

"It's failure that gives you the proper perspective on success." - *Ellen DeGeneres*

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NEWSLETTER

2017 Quarter 3

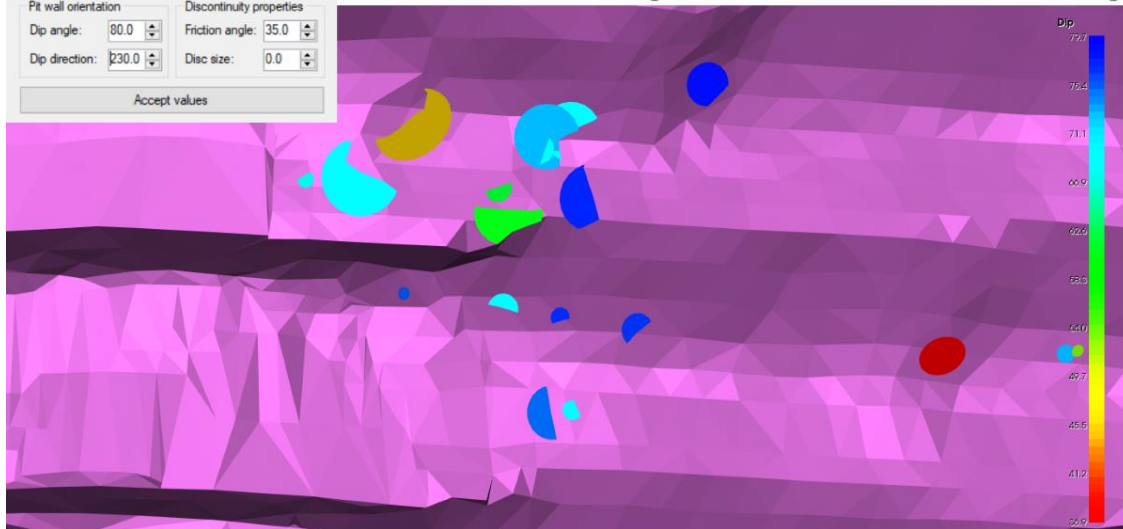
All mapping data before kinematic analysis filtering ...



GEM4D Failure settings

Failure Mode	Kinematic windows
<input checked="" type="radio"/> Planar failure	Planar: 30.0
<input type="radio"/> Wedge failure	Wedge: 45.0
<input type="radio"/> Toppling failure	Toppling: 30.0
Fit wall orientation	Discontinuity properties
Dip angle: 80.0	Friction angle: 35.0
Dip direction: 230.0	Disc size: 0.0
Accept values	

... and the remaining structures after "Planar failure" filtering

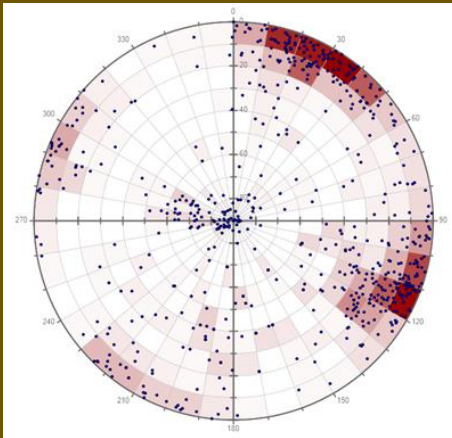


Basic kinematic stability analysis is available for planar, wedge and toppling failures. Load structural information as Mapping-data and select "Ribbon => Mapping => Mapping filters => Manual => Failure settings" and select the pit wall orientation. The value for "Discontinuity properties => Disc size" limits the results to the discontinuities that exceed the selected size.

Latest additions to GEM4D

1. Support for Datamine string and triangulation *.dm-files. Many thanks to the Datamine-Team for their assistance - what a great team!
2. Drag-and-drop of all supported file types from Windows Explorer - (AutoCAD) DXF, DWG, (Surpac) STR, DTM, (Datamine) DM, (Others) OBJ, IV, VRM, STL, PLY, VTK and VTP.
3. Combining connected triangulations/strings into objects that allow for the separation of disconnected objects.
4. Fit discs to entities that allow for the conversion of strings to mapping text data as discussed later in the newsletter.
5. Subdividing strings into fixed length segments.
6. Calculating the shortest distance between marker points and polylines and add the results to the Marker grid as additional columns.
7. A 3D-grid that is useful for screenshots - eventually :)
8. Stereonet segments that are coloured on the number of points in each segment.

For more details, please visit the BasRock [blog](#).

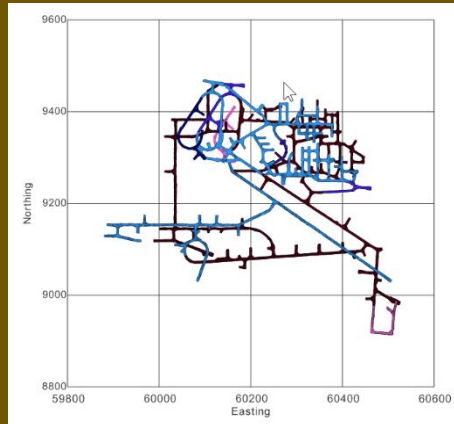


The polar plot / equal angle stereonet now shows the number of points in a segment with a colour intensity. A problem in the past was that points could be overlaid and the actual number of points in a segment masked. The colours can be turned off by unchecking "Ribbon => Mapping => Mapping settings => Polar plot colour".

How to centre the objects in the scene?
Double click on any object in the scene and the picked position becomes the scene centre and rotation point. If double-clicking occurs on empty space, the scene is centred based on all the visible objects.

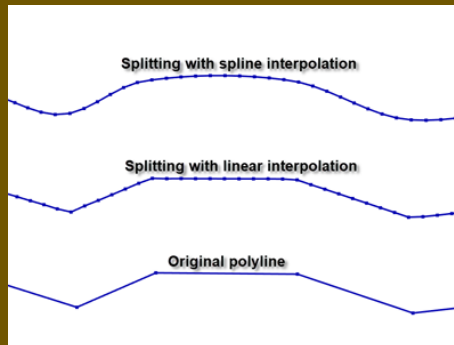
How to filter Markers and Mapping data?

GEM4D has many filtering options, both in the data grid and the scene. Filtering with the data grid works similar to Excel, just hover over the column caption and select the pop-up down arrow. Marker/Mapping filtering in the scene is available from "Ribbon => Marker/Mapping => Marker/Mapping filters => Manual", with options to filter by mouse picking, selection boxes and relative to meshes.



The previous 3D coordinate grid had many limitations, and two 3D grid options were added that should satisfy most needs. There are options to customise the 3D-grid colour, text direction, visible coordinate lines, and text size.

See the 21 September 2017 [blog](#) for details.



Splitting lines into equal distance segments with "Top toolbar => Blue toolbox icon => Split lines into fixed lengths".

The maximum line segment length is requested, and the spline stiffness as a value between 0.0 and 1.0, with a value of 1.0 resulting in a linear interpolation.

Best-fit discs through lines

It is not uncommon to receive structural data as trace strings, and these strings are often also combined into a single object.

Use "Top toolbar => Blue toolbox icon => Combine connected triangles/lines" to separate objects based on their connectivity. This function can also be used to separate meshes that were saved as a single object, but that contain disconnected meshes.

Use "Ribbon => Mesh => Export files => Mesh info as CSV => Best-fit disc through object" to calculate the best-fit planar disc through each object. The results are saved as a CSV-file and could be loaded directly as Mapping-data with the associated benefits - stereonet, data filtering, kinematic analyses etc.

