# LIS GeoTec Plugin

RiSCAN PRO – Surface Extraction and Analysis

The LIS GeoTec software tool is a RiSCAN PRO Plugin for geotechnical analysis of scanned rock surfaces.

It facilitates the calculation of surface normals for a local neighborhood. These surface normals are further analyzed to detect clusters of pre-dominant surface orientations, which are used for data classification and visualization on a polarplot diagram.
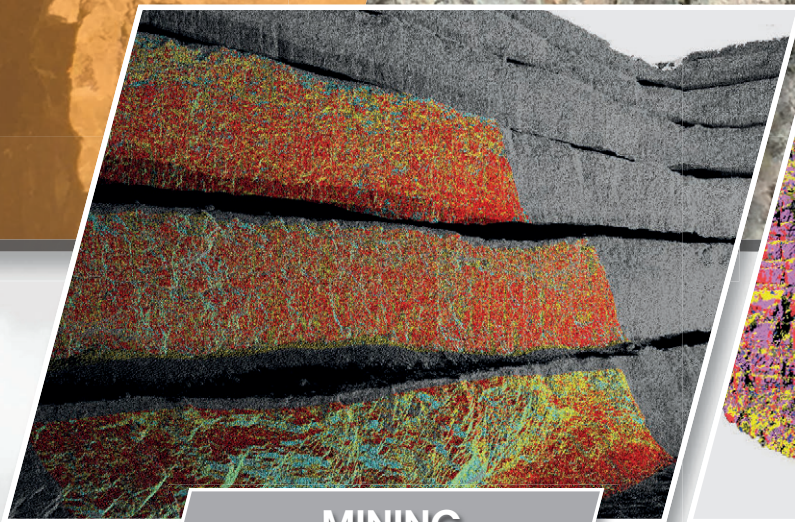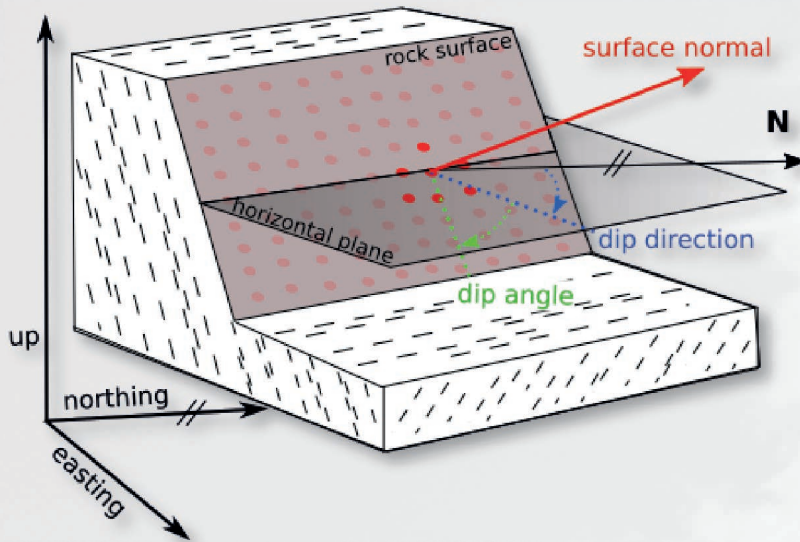
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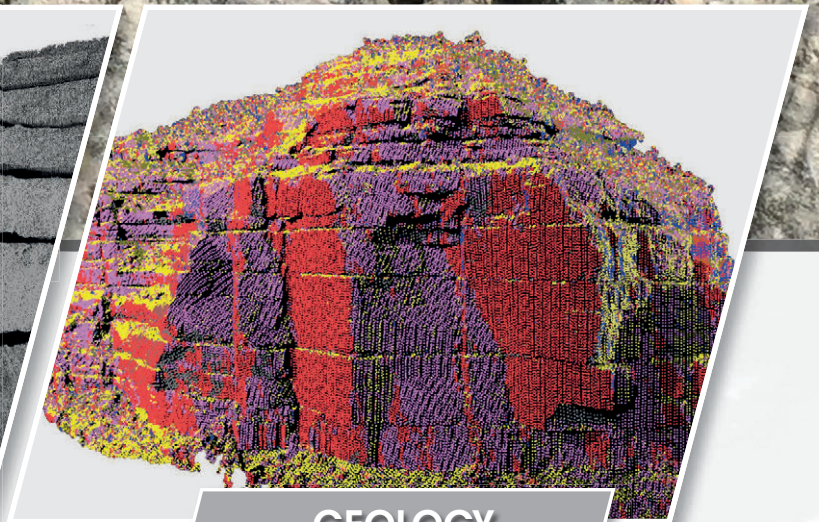
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Surface Normals

Surface normals are extracted with respect to a local neighborhood. For every measured point a user defined number of neighboring points is analyzed to calculate a best fit plane. The surface normal of the plane represents the point surface normal. All further analysis is based on the point surface normal attribute.

Dip & Dip Direction

Dip and dip direction angles are calculated with respect to a given coordinate reference system.

**Dip** is the vertical angle of the surface with a horizontal intersecting plane.

Dip direction is the angle of the horizontal component of the surface normal and the north direction of the coordinate reference system.

Analysis Visualization

A statistical analysis is performed on dip and dip direction to identify orientation clusters (discontinuity sets). These sets are then visualized on a polar plot.

Density plot: contour map of plane poles densities

Set plot: spatial distribution of poles contribution to the main sets

point cloud coloured by discontinuity set ID
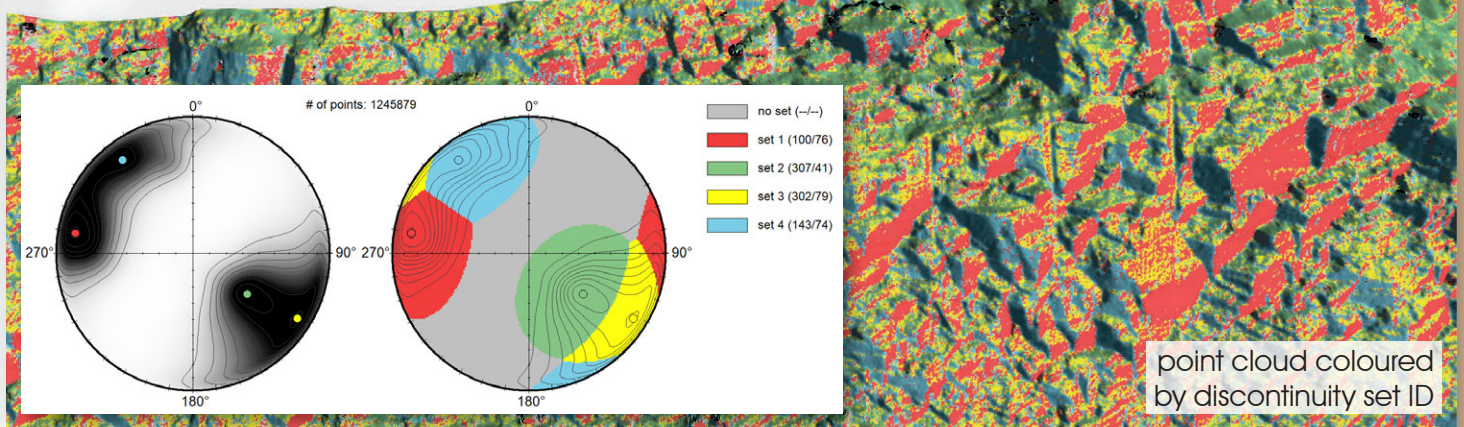
Additional Point Attributes

The tool adds additional point attributes, useful for further geotechnical analysis.

- Surface normal
- Discontinuity set ID
- Dip & dip direction angles
- Dip & dip direction angles of the assigned set
- Dip & dip direction RGB color encoded

System Requirements

The LIS GeoTec plug-in is developed by **LASERDATA** and requires a separate license. For further inquiries please contact your local distributor or sales@riegl.com. RiSCAN PRO version 2.10+ is mandatory.

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