

A Decade of 4-D Seismic Monitoring in the North Sea

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In the mid 1990's 4-D (time lapse) seismic was being used as a research tool in the N Sea. It was rapidly developed when it was demonstrated to be able to identify the presence of swept zones, major pressure changes, intra-reservoir barriers and by inference infill drilling targets.

There have been a few significant surprises over the last decade: 1) the level of definition of fluid change, 2) the number of fields that are 4-D potential candidates and 3) the integration with field monitoring performance.

4-D was originally envisaged as being for identification of infill well targeting on a very small selection of particularly benign environments. In fact it has developed to become a routine field surveillance tool with many of BP's North Sea portfolio being re-acquired on a regular (2 year) basis. Some fields now have 3 or more repeat surveys.

This presentation will describe the level of reservoir integration, surveillance and 4-D impact by drawing on a range of examples. It will touch on some of the interpretation, integration and organisational issues which can provide valuable field management description or provide generate costly mistakes for the unwary.