

# INSTRUCTIONS FOR VIEWING AND USING 3D PDF DOCUMENTS

---

WASHINGTON  
DIVISION OF GEOLOGY  
AND EARTH RESOURCES

June 2015



WASHINGTON STATE DEPARTMENT OF  
**Natural Resources**  
Peter Goldmark - Commissioner of Public Lands

## Instructions for viewing and using 3D PDF Documents

To view the 3D visualizations, click on the model hyperlink. The visualization may open within your web window—due to performance issues and varying controls per browser it is best to save the document to your local drive and open it with Adobe Reader on your system. Open the visualization PDF as you would a normal PDF file. It could take several tens of seconds to open depending on the size of the file and the computer's performance level.

### Activating the 3D PDF

After the PDF is open and activated, the 3D PDF toolbar will become visible beneath the title. Here you will find viewing presents in the “Views” dropdown. The document will open with Map View as default. To see other preset views, click on any of the other options to zoom to that viewing location\*.

*\*Note:* If you become disoriented, or lose track of where you are in 3D space, you can always click on these to reorient your view back to a known preset.

### Navigating the 3D PDF

To move or “drive” around the display you will use all three buttons on your mouse:

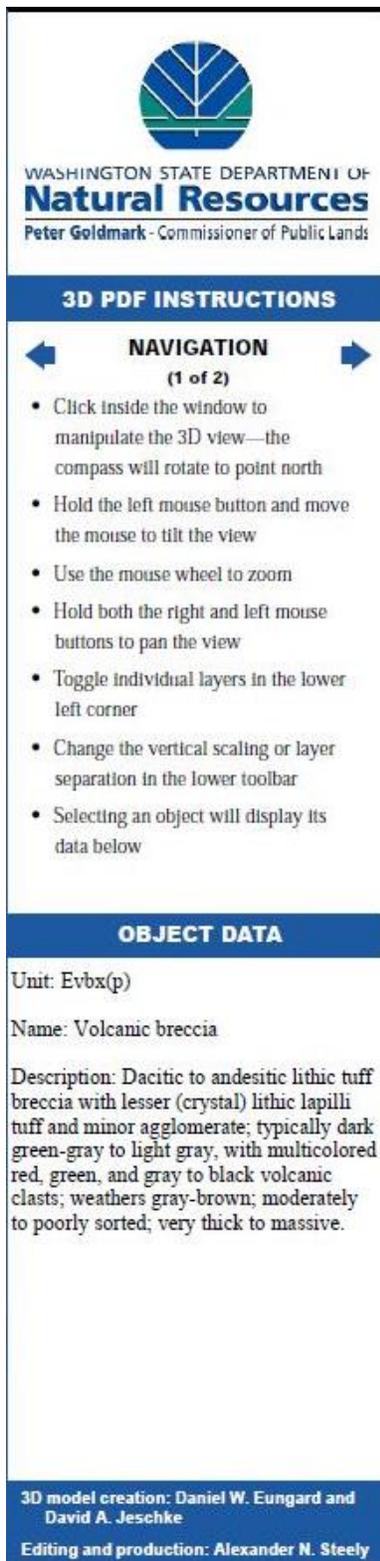
- click and hold the left mouse button to rotate the view
- click and hold the right mouse button to zoom the view in and out
- holding both buttons down pans the image

The mouse wheel will also serve as a zoom function. On a Mac trackpad, clicking and dragging with one finger will rotate the view while either a two-finger click and drag or a forefinger/thumb spreading gesture will zoom in or out. Rotating, panning, and zooming, as well as other viewer functions can also be accessed through the 3D PDF toolbar. For information on more advanced 3D PDF functionality, we recommend the user consult the online [Adobe® 3D PDF user guide](#). On-screen instructions for navigation are also provided as shown in Figure 1.

### Adjusting Lighting

If the lighting of the visualization is insufficient for your current viewing angle, you may try different lighting features by clicking the dropdown menu under the lighting control tool (shown as the desk lamp button on the 3D PDF toolbar).





**Figure 1.** 3D PDF instructions and Object Data display panel.

## Saving Custom Views

Custom user-defined views can be saved by toggling the model tree button next to views) on the 3D PDF toolbar.



With the model tree toggled, select the “Create View” button and hit “Ok” to save your custom view.



## Identifying Geologic Units and Features

\*Surface geologic units are labeled within their polygons as on a printed map. Additionally, any geologic unit of interest in the 3D geologic map can be selected and identified. Click on any geologic unit on the map, cross sections, or boreholes pull up the Object Data (Fig. 1) for that unit. All corresponding units will be highlighted. To deselect an object, click outside the boundary of the 3D PDF image. The object data will remain displayed until a new object is selected.

*\*Note:* When viewing the 3D geologic map, you may notice that some of the text or symbols may seem backwards or hard to read. This is due to the mesh appearing mirrored when viewed from below and (or) distorted to accommodate the topography; this is normal behavior for the visualization.

## Applying Transparency and Enabling/Disable Layer Display

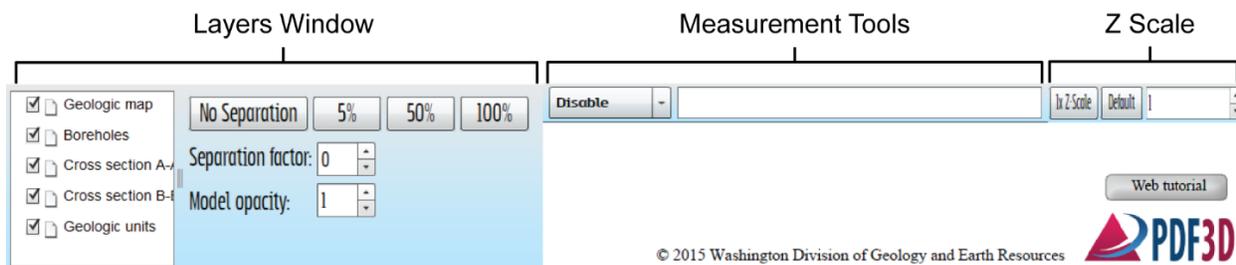
The geologic map, cross sections, or boreholes can be turned off by deselecting the checked box in the Layers Window (Fig 2, left side).

Individual geologic units or “parts” can be turned off by selecting the unit, right clicking and selecting “Hide” under Part Options. Right-clicking the model and selecting “Show All” under Part Options will turn all hidden parts back on.

An additional tool option “Layer Separation” provides you with the ability to move layers apart if one layer is interfering with the view of another layer. Selecting the predefined buttons or entering a custom value in “Separation factor” will shift all layers relative to the geologic map by a given percentage. The default separation factor is set to zero.

You may wish to apply transparency to certain elements of the visualization in order to better see objects that may be obscured by them. To do this, click on the obstructing object in the Layers Window and change the numeric value next to “Model Opacity” to any number between 1.0 (fully opaque) to 0.0 (fully transparent).

You can also apply transparency to individual parts in the model by right-clicking the object and selecting “Part Options > Transparency”. This will apply a 50% transparency to the selected part; in this case the transparency cannot be adjusted to any other value.



**Figure 2.** Layer, Measure, and Z-Scaling tools.

## Obtaining Coordinates, Measure Distances, and Grades

The measurement tools (Fig. 2, middle) measures:

- coordinate values at a selected point
- distance of a line, slope,
- grade from two selected points
- angle from three selected points
- azimuth and slope between two selected points

To enable the tool, click the dropdown window labeled “Disable” by default and select the tool you wish to use. Click anywhere in the 3D window to begin making your measurement. The points selected will be shown with an orange arrow, lines produced from multiple selected lines will also be bright orange. Values of measurements will be displayed in the white box to the right of the tools. Note that the reported values will have a high amount of precision, yet they are likely not accurate to that degree.

## Vertical Exaggeration

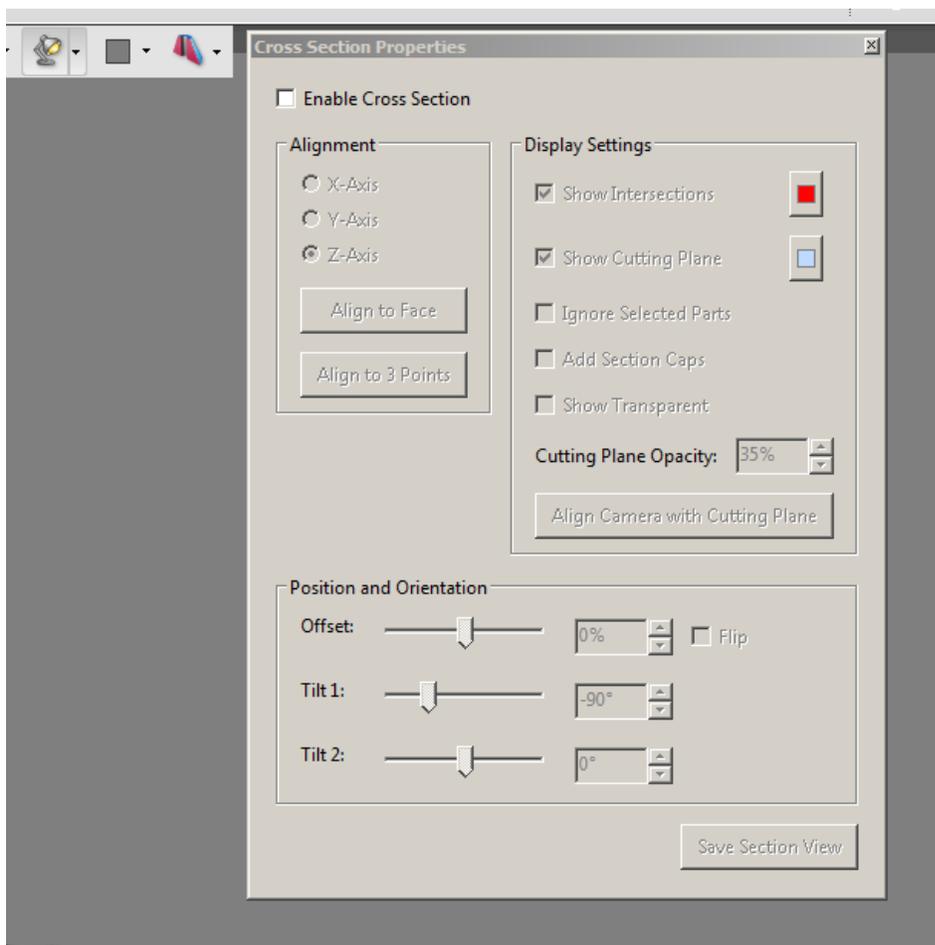
Vertical exaggeration of the model may be changed with the Z-Scale tool (Fig. 2, right). At a scale of 1, the model has “true” dimensions on all axes. As the numbers change, the Z axis (elevation) will be scaled appropriately. This is particularly useful when viewing models with slight topographic changes, or viewing regional scale models with large XY extents. Selecting “1x Z-Scale” will set the model to 1x exaggeration; selecting “Default” will change it to the exaggeration in which the model creator felt it was best viewed.

## Creating a Cross Section

To create a custom cross section for viewing units at a certain depth or plane inside the earth, toggle the cross section tool button dropdown on the upper right of the 3D PDF toolbar and select “Cross Section Properties.” 

This will open Cross Section Properties dialog box (Fig. 3) where you can control exactly where and at what angle the cross section cuts through the model (once you have checked the “Enable Cross Section” box at the top left corner). You can orient, tilt, and rotate the desired plane using the Position and Orientation sliders at the bottom of the Cross Section Properties window (Fig. 3)\*.

*\*Note:* Disabling model parts while the cross section tool is enabled may “freeze” the cross section, where any additional changes to the cross section properties will not be registered. Resetting the cross section will sometimes fix this; however closing the document and reopening it may be necessary.



**Figure 3.** Cross Section Properties dialog box.