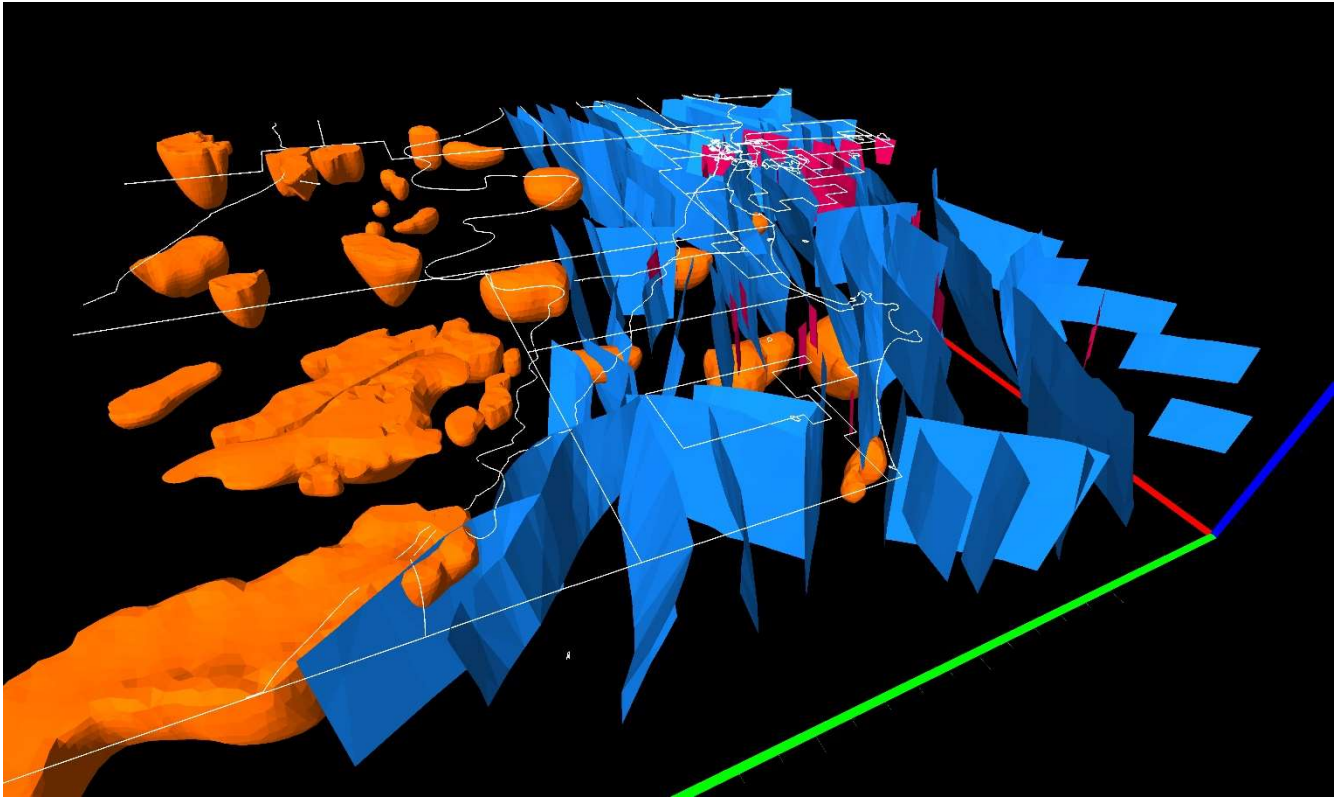# What's New in Surfer 21

There are a ton of awesome new features in the latest release of Surfer! We focused on increasing processing speed, optimizing workflows to maximize your efficiency, and we included a lot of exciting new features as well. The top new features are listed below. A more complete list of the new features can be found in the Surfer Version History page.
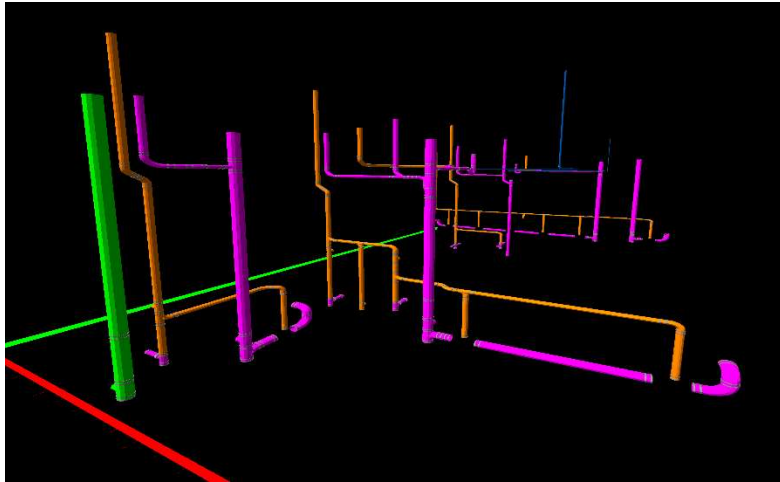

Fault planes and mineralization bodies displayed in the 3D View in Surfer
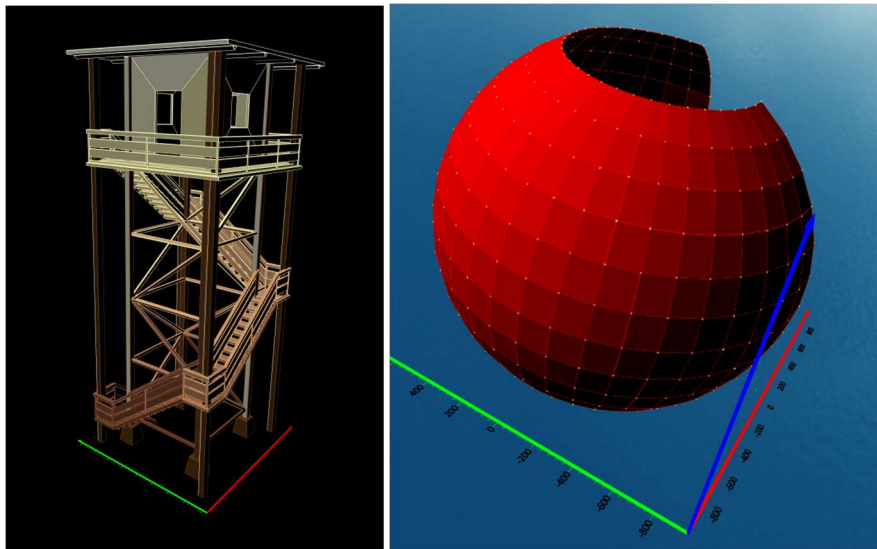
3D View improvements

1. Display 3D polygons, 3D polylines, and 3D polymesh objects in the 3D View

The 2D plot view and the 3D view now supports 3D vector data, including polylines, polygons, and polymesh objects! Your entire model can come to life in the 3D view with the ability to display your 3D DXF, SHP, GPX, and more formats in true 3D. Show how the fracture zones in the rock sequence relate to some nearby tunnels and vertical shafts, or visualize your pipeline network. Identify fault planes or other lines intersecting with your surfaces.

Pipelines in DXF format displayed in the 3D View in Surfer

Give your graphics depth and dimension with tessellated polygon fills. Surfaces will respond to changes in environment lighting so you can highlight your area of interest. Buildings or other structures can be imported in DXF format and positioned on your DEM or topographic surface.
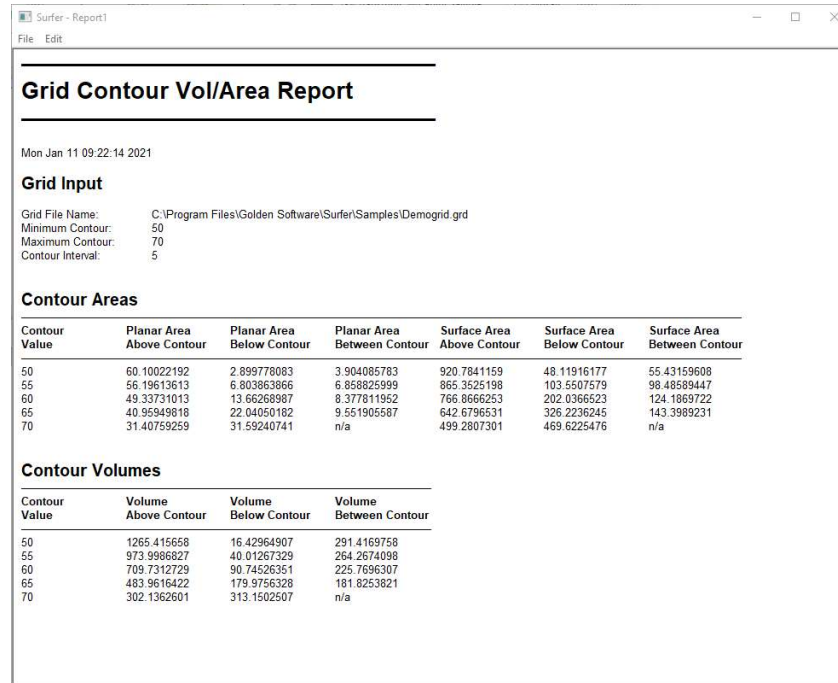

2. Exporting to 3D PDF

We've improved the 3D PDF export when creating interactive PDFs from the Surfer's 3D View. Choose the quality upon export. The lower the quality, the faster the export and smaller the PDF files. If you want the most detail, choose the highest quality. You can choose what works best for you!

2D improvements

3. Calculate area and volume between contours

You don't need to use a script or manually calculate volumes and areas within contour levels anymore. The new Contour Volume/Area tool automatically calculates the volume and area above, below, and between the contour levels of your choosing.

The new Contour Volume/Area Report in Surfer

4. Display high resolution imagery without the alpha channel

Some imagery may have embedded alpha channel information, which can affect the colors of an imported image, making it look faded or grey. Now Surfer gives you the option to ignore the alpha channel for any imported image. Ignoring the alpha channel will import these graphics in rich, true and detailed color.

An image displayed with the alpha channel information (left) and without the alpha channel information (right)

Vector editing

5. Work with 3D polylines and 3D polygons in the 2D View

Use 3D SHP, 3D DXF, 3D BLN files (and more) for geoprocessing and grid editing functions in Surfer! Import 3D geometry directly from your files into a base layer. Or, simply select or draw regular 2D polylines and polygons and convert them to 3D. We've made your life easier with the ability to edit Z values for the vertices right in the Property Manager.

Use 3D polylines and 3D polygons with the following grid processing functions:

- Assign NoData
- Grid from Contours
- Calculate Volume
- Slice
- Grid Info

Use 3D polylines and 3D polygons to perform the following geoprocessing functions:

- Connect polylines
- Convert vector objects between 2D and 3D
- Break polylines
- Reshape
- Buffer

6. New functions available via automation

We've added a lot of the newer functionality in Surfer to the automation model. New options in Surfer automation include:

- Create or edit 3D polygons
- Create or edit 3D polylines
- ClassedPostLayer now supports recent improvements made in the user interface (e.g. setting the class name, colormap, and symbol method, and saving the class file)
- Saving grids now has an output options string, including an option to save the spatial reference information.
- Use GridProject to convert the coordinate system of a grid file
- Update GridBlank to GridAssignNoData, with an option to use an existing polygon as the NoData boundary
- Apply DMS formatting to labels
- Use PointSample to calculate the Z values in a grid file at specific XY coordinates saved in a data file

7. DXF Export: option to export LWPOLYLINE with no ZLEVEL (2D flat polylines)

Export polylines, such as contours, to DXF format as flat polylines with no ZLEVEL information, so you can view your contours in map view in Autocad. This is useful for people working with contour maps in AutoCAD.