

**IPTC 12398**

## **SVS Fracture Solutions: Complex Fractured Reservoir Modelling**

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This paper was prepared for presentation at the International Petroleum Technology Conference held in Kuala Lumpur, Malaysia, 3–5 December 2008.

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### **Abstract**

The optimization of hydrocarbon production from complex naturally fractured reservoirs depends strongly on the accuracy of static models and on the upscaling processes applied to their properties to build dynamic simulation models. SVS Fracture Solutions is the Shell proprietary software that allows the co-visualisation and interrogation of static and dynamic fracture data sources, ranging from seismic to outcrop to wellbore/core scale. SVS Fracture Solutions applies geological and geomechanical principles to constrain the structural style and its control on natural fracture distributions in the subsurface. The rules acquired from the data and the structural/mechanical constraints are combined to forward model discrete fracture networks covering the range of uncertainties in the subsurface. New SVS functionalities are dedicated to in-depth structural analysis. One is presented which assesses the fault damage zone and its relationship to fracturing. Another functionality builds geomechanical constraints from various data sources such as well logs and seismic, to define mechanical units and their boundaries. This paper presents some applications of these new functionalities. The work is ultimately aimed at assigning dynamic properties to the discrete fracture network for dynamic simulation and the dynamic workflows are briefly described.