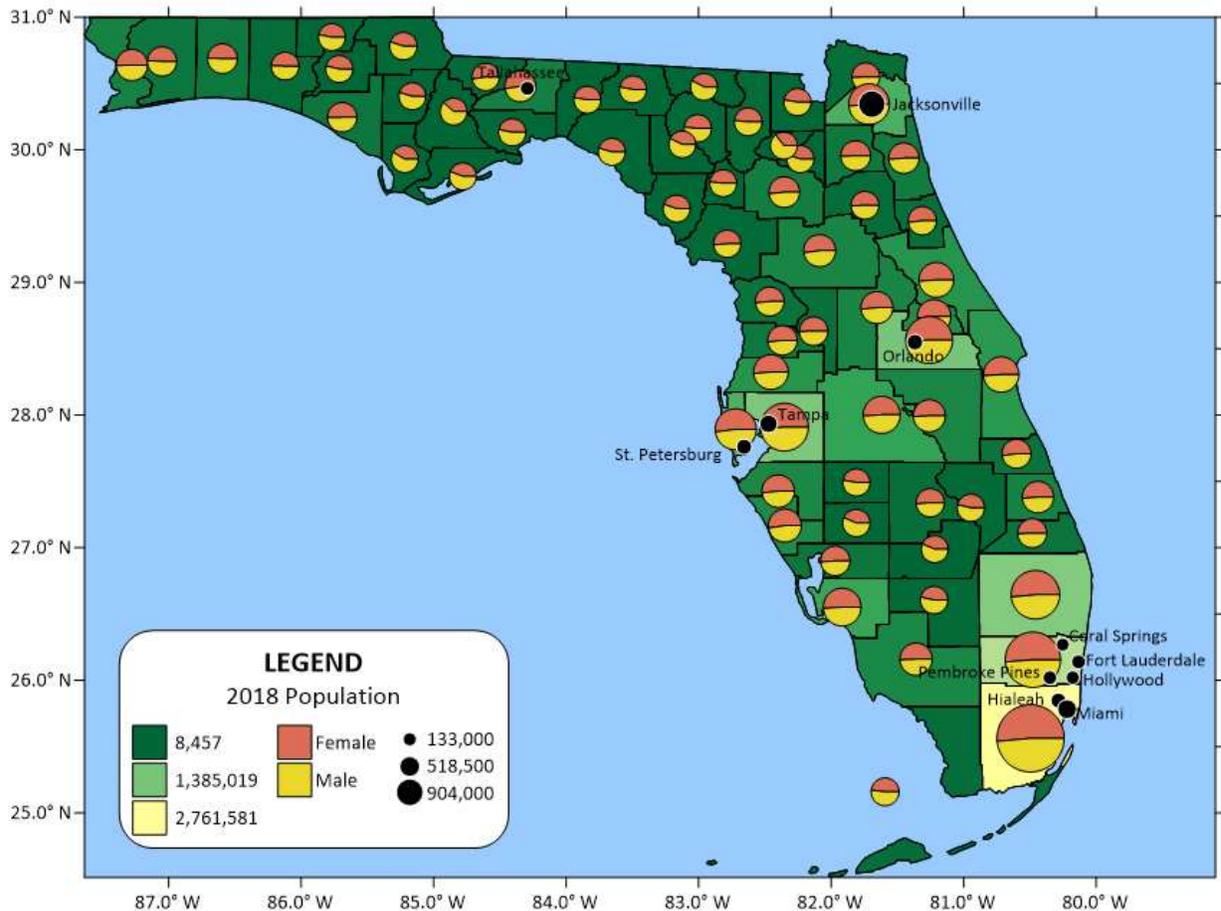


## Mapping improvements

### 1. Create Pie Maps

This is a long-requested feature for Surfer! You can now display your numeric attributed data using Pie maps! Use the Base Symbology tool to choose which attributes from your vector file you're interested in, then represent the proportions of these components with colored pie slices. Size the pies proportionally or use a fixed size, customize colors, labels, position and formatting. This is a great way to display demographics data from the US Census, sample concentrations from your recent field season, or even geographically-varying survey responses.

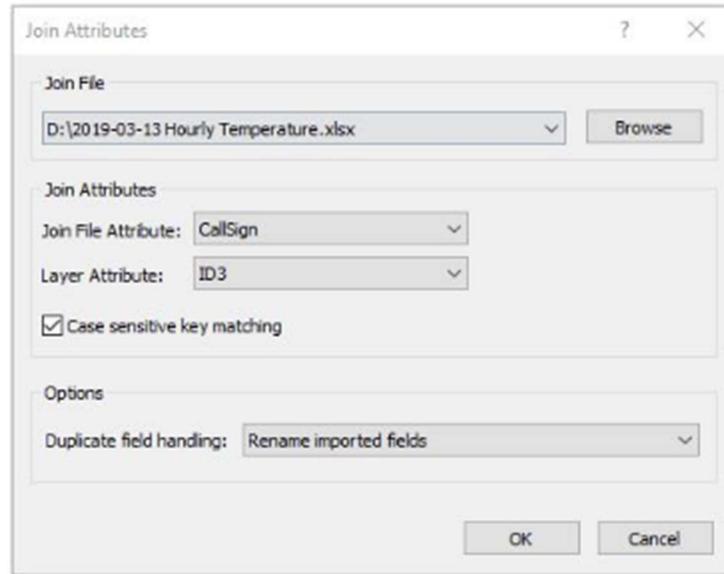


*Display your attribute data with pie symbology*

### 2. Attribute Table: Join attributes from another file, and sort attributes

Link attribute data to vector objects in a Base layer using attribute names, also known as a Spatial Join. Once your vector objects have new attributes associated with them, you can create thematic maps from these objects using Base Symbology (you can even use the new Pie Map symbology feature!). For example, if you have borehole sample locations that are continually generating new field data, you can link this new data to your Base

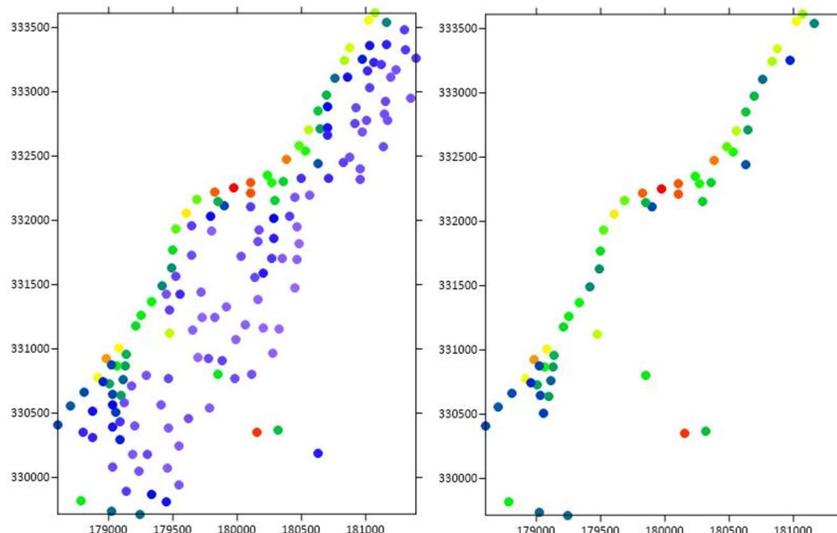
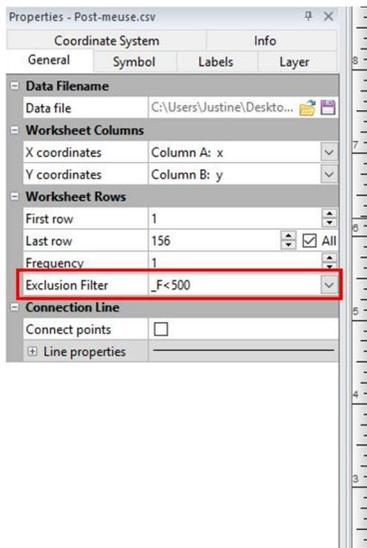
map borehole locations using the UWI or another Object ID. Then, easily map your changing chemical composition data over time. Sort the attributes in the Attribute Table by simply clicking on the column header.



*Join new data to existing Base layer vector objects*

### 3. Post map data exclusion filter

Display only the Post map points that you're interested in without having to edit the source data file. Remove points from your Post or Classed Post layer based on numeric criteria. Exclude points based on X value criteria , Y value criteria, or by numeric criteria in another column in the data file. You can use logic statements in the same way you would in the Data Exclusion Filter through Grid Data or the Worksheet.



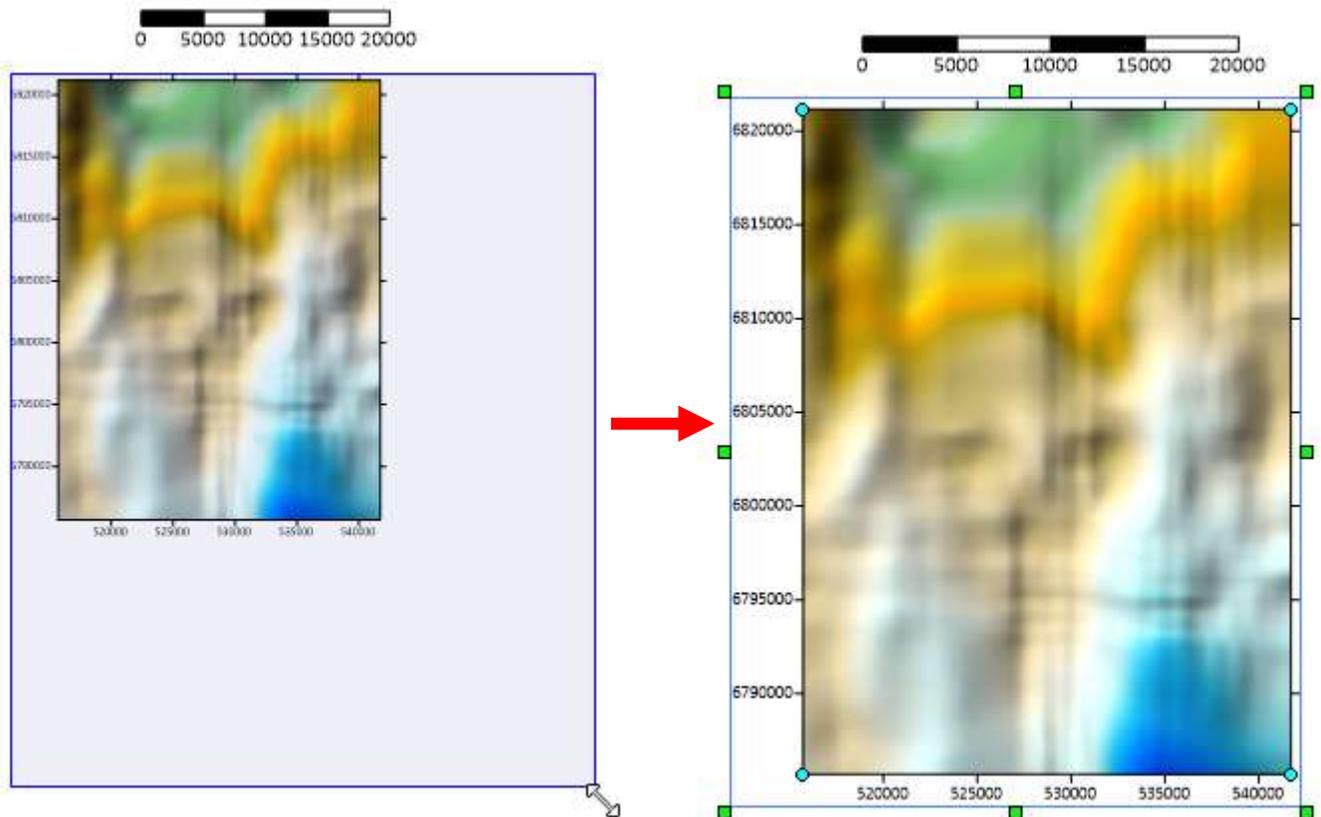
*Filter out*

*unwanted post map data with the new exclusion filter*

### Workflow improvements

#### 4. Scale maps accurately by dragging the outer bounding box

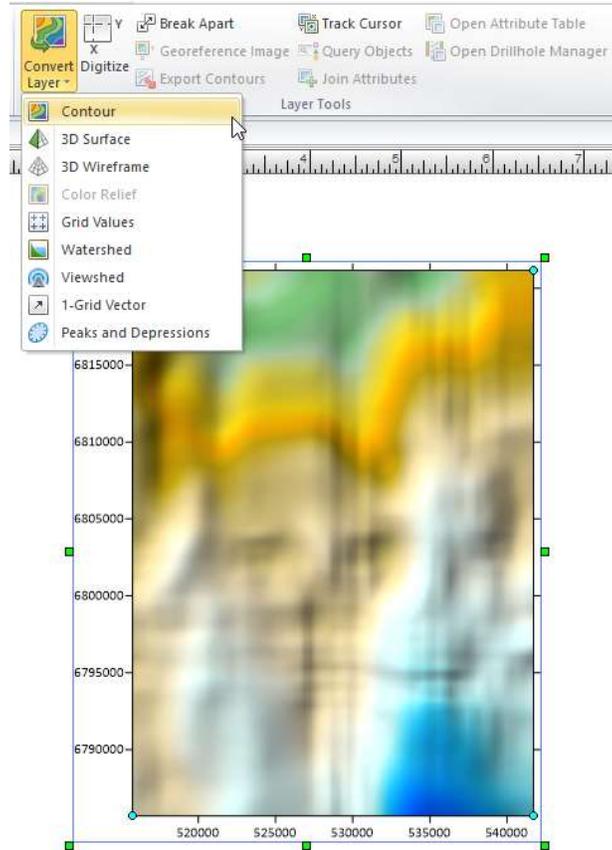
Throughout Surfer's history we've been telling you not to resize maps by dragging the sides because it destroys the internal scaling of your maps. We won't be telling you that anymore! Resize your maps by dragging the sides whenever you like - Surfer will retain the scaling, and will update any Scale Bars to match the new dimensions. The new Map scale is calculated and displayed in the Properties window, so you can get it as accurate as you need.



*Resize maps to scale by dragging the sides and the scale and scale bars update to the new size*

## 5. Convert between grid-based map types

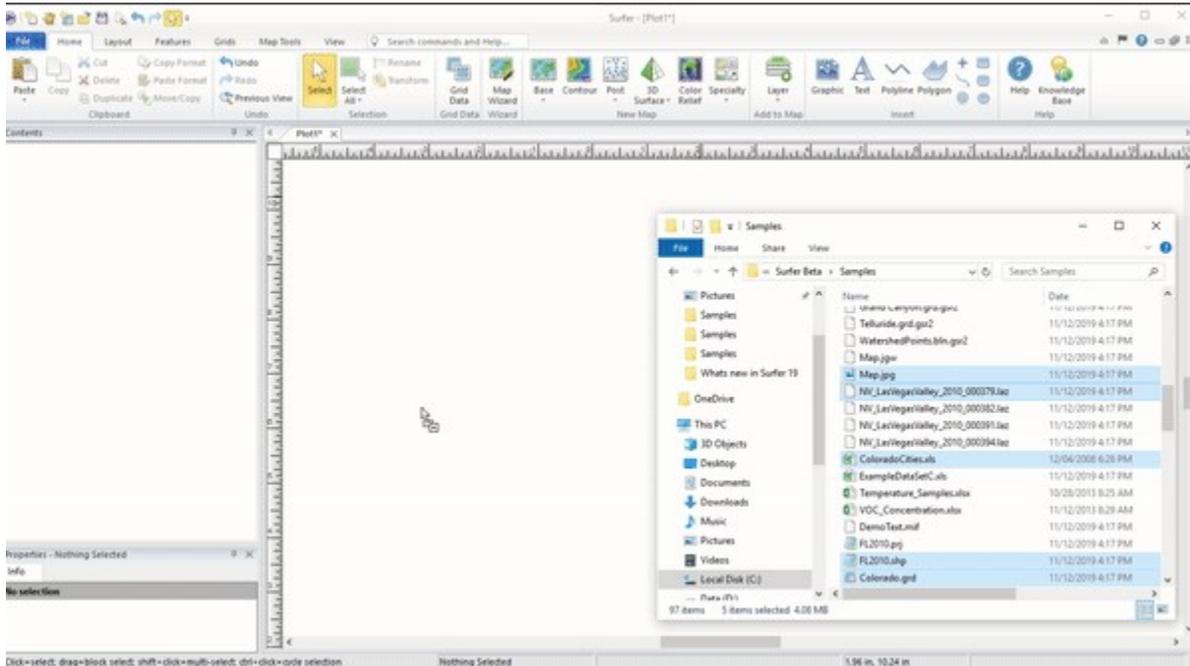
Grid-based maps can now be converted to other grid-based maps by using the Convert Layer tool. If you make a mistake and create the wrong map layer type, you don't need to reload the file again, just convert the layer directly to the type that you need.



*Convert from one grid-based map type to another*

## 6. Create maps more quickly and easily

We've made map creation more intuitive, and faster too! Click *File | Open*, select your data or grid file, and a new map is immediately created. Select multiple files during *File | Open* to create multiple maps instantly. If you need to edit the source data file, you can still open it directly using the *Open in Worksheet* command. Similarly, source grid files can be opened by clicking *Grids | Grid Editor*.



*Drag and drop multiple files into the Plot window to create multiple maps*

## 7. Drag and drop files to create maps

Drag one or more files from Windows File Explorer or your Desktop onto your Plot document and maps are instantly created. Drag grid files onto the Plot window to create Color Relief maps, then use the Convert Layer tools to change them to Contour, 3D Surface, or Watershed maps. Drag vector files onto the Plot to create Base(vector) maps, and drag XYZ data onto the Plot to create Post maps.

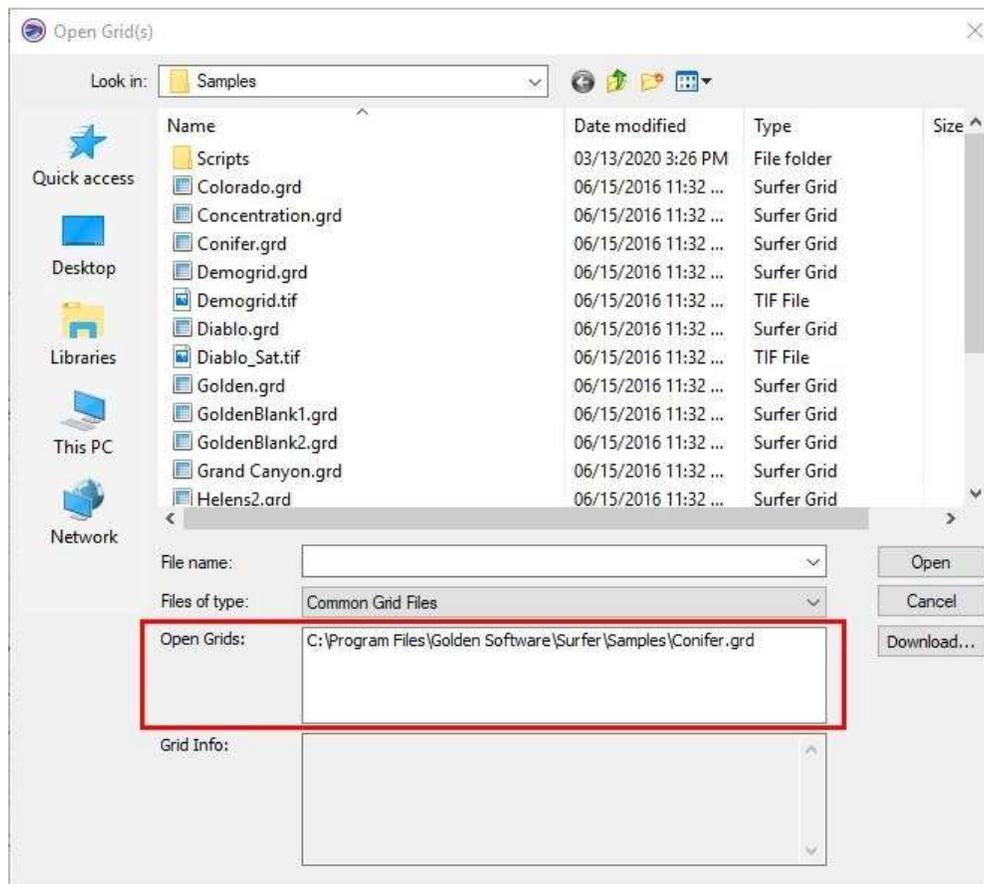
## Speed improvements

### 8. Faster contouring

Contour map generation is now multi-threaded, optimized, and is 7 times faster! If you use large grid files or display your data with a close contour interval, these efficiency improvements will save you a ton of time. The updated progress gauge now lets you know exactly how much time to wait.

### 9. Grids/Data/Image files are shared between maps

This makes your SRF project both smaller *and* faster. If you use the same input file for multiple map types (a color relief and contour map, for example), these files are now shared rather than being duplicated in your SRF project file. The same applies for vector files and image files. When creating a new map layer in Surfer, you can choose whether to use a new file, or one that's already saved into your project.



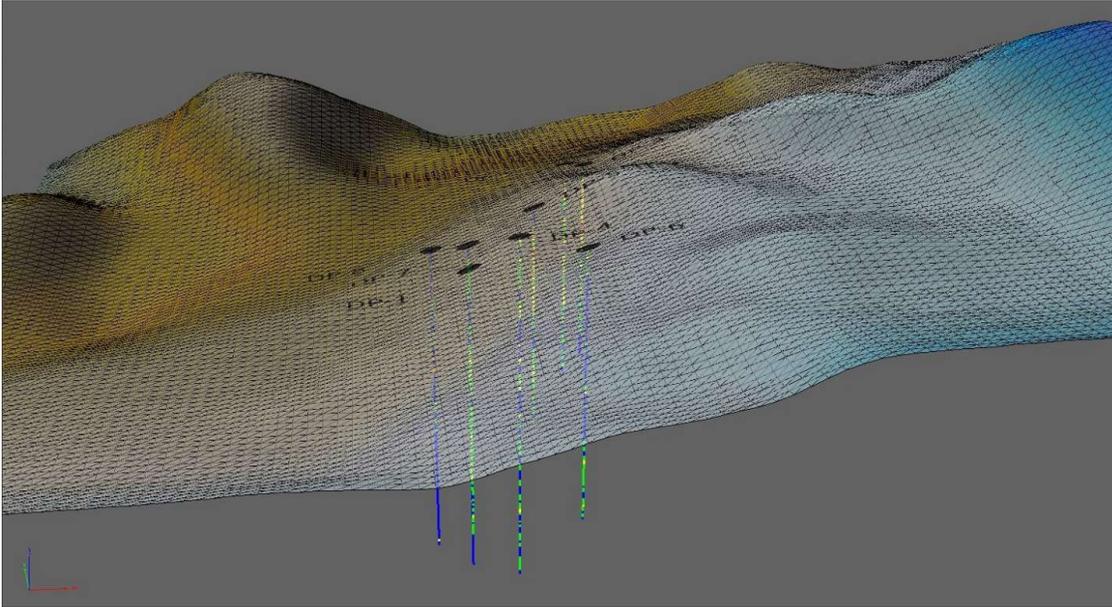
*Create new maps from files already opened in the project*

## 3D View improvements

### 10. Export 3D PDF

Export your models from the 3D View into the interactive 3D PDF format. Add surfaces, axes, points, and contours, rotate around your model, change lighting and model display style, and more! This new functionality is great for communicating your work to stakeholders.

This file can be viewed in Adobe Reader DC and other PDF applications that support 3D data display.



*3D PDF exported from the 3D View and opened in Adobe Reader DC*

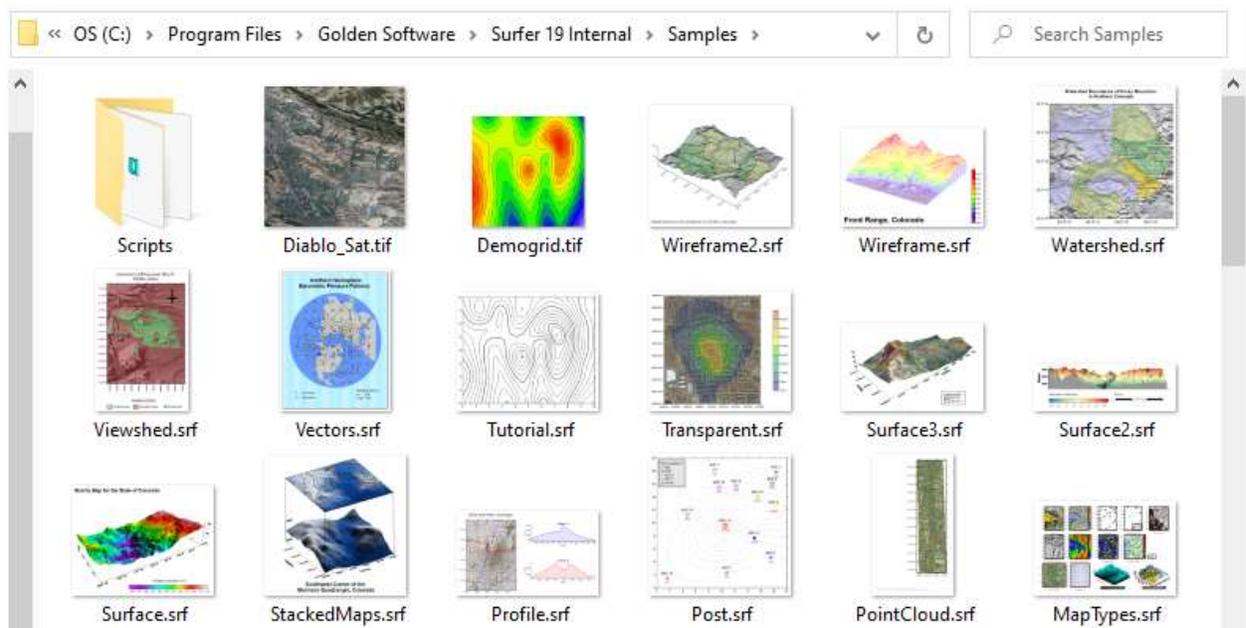
### 11. 3D View Undo

The Undo command has been added to the 3D Viewer, so you can undo model rotation, lighting changes, vertical exaggeration changes, and object formatting changes.

## General Improvements

### 12. See SRF Previews in Windows File Explorer

You no longer have to open all of your SRF projects to figure out which one you're looking for. The plot window contents for SRF files created in Surfer 16 or newer can now be previewed as thumbnails in Windows File Explorer.



### 13. Zoom Previous / Previous View

Undo your previous mouse-wheel zoom with the Zoom Previous command. If you make a mistake with your zoom level, use this button to snap right back to the previous view position. Assign your preferred keyboard shortcut so it's right at your fingertips whenever you need it.

### 14. And more!

- Click a button in the layer properties to open the data file used to create a post, classed post or base from data layer in the worksheet.
- New Coordinate System information:
- State Plane Coordinate System now lists the FIPS code for each zone
- Added CRTM05 (Costa Rica, EPSG 5367)
- Added Palestine 1923 Palestine Belt (EPSG 28191)
- Added Palestine Grid (EPSG 28192)