

How to Work in the GVERSE Attributes Environment

GVERSE Attributes



GVERSE GeoGraphix Support

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The following workflow shows you how to work in the GVERSE Attributes environment:

1. Launch **GVERSE Attributes**.

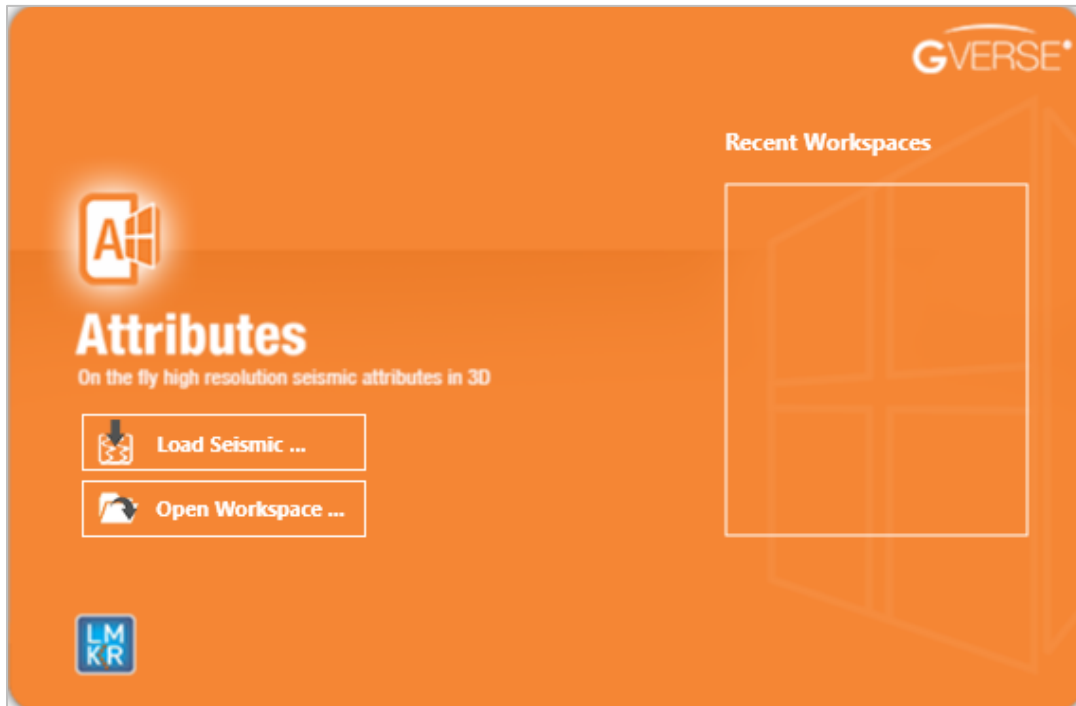


Figure 1: GVERSE Attributes splash screen.

2. Select the **Load Seismic** option on the GVERSE Attributes splash screen. The **Open Workspace** option can also be used to open a workspace that has been previously saved.

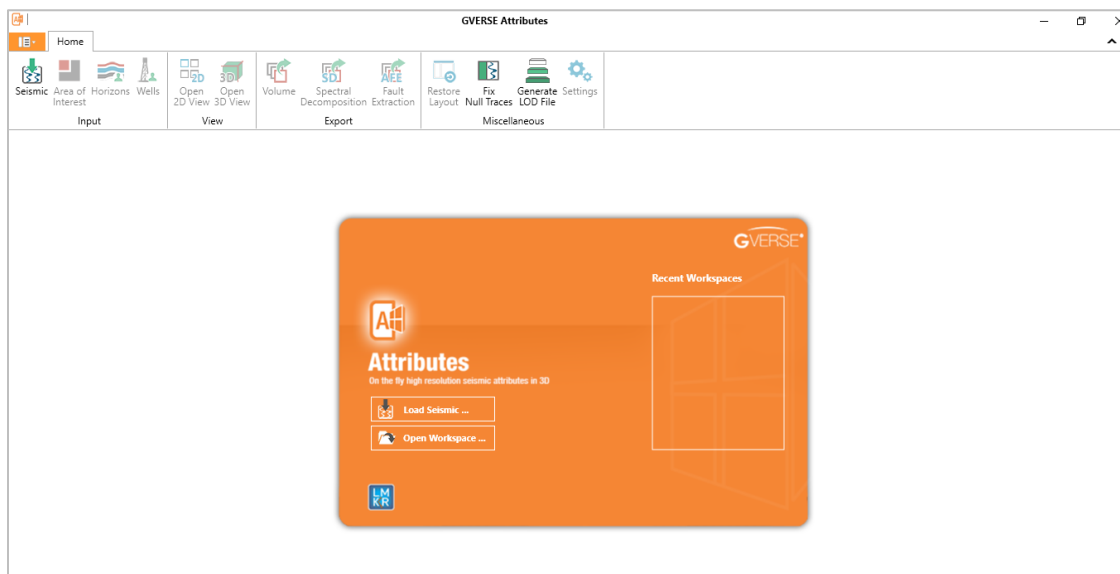


Figure 2: GVERSE Attributes workspace.

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3. In the **Open Seismic** window, click **Browse** to select seismic data.

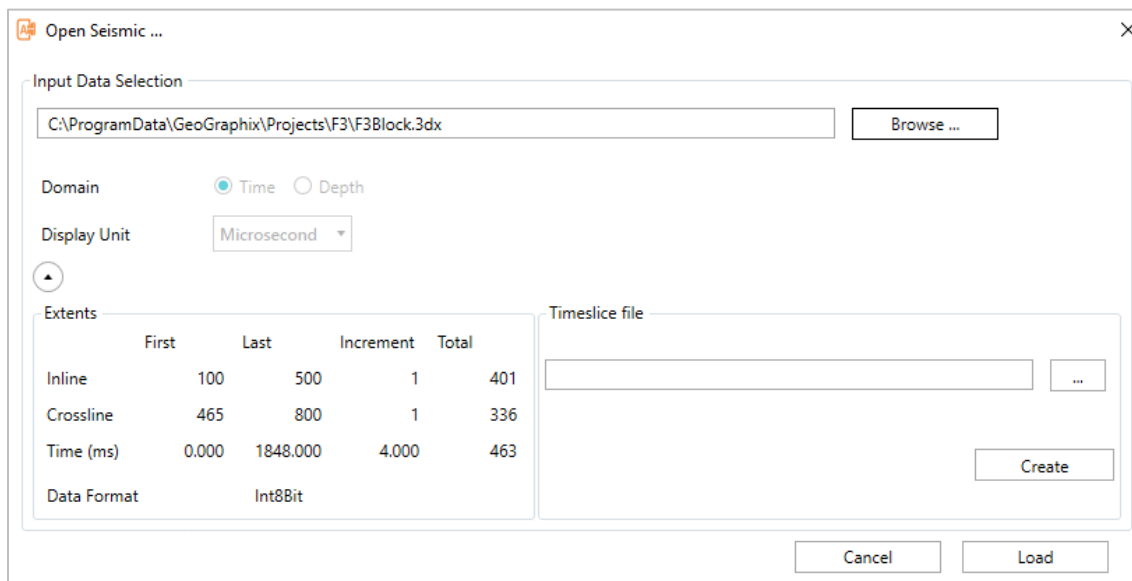


Figure 3: Loading the seismic data.

4. Click **Load** to calculate the optimum frequencies. Seismic data displays in Panel 1 in the GVERSE Attributes workspace.

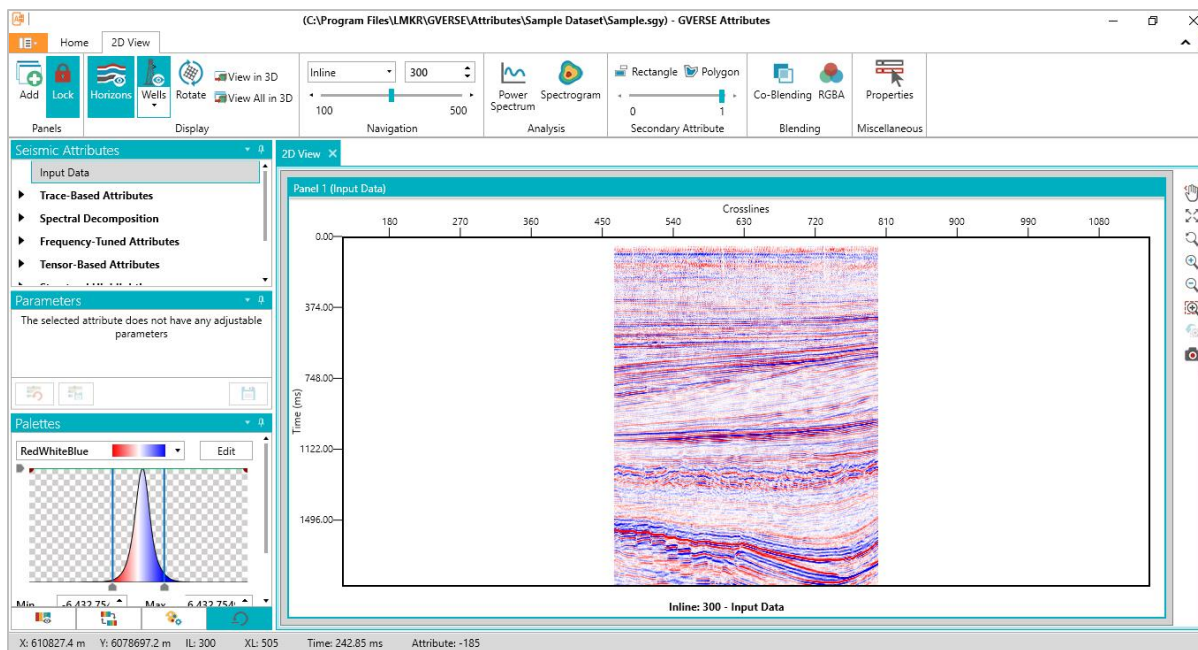


Figure 4: Seismic data display.

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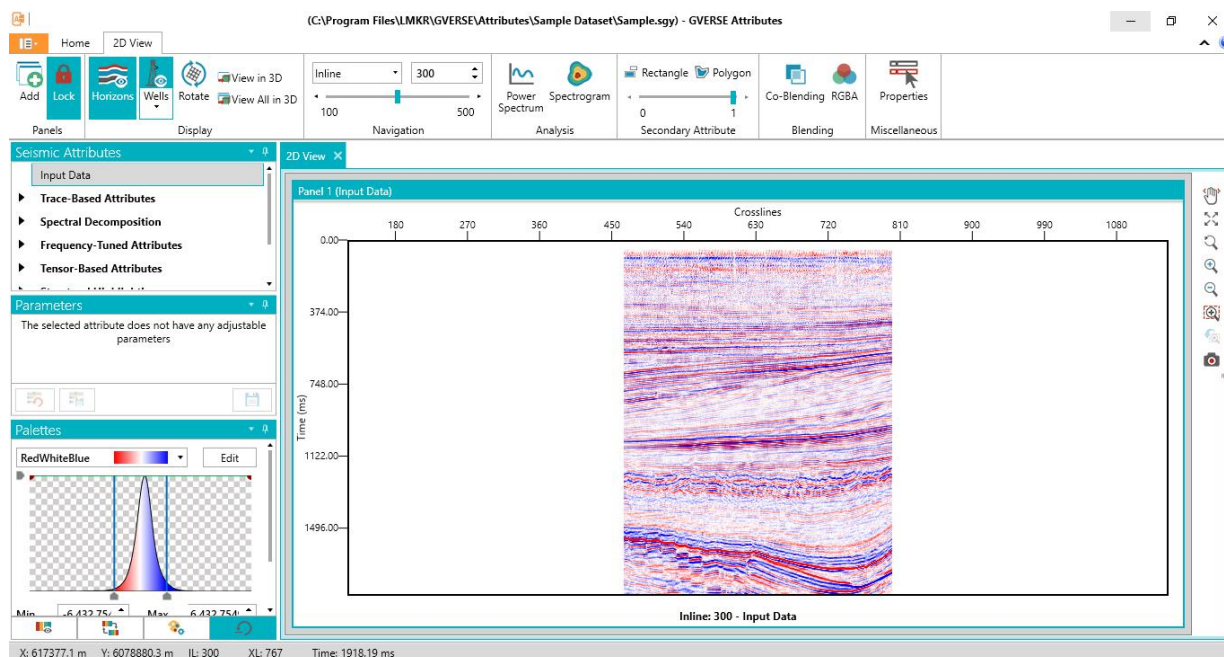
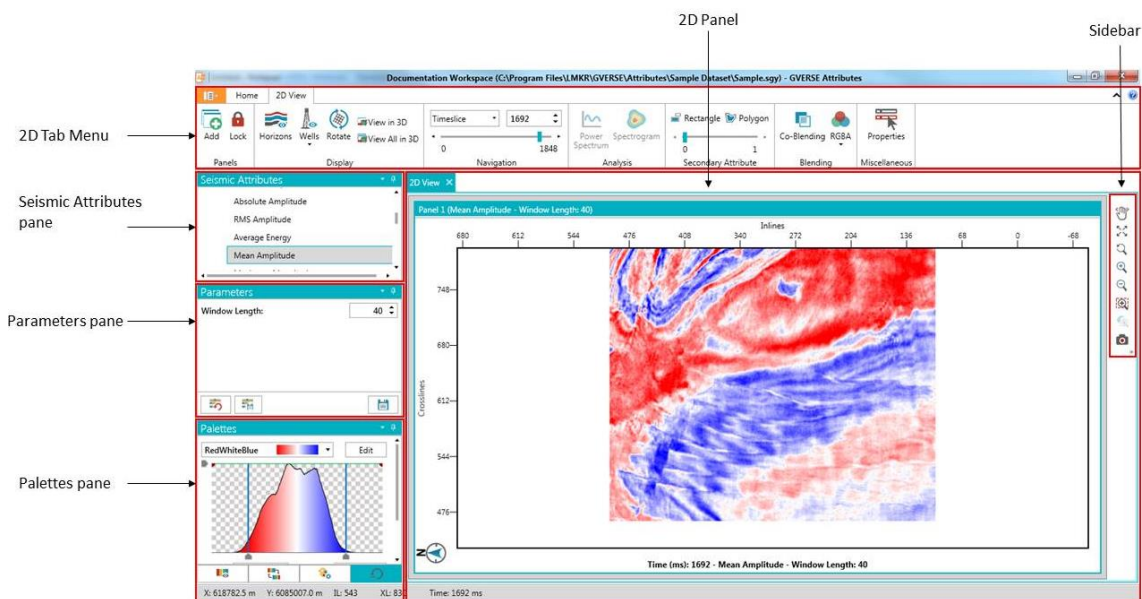


Figure 5: General tools in the main window.



5. GVERSE Attributes supports Horizon and well spots data. In order to import the horizons and well data, select the **Home** tab.

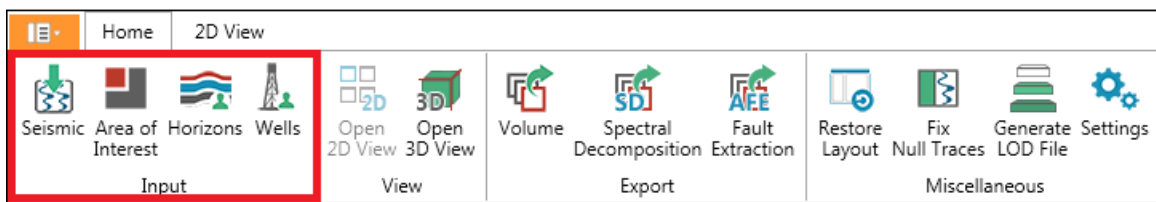
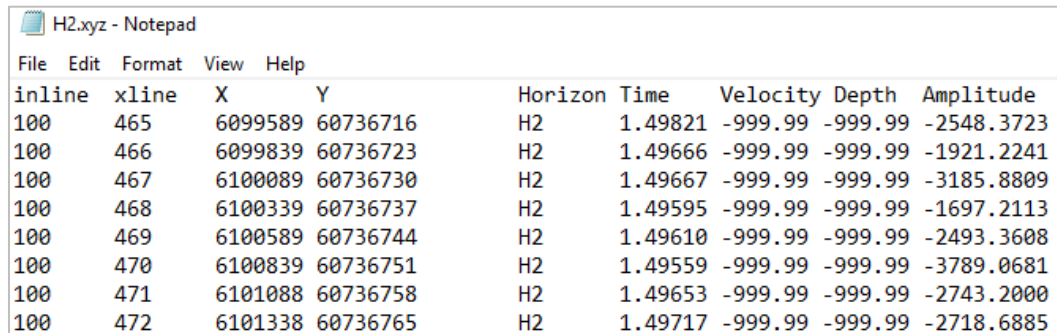


Figure 6: Import Horizons and Wells menu.

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Horizons can be loaded and used to view horizon slices on the volume. They are differentiated by colors and can be added or removed using the Horizon Manager. The Horizon file is an ASCII tab delimited text file that can be imported from GVERSE Geophysics and contains fields for Inline #, Xline #, X Coordinate, Y Coordinate, Horizon name, Time, Velocity, Depth, and Amplitude. The following image is an example of a Horizon file:



inline	xline	X	Y	Horizon	Time	Velocity	Depth	Amplitude
100	465	6099589	60736716	H2	1.49821	-999.99	-999.99	-2548.3723
100	466	6099839	60736723	H2	1.49666	-999.99	-999.99	-1921.2241
100	467	6100089	60736730	H2	1.49667	-999.99	-999.99	-3185.8809
100	468	6100339	60736737	H2	1.49595	-999.99	-999.99	-1697.2113
100	469	6100589	60736744	H2	1.49610	-999.99	-999.99	-2493.3608
100	470	6100839	60736751	H2	1.49559	-999.99	-999.99	-3789.0681
100	471	6101088	60736758	H2	1.49653	-999.99	-999.99	-2743.2000
100	472	6101338	60736765	H2	1.49717	-999.99	-999.99	-2718.6885

Figure 7: Horizon file in an ASCII tab delimited format.

- Click the **Horizons** icon in the **Input** group to load horizons. The **Horizon Manager** Window displays.

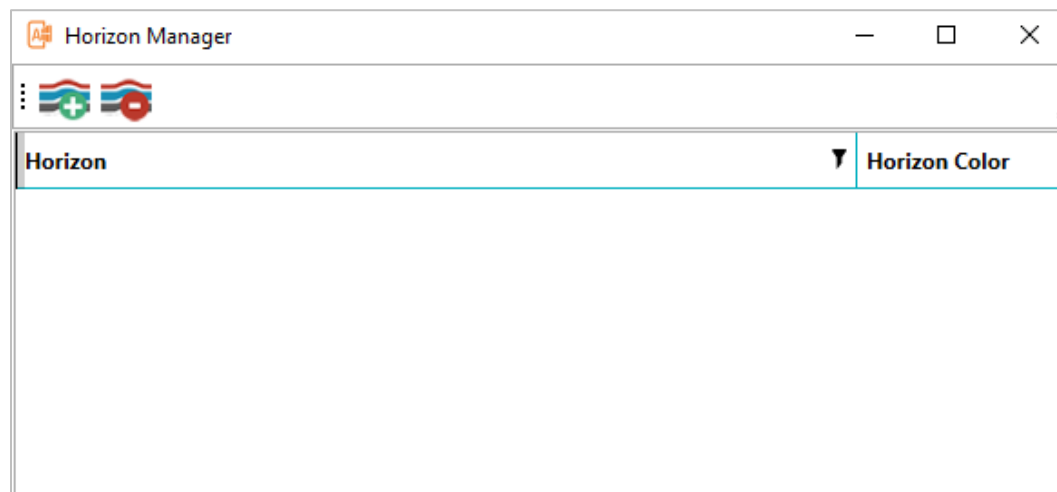


Figure 8: Import Horizons tool.

- Click **Add New Horizon** () to add a horizon file. In the **Open** dialog box select the ASCII xyz file you want to import.

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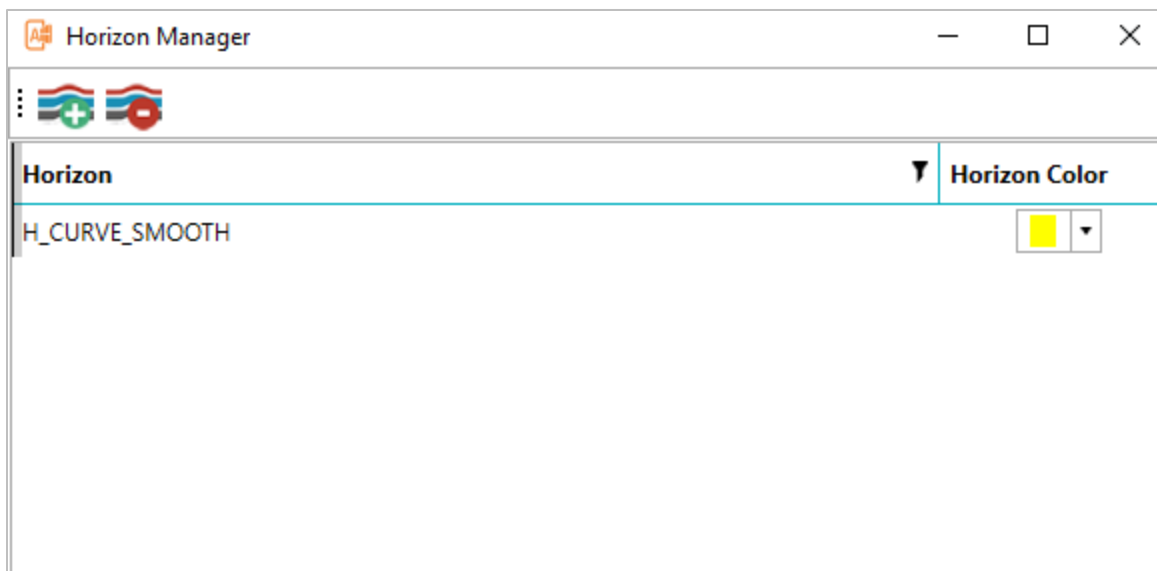


Figure 9: Adding horizons file in the ASCII xyz format.

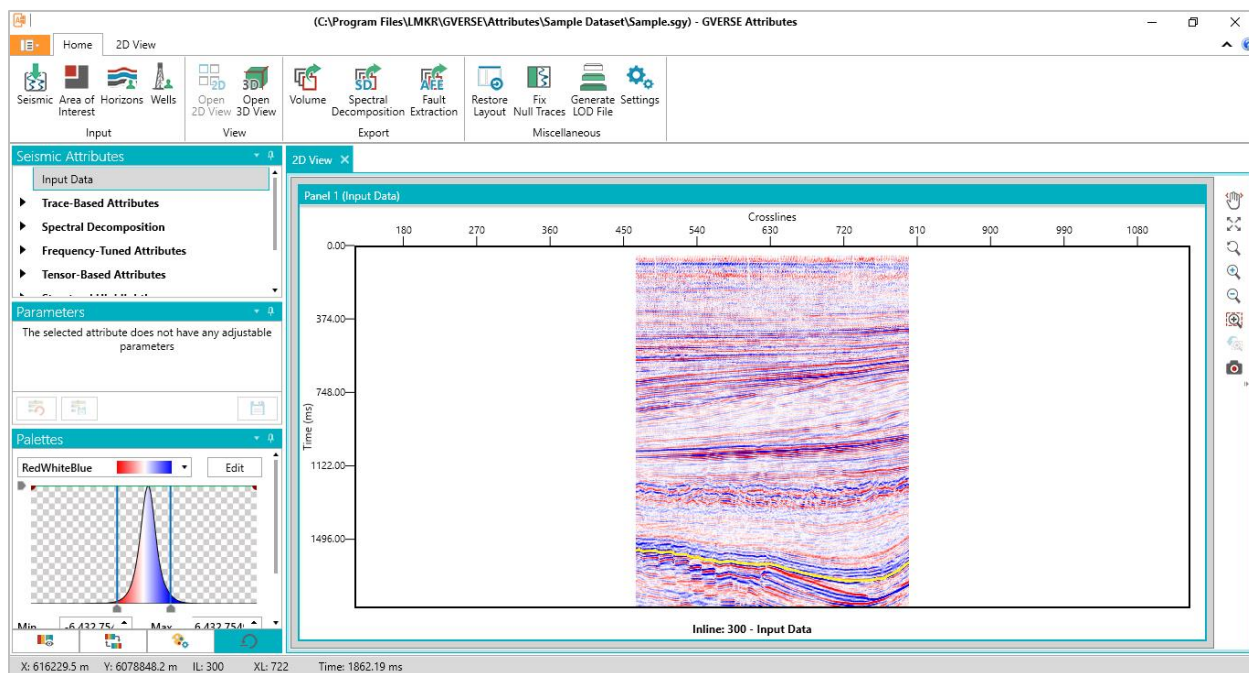


Figure 10: Displaying horizon on the seismic section.

8. Using Well Manager, wells can be loaded to the workspace after seismic data has been loaded. You can add wells manually by entering the UWI, X, and Y values for individual wells or import multiple wells using an ASCII file through the Import Wells functionality. Click the **Wells** icon in the **Input** group to launch **Well Manager**.

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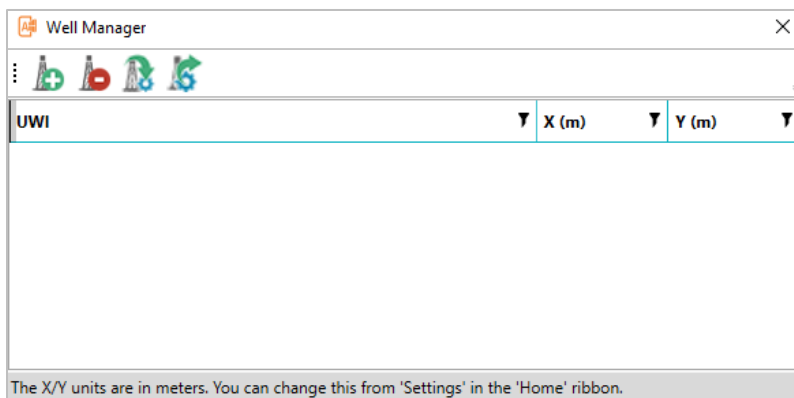


Figure 11: Well Manager for loading wells.

- Click the **Add New Well** () icon to add the well manually, or click the **Import Wells** () icon to import the ASCII file into the seismic. Wells are added to Well Manager:

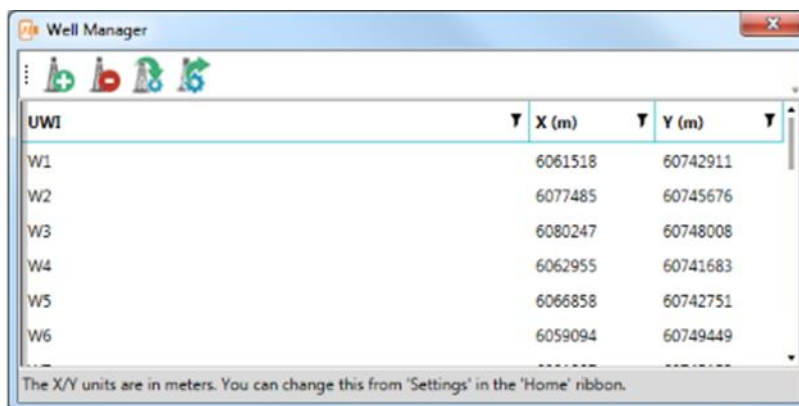


Figure 12: Well Manager after loading wells.

- Select the **2D View** tab and then click the **Wells** icon in the **Display** group to view the wells.

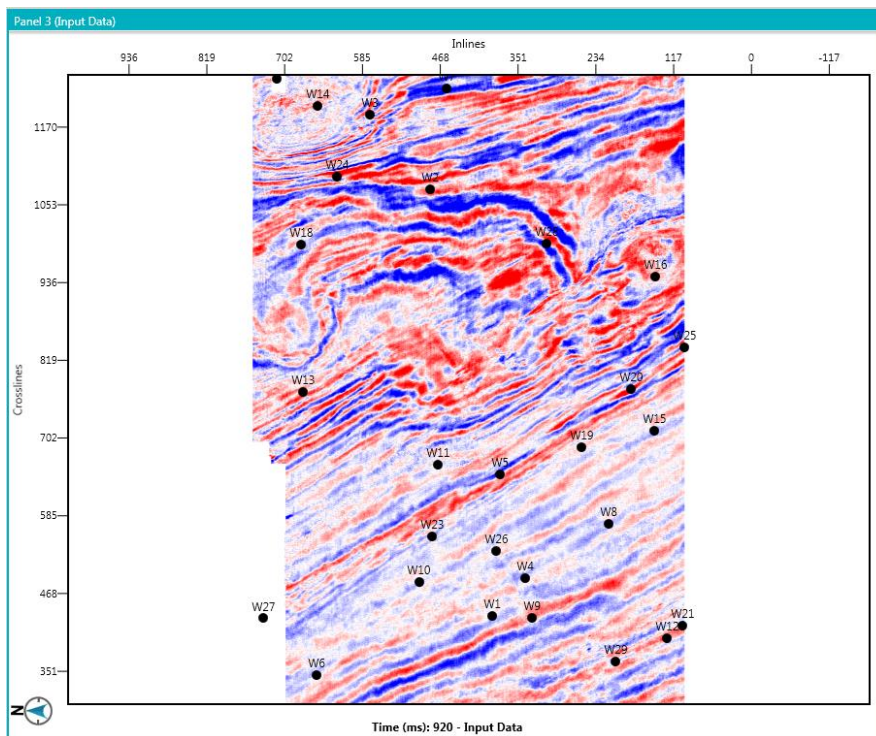


Figure 13: Displaying wells on the seismic.

11. After attaching seismic horizons and wells to the GVERSE Attributes workspace, you can apply attributes to the Input volume.

There are different categories of attributes. The attributes are displayed in the **Seismic Attributes** pane on the left side of the GVERSE Attributes workspace.

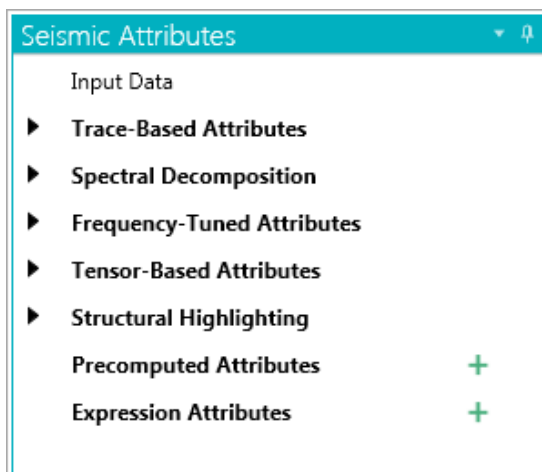


Figure 14: Seismic Attributes pane.

In order to apply attributes to the input volume, simply select the desired attribute from the **Seismic Attributes** pane. The selected attribute will then be applied to the seismic data that is displayed in the panel. Select Timeslice from the navigation drop-down list in the **2D View** tab.

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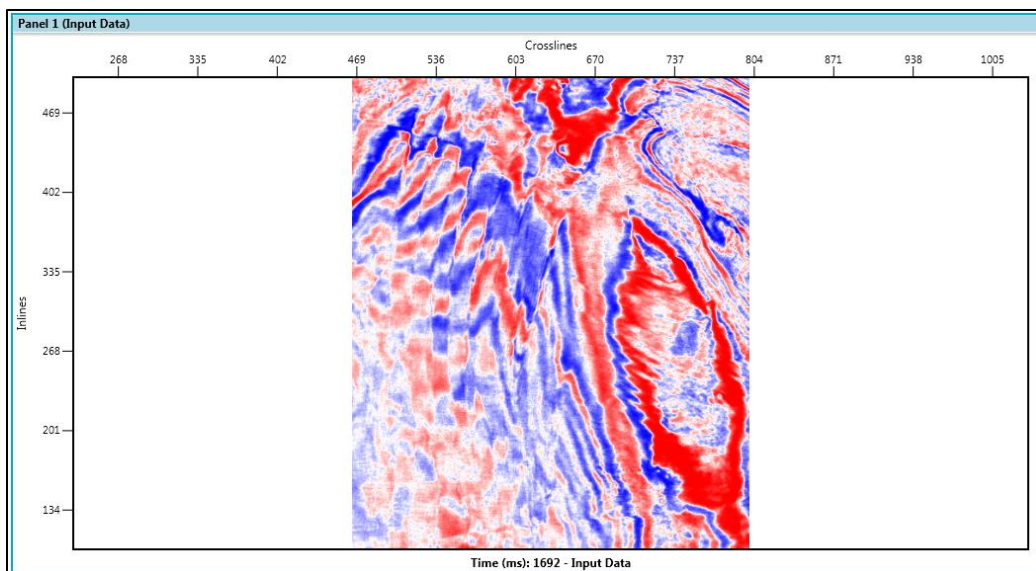


Figure 15: Timeslice.

12. Add more panels by clicking the **Add Panel** icon several times from the **Panels** section of the menu. All four panels display the input volume.

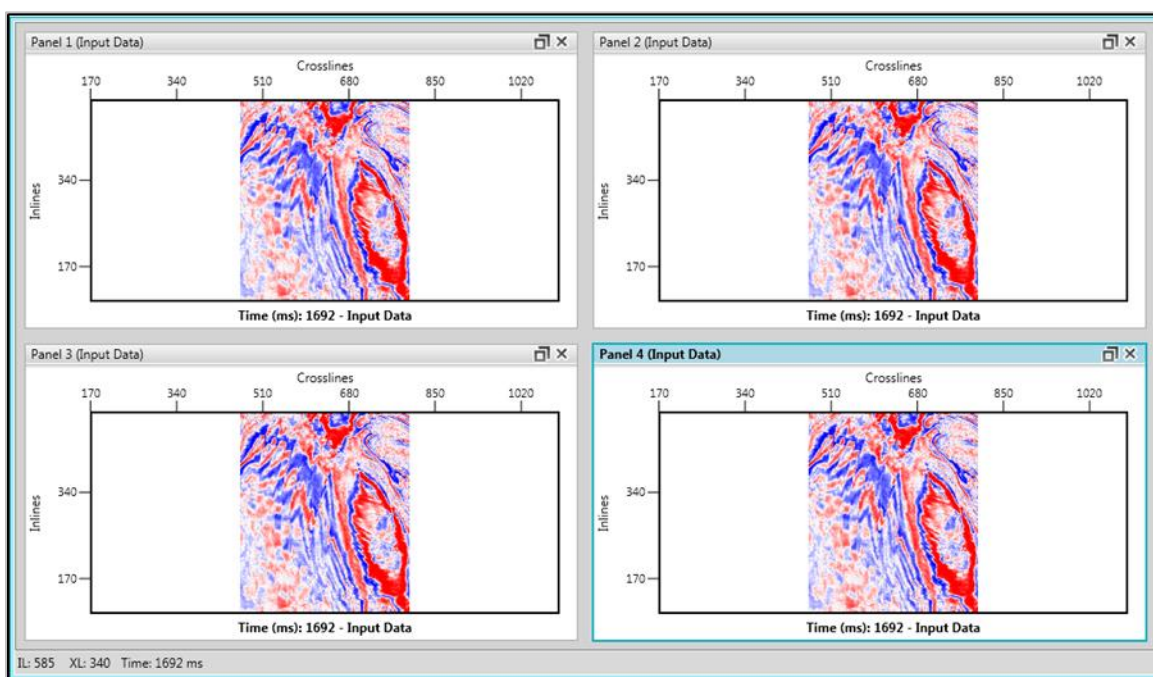


Figure 16: Additional panels displaying different input volumes.

13. Click on a point in a specific panel to apply an attribute. Once it activates, select any desired attribute from the Attributes pane to apply it to the input volume. Perform these same steps for the other panels to apply multiple attributes.

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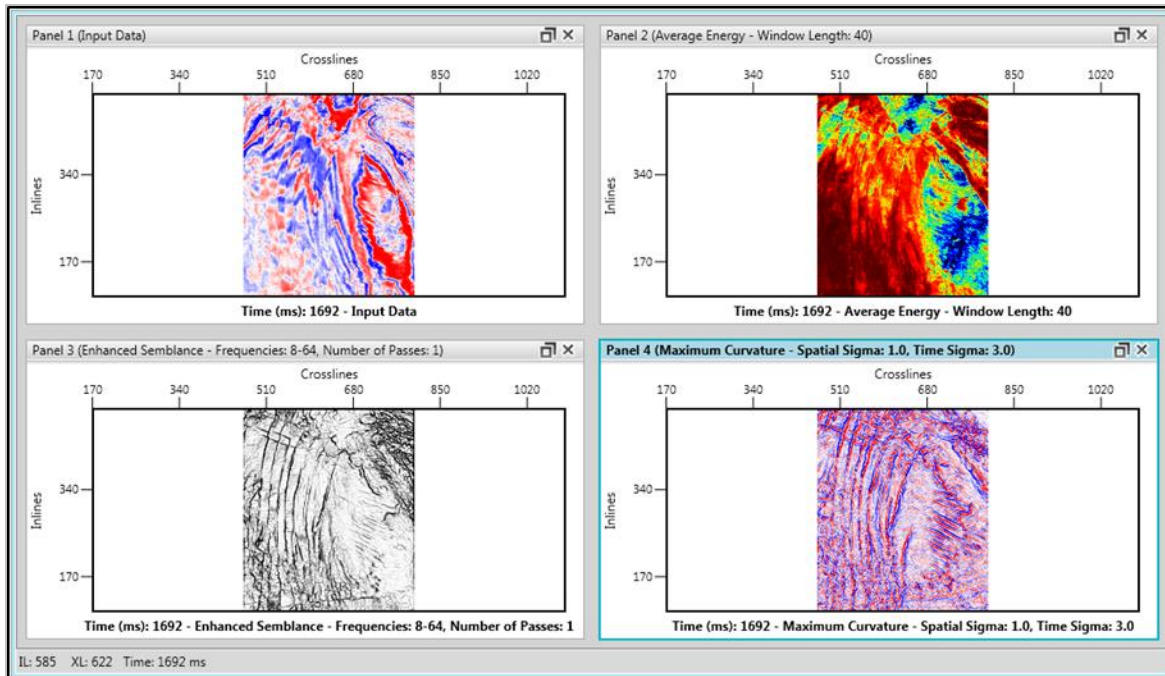


Figure 17: Applying different attributes in different panels.

Parameters can be set for almost all attributes by using the **Parameters** pane, located at the left of the main screen. When you select an attribute from the Seismic Attributes pane, the **Parameters** pane shows the default values relevant to that attribute. You can change these values by entering a new value in the text box and pressing Enter, or by dragging the slider in either direction (wherever available). The parameters are updated and applied to the data on-the-fly.

On-the-fly attribute computation lets you modify parameters and see the results in real time. If you are not satisfied with the modified changes, there is an option to restore the attribute value to default, or to a last saved state.

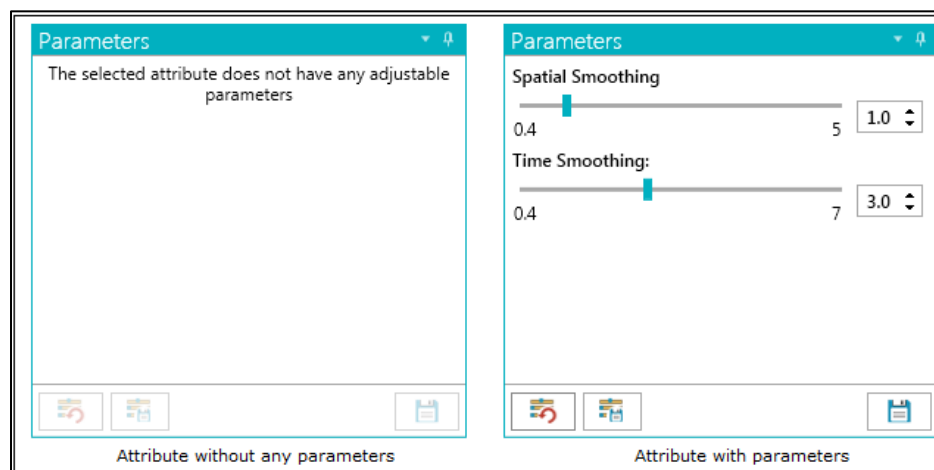


Figure 18: Parameters window.

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Secondary attributes are overlaid on top of existing attributes. These are calculated on-the-fly and superimposed on an existing attribute displayed in a panel. Any of the attributes available in the Seismic Attributes pane may be used as a secondary attribute. You can control the transparency of the secondary attribute to see what the data looks like if the two attributes are merged (or co-blended). The secondary attribute feature helps you to directly compare two different attributes, or the same attribute computed with different parameters (detailed workflow is provided in the *GVERSE Attributes Help* under the *Displaying Secondary Attributes* section).

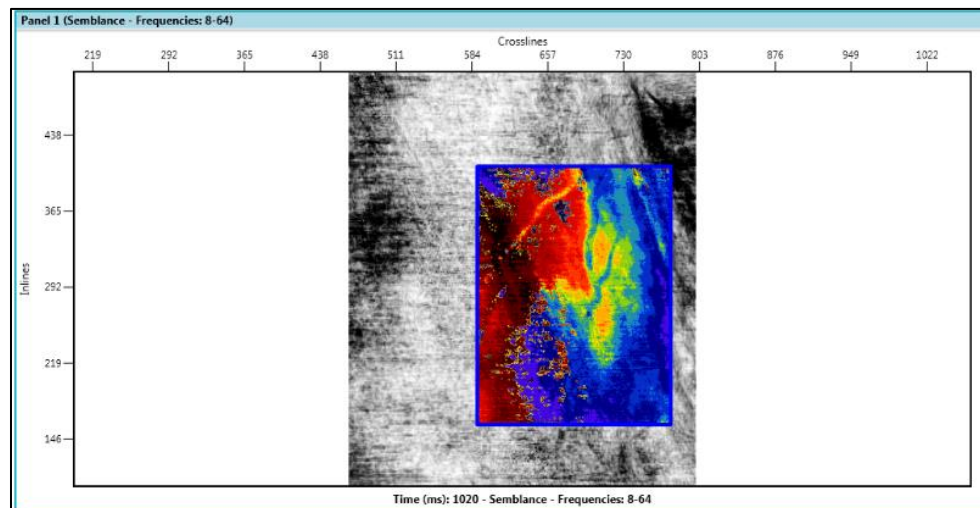


Figure 19: Secondary attribute overlaid over the primary attribute.

The **Co-Blending** attribute analysis technique enables you to visualize the effect of two attributes on the panels at the same time. Any of the attributes available in the Seismic Attributes pane may be used as the Base and Overlay attributes. A specific level of transparency is applied to the Overlay attribute so that it displays blended with the Base attribute.

The result of co-blending is similar to that of the Secondary Attribute; except that it is applied to the full extents of the seismic data (detailed workflow is provided in the *GVERSE Attributes Help* under the *Co-Blending in 2D* section).

Note: While using the Co-Blending feature, you cannot use the Secondary Attribute (Rectangle/Polygon) feature. Only one of these features can be used at a time.

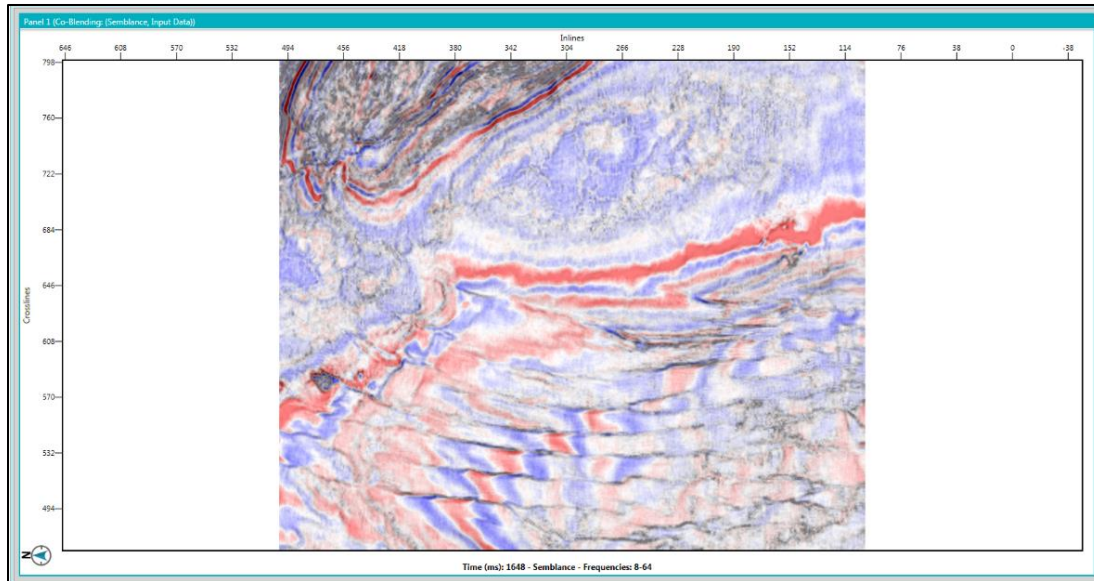


Figure 20: Co-Blending in 2D View.

RGBA Blending uses the Red, Green, Blue, and Alpha channels to display a combination of colors that represent different attributes assigned to each of these channels. This helps in visualizing multiple attributes in one display. The RGBA Blending technique is particularly useful for analysis of spectral decomposition volumes. For instance, if different features display in different frequency volumes, you can assign these volumes to the RGBA channels and display all the features in one view (detailed workflow is provided in the *GVERSE Attributes Help* under the *RGBA Blending in 2D* section).

Note: While using the RGBA Blending feature, you cannot use the Secondary Attribute (Rectangle/Polygon) feature. Only one of these features can be used at a time.

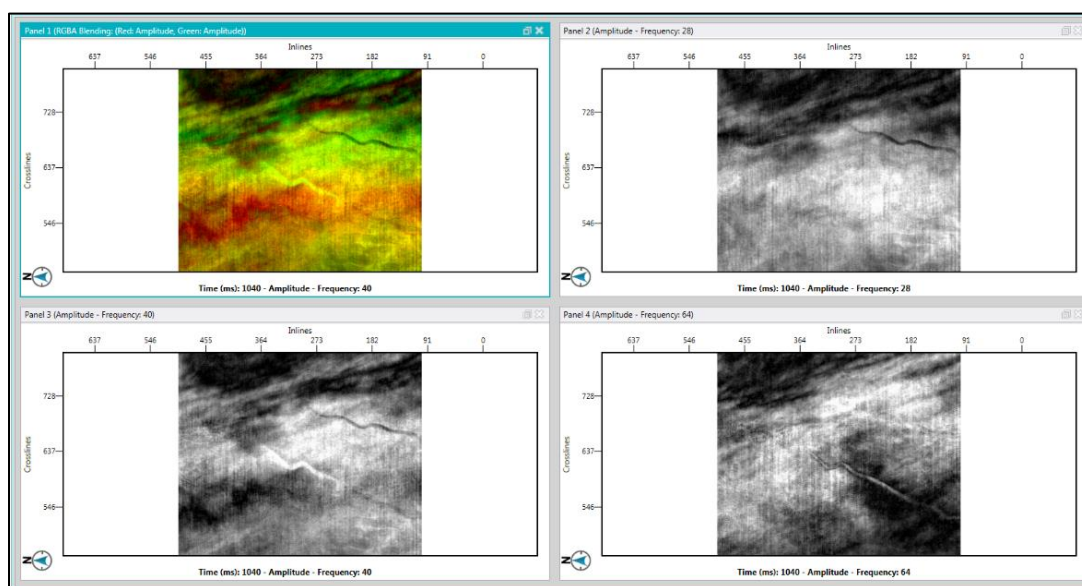


Figure 21: RGBA blending in 2D View.

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The **3D View** tab contains the 3D view of the GVERSE Attribute application. You can view inlines, crosslines, timeslices, arblines, probes, and horizons in the same 3D scene. Related options and actions that may be performed in 3D view can be selected from the **3D View** tab or the vertical sidebar on the right of the **3D View** tab.

You can open a **3D View** tab from the **Home** tab by clicking the **Open 3D View** icon. By default, the 3D view does not contain any objects and only the survey grid displays.

14. Use the **Add** menu in the **3D View** tab to add objects to the 3D scene. Objects added to the scene are present in the **3D Object Tree** available in a tab next to the vertical sidebar. You can show/hide and remove objects in the 3D scene from the **3D Object Tree**.

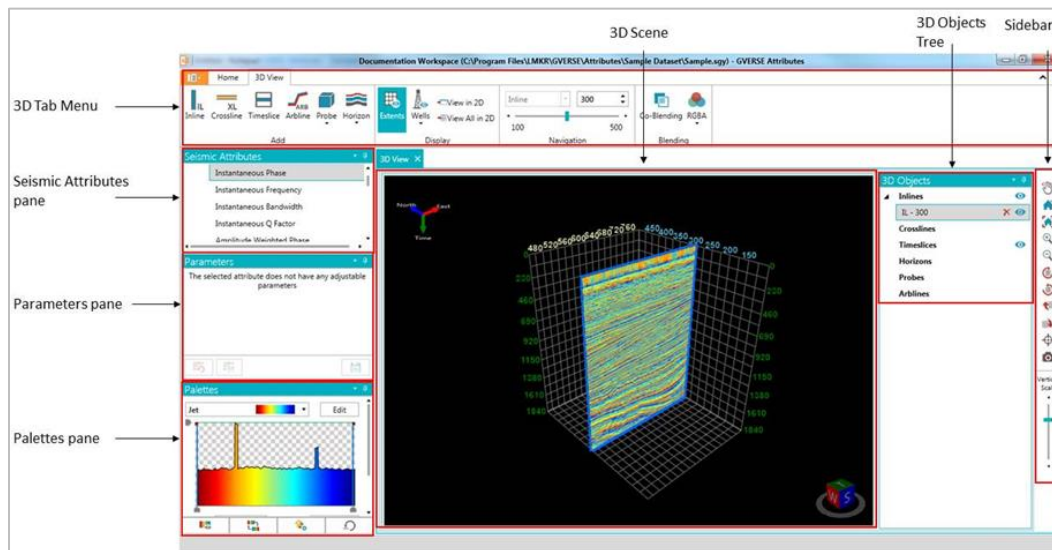


Figure 22: 3D view.

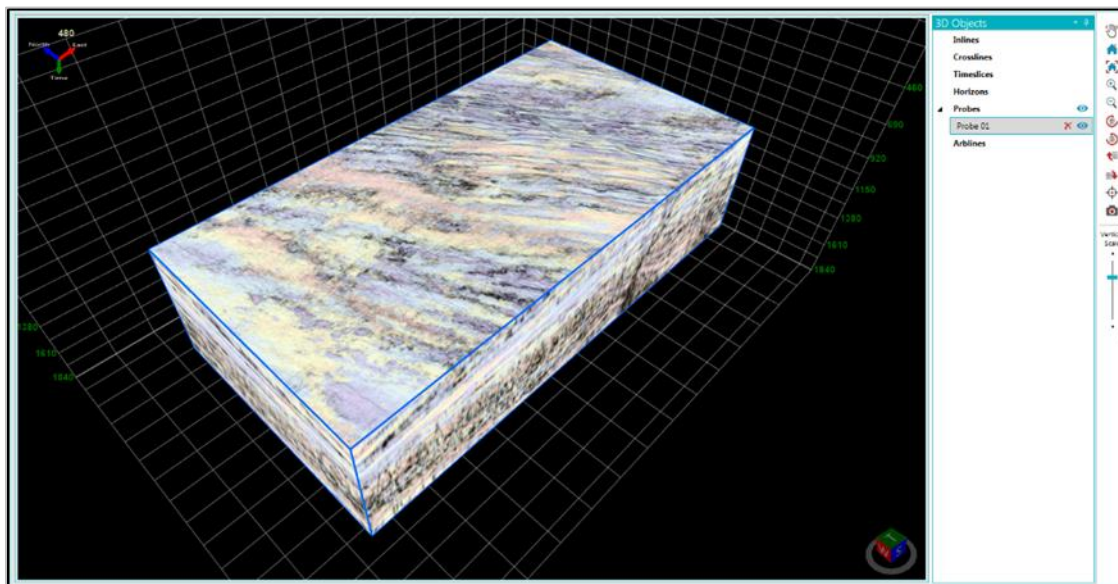


Figure 23: Co-blending in 3D view

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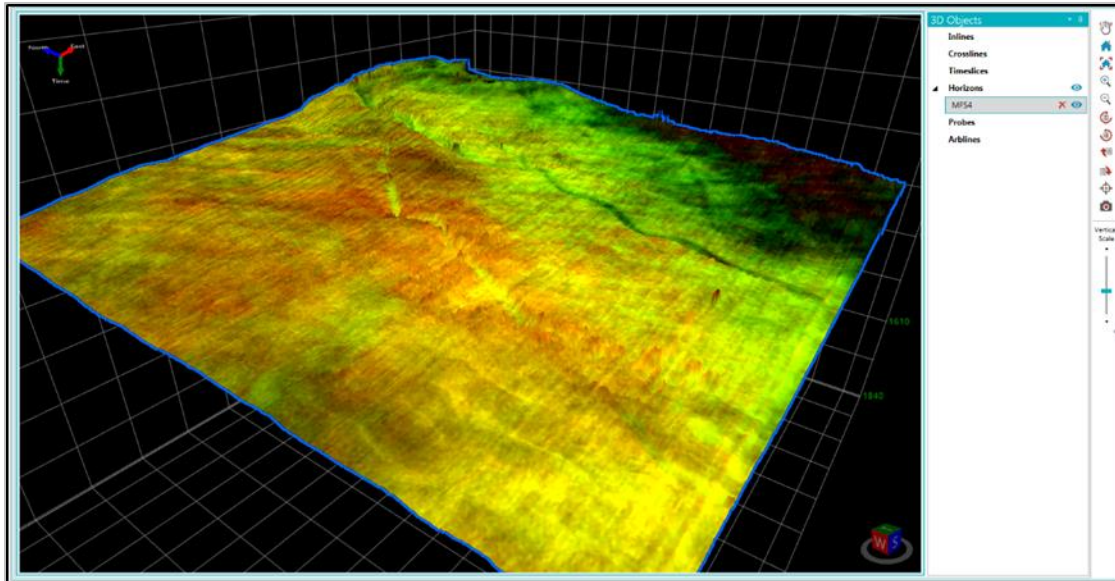


Figure 24: RGBA blending in 3D view.

15. Analyzed 3D seismic attribute volumes can be exported by clicking the **Volume** icon in the **Export** group.

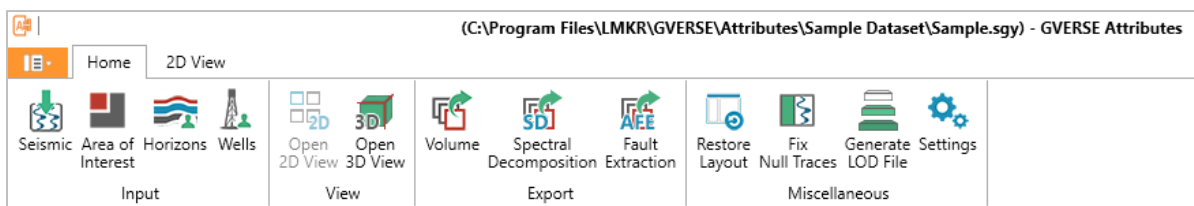


Figure 25: Exporting attributes from GVERSE Attributes.

The **Export Volume** dialog box displays.

Export Volume

Output Path: C:\Program Files\LMKR\GVERSE\Attributes\Sample Dataset

Area of Interest

	Min	Max
Inline Range	100	500
Crossline Range	465	800
Time Range	0.00	1848.00

Buttons: Set to Full Range, Set to Initial Range

Attributes

- ☐ Dip-Steered Semblance (Default Parameters)
- ☒ Enhanced Semblance (Default Parameters)
- ☐ Azimuth (Default Parameters)
- ☐ Dip Magnitude (Default Parameters)

Prefix: Suffix:

Available Disk Space: 120.71 GB Needed Disk Space: 268.81 MB

☒ Add Volume(s) to GVERSE Geophysics Interpretation

☐ Add to Current Workspace

Buttons: Generate, Close

Figure 26: Export Volume dialog box.

Note: The **Add Attribute Volume(s) to GVERSE Geophysics Interpretation** option will only be available if you have already transferred the 3D seismic volume from GVERSE Geophysics to GVERSE Attributes.