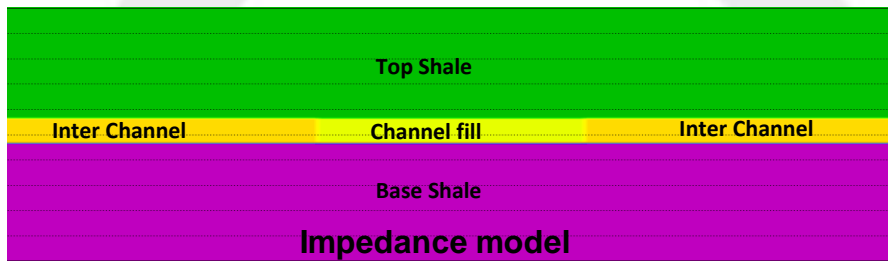


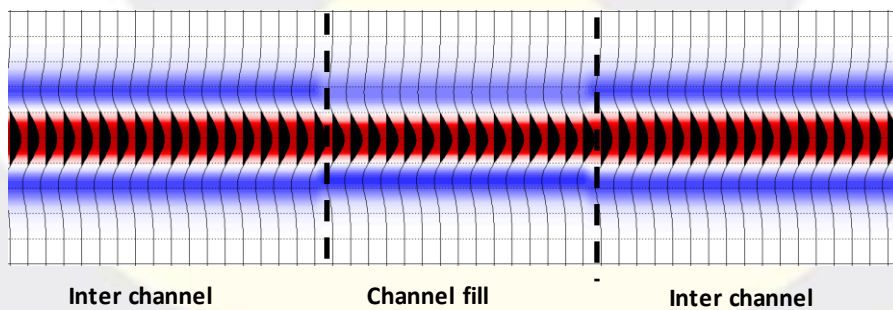
PhaseDecomp™

Thin bed reflections are often accompanied by phase anomalies. PhaseDecomp™ uses the fact that seismic data can be decomposed into unique phase components. By passing only desired phase components remarkable phase attributes that accentuate otherwise subtle amplitude and phase anomalies are produced. This creates new opportunities in thin layer interpretation and direct hydrocarbon detection, with the ability to make subtle effects highly visible. PhaseDecomp™ is another unique software module that is only available in Lumina Prospectra™.

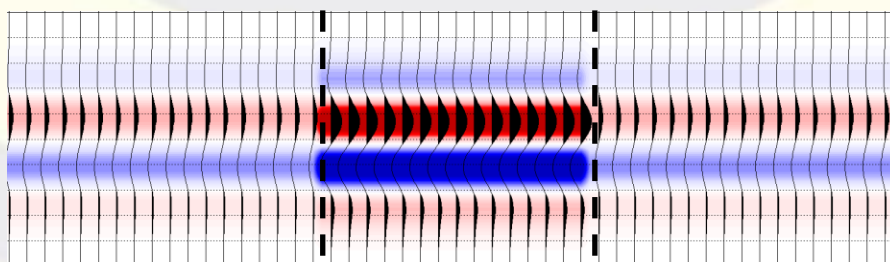
Phase filtering using PhaseDecomp™ shows a large amplitude anomaly in thin geologic layers



Original seismic data: subtle lateral amplitude variation

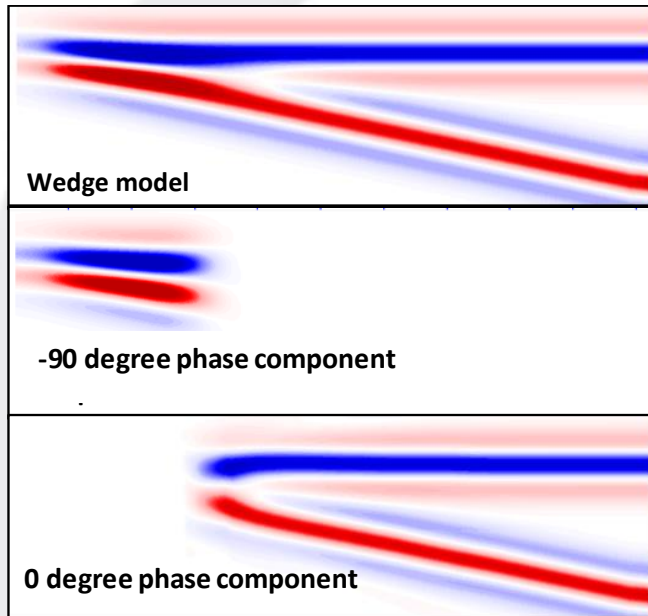


-90 degree phase component: strong amplitude anomaly in channel



Thin bed detection and DHI applications

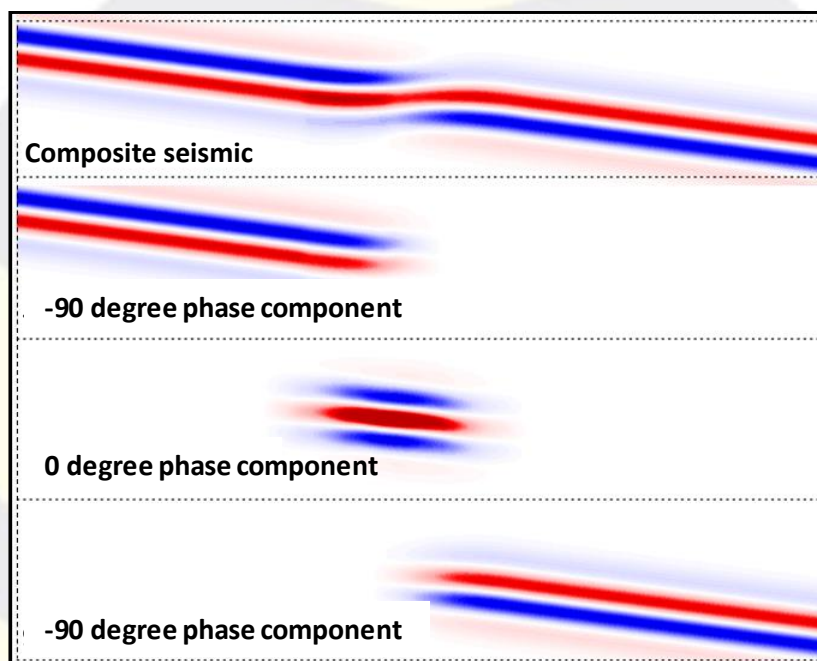
The thin layer and thick layer responses are readily separated using phase components derived from PhaseDecomp™



Useful Applications

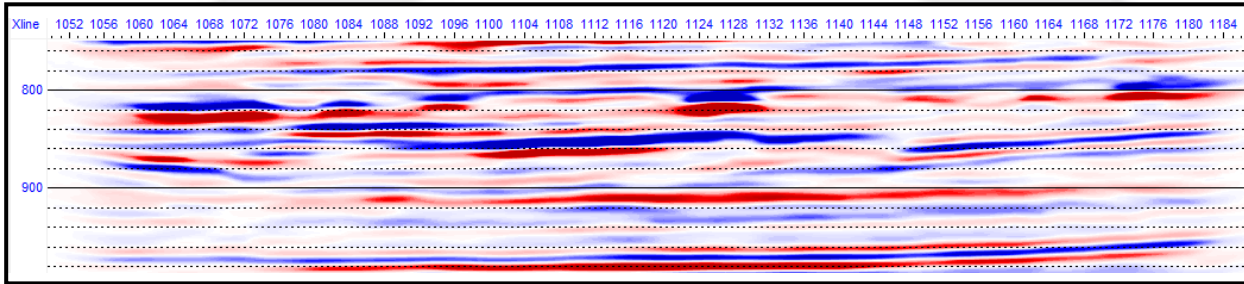
- ❖ Thin Layer Interpretation
- ❖ Imaging Channels
- ❖ Direct Hydrocarbon Indication
- ❖ Lithological Interpretation
- ❖ Reservoir Characterization
- ❖ Precise Structural Mapping

Phase decomposition is used to identify a water contact in a thin layer where the gas reservoir is low impedance (to the left) and the downdip brine-filled reservoir rock is high impedance

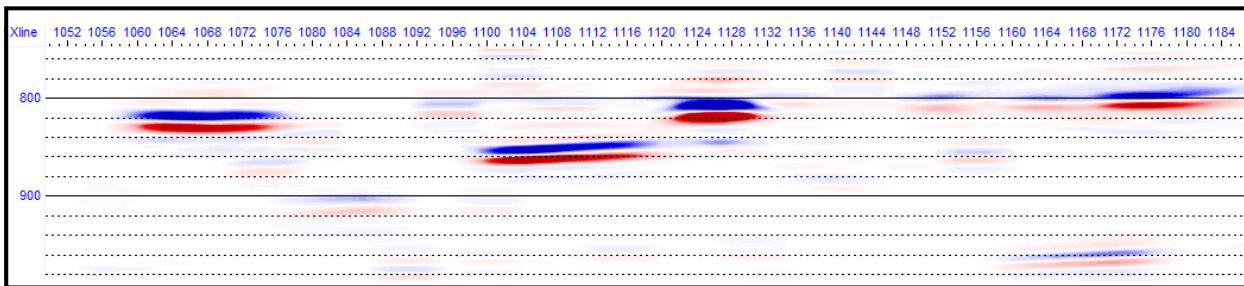


PhaseDecomp™ application to Teal South seismic data (GOM)

Phase decomposition minimizes lithological contributions to amplitude and enhances the hydrocarbon effect

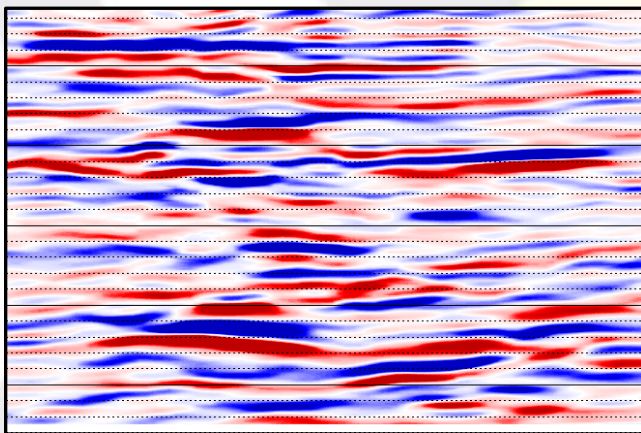


Original Seismic

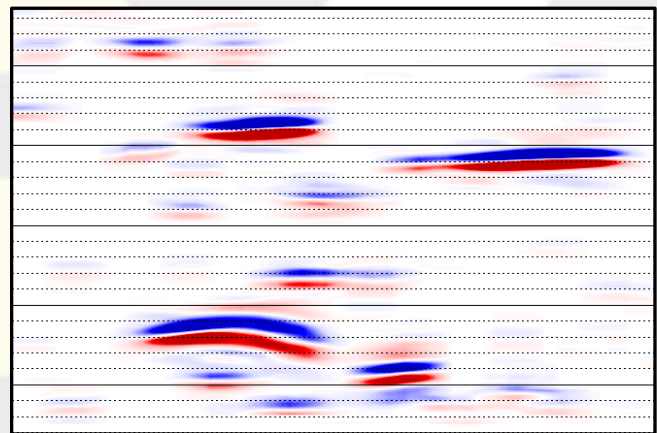


After phase decomposition

Phase filtered attribute data show highly anomalous bright spots more readily interpreted in terms of hydrocarbon content



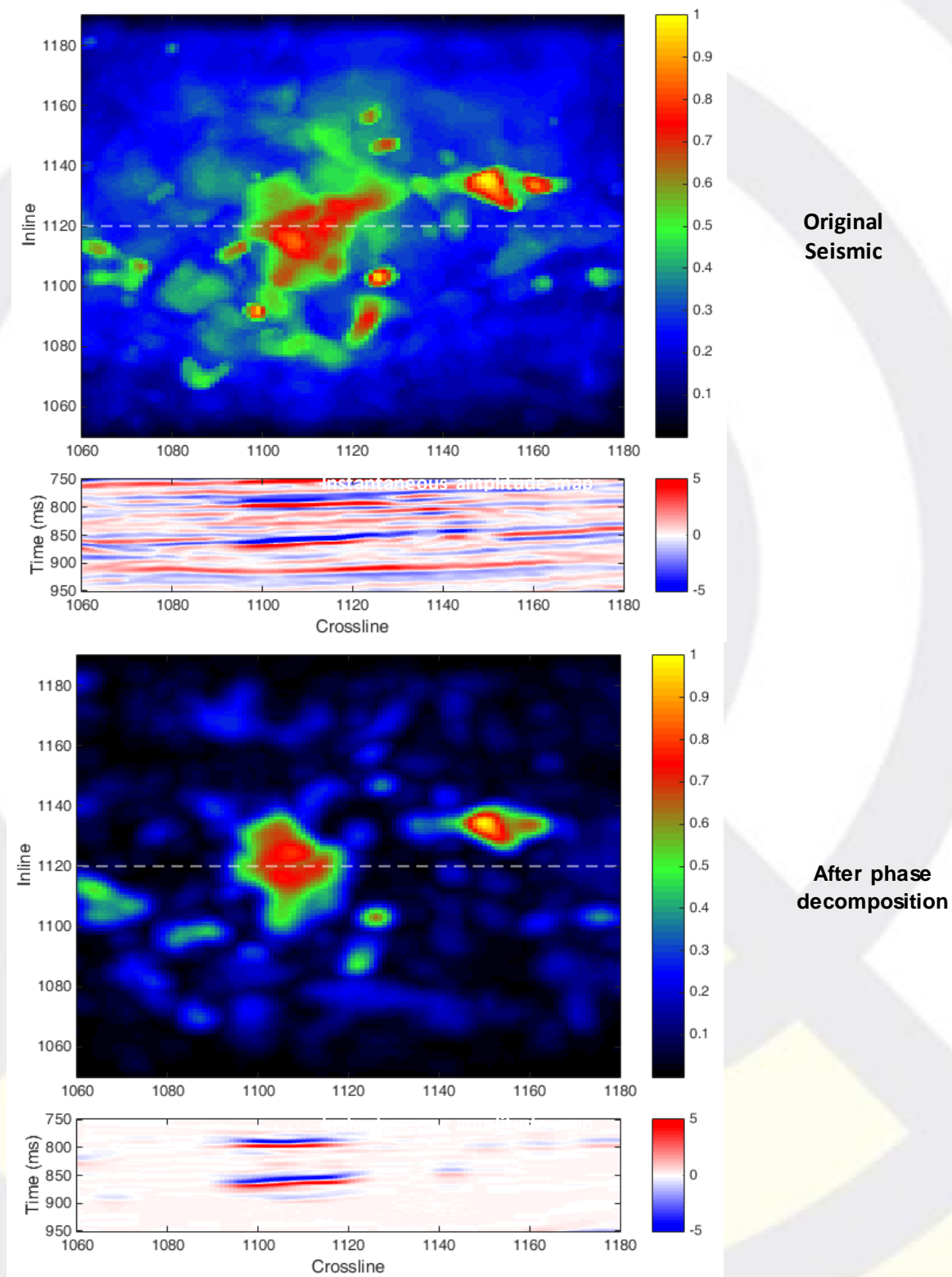
Original Seismic



After phase decomposition



PhaseDecomp™ application to Teal South seismic data (GOM)



References:

Islam, N.1 and Pennington, W.. Compaction-induced anisotropy and time-lapse AVO analysis. 2015. SEG. special section. "Interpretation" Vol. 3. No. 2.

