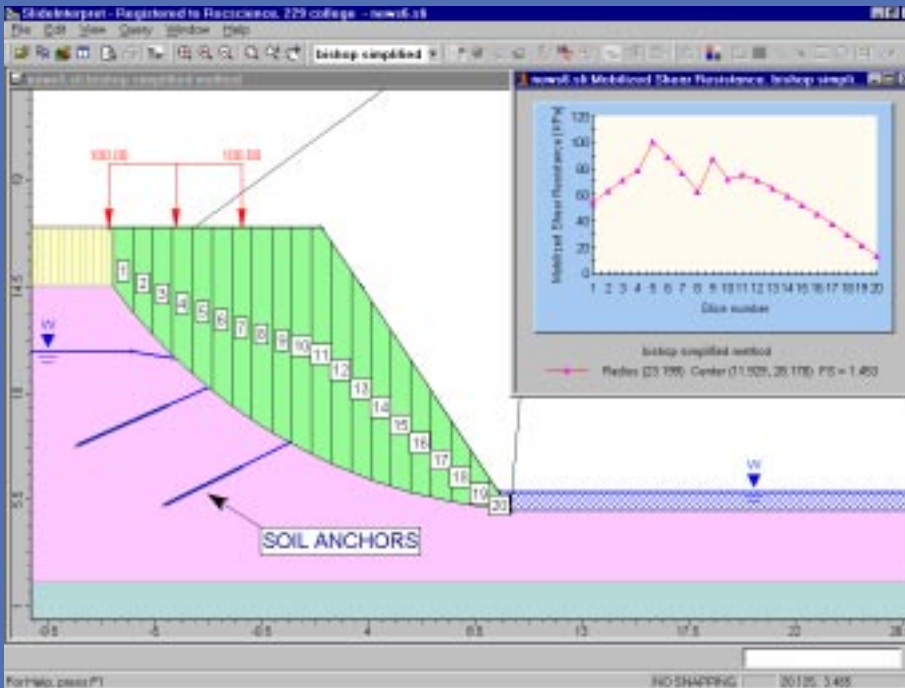


- Groundwater modeling – piezo surfaces, Ru factors, pore pressure grids, ponded water
- External loading – distributed, line or seismic
- Support – anchor loads, reinforced zones
- Strength models – Mohr-Coulomb, undrained, anisotropic, arbitrary non-linear Mohr-Coulomb strength function; multiple materials; tension crack zone

(See inside for more features)

Slide

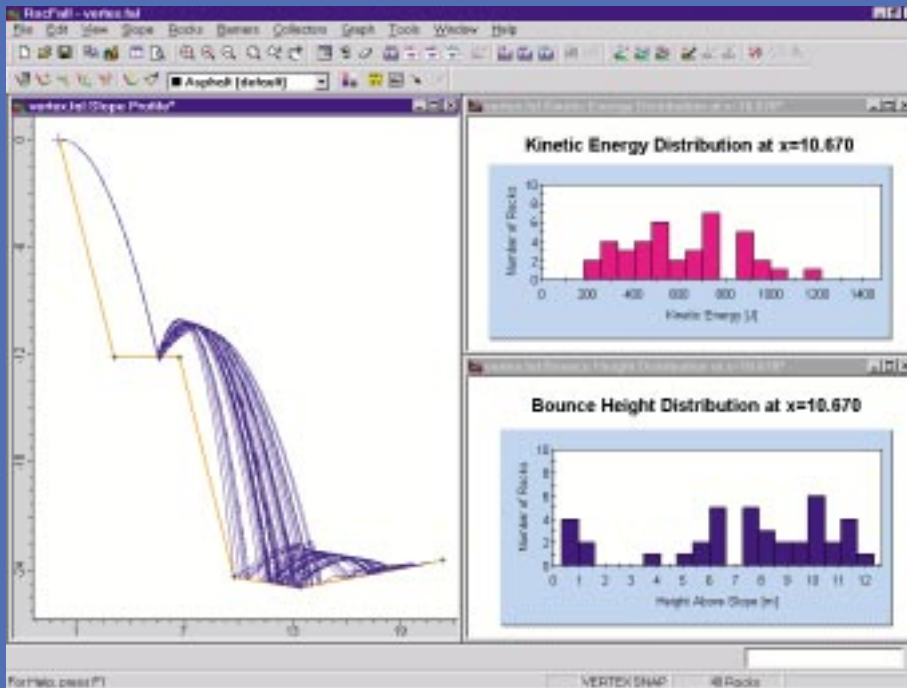
Non-circular analysis is now included



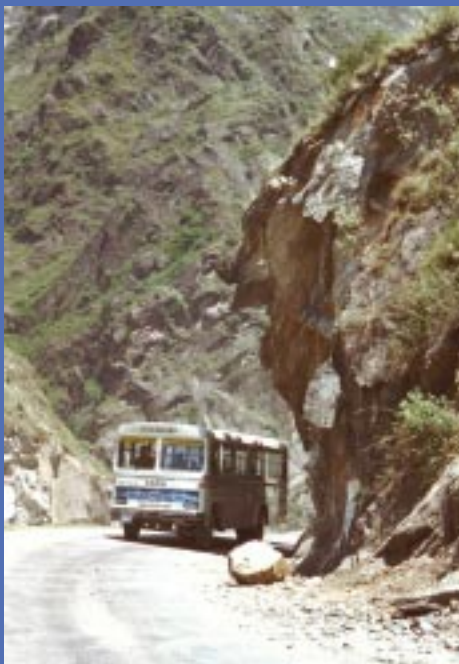
- Limit equilibrium methods include Bishop, Janbu, Spencer, GLE (with user-definable interslice force functions) and other methods such as Army Corps of Engineers and Lowe-Kafsiath
- Non-circular analysis – analyze arbitrary non-circular slip surfaces, or composite circular / non-circular slip surfaces
- Data Interpretation – view any or all surfaces generated by an analysis; detailed analysis results can be plotted for individual slip surfaces; raw graph data can be pasted into a spreadsheet for further processing; graphical display of forces on individual slices
- Automatic critical slip surface search for circular or non-circular analysis; searches can be narrowed to specific areas of interest
- Info Viewer model and analysis summary is convenient for printing and pasting into reports
- Graphical output – export images in JPG, BMP or Windows metafile formats, or copy to clipboard for direct pasting into reports and presentations; one-click grayscale for black and white image capture; annotation toolkit – easily add text boxes, arrows, lines, circles, etc. to display; all annotations can be saved with the model

RocFall

Version 3.0
adds new
functionality



Customer requested enhancements



- Charting is improved; modify chart properties to customize the look of your plots (ie. titles, ranges)
- Slope coordinates on chart view
- Material names are now sorted alphabetically in all lists
- 1-click grayscale toggle for black and white screen captures
- Slope editor is now much easier to use (eg. quickly apply a common standard deviation to all slope vertices)
- Improved layout of menus, toolbars and dialogs

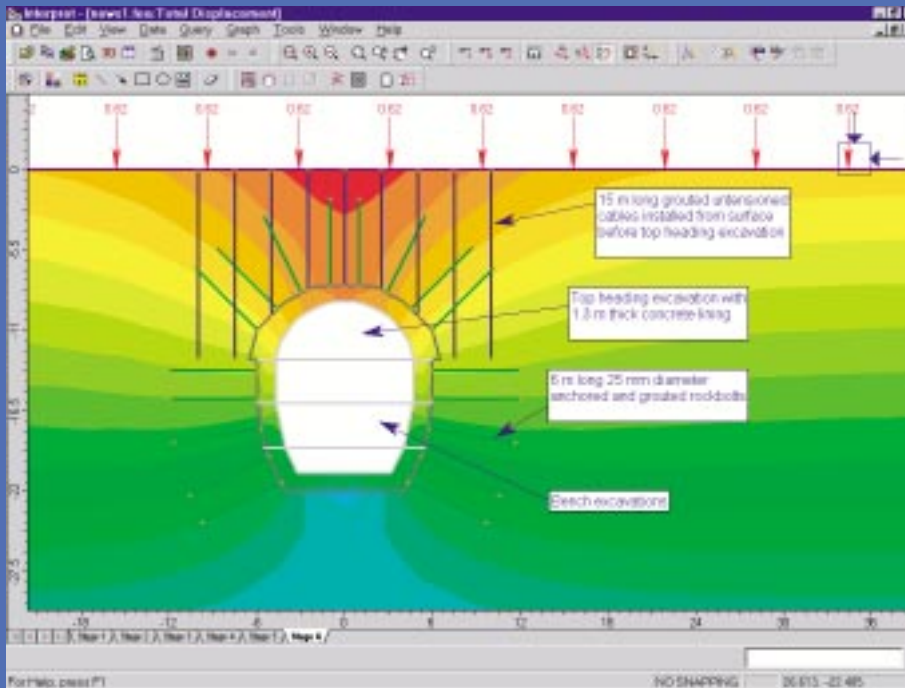
For registered users of *RocFall*, contact us about upgrades: software@rocscience.com

New Functionality

- Roughness property for materials – a roughness angle can now be specified as a material property for any slope segment; the roughness angle is the standard deviation from the mean slope segment angle and simulates the surface roughness of the slope
- Breakable barriers – barriers can now be specified as having a finite capacity; rocks which exceed the capacity of a barrier, pass through the barrier, at a reduced velocity
- Friction angle can be calculated from tangential coefficient of restitution (R_t)
- Normal coefficient of restitution (R_n) can be scaled based on rock mass or velocity
- Angular momentum of the rocks can be accounted for
- Rolling mode can be considered
- Import and export material properties
- Distributions of kinetic energy, velocity and bounce height at any point along the slope profile
- Statistics calculated for distributions
- Info Viewer summary of all input data can be copied to the clipboard and pasted into reports
- Imperial units are now supported
- Imports CRSP files
- Image (JPG, BMP, EMF, WMF) export option. Windows metafile support for easier data import into Windows software (ie. Autocad, Corel Draw, Excel, Word, etc.)
- Add text, arrows, measurements to the views

Phase²

Modeling of complex geometries and staged material excavations is fast and easy with version 5.0



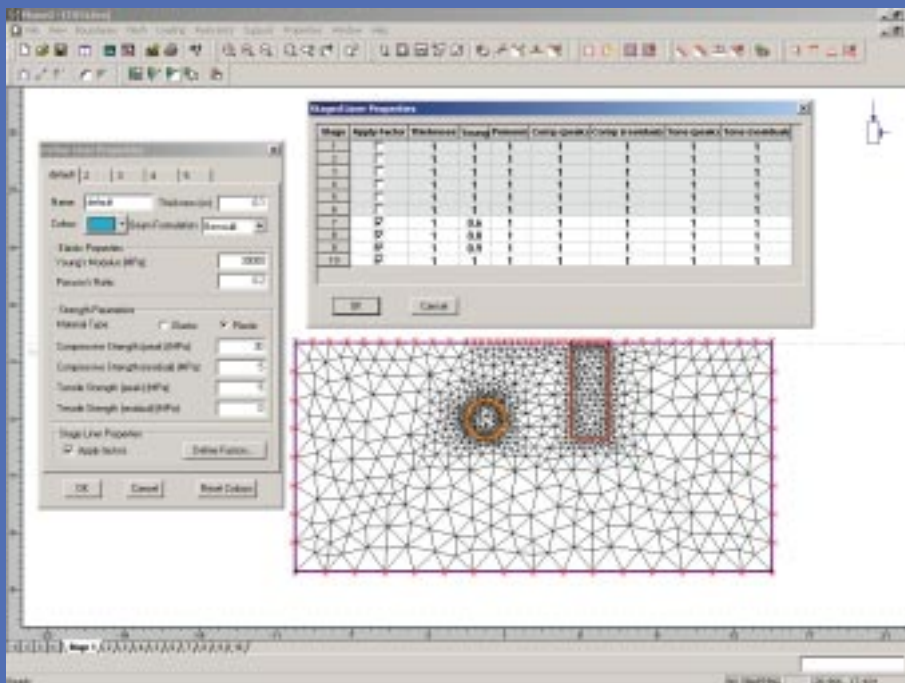
Users of *Phase²* can look forward to version 5.0, a major upgrade due this summer. *Phase²* is our very powerful 2-D elasto-plastic finite element program for calculating stresses and displacements around underground or surface excavations. In response to customer requests, comments and feedback, the new version will include the following new functionality:

Many users requested more sophisticated liner (ie. shotcrete, concrete) modeling:

- Liner properties can now be changed at different stages, to model the hardening of shotcrete, for example.
- Composite liners (ie. multiple liner application on a single surface, to model the addition of a second layer of reinforcement).
- Slip elements adjacent to composite liners (eg. artificial joints between composite liner layers, or joint elements on either side of a pile).

New functionality for bolt elements

- A new bolt model has been added to improve the modeling of split-set and swellex bolts. It more accurately models the shear behavior between the bolts and the rock.
- The Queen's Cable bolt model has also been improved so that the load in the cable is transferred back into the rock mass.



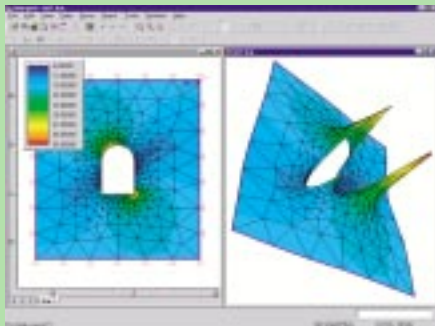
More options in *Phase²*

The modeling of effective stresses

- Pore pressures can now be included with any *Phase²* analysis allowing for the proper modeling of the influence of groundwater.

A variety of interface improvements

- A new annotation toolkit which allows for easy addition of text boxes, arrows, lines, circles, etc. All annotations can be saved with the model for future use.
- 3-D contouring of analysis results, allowing the user to rotate and view from any angle
- Plotting of normal and shear stresses along arbitrary lines



New mesh refinement options

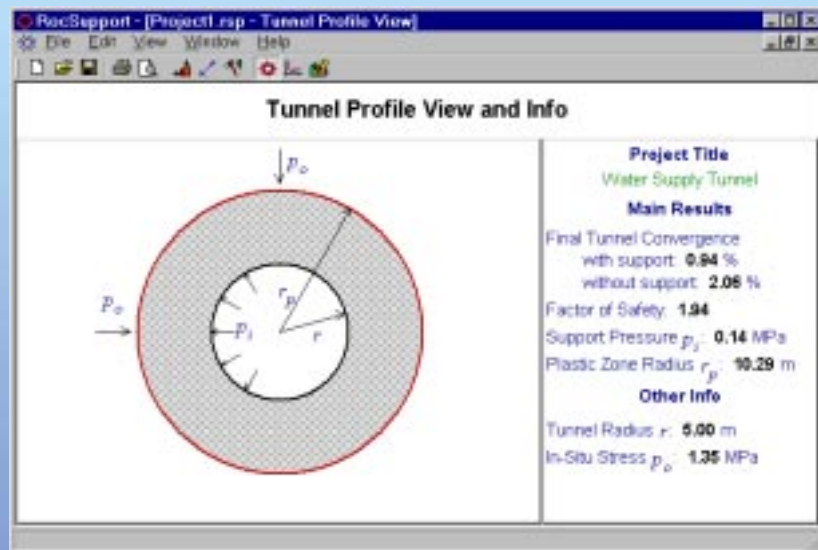
- Increase mesh density in user-specified areas
- Regular rectangular mesh

Phase² 5.0 will be fully MS Windows 2000 compliant

RocSupport

FREE with new purchase or upgrade to *Phase²* 5.0

Based on the concept of the ground characteristic curve, our new *RocSupport* program allows you to examine the influence of support properties and the timing of support installation on tunnel behavior. The program is based on the analytical solution for a circular tunnel in an elasto-plastic rock mass under a hydrostatic stress field. Support systems include rockbolts, steel sets, shotcrete, concrete liner, etc. Look for this new program on our website in July 2000.

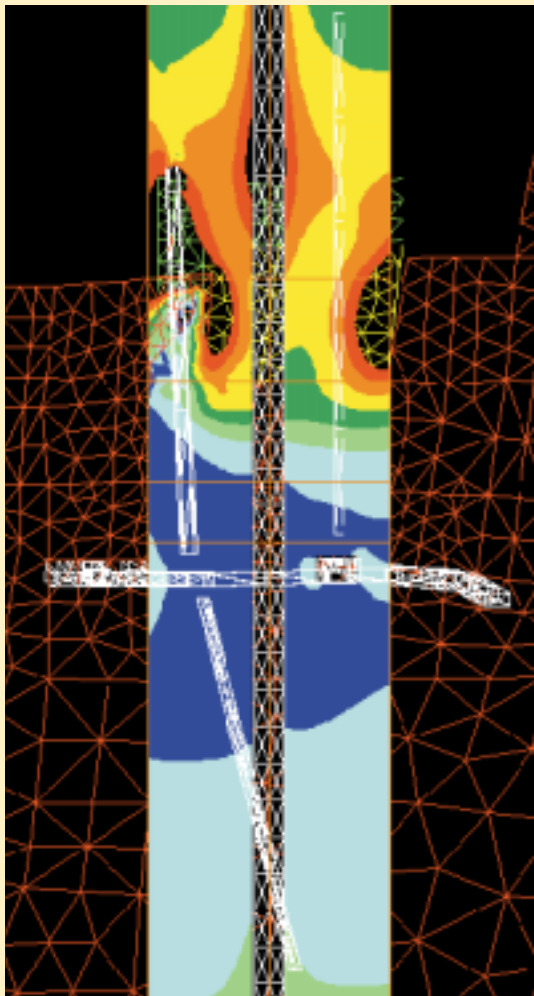


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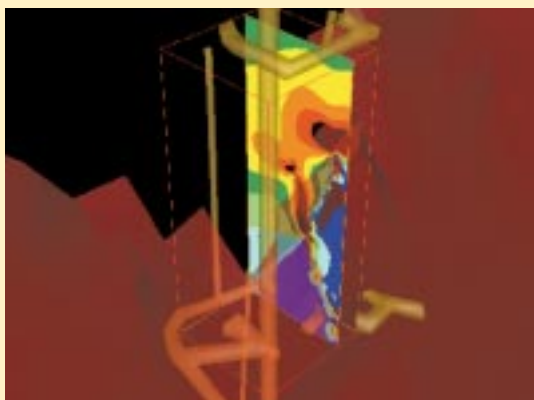
We would like to make sure that we have your correct address and contact information. We would also like to encourage new contacts to join our mailing list. Current customers and interested visitors can go to our website www.rocscience.com to request a \$25.00 credit voucher.

1. Complete the \$25 Credit Request Form by going to our website and clicking on the \$25 Credit button. If you do not have internet access, contact us by fax 1-416-698-0908 and we will send you the \$25 Credit Request Form.
2. You will then receive a \$25 Credit Voucher, one voucher per customer.
3. \$25 Credit Voucher can be used towards any Rocscience software purchase made before Dec. 31, 2000.

Examine^{3D} is used to analyze Battle Mountain Golden Giant Mine



Mining Sequence F - max. principal stress on east-west plane through centre of shaft looking north



Mining Sequence F - max. principal stress on north-south plane through centre of shaft looking west

The cutting-edge technology, found in an upcoming version of *Examine^{3D}*, was recently used at Battle Mountain Canada's Golden Giant Mine in Canada. A feasibility study was undertaken to determine if it was possible to advance the scheduling for mining the existing shaft pillar, originally left to protect the shaft from mining induced stress damage. *Examine^{3D}* was used to design a destress slot, analyze different mining scenarios and then to evaluate the associated risk of mining the shaft pillar before mining the deeper portions of the ore body.

The analysis showed the creation of a destress slot would work. With the large number of design parameters involved in this analysis, the new functionality in the next version of *Examine^{3D}* was essential to the success of the analysis. Each computer run was completed in about 1/20 the time formerly required, allowing for a much more thorough job. With the destress slot in place, allowing for the accelerated mining of the existing shaft pillar, the resulting improvement in the mine economics is expected to be significant.

The theoretical basis for the new technology, which will be available in *Examine^{3D}* (5.0), is detailed in the technical paper referenced below:

Vijayakumar, S., Yacoub, T.E. and Curran, J.H., "A Node-Centric Indirect Boundary Element Method: Three-Dimensional Displacement Discontinuities", *Computers and Structures*, vol. 74, no. 6, p. 687-703, February 2000.

UNWEDGE FOR WINDOWS

Development of *Unwedge* for Windows is now underway. The DOS version of *Unwedge* (2.3) has always been one of our most popular programs. As a new native Windows program, the graphics will be much improved, making the program more intuitive and easier to use. The new stress analysis feature will allow the engineer to determine the influence of confining stress on wedge stability, using our *Examine^{2D}* stress analysis engine.

We would appreciate suggestions for improvements and new features for *Unwedge* (3.0) from our users. These ideas will be looked at by our development team and incorporated if possible. We have always found that customer input improves our final product, so send your comments by email to software@rocscience.com.

CPILLAR FOR WINDOWS

Look for our new Windows version of *CPillar* later this summer. Again we welcome comments and suggestions from our customers.

NEW
on our
WEBSITE

We have redesigned our website to make it easier to find the information you are looking for. Make sure that we have your correct address and other contact information and take advantage of the \$25.00 credit towards your next Rocscience software purchase.

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