

Re-evaluation of the Volcanic, Sedimentological and Structural nature of the Scott/Telford Fields within the Central North Sea: A route to extended field life?

Fully Funded PhD Scholarship

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 CNOOC International Supervisors: Alan Armstrong, Dr. Mark Harrison, Angus MacLellan

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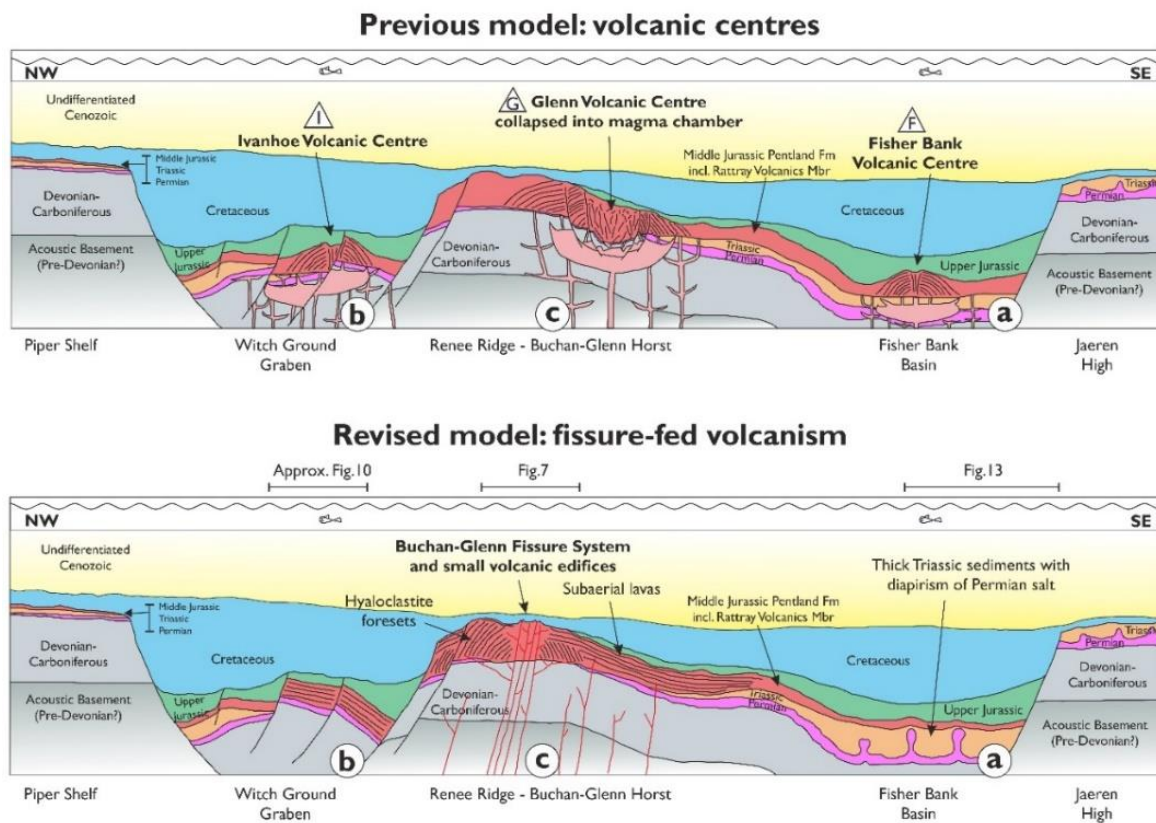


Figure 1 – A) Previous model of CNS triple junction vs. revised model from Quirie et al. 2018 B) Showing Quads of CNS that the Middle-Jurassic Rattray volcanics occupy.

Background

The North Sea has provided a highly important resource to the UK and its economy for over the last 50 years. With the basin in overall production decline, it is important to examine ways of prolonging and extending the life of this now mature basin.

The Scott/Telford fields had a combined production starting in 1993. Currently, given approximate production decline, the likely decommissioning timeframe of the fields is due to start in the mid-2020's.

Therefore, any mechanism which can act to impact and extend the field life of Scott/Telford is desirable.

Recent work at the University of Aberdeen has shown that our understanding of the North Sea triple junction region needs significant revision. A re-evaluation of seismic, well, core and biostratigraphic data from across the region indicates no significant intrusive activity or regional uplift during the Lower and Middle Jurassic. Importantly that the Callovian to Upper Jurassic transgression (which forms the Scott/Telford Reservoir) took place over a complex topography of basinal lows and fault block highs.

The aim of the project is to fully re-evaluate the stratigraphic and structural development of the western flank of the triple junction area specifically in relation to Scott/Telford. The PhD will include combination of seismic interpretation, well log analysis, core studies, biostratigraphy and production data to establish the distribution and composition of different stratigraphic packages and how they influence and relate to reservoir development of Scott/Telford.

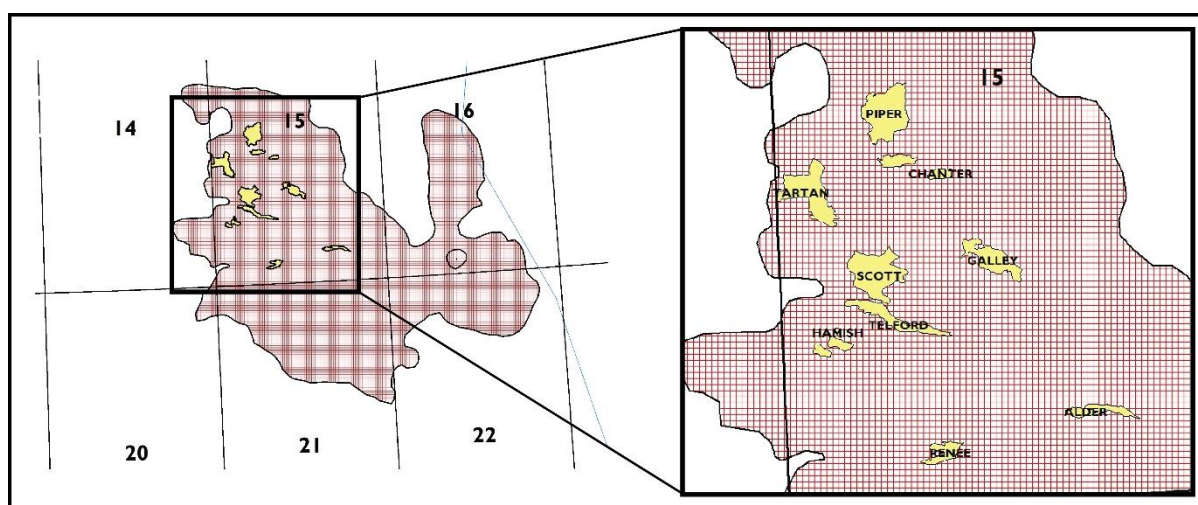


Figure 2 - Examples of major upper Jurassic fields which onlap onto the underlying Rattray surface. This surface was likely highly rugose, and the post-Rattray transgression will have taken place over a complex topography leading to potential for missed reservoirs and stratigraphic traps

Student Credentials

The project and student will be based at the University of Aberdeen, with regular visits and interaction with CNOOC International in Aberdeen to ensure effective knowledge transfer and input into commercial decisions. The project is open to UK or EU nationals.

The student will ideally possess an MSc in either Petroleum Geoscience or equivalent. Most importantly, the student should have strong geological interest and inquisitive mind. It is expected that the student should have a strong interest in seismic interpretation, well analysis, volcanology, sedimentology and/or basin analysis. These skillsets will be developed during the project and, therefore, pre-existing mastery is not a pre-requisite. Experience of Petrel is desirable but full training can be given.

Strong communication skills and a willingness to adapt is an essential part of the project.

Research and training context:

The PhD is a fully funded scholarship.

The Department of Geology and Petroleum Geology built up a substantial reputation at providing key geological insights into UKCS and Globally. The student will join a vibrant research group of students working on the UKCS and be based in the dedicated room of the Research Group.

Career Routes

By the end of the PhD, the student will possess a multi-disciplinary skillset enabling them to undertake a range of roles in industry, academia or governmental institutions.

Further Reading;

Quirie, AK, Schofield, N, Hartley, A, Hole, MJ, Archer, SG, Underhill, JR, Watson, D & Holford, SP 2019, 'The Rattray Volcanics: Middle Jurassic fissure volcanism in the UK Central North Sea' *Journal of the Geological Society* , vol. 176, pp. 462-481.