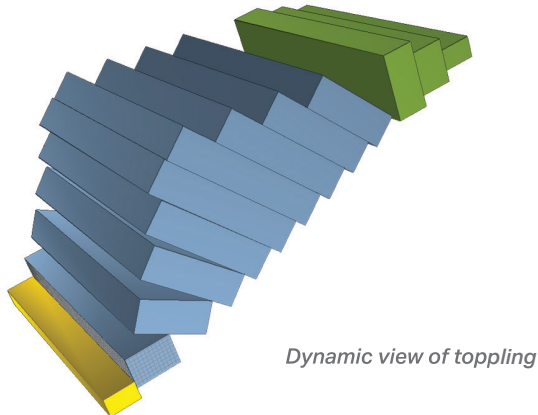
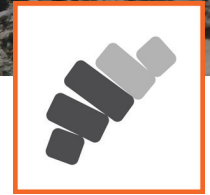


RocTopple

Toppling Stability Analysis for Slopes



Dynamic view of toppling

What is RocTopple?

RocTopple is an interactive software tool for performing toppling analysis and support design of rock slopes.

Input the slope parameters, discontinuity spacing, dip angle, and strength, and RocTopple automatically generates the toppling blocks. RocTopple makes it easy to visualize the slope failure in 2D and interactive 3D and displays the potential failure mode of individual blocks (toppling, sliding, stable) as well as the overall safety factor.

What's New in RocTopple

- Limit equilibrium block flexure toppling analysis
- Input point of application ratio from 0.5 to 1 for cases when the above block is sliding, shearing, and flexurally bending

Software Highlights

Analysis Options

- Wide range of analysis options, including deterministic, probabilistic, and sensitivity
- Statistics can be assigned to any geometry, joint strength, or external loading variable
- Strength criteria for discontinuities include Mohr-Coulomb and Barton-Bandis
- Analysis method based on Goodman and Bray block toppling
- Partial factors (Eurocode 7) can be applied to any analysis type through the Design Standard option.

Support & Loading

- Variety of support and external loading options available
- Rock bolts and line loads can be graphically applied and edited in 2D view
- Distributed loading can be applied to either the slope face, the upper slope face, or both
- Water pressure is available in two options: percent fill of joints or user-drawn phreatic surface
- Supports pseudo-static seismic loading in the form of seismic coefficients

Find more details: rocscience.com/software/roctopple

Plans & Pricing

Personal License: Locked to one computer.

- Lease: **USD \$395/year**
Leased annually. Includes Maintenance+.
- Perpetual: **USD \$795**
Purchased outright. Includes 12 months of Maintenance+.

Flexible License: Installed on any number of machines. The license file sits on the server.

- Lease: **USD \$595/year**
Leased annually. Includes Maintenance+.
- Perpetual: **USD \$1,195**
Purchased outright. Includes 12 months of Maintenance+.

Maintenance+

Maintenance+ is our enhanced maintenance and support services subscription, purchased annually at 20% of the license cost.

With Maintenance+ Continuous Software you get access to all feature releases, enhancements, and bug fixes throughout the year and as soon as they're available. You also have access to convenient License Services, the support of our experts, and exclusive learning offerings.

Contact us at software@rocscience.com

Design Standards

- Eurocode 7 (partial factors)
- Applied to deterministic, probabilistic, and sensitivity analyses

Deterministic Analysis

- Calculate factor of safety
- Display critical mode of failure for each block (toppling, sliding, stable)
- Eurocode design standard

Exporting Results

- DXF file for exporting geometry to RS2
- One-click export of data and charts to Excel
- Copy to Clipboard
- Export image files
- Info Viewer analysis summary

External Loading

- Rock bolts
- Line loads
- Distributed loads
- Water pressure (phreatic surface, joint percent fill)
- Seismic loads (coefficients)
- Toppling models
- Block toppling
- Block flexure toppling
- User input point of force application ratio depending on the failure mode of the block above

Probabilistic Analysis

- Define statistical distributions for geometric, strength, and external loading variables
- Calculate probability of failure
- Distributions—normal, lognormal, uniform, triangular, exponential, beta, gamma
- Monte Carlo and Latin Hypercube sampling
- Pseudo-random sampling
- Histogram (with best fit distribution), cumulative, and scatter plots (with regression line)
- Interactive sampler for different plots

Rock Properties

- Unit weight
- Joint shear strength: Mohr-Coulomb, Barton-Bandis
- Joint tensile strength
- Different strength for base and toppling discontinuities

Sensitivity Analysis

- Determine effect of individual variables on factor of safety
- Define minimum and maximum values for any geometric, strength, or external loading variable
- Multiple variables on one plot

Slope Properties

- Slope angle
- Upper slope angle
- Slope height
- Overall base inclination
- Bedding dip
- Bedding width

Viewing Options

- 3D interactive view—rotate and mousedrag-induced toppling
- 2D view with dimensioning and application of external loads
- Customizable display options