

The BasRock Newsletter was started to celebrate humanity's survival of the Mayan Calendar end on 21 December 2012.

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"Prediction is very difficult, especially about the future"
Niels Bohr

BasRock Software for Geotechs

Update

January 2013



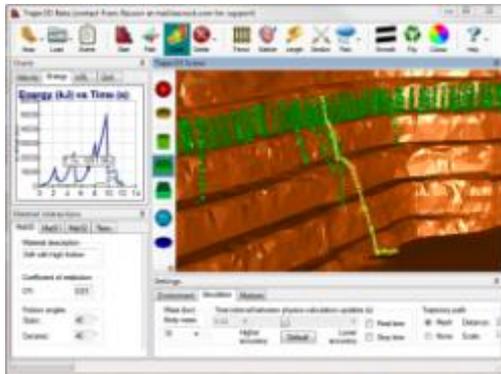
New stuff: Size does count!

Trajec3D was previously limited to 64 998 vertices for pit shells, but the number was increased by 10x in Version 1.4.0. To load an even larger file, two strategies could be combined to reduce the file size:

1. Cut redundant areas from the triangulation.
2. Reduce the vertice count by simplifying the triangulation.

The above can be achieved with either mine design software or GEM4D. The BasRock blogs posted on 2 December 2012 describe how GEM4D could be used to achieve both objectives.

The BasRock website contains ten software packages that can be downloaded free of charge, the two in active development are Trajec3D and GEM4D.



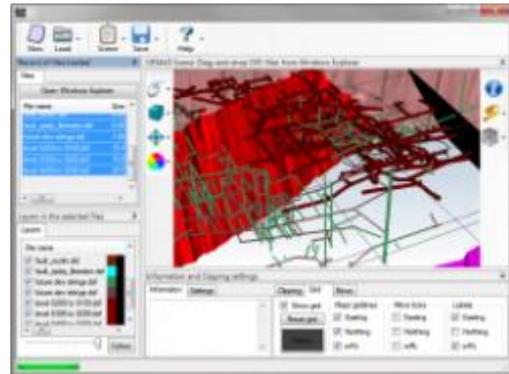
Trajec3D: Spotting hazards in time

In the picture to the left, Trajec3D is used to identify areas where loose rocks could bounce to the pit floor. The trajectory of the fall body that succeeded is selected, and the rotational and translational energies graphed against time. The time it took for the rock to fall from the dislodged area to the pit floor can be used to determine if a spotter could be an effective risk mitigation measure for personnel working close to the wall. A "Real time" option that simulates the fall bodies in actual time is available.

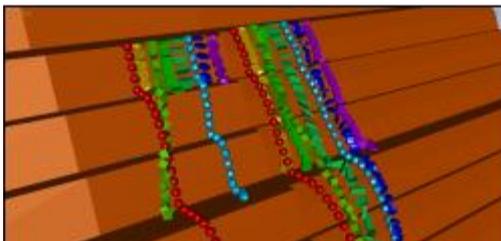
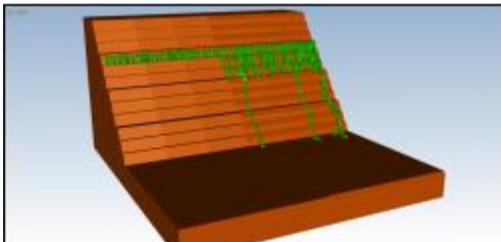
A core aim of Trajec3D is to be an educational tool that provides quick simulations of full three dimensional bodies that free fall, bounce, slide and roll down a pit shell.

GEM4D: Drag-and-drop exploration

DXF-files containing development and geology triangulations and lines were dragged-and-dropped into the GEM4D scene from Windows Explorer. The loaded DXF-files are displayed in the upper left list, and the layers from the selected files in the lower list. The lower list manages the visibility, transparency and colour of the layers. In the figure, the information was sliced and a grid added for reference. Double clicking is used to change the rotation point, and the mouse buttons to rotate, pan and zoom the scene.



GEM4D aims to be a fully interactive three dimensional environment that focus on the needs of mining geotechnical engineers.



Random facts: Optimise your losses

Trajec3D has a SlopeOptimizer function that builds a slope configuration from slope parameters - select "Build a custom slope" under the "New" menu-button. A crest loss option is also available that produce two side-by-side geometries (see bottom picture):

1. Design slope without crest loss (left).
2. Resultant slope after crests loss (right).

These side-by-side geometries allow for a direct comparison of outcomes, and the impact from crest loss can be clearly demonstrated. Trajec3D simulations are often run live during meetings and discussions, as many scenarios could be evaluated in real time.

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