



# Ocean Bottom Seismic

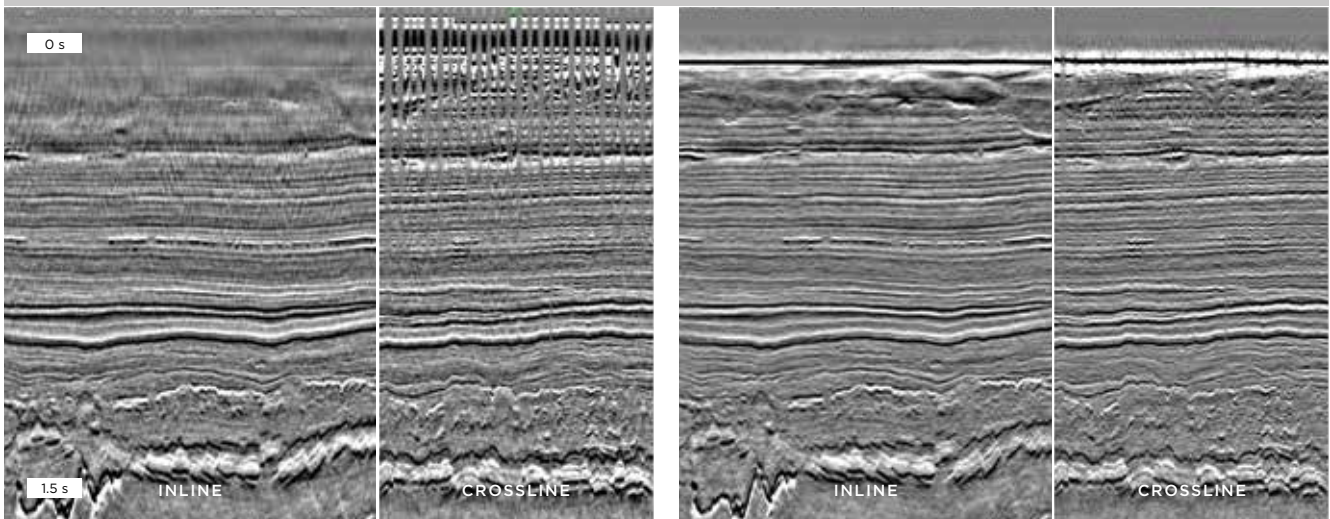
Ocean bottom seismic (OBS) surveys provide information-rich datasets that enable better geophysics and provide fresh insights about the subsurface. Our combination of industry-leading algorithms, massive HPC capacity and highly-experienced geophysicists deliver exceptional results, fast.

Highly efficient multi-vessel, multi-source OBS surveys are now a tried and tested reality thanks to DUG Deblend. Eliminate troublesome Vz noise with our patent-pending joint sparsity recovery approach. Harness the power of up/down deconvolution and, exclusively to DUG, down/down deconvolution to apply 3D deghosting, designation and demultiple in a single step to produce superior images with the down-going wavefield.

- > **Automated correction** – receiver location and orientation, vector fidelity, polarity, source shift, clock-drift
- > **DUG Deblend** – multi-component inversion-based deblending of shot records including seismic interference
- > **Vz denoise** – patent-pending approach employing joint sparsity recovery
- > **Regularisation** – multi-dimensional shot-carpet regularisation
- > **P-Z calibration** techniques

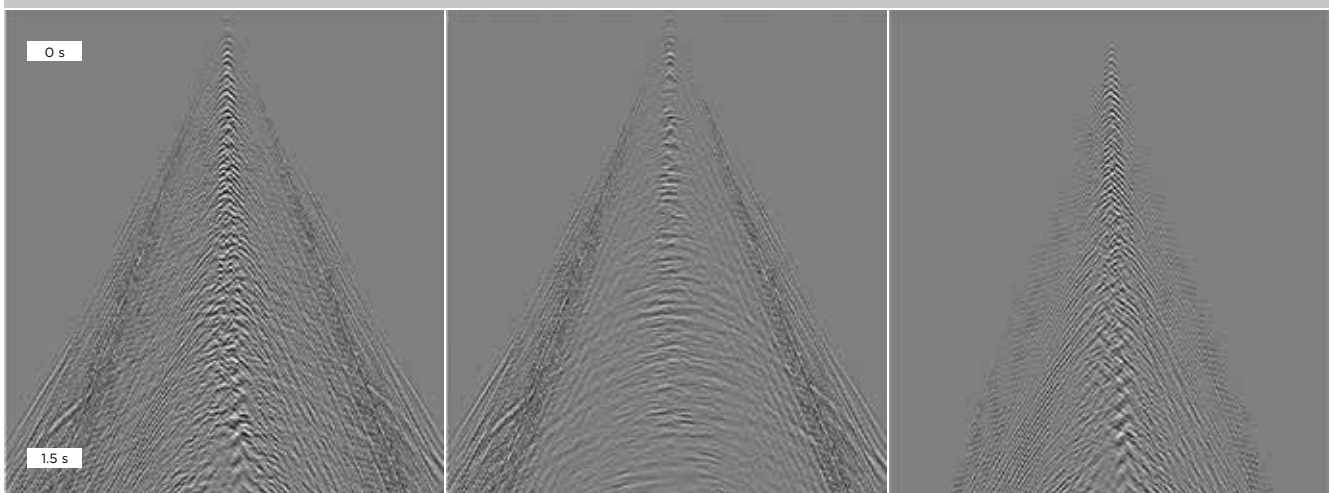
- > **Wavefield separation**
- > **Up/down deconvolution** – 3D designation, deghosting and multiple attenuation
- > **Down/down deconvolution** – 3D designation, deghosting and multiple attenuation applied to the down-going wavefield
- > **Rich-azimuth tools** including COV processing and tilted orthorhombic tomography and migration
- > **Mirror migration**

## UP/DOWN AND DOWN/DOWN DECONVOLUTION



**01.** Up/down deconvolution using the upgoing wavefield (left) compared to down/down deconvolution using the down-going wavefield (right). The down-going wavefield can significantly improve near-surface imaging when processed with DUG's exclusive down/down deconvolution algorithm. Images courtesy of AGS and TGS.

## VZ DENOISE - BEFORE, AFTER AND DIFFERENCE



**02.** Ocean bottom geophone data are often contaminated by shear-like noise ("Vz-noise"). DUG's (patent-pending) algorithm applies a distributed compressive sensing approach called joint sparsity recovery to P and Z data to perform up/down wavefield separation and isolation of the Vz-noise. Images courtesy of AGS and TGS.