

"An experiment is a question which science poses to Nature and a measurement is the recording of Nature's answer."
Niels Bohr

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"Photons have mass? I didn't even know they were Catholic."
Woody Allen

BasRock Software for Geotechs

Newsletter

March 2013

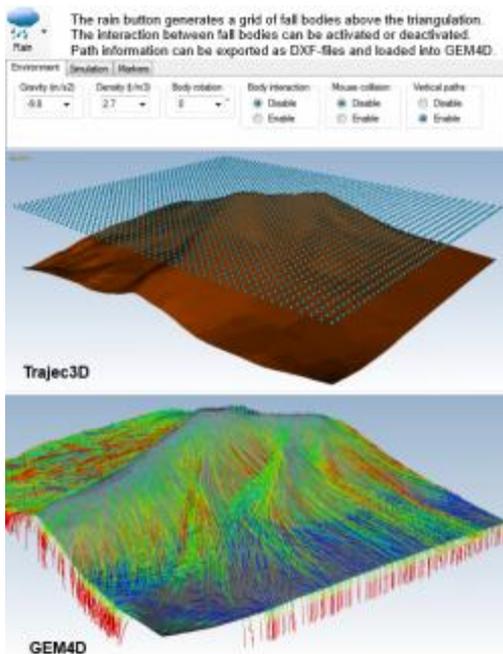


What's new? - It takes two to get physical

A big ticket item many requested was the addition of a second physics material in Trajec3D; this is now completed and available from Version 1.5.0. Careful consideration was given to the implementation of the second physics material, as I wanted to keep the current simplicity of Trajec3D. This was achieved as described in the post of 16 February 2013 on my blog <http://www.basrock.com/page2.htm>.

1. In addition to the second physics material in Trajec3D, more columns were added to the path detail information in the Grid-tab, and the path information can now also be exported as DXF-files.
2. GEM4D was slightly neglected this month, but a few smaller improvements were made in Version 1.2.4. Drag-and-drop support were added for Microsoft Outlook, Surpac STR-files can be loaded, multi-select from the File Dialog Form is now possible, and a scalar bar can be shown when colouring objects on values.

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Trajec3D - Going with the flow

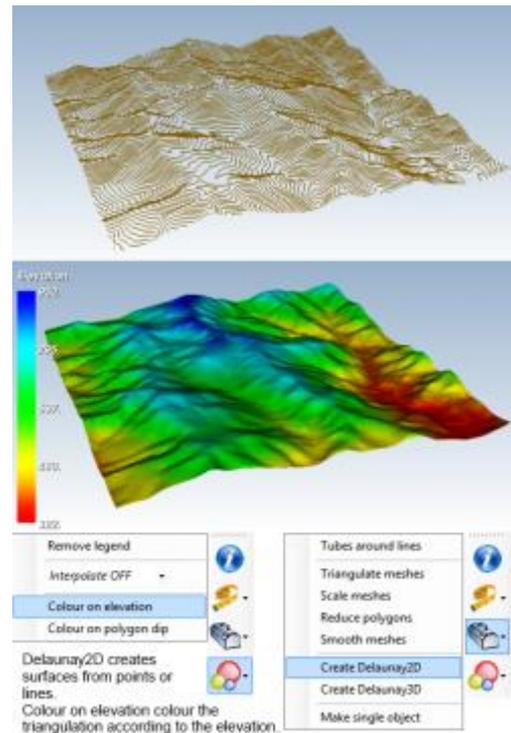
A grid of fall bodies can be generated above the triangulation with the "Rain" button. This is useful for quick assessments of potential rock fall areas, or to simulate water flows to highlight high velocity channels and accumulation areas. The interaction between the fall bodies can be enabled or disabled. When assessing rock falls, "Disable" is recommended as the fall bodies should not interact. To identify water accumulation areas, select "Enable" to keep the bodies separate. For water flows, the light blue "Angular (rough) sphere shape" with a low Coefficient of Restitution (~0.01), friction angles of ~10 degrees, and a smaller object size (<10 tons) works well.

Fall body paths can be exported as DXF-strings with "Save - Trajectory paths as DXF-strings" to load into other packages, or to keep record of simulations. These DXF-strings can be imported into GEM4D with "Load - Add Trajec3D path strings" to retain the velocity colours. Many simulations can thus be run, the results saved, and opened simultaneously in GEM4D.

GEM4D - Surfacing points

The "Create Delaunay2D" function builds a topological structure from unorganised points in 3D, and then constructs a 2D surface triangulation from the provided points. The triangulation is constructed in the X-Y plane, and the Z-coordinates are ignored. The input points can be provided in the form of points, strings or polygons.

After creating the topological surface, the triangulation can be coloured on elevation with the "Colour on elevation" filter that also shows a scalar bar with the elevation values from Version 1.2.4. An "Interpolation OFF" or "Interpolation ON" option is available and the visual results between these options differ markedly for a low polygon count, and little for a high polygon count object. When the interpolation is off, a polygon surface has a single colour; with the interpolation on, the colour is interpolated between the polygon points to provide a smooth transition.



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