When you're finished changing, you're finished.
Benjamin Franklin
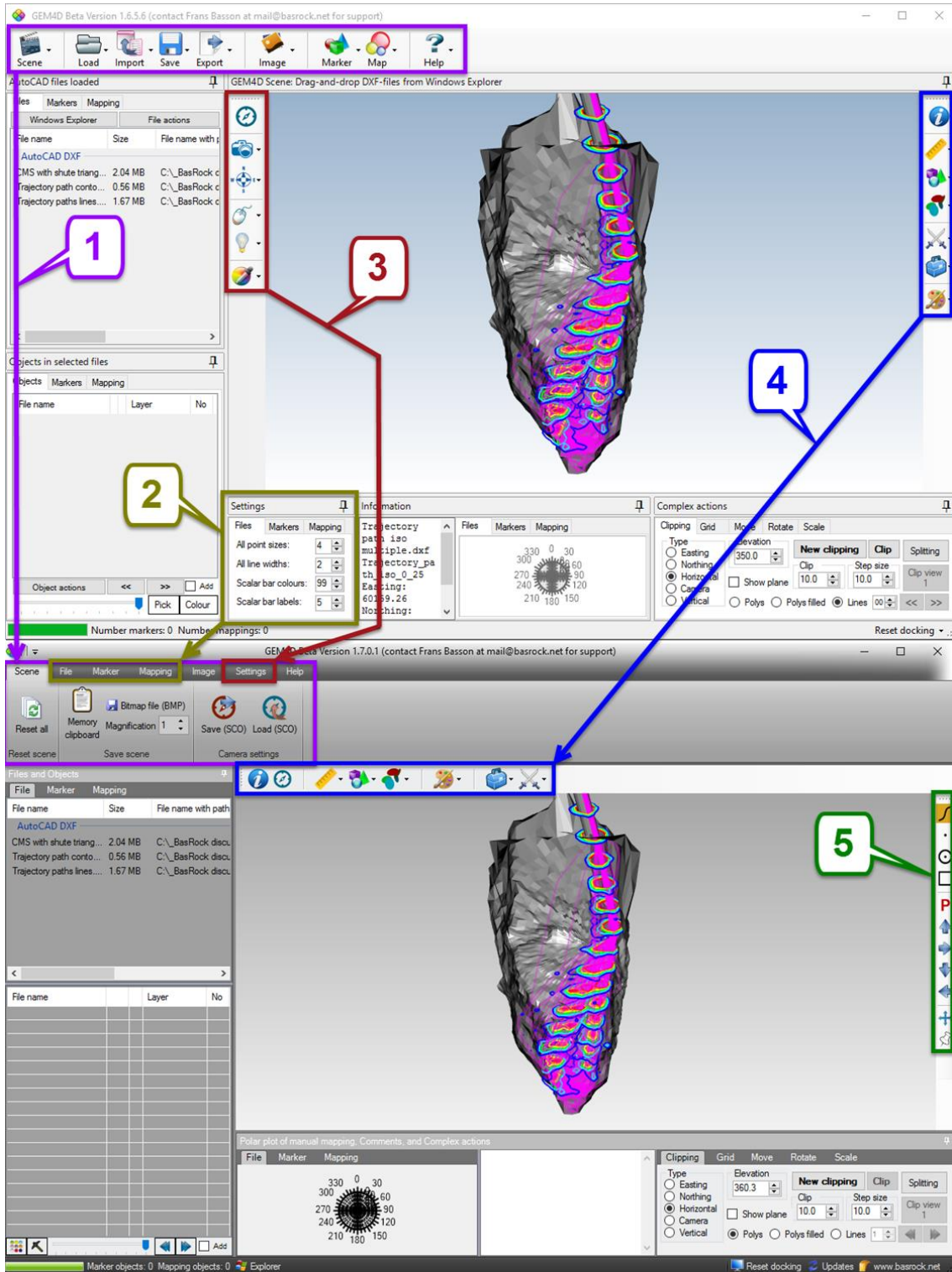
BasRock
SOFTWARE FOR GEOTECHS

NEWSLETTER
2015 Quarter 3

Changes to the GEM4D-interface in Version 1.7.0.0
1. PURPLE - The previous top toolbar is now a Microsoft Office style ribbon.
2. YELLOW - The "**Settings**" for "**File**", "**Marker**" and "**Mapping**" are incorporated

into the relevant ribbon sections.
3. RED - The left toolbar is now incorporated into the "**Settings**"-tab of the ribbon.
4. BLUE - The right toolbar is now placed at the top of the scene.
5. GREEN - A new toolbar to the right gives quick access to snapping modes during picking and camera orientations.
More importantly, GEM4D is available free of charge

For GEM4D and Trajec3D, navigate the scene using the mouse movements below.

Rotate - Left button.
Zoom - Right button or Wheel scroll.
Pan - Wheel press.
Rotation point - Double click on any object.

Use the *Facebook* page to stay up-to-date
with developments, and read the *Blog* for details.

GEM4D: A 3D geotechnical package that seamlessly combine triangulations with different data types for various geotechnical analyses.

Trajec3D: A 3D rigid body dynamics rock fall analysis program that accommodates topographies and fall bodies of any shape and size.

PhotoCoreLog: Do your core logging from photographs, and even deskew photographs taken from an angle.

Cosmetic surgery

GEM4D is the first of the BasRock packages that received a new interface, but these changes will follow in the other packages. Users find the new interface is more intuitive and feedback to date very positive, let me know if you feel differently.

Main additions to GEM4D

1. Interface updates as shown in the picture above, and read the Blog for details.
2. The left and bottom docking panels can be hidden, pinned or floated.
3. The visibility of the "**Marker**" and "**Mapping**" scalar bars can be toggled *ON* and *OFF*.
4. Picking can occur at the center of objects, such as when working with "**Marker**" spheres and "**Mapping**" discs.
5. More control is available for the "**Resolution**" and "**Search radius**" values when creating iso-surfaces or colouring meshes on data values.
6. The block model interpolation method was optimised and is nearly twice as fast in most circumstances.
7. Data filtering can simultaneously occur in the data grid (Excel-style) and the scene by picking.
8. Addition options are available for the number of objects created when loading DXF-files - layers only (default), or based on layers and colours.

Under active development

1. Loading OBJ-files from 123DCatch with the associated textures - see image below.
2. Additional data filtering options within the scene.
3. Improvements to simplify data loading.

Triangulation created from six photographs in 123DCatch and displayed in GEM4D. Displaying textures on triangulations is not yet available in the current version of GEM4D, but in an advanced stage of development and will be available soon.

Many users asked for a step-by-step description to compare actual pit walls against the design.

Step 1: Load the actual pit and a design triangulations with "**_Ribbon => Files => Load/Add DXF => Load file_**" - or drag-and-drop DXF-files from Windows Explorer into the scene.

Step 2: Change the colours of the objects by selecting the objects in the list boxes and pressing the colour button.

Step 3: Use "**_Complex actions => Clipping_**" to isolate the area of interest, typically a straight section of the wall. Both actual and design meshes can be clipped simultaneously, and use "**_Ribbon => File => Save DXF => Save and Load_**" to isolate the area of interest. "**_Save and Load_**" retains only the latest selection for the quick isolation of any area.

Step 4: Use the final clipped file, and select a "**_Vertical_**" clipping that is perpendicular to the wall by picking two points. Display the clipping as multiple "**_Lines_**" and change the value in the textbox to the right for the number of sections.

Step 5: Change to parallel view with "**_Ribbon => Settings => Camera => Parallel view_**". Parallel view does not have a vanishing point,and objects at a distance is the same size as nearby objects.

Step 6: Press the "**_Clip view_**"-button in the "**_Clipping_**" area to change the view flat onto the clipped section. This button toggles between views from different sides.

Step 7: Create a coordinate axis with "**_Complex actions => Grid => Show grid_**", and hide the "**_Northing_**" and "**_Easting_**" grid lines by removing the tick marks.

Step 8: Cycle through the background colours with keyboard "**_B_**", and make a copy of the image to the clipboard with keyboard "**_C_**". See the image for alternative ways to make these changes.

Step 9 - Potential addition steps:
* Change the line thickness with "**_Ribbon => File => Settings => Line width_**".
* If the section lines are too far from the Y-axis, the clipping can first be rotated around the Z-axis with "**_Complex actions => Rotate_**".
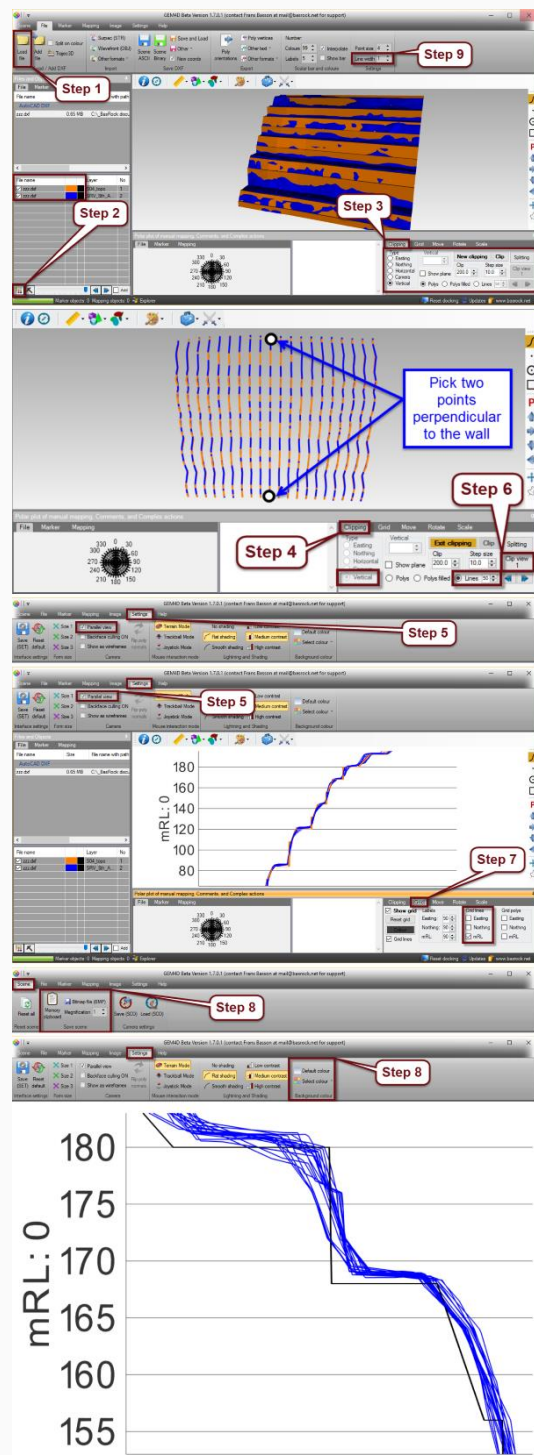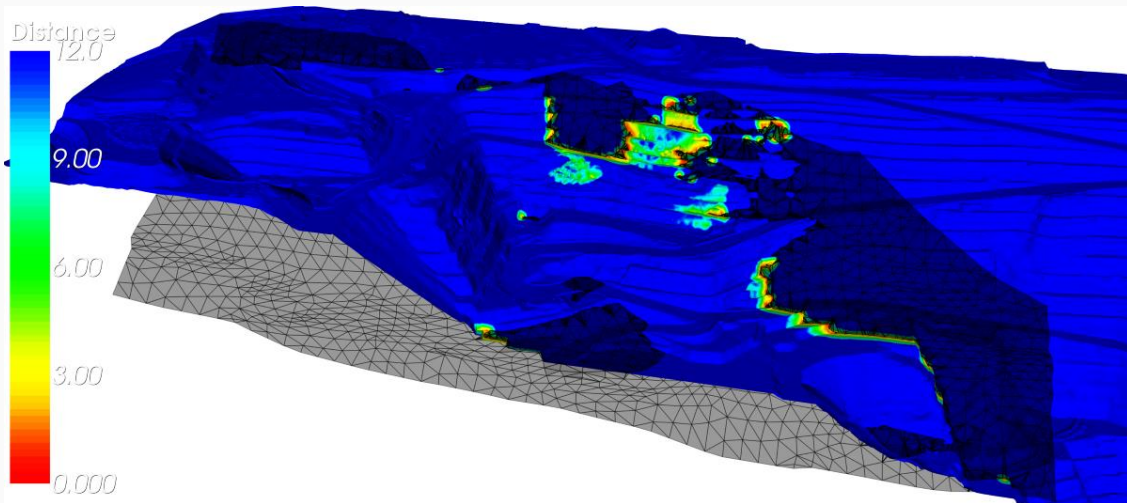
Planar failure assessment of a fault that takes the following into account:

1. Fault dip angle > Friction angle.
2. Fault dip angle < Wall angle.
3. Fault orientation within 20° from the wall orientation.
4. Fault closer than a selected distance (12m in this case) from the wall.

Contributions from many to get this one this far - KdP, CG, EH & GB. See paper "*A methodology to visualise large scale kinematic analysis in real space*" by Du Plooy & Hamman in the Slope Stabilty 2015 proceedings.