

# Adapting Current Knowledge on Fault Seal Analysis to Producing Fields

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Implementation of fault seal techniques in energy companies has been limited due to the lack of available clear, generic workflows and a requirement to use specialist toolkits. As a result of new available functionality in standard software and a web-based knowledge transfer solution, a recommended practice for fault seal analysis has been developed for use in field development and production in Statoil. The aim of this contribution is to present this practice to highlight challenges to further development of fault seal techniques.

To ensure more reliable fault seal models, and the same time to adapt current technology for implementation by asset personnel, the recommended practice is based on simple, empirically derived modelling techniques. The workflow requests site-specific geohistory and petrophysical data and involves calculation of an uncertainty range based on permeability, phyllosilicate distribution and dynamic data, and involves running multiple realizations. The workflow is presented in a simple manner- each step is interactively linked to detailed descriptions and to calibration guidelines. By using the functionality of our main geo-modelling software and an easy-to-use Statoil database, it is possible to implement the workflow rapidly in a higher proportion of projects.

While the predictive value of empirically based fault seal algorithms in many cases is limited, there are also major challenges in obtaining reliable and representative data, especially in the early phases of a field development. Another challenge is implementation of new technology, since complicated workflows, a requirement to use multiple different software packages and tight project deadlines can be obstacles to getting results. Consequently, compromises have to be made between advanced, time-consuming workflows and simplistic, easy-to-use procedures. We ultimately aim for further development of empirical, deterministic and stochastic approaches.