

## **Survey Design Considerations and Potential Solutions for Cost-Effective High Definition 4D Monitoring**

The design of 4D baseline and future monitor surveys is of critical importance to ensure that small changes in sub-surface parameters due to production effects can be detected. Ultimately, in 4D studies, we examine the difference between data-points, and care must be taken to ensure sources of noise that can mask subtle changes, or lead to interpretation uncertainty, are minimized as far as possible to ensure the objectives are met, and the interpretation is robust and accurate.

In this talk, I aim to outline factors that are important to consider when designing a 4D baseline and/or monitor survey as well as how combined acquisition and processing technology (e.g. high multisensor streamer counts, source and receiver steering, advanced processing and imaging methods) can be employed to ensure backward and forward compatibility with past and future surveys. In addition, I will discuss potential solutions and/or mitigation measures when in practice the baseline and monitor data-sets have data domain repeatability challenges e.g. due to differing acquisition geometry regardless of the reason (practicalities, budgetary constraints, opportunism, OBN to in-fill in exclusion zones etc.).