

## **The Value of Local Calibration of Column Heights in Prospect Evaluation**

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### **Abstract**

The fluid contact location is by far the parameter that impact the hydrocarbon volume estimates in prospects the most. Therefore, local calibration of predicted column heights in prospects with observed columns in discoveries is a critical success factor in exploration. However, such calibrations sometimes lack precision, as information on sealing elements and trap fill level controls not always is considered when compiling column height sizes.

A recent study adressed this challenge by investigating the following for a selection of drilled faulted traps in the Northern North Sea: 1) documentation of fluid contacts, apexes and spill points, (2) identification of sealing elements, and (3) investigations of trap fill level controls. Furthermore, these results were compared with similar analysis from some undrilled prospects in the area, and calibrations of predicted hydrocarbon columns in these was demonstrated.

We found that the majority of the discoveries appeared to be filled down to the levels where the reservoirs were juxtaposed towards either the same or different reservoir levels, or towards potential waste zones, across the boundary faults. Only one trap was filled to a structural non-faulted saddle spill, and there were no obvious reservoir- to reservoir juxtapositions observed up flank from this fluid contact. As a result, we claim that additional analogues that clearly are demonstrated to be filled down below critical juxtaposition levels are needed to argue for filling levels down towards structural saddle spill point levels in this area.

We conclude that detailed investigations of local analogues will narrow down the spread in pre-drill vs post-drill discovered hydrocarbon volumes, and that the confidence in the column height predictions can be significantly increased by following this workflow. We also see the potential for similar applications for evaluations and risking of carbon storage sites.