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### **Using Sub-Regional Scale Forward Models to Condition Reservoir-Scale Stochastic Scenarios**

Reservoir scale 3-D static models are constructed based on available well and seismic data, yet in many cases well data is sparse and seismic resolution is poor. This lack of well or seismic control in the area of interest may result in an unconstrained and unrealistic population of the 3-D volume. In order to honour more truthfully the geology, one approach may be to condition the reservoir scale model to a regional scale numerical forward model.

Advances in predictive numerical forward modelling have enabled construction of models constrained by available well data that reproduce and predict realistic geological architectures at a number of scales. We show how a sub-regional scale (37km long) forward model of the Grassy Member of the Blackhawk Formation (Utah), constructed in Dionisos, was used to condition a reservoir scale hybrid stochastic model. The forward model was clipped to extract a volume equivalent to an outcrop panel (c.800m long). The gross distribution of facies associations indicated in the forward model was used as a background in the stochastic model, into which shale objects were distributed.

We compare the resultant hybrid model with detailed 3-D models built and conditioned to closely spaced synthetic wells derived from the outcrop panels.