

# Merging Surveys with Multidimensional Interpolation

Daniel Trad<sup>1</sup>, Matt Hall<sup>2</sup>, and Milka Cotra<sup>1</sup>

<sup>1</sup>CGGVeritas, Calgary, AB, Canada; [Daniel.Trad@cggveritas.com](mailto:Daniel.Trad@cggveritas.com)

<sup>2</sup>ConocoPhillips Canada Ltd, Calgary, AB, Canada

## Abstract/Excerpt

Surmont is a large bitumen field in the Athabasca accumulation. Of the nine 3D seismic surveys on the lease, eight were acquired in an orthogonal geometry with close to  $10 \times 10$  m bins. The presence of the ninth caused a problem when it was desired to perform a prestack merge of the surveys. Since we hope to use the merged data for quantitative interpretation, good continuity and faithful amplitudes were paramount. For this reason, we extended existing methodologies to complete a simultaneous interpolation in five dimensions: offset, azimuth, inline, crossline and frequency. The biggest challenges were posed by the low original: interpolated data ratio, and the constraints placed by the need for AVO-compliance on noise attenuation. The result was a fully resampled dataset, which could be seamlessly added to the prestack merge, giving the interpreters a valuable new perspective on the asset.