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Fault Architecture Visualization and Fault Property Mapping Utilising Existing Geo-Cellular Models

Rapidly mapping and visualising fault architecture and associated properties in producing fields and prospects is a key factor in optimising exploration and production strategies. In order to accurately define the three-dimensional relationships throughout a field or prospect the full structural and stratigraphic geometry must be utilised to map the fault properties. Two general approaches have been taken to address this problem. The first is for complete and very specific structural modelling and mapping visualisation environments to be built. The result is often software that requires a technical expert in both the software and the process to gain a good result. This approach is usually expensive both in terms of personnel time and software/hardware. The second approach, and the one we have taken, is to build a simple stand-alone tool that can operate on existing geological models built via more standard geo-cellular model building packages such as Petrel and Irap RMS. This route optimises the use of existing geological model data and minimises the time required for analysis. The tool automatically computes all the relevant fault properties with minimal input from the user, hence lowering the specific technical expertise required. The aim of the software is to minimise the extra effort required to map the fault properties in a field/prospect, while allowing high resolution data to be integrated into field flow models.