OVERVIEW OF CURRENT SEISMIC TECHNIQUES IN THE OIL INDUSTRY

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In the last 10 years, great improvements have been made in the technologies of data acquisition and data processing and in the tools that are available to the seismic interpreter.

In (marine) data acquisition, these improvements have been largely a matter of scale: more receiver channels, finer time-sampling, dual or even triple streamers and sources and two-boat operations for 3D surveys. These new techniques are designed to reduce costs of especially 3D acquisition, but have little geophysical impact in the sense of improving data quality. However, complex acquisition requires very good quality control technology, especially on navigation data, and it is in this area that R & D has had the major impact.

In data processing and interpretation, a growing use is made of open systems; i.e. computer-systems with a non-proprietary operating system. Advanced RISC based systems now rival mainframes in performance at a

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fraction of the cost. Due to the open nature of both hardware and software, such computers offer great scope for expansion from third party (competitive) vendors.

Geophysical processing techniques have become more sophisticated as computer-technology allows more intensive operations. The focus today is on the correct positioning of reflectors (in depth and 3 dimensions) from impulse-response data that are measurements in time.

Interpretation systems are now based on standard hardware that does not differ very much from the data-processing system, and need no longer rely on expensive proprietary image-processors. Over the last 5 years the interpreter has become used to these systems, both for 2D and 3D surveys.

In this paper, examples will be given on these technology changes, and some predictions will be made on future trends.