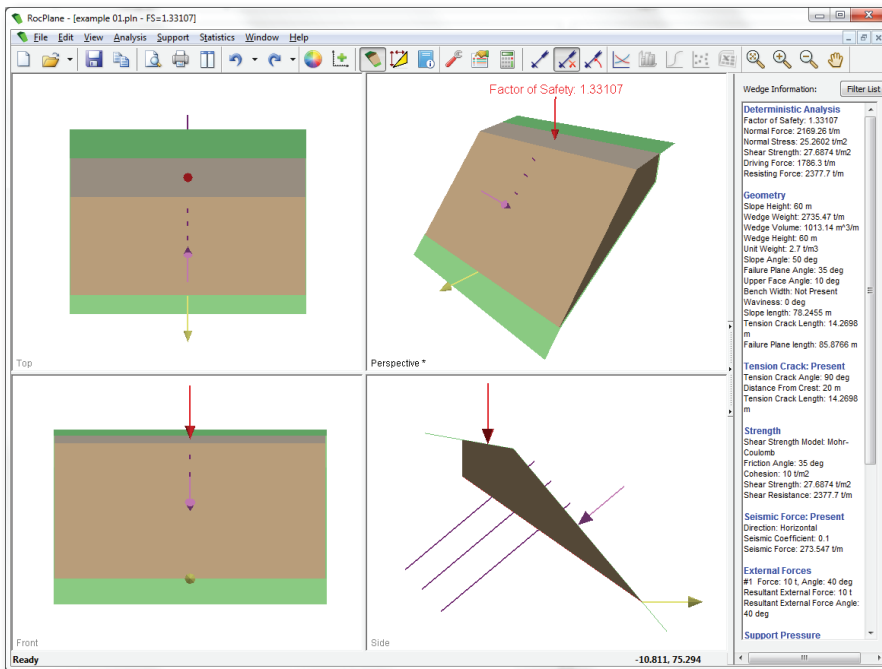


# RocPlane 3.0

Planar sliding stability analysis for rock slopes

**Rocscience** software tools for rock and soil

RocPlane is an interactive software tool for performing planar rock slope stability analysis and support design. RocPlane makes it easy to create a planar wedge model, visualize it in 2D and 3D, define support and loading conditions, and evaluate analysis results.



Top, front, side and perspective views of the model are displayed in a 4-view split screen format. This example shows rock bolts and various external forces applied to the wedge.

## Analysis Options

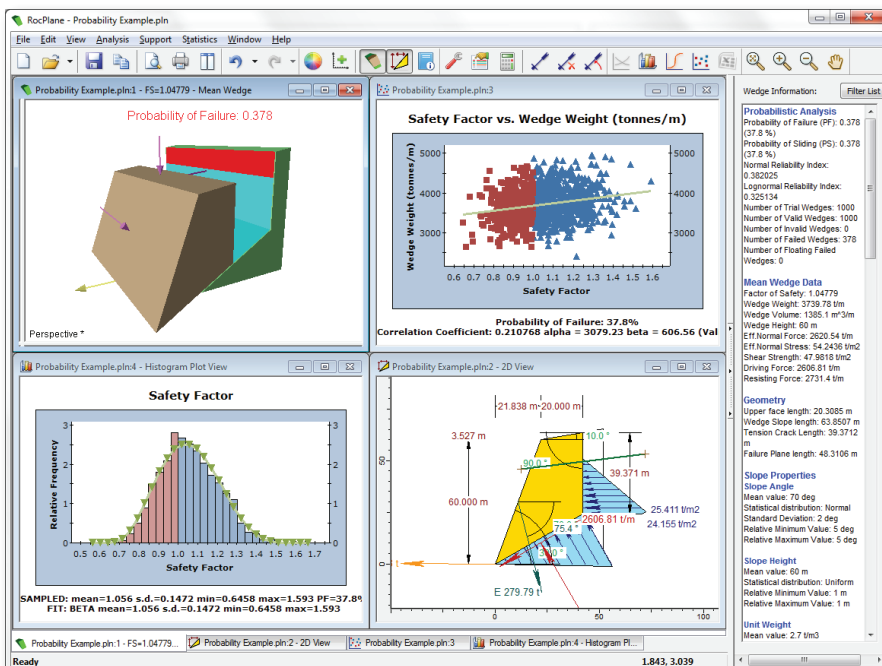
RocPlane 3.0.0 offers a variety of analysis options including Probabilistic and Sensitivity analysis. Probabilistic analysis allows you to define statistical distributions of input data and calculate probability of failure. Sensitivity analysis allows you to determine the effect of individual variables on safety factor. An optional tension crack can be included, and wedge size can be scaled according to height, bench width, persistence or volume.

## Support & Loading

Rock bolts or support pressure can be applied to increase the wedge safety factor. Bolt orientation can be optimized with a mouse click, and the support capacity for a required factor of safety can be determined. The Pressure option can be used to simulate pattern bolt application or surcharge loading. De-stabilizing forces due to water pressure on the failure planes, seismic loads or external forces can also be easily modeled.

## Probabilistic Analysis

RocPlane has powerful probabilistic analysis features. Joint orientation, strength and other parameters can be assigned statistical distributions. Using Monte Carlo or Latin Hypercube sampling, this results in a distribution of safety factors from which a probability of failure is calculated. Histograms, cumulative and scatter plots of results can be viewed and failed wedges can be highlighted. The new Bench Design option allows you to determine the optimum Bench Face angle for open pit mine slopes.



Probabilistic analysis results can be plotted as histograms, cumulative or scatter plots. Failed wedge data can be highlighted in red.

### Slope Properties

- dip angle of slope, upper face and failure plane
- slope height
- bench width
- overhanging slope
- unit weight

### Analysis

- deterministic or probabilistic
- metric or imperial units
- Eurocode design standards
- bench design

### Shear Strength

- Mohr-Coulomb
- Barton-Bandis
- Power Curve
- Hoek-Brown
- waviness angle

### Tension Crack

- optional tension crack plane
- vertical or non-vertical
- user-defined or automatic location (minimum FS)

### Wedge Size

- scale wedge size by height, bench width, persistence, volume
- minimum wedge size

### Probabilistic Analysis

- statistical distributions – normal, uniform, triangular, beta, exponential, lognormal, gamma
- histogram, cumulative and scatter plots
- probability of failure, reliability index
- Monte Carlo or Latin Hypercube simulation
- random or pseudo-random sampling
- shear strength – define variability of mean strength envelope or individual strength parameters
- correlation coefficient for cohesion and friction angle
- best fit distribution, regression line
- highlight failed wedges on plots
- interactive sampler
- select random wedges

### Sensitivity Analysis

- determine effect of individual variables on safety factor
- multiple variables on one plot

### Bench Analysis

- optimize bench design for open pit mines
- fixed bench width or interramp angle
- joint persistence determines if wedge can form

### Support

- rock bolts
- pressure
- active or passive support
- optimize bolt orientation
- calculate support force for required safety factor

### Loading

- water pressure on joints
- seismic coefficient
- external forces
- pressure (surcharge or support)

### Analysis Results

- sidebar information panel
- Info Viewer analysis summary
- one-click export of data and charts to Excel

### Viewing Options

- 3D wedge view
- interactively rotate, zoom, pan
- move wedge along sliding plane
- 2D view with dimensioning and annotations
- export image files
- export image files - png, jpg, gif, bmp, emf, wmf

### Price & Licensing

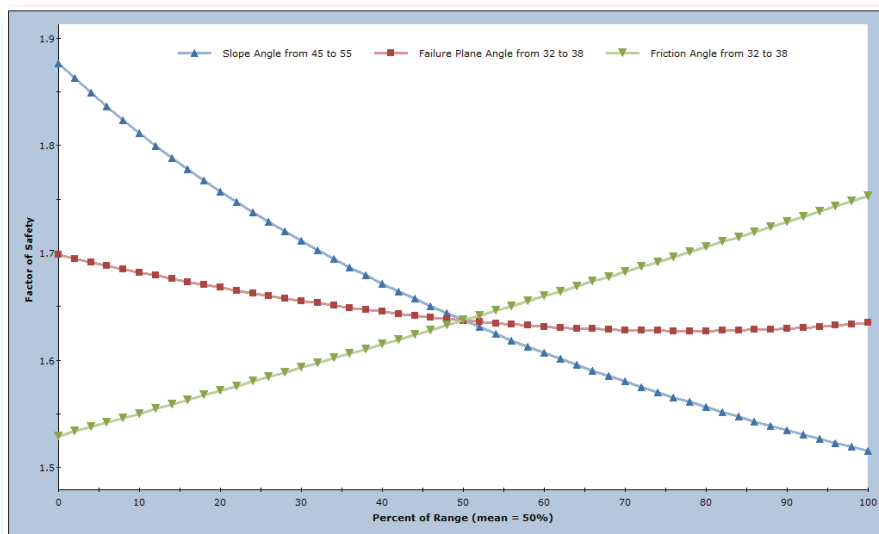
RocPlane 3.0 is sold at the prices listed below.

**Personal License** (no USB key)  
\$595 USD (\$595 CAD)

**Portable License** (Uses USB key)  
\$895 USD (\$895 CAD)

**Flexible 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)



Sensitivity analysis plot of 3 variables.