Attribute Generation
An Emerson E&P Software Geoscience Service

> The option to outsource the creation of the Coherence Cube volumes is one that I have often taken advantage of. Attention to quality, access to best-in-class algorithms and hardware, and quick turnaround of data resulted in a cost-effective way to obtain seismic attribute volumes without the need to purchase any extra software.
> John Lamberto (Exploration Manager – Transform Exploration)

How can we help you?

At Emerson we are committed to providing oil and gas companies with the highest quality of service, to help them gain deeper insight into the subsurface and maximize the value of their assets. As part of our services offering, we are happy to announce the availability of boutique seismic attribute generation services.

We will take your poststack seismic volumes, in SEG-Y or Epos™ survey format, and process them into a suite of attributes that will help maximize your understanding of the subsurface. We will then deliver them back to you in Epos format for easy loading into your Emerson E&P software suite, or in SEG-Y format.

Seismic attribute generation, as well as our other service offerings, can be of particular interest for companies that would like to see the value of our technology prior to purchasing it for themselves.

Emerson Attribute Generation Solutions

- Coherence Cube™: The original and still best patented algorithms for the delineation of stratigraphic and structural features

- Structural: Dip, Dip Azimuth, Discontinuity, Lightscape

- Curvature: A high-resolution approach to detecting and revealing high-resolution 'curvature' of reflectors in seismic volumes. A useful adjunct to Coherence Cube volumes.

- Complex Trace: Signal Envelope; Envelope Derivative; 2nd Derivative of Envelope; Instantaneous Phase; Cosine of Instantaneous Phase; Instantaneous Frequency; Instantaneous Acceleration; Weighted Mean Frequency; Thin Bed Indicator; Instantaneous Bandwidth; Amplitude-Weighted Instantaneous Phase; Amplitude-Weighted Instantaneous Frequency; Average Frequency

- Spectral Decomposition: Gabor-Morlet wavelet-filtered and 'frequency-cube' volumes

- Dip-Steered Enhancement: Structurally guided smoothing

Example of a typical project

For a project in Australia, the Emerson E&P Software Geoscience Data Services team delivered two Coherence Cubes generated on adjacent volumes totaling 4800 square kilometres of data. From receipt of data through parameter sensitivity testing to delivery of results, the project was turned around in less than a week.
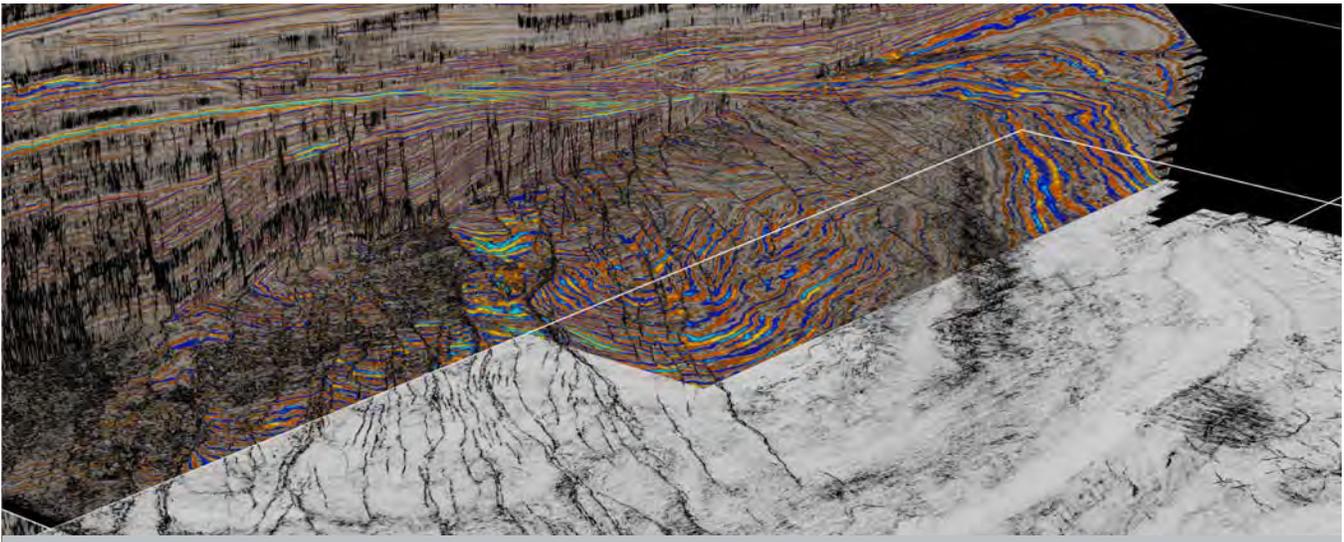
▲ Results of Coherence Cube processing on the two volumes mentioned above. In one survey, Coherence Cube is draped on the input seismic volume; in the other, only Coherence Cube is shown. Clear continuity of the structural trends is seen across the join between the two volumes, illustrating the robustness of the algorithm. The results of tectonic activity pulses separated by unconformities can be clearly seen in the input, and importantly, in the output Coherence Cubes, showing both 'hard' and 'soft' connectivity of fault structures between sequences.

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