



MPath Spotlights – Volume Calculator

Changing the polarity in a seismic volume

Polarity of seismic response (e.g., sand vs. shale) can vary as a function of depth, pressure or lithologic changes, sometimes making it difficult to use one seismic volume in migration modeling. Using MPath's volume calculator, you can change the polarity between two horizons in a seismic file:

1. Open the seismic volume in 3D Viewer.
2. On the Properties tab, click the Tools button and choose Calculator.
3. Choose Multiply by from the Operation drop-down menu.
4. Enter the value for the operation in the Value box. Since we're changing the polarity, use a value of -1.
5. Select Exclude volume above.
6. Select Depth map, and choose the map that represents the upper bound of the region you want to change from the drop-down menu.
7. Select Exclude volume below.
8. Select Depth map, and choose the map that represents the lower bound of the region you want to change from the drop-down menu.
9. Click OK.
10. Enter a File name for the new volume and click Save.

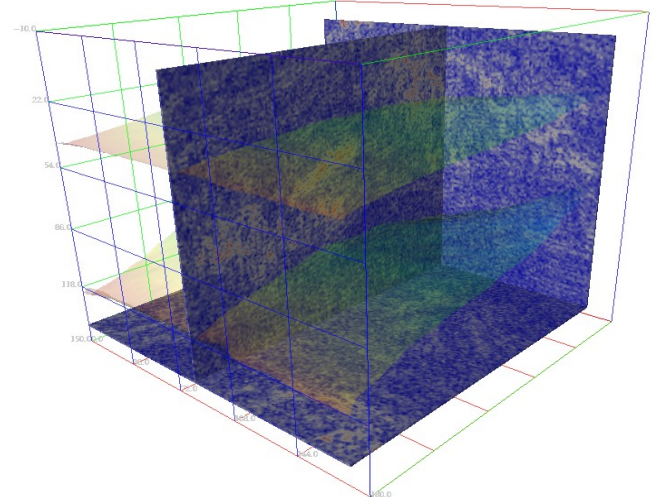
This creates a new volume in the Project Directory.

Other things to try

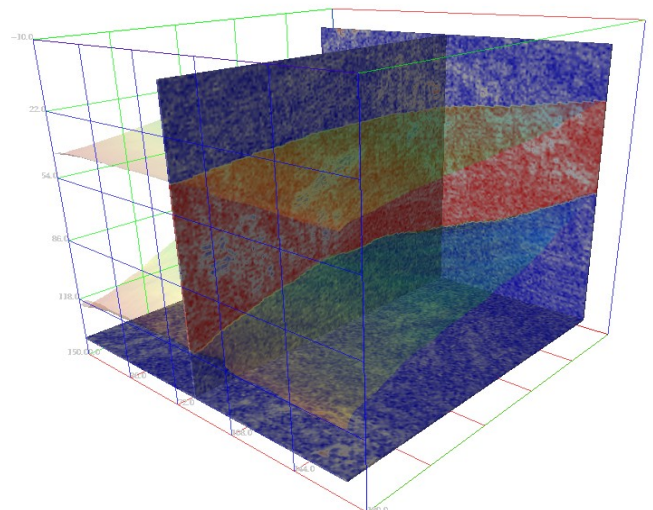
Calculator provides several operators for transforming volumes:

- Replace – replaces values with the specified constant. This is useful for creating geobodies from selected data ranges.
- Add, Subtract, Multiply, Divide – add, subtract, multiply or divide by a specified constant
- Log – returns the natural logarithm of the volume values
- Square Root – returns the square root of values
- Absolute Value – returns the absolute value
- Exponent (^) – raises values to a specified power

The same operations can also be performed on maps.



Seismic volume with bounding maps



Transformed seismic volume

The Calculator option can also be accessed directly from the MPath main window. Simply right-click a volume in the Project Directory list and choose Calculator.