Fault picking and seismostratigraphy: North Sea applications

C Cramez and J M Fonck (Total, Paris) and J Letouzet (Institut Francais du Petrole, Paris)

In extensional tectonic regimes the seismic picking of normal faults may be used as a tool in seismo-stratigraphic studies and reservoir prediction. In heterogeneous and anisotropic sedimentary sequences the normal faults are not planar due to differential compaction and the rheological behaviour of each layer.

The accommodation associated with these non-planar faults occurs mainly in the downthrown block at different scales (roll-overs, hanging-wall synclines) and they are a consequence of the geometry of the fault plane. The picking of the small-scale deformations (small roll-overs and drags) not only gives a better definition of the fault plane but also shows:

- The prediction of lithological changes within the upthrown block (sand reservoir, limestones, etc.).
- The correlation of the seismic sequences between faulted blocks.

This methodology has been used successfully in reservoir prediction by TOTAL CFP in different basins and is very useful in North Sea exploration problems.