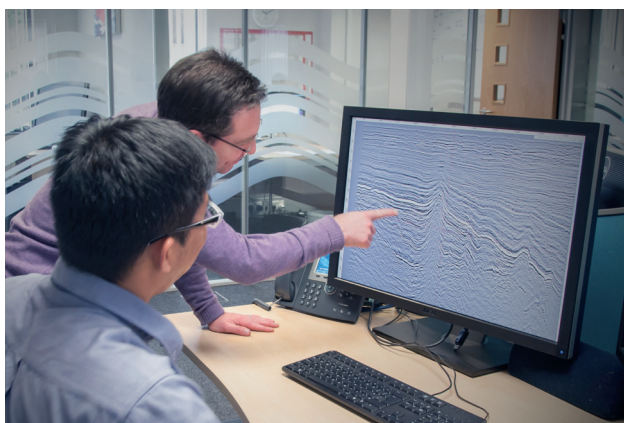


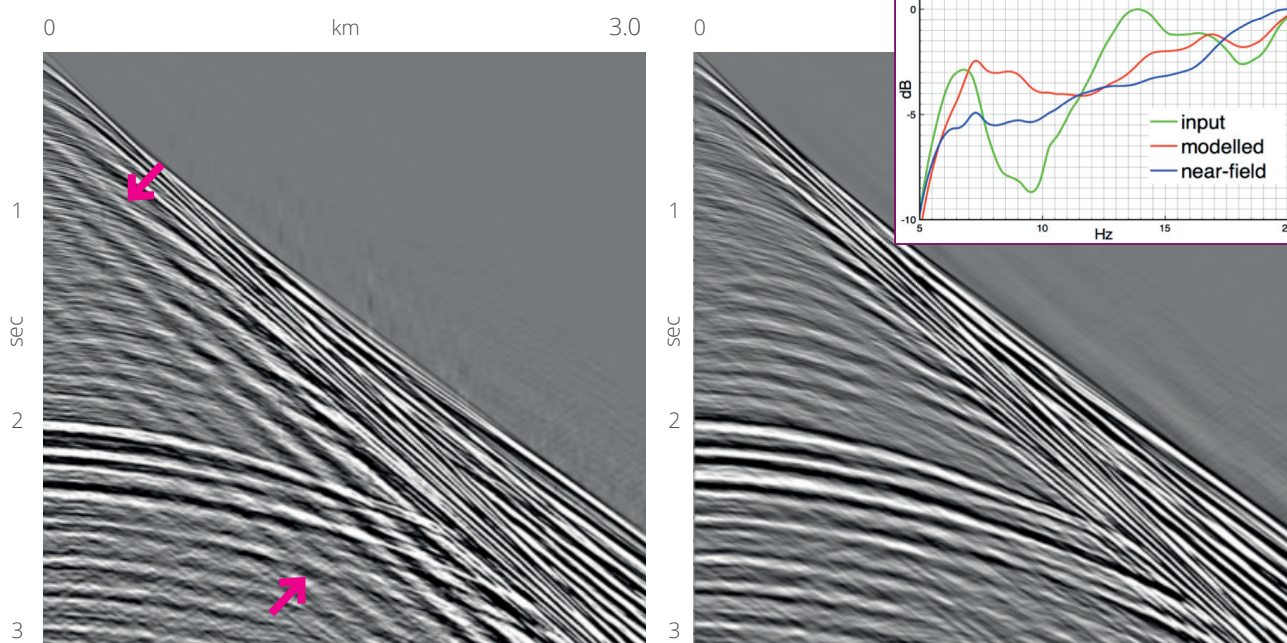
SHarpSig



The Shearwater **SHarpSig** technology provides enhanced bandwidth using the near field hydrophone data

- Far field estimation from near field hydrophone data
- Zero phasing, de-signature, de-ghosting and de-bubble
- Accurate low frequency amplitude and phase
- Directional de-signature
- Shot by shot de-signature
- Onboard shot by shot Real Time QC

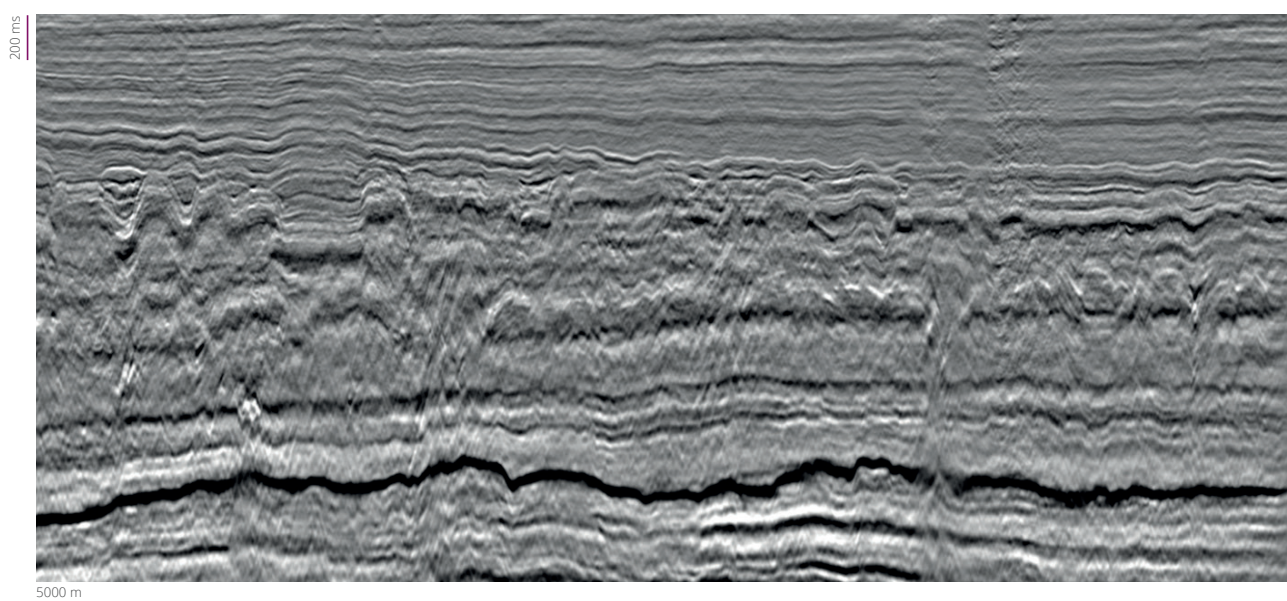
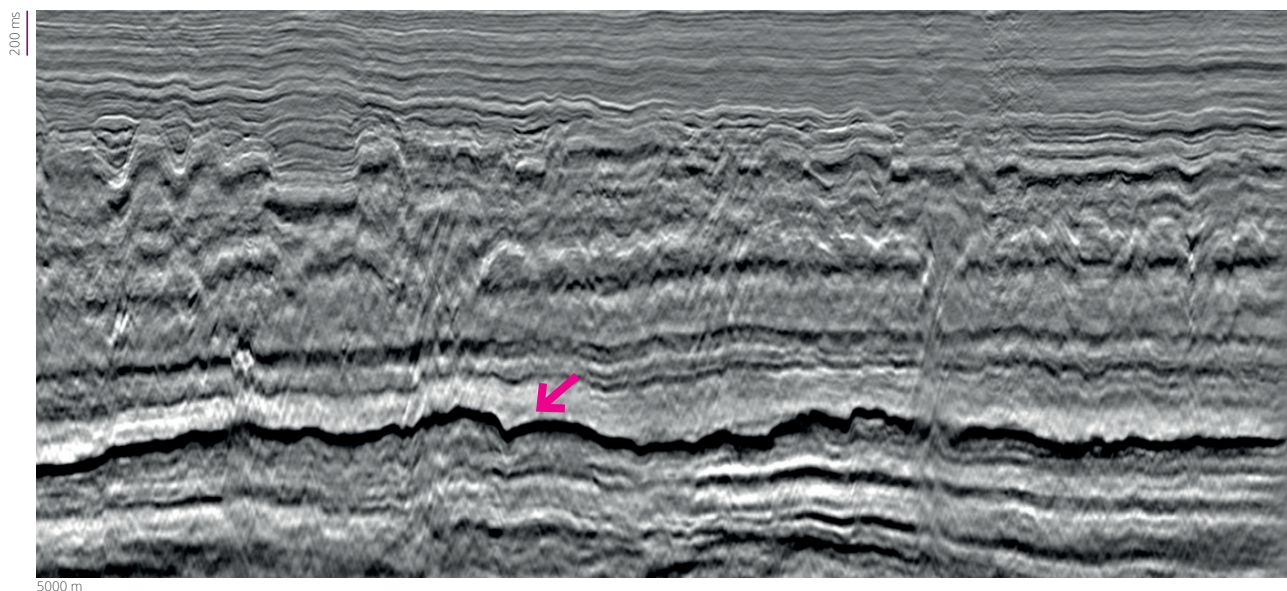
Effective use of **SHarpSig**



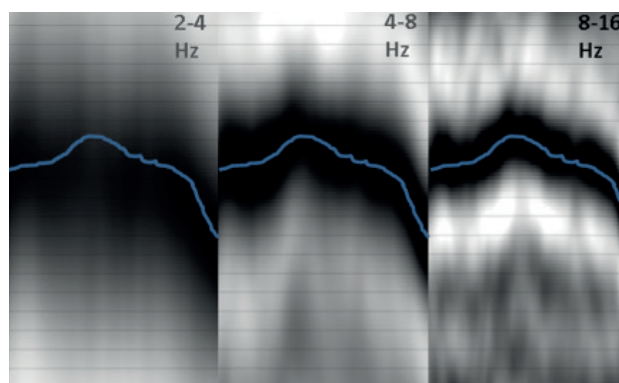
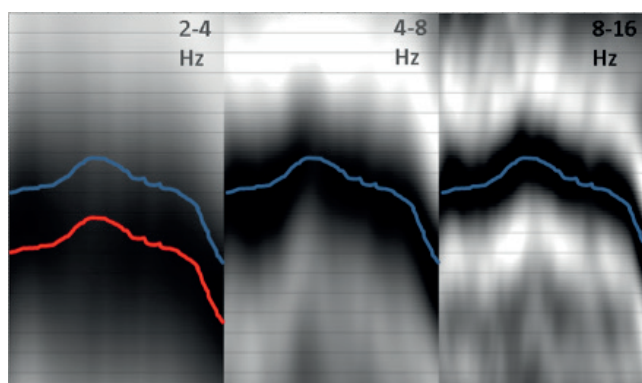
Shot record before (left) and after (right) de-signature using NFH-derived signatures showing strong attenuation of the events (highlighted by the arrows) which are bubble oscillations associated with the water-bottom and direct arrival.

The Shearwater vessels record **SHarpSig** on every survey. Our industry leading estimation of far field signatures from the near field hydrophone data includes the motion of the bubble. This provides improved low frequency amplitude and phase control which is vital for accurate broadband seismic results. All frequencies are in phase across all angles/offsets thus allowing a more accurate AVA/AVO response across up to 6 octaves.

Shot-to-shot source variations are explicitly corrected. Examples include gun drop-outs, air leaks or changes in the environment during the survey.



PSTM following de-signature using modelled 1-D signatures (top) & directional NFH-derived signatures (bottom). The **SHarpSig** result shows a sharper wavelet and absence of a preceding low-frequency halo above the top chalk event (arrow).



Top chalk event shown in octave bands after de-signature using modelled signatures (left) and NFH-derived signatures (right) showing improved alignment of phase across frequencies.

Further reading

Estimation of air-gun array signatures from near-gun measurements - least-squares inversion, bubble motion and error analysis (2015) Neil Hargreaves, Sergio Grion and Rob Telling, 85th Annual SEG Meeting Expanded Abstracts 149-153