

Color and Polarity of Seismic Terrain Displays

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Whenever we look at an object in the real world we see three things. The first is its geometrical shape, the second is its surface coloring and the third is the light that reflects from it. Our visual processing system (v.p.s) needs all three to interpret the object correctly.

Variable density seismic displays only show the surface coloring and as a result our v.p.s. lacks the critical information it needs to interpret the display. We have to make an intellectual association between color and amplitude because there is nothing inherent in the display that does it for us. Polarity is arbitrary and it is up to the interpreter to decide by the choice of color what that polarity should be.

Seismic terrain (SeisScape) displays, however, show seismic as a three-dimensional surface and as such, they contain all of the information that our v.p.s. needs. When we look at a SeisScape display we do not have to associate color and amplitude, our v.p.s does it automatically.

But it does not always do it correctly. Our v.p.s., it appears, is preprogrammed to interpret certain combinations of colors in certain ways. Most dramatic of these is our standard red-blue palette. When used in a SeisScape display the v.p.s tries very hard to see red as high and blue as low, even if they are not. This can lead to visual confusion as the v.p.s attempts to interpret the colors one way and the geometrical shape another.

In this talk I will examine various color combinations for consistency and propose several palettes that avoid visual confusion.