

IHS ENERGY

North Sea Central Graben

Pressure Study Phase 2

DATA SET:

This study integrates data from over 1550 wells, covering:

- UK Quads 15, 16, 20, 21, 22, 23, 28, 29, 30, 31, 38 & 39
- Norwegian Quads 1, 2, 3, 6, 7, 15 & 16
- Danish Quads 5503, 5504, 5603 & 5604

Using maps and seismic to solve the seal breach challenge for HPHT prospectivity and updating the regional overpressure mapping linked to fluid flow in the Central North Sea.

IHS, GeoPressure Technology Ltd and PGS have collaborated to produce a study that incorporates 300 new wells and, for the first time, seismic data from the PGS MegaSurvey to create a powerful risking tool for future HPHT exploration. Hydraulic seal capacity has been assessed using both well and crestal data to create a risking strategy at Top Jurassic Reservoir, Base Cretaceous Unconformity (BCU) and Base Chalk horizons. These results have been subsequently coupled with interpretation of key surfaces from the MegaSurvey to create a set of risking maps tied to overpressure compartments of trap integrity, leak points and potential protected traps across the Central North Sea HPHT region. In addition all the maps created for the successful GPT/IHS Pressure Study completed in 2003 have been updated.

Regional mapping and understanding of overpressure gradients at Post-Palaeocene, Palaeocene, Cretaceous, and Jurassic stratigraphic levels establishes evidence for laterally drained reservoirs with potential influence on fluid flow and petroleum migration.

The study offers the following key elements:

- Overpressure distribution maps for the 7 main reservoir horizons
- Re-assessment of pressure data from Palaeocene reservoirs, correlated to depositional units
- Recognition of gradient overpressure linking hydrodynamic aquifers and examining intra-fan vertical connectivity issues
- Revised pressure compartment map for Jurassic and Triassic intervals, integrating structural interpretations using the PGS MegaSurvey seismic data
- Effective stress maps highlighting trap integrity risk and identifying leak points and potential protected traps
- Seismic attribute data to identify the location of vertical fluid flow and leakage above traps and faults
- Predictive algorithms for calculating lithostatic and fracture pressure gradients

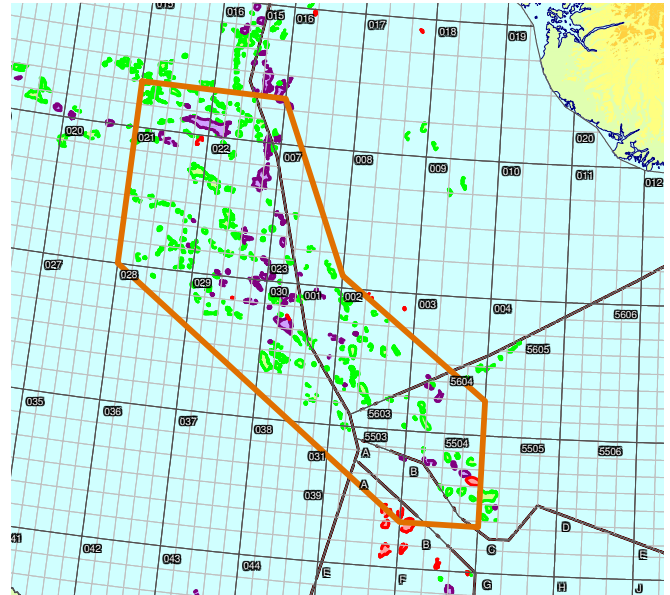
The study is based on contemporary theories of seal breach risk and utilises the highest quality data, making it both authoritative and comprehensive.

Companies will be able to:

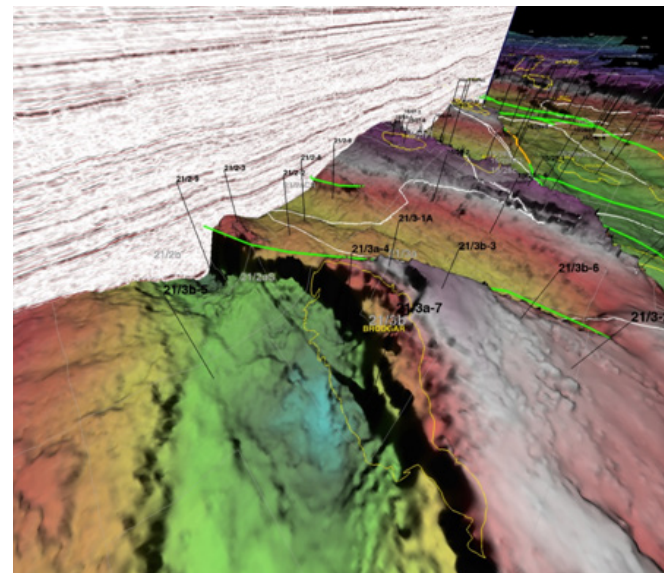
- Calibrate in-house pressure models
- Understand effectiveness of vertical and lateral seals in the Central North Sea,
- Understand and define drilling windows for HP/HT targets,
- Identify new exploration opportunities via identification of overpressure gradients affecting migration and fluid flow.

The Pressure Study of the Central Graben is available hard-bound in A4 format (with enclosures) and a CD containing GIS ArcView files of overpressure data is also included.

A presentation of the summary and conclusions will also be made available on CD.



North Sea Central Graben Phase 2 Study Area



Example of integrated well and seismic data to examine relationships between pressure cell boundaries, crest and well locations and seal-reservoir positions. Example shown from the northern part of the study area. PGS image.

GeoPressure Technology is an Ikon Science company

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