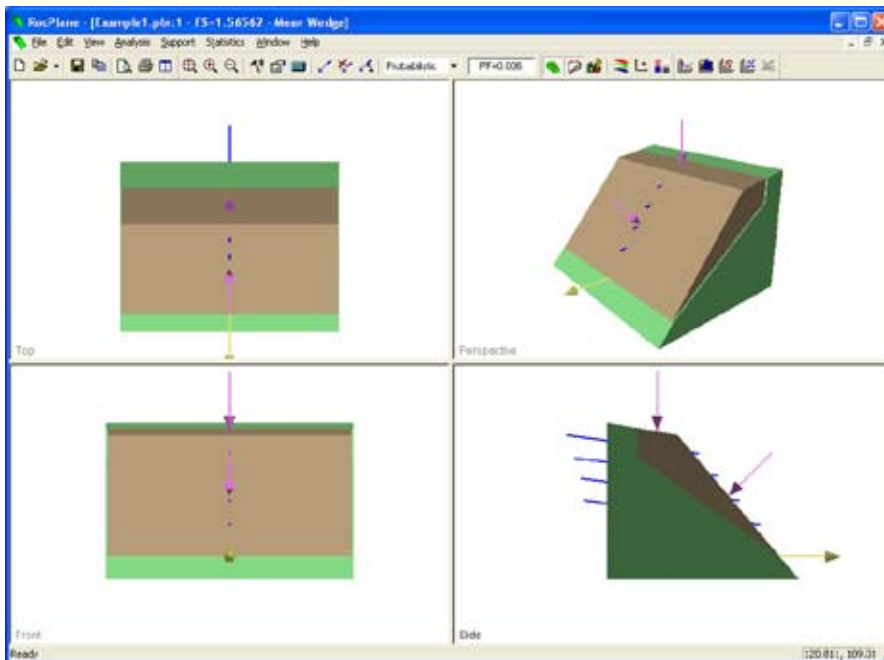


RocPlane 2.0

Planar sliding stability analysis for rock slopes

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

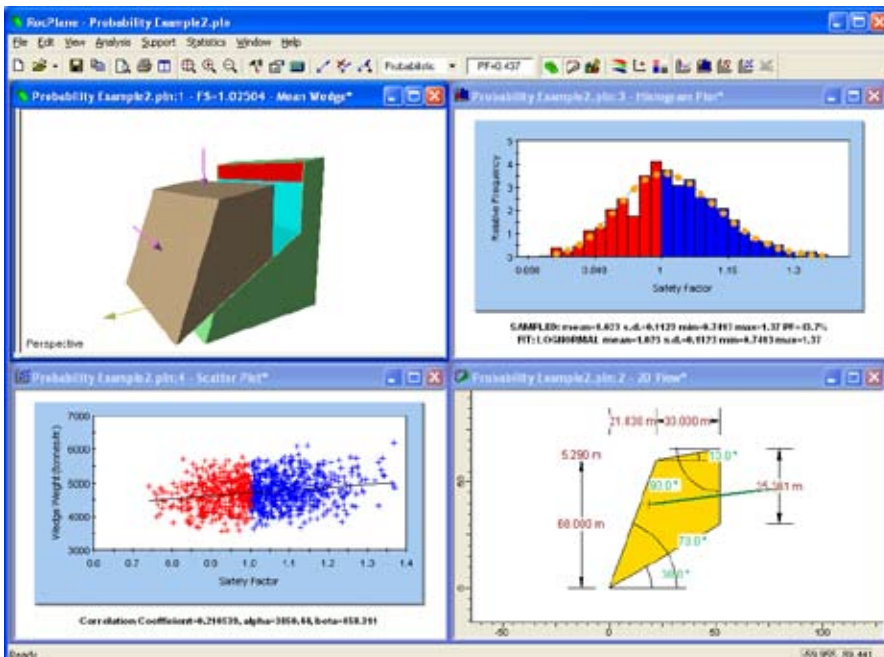
RocPlane provides a wide range of analysis options, including Sensitivity analysis, which allows you to quickly determine the effect of individual variables on wedge safety factor. Strength criteria include linear (Mohr-Coulomb) and non-linear (Barton-Bandis, Power Curve and Hoek-Brown) criteria. An optional tension crack can be included, truncating the wedge at a user-defined orientation. Wedge size can be scaled according to height or bench width.

Support & Loading

A variety of support and loading options are available. Rock bolts can be graphically applied and edited. Bolt orientation can be optimized with a single mouse click, and the support capacity for a required factor of safety can be determined. De-stabilizing forces due to water pressure on the failure plane, or seismic loads can be included in the analysis. External line loads can be applied to model support or loading forces.

Probabilistic Analysis

RocPlane has powerful yet easy-to-use probabilistic analysis features. Joint orientation, strength and other parameters can be easily 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. Results can be exported to Excel with a single mouse click.



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
- metric or imperial units

Shear Strength

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

Tension Crack

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

Deterministic Analysis

- calculate safety factor for a single wedge of known properties

Probabilistic Analysis

- define statistical distributions for input variables
- calculate probability of failure
- distributions – normal, uniform, triangular, beta, exponential, lognormal
- Monte Carlo or Latin Hypercube simulation
- random or pseudo-random sampling
- correlation coefficient for cohesion and friction angle
- histogram, cumulative and scatter plots
- best fit distribution (histograms), regression line (scatter plots)
- interactive sampler (cumulative plots)
- highlight failed wedges on plots
- select random wedges

Sensitivity Analysis

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

Support

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

Loading

- water pressure on failure plane and/or tension crack
- seismic coefficient
- external forces

Exporting Results

- one click export of data and charts to Excel
- copy to clipboard
- export image files
- Info Viewer analysis summary

Viewing Options

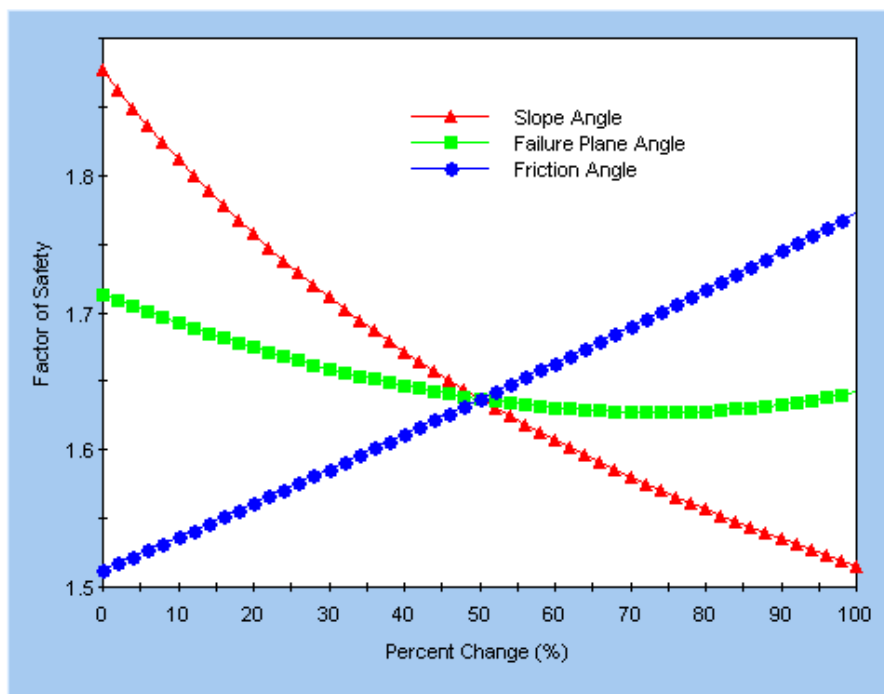
- 3D wedge view (top, front, side and perspective views)
- 2D view with dimensioning and annotations
- move wedge along sliding plane
- rotate perspective view, zoom
- customize display options

Price & Licensing

RocPlane 2.0 is sold as single licenses, which are purchased outright, for \$595 US (\$715 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 for more information.

www.rocscience.com



Sensitivity analysis plot of 3 variables.