

## **A New Technology for High Frequency Imaging using Seismic data comes to the North Sea**

### **Introduction**

Producing broader bandwidth seismic data has always been a quest since exploration seismic was started in the 1930's. Since this time numerous algorithms have been written and tested and some are very effective in extending the useable spectrum in a data set. Spiking deconvolution and spectral balance are just two of the common approaches used over the years to achieve higher frequency data. However, as oil and gas become increasingly difficult to find, it is necessary to image much more subtle events; thin sands, small faults, secondary carbonate porosity and pinchouts among them. In order to image these events, much higher fidelity seismic is required. It is no longer feasible to use data with frequencies only to a maximum of 50 Hz. In order to detect subtle structural changes, stratigraphic detail or to ensure that an expensive new well is (or is not) in the same reservoir as a nearby well, frequencies approaching 110 Hz or even higher are often needed. This needs to be achieved at depths heretofore thought impossible for this level of resolution.

Re-acquiring seismic with state-of-the-art systems is always one possible solution to getting higher frequency data, but it is an expensive option. If one can image high frequencies with existing data simply by reprocessing, then obviously that is the thing to do, saving both money and time in the process.

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