

New Generation Geosteering Technologies – a Game Changer for Conventional and Unconventional Reservoirs

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ABSTRACT

Applying information technologies in the optimization of geosteering operations represents a valuable option to be considered in the current economic scenario, has forced oil and gas companies to cut costs. The geosteering process consists of the correct positioning of the trajectory of the horizontal well in the zone of greater productivity (geological target). Modern geosteering technologies have advanced significantly and now allow to operators “drive” a horizontal well in real-time while drilling, to ensure the best placement of the horizontal section in the oil or gas reservoir. Information technology, computing power and strong and easy-to-use software make a very powerful combination. They bring to the table the following advantages: 1) high resolution and high accuracy geological interpretation; 2) massive data integration; 3) collaborative multi-user environment; 4) real-time data streaming from the well rig; 5) high-speed computing on standard laptops. These five components make it possible for oil companies to do in-house geosteering of all their horizontal wells. The innovative result is the ability to receive data, analyze data immediately, integrate previously drilled wells, interpret stratigraphy and geology (horizons, faults starting with 2-3 meters) and make a collaborative decision to update the well trajectory, all in real time. This innovation is critical given the high drilling rates, the amount of available data and other current technical and economic challenges of today’s oil and gas industry.