

# Slide 5.0

## Slope Stability & Groundwater Software

*The most comprehensive slope stability analysis software available, complete with an integrated groundwater module. With a variety of new analytical capabilities, Slide 5.0 allows users to perform analyses more thoroughly, more quickly than ever before.*

### Groundwater Built-in

Slide 5.0 contains an integrated steady-state groundwater seepage analysis module, eliminating the need for multiple applications. Groundwater flows, pressures and gradients are calculated using finite element analysis - test your groundwater condition hypotheses using a variety of boundary conditions. Build a single model for both groundwater and slope stability analyses, or analyze groundwater separately.

### Sensitivity Analysis

Slide 5.0 allows you to conduct parametric studies to determine the sensitivity of a slope's factor of safety to minor changes - you can make the most of limited input data. Use this feature to quickly compare the effectiveness of

remedial measures such as drainage or slope reinforcement changes. Results are plotted on a graph to show the relative influence of each variable.

### Probabilistic Analysis

Slide 5.0 gives users an objective measure of the risk of failure associated with a slope design - determine the probability of failure/reliability index for either the deterministic failure surface with the smallest factor of safety, or for the entire slope, using almost any input parameter as a random variable. It is particularly useful for determining material properties or groundwater conditions.

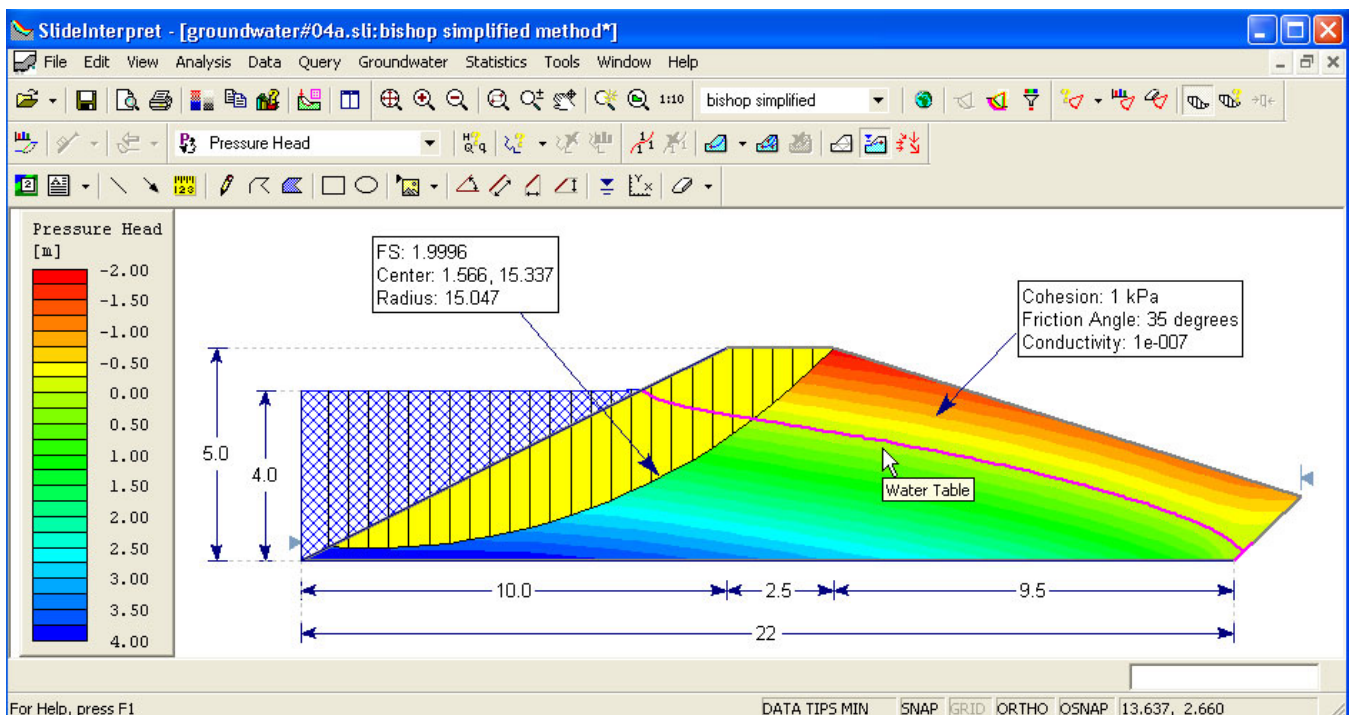
### Back Analysis

Slide 5.0 can calculate the reinforcement load for a given factor of safety and demonstrate how to achieve

it for all surfaces, allowing you to create your preliminary support design more quickly. Design for a particular factor of safety, create a good starting point for support designs, or verify supports; simply enter a factor of safety and a reinforcement load is shown in the Interpreter.

### Undrained Loading

Slide 5.0 can calculate excess pore pressure due to undrained loading using the B-bar method. This allows you to account for short-term (transient) changes in pore pressure due to rapidly applied loading conditions - for example, an embankment constructed on a clay foundation. The B-bar method can also be used to simulate a Rapid Drawdown analysis for complete or partial drawdown scenarios.



Slope stability and groundwater results can be viewed simultaneously in Slide. Contours of pressure head in a dam and a slip surface are displayed. Using the integrated drawing tools, dimensions and dynamic text have been added. Data Tips can show the properties of any object, in this case the water table.

### Modeling

- interactive geometry entry
- mouse click undo and redo
- right click editing
- view vertex coordinates
- multiple snapping options
- interactive zoom and pan
- import/export to DXF format
- Data Tips offered for any object
- multiple materials – up to 500

### Surface Types

- circular surfaces
- non-circular surfaces
- composite surfaces

### Surface Definition & Search Methods

- grid search
- slope search
- auto-refine search
- block search
- path search
- slope limits
- non-circular surface optimization

### Analysis Methods

- Bishop simplified
- Corps of Engineers #1
- Corps of Engineers #2
- GLE/Morgenstern-Price
- Janbu simplified
- Janbu corrected
- Lowe-Karafiath
- Ordinary/Fellenius
- Spencer

### Tension Cracks

- dry
- filled
- percent filled
- filled below elevation
- filled to depth
- use water/use piezometric line

### Strength Models

- Mohr-Coulomb
- Undrained
- No Strength
- Anisotropic strength
- Shear/normal function

- Anisotropic function
- Hoek-Brown
- Generalized Hoek-Brown
- Vertical Stress Ratio
- Barton-Bandis
- Power Curve
- Hyperbolic
- Discrete Function
- Drained-Undrained
- Unsaturated shear strength

### Pore Pressure Definition

- finite element groundwater seepage analysis (saturated/unsaturated, steady-state flow)
- phreatic and piezometric surfaces
- Ru coefficients
- pore pressure grids (total head, pressure head, pore pressure)
- interpolation methods include Thin Plate Spline, Chugh, Modified Chugh, Local Thin-Plate Spline, TIN triangulation, Inverse Distance, and Linear by Elevation
- calculate excess pore pressure using B-bar method
- rapid drawdown analysis
- use Ru with water surfaces or grids

### Slope Stability Data Interpretation

- filter slip surfaces
- plot surface data
- plot slice data
- plot factor of safety along slope
- view support force diagrams
- add dynamic text in Interpreter
- interactive Data Tips
- plotting in Excel
- define your own “favorite text” input
- flexible dimensioning
- quick zoom models to same coordinates
- customize all display options
- save all drawings, annotations
- print models at scale
- export image files
- over 60 verification examples

### Probabilistic Analysis

- Monte Carlo or Latin Hypercube simulation
- use any input parameters as random variables

- distributions include Normal, Uniform, Triangular, Beta, Exponential, Lognormal, Gamma
- display results using Histogram, Cumulative or Scatter plots
- correlation coefficients
- Sensitivity Analysis

### Finite Element Groundwater Seepage Analysis

- one-click, automatic meshing
- mapped meshing
- material permeability
- multiple soil types
- add boundary conditions easily
- define discharge sections
- integrated Interpreter (view groundwater and slope stability results simultaneously)
- plot tolerance history
- 12 verification examples

### Loading

- line loads
- distributed loads
- seismic loads
- interactive editing of loads

### Support

- end-anchored bolts
- grouted tie-backs
- soil nails
- geo-textiles
- piles and micropiles
- user-defined support model
- active vs. passive anchors
- easily define/edit patterns

### Price & Licensing

Slide 5.0 is sold as single licenses, which are purchased outright, for \$1795 US (\$2155 CDN).

Network licenses are also available; they are sold as a yearly subscription, with price based on the number of concurrent users. Please contact [software@rocscience.com](mailto:software@rocscience.com) for more information. [www.rocscience.com](http://www.rocscience.com)