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Title **Integrated Fractured Reservoir Characterization: a Case Study in a North Africa Field**
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Abstract

In fractured reservoirs, data directly related to fractures are scarce and uni-dimensional (i.e. cores and image logs). Other types of data are better distributed and have proved to be related to fracturing but only indirectly (e.g. lithology or large scale structure).

In such reservoirs, however, one has to understand fracture distribution and behavior at the field scale. A methodology has been developed within TotalFinaElf to define the relationships of all sources of data to fracturing and to integrate them and compared to another independent published method. To that end, a systematic work flow which goes from 1D to 2D and from static to dynamic data has been defined and various technologies tested.

A field case in North Africa is taken to illustrate this methodology. In this field, fracture data from image logs have been related to: 1) production data; 2) 3D seismic attributes (coherency, amplitude, structural curvature) and fault interpretation and strain; 3) log data such as porosity, thickness and lithology index. The former type of data is used to understand the contribution of each fracture set to flow. The latter two types of data are used to better map fracture distribution at the field scale. Ultimately, this mapping is calibrated with the production data of the other wells where fracturing data are not available and is then used to validate the specific role of fracturing in this field.

A better reservoir simulation and infill well planning can be subsequently achieved.