Seismology information: impact on drilling and production activity. Casabe and satellite fields. Middle Magdalena River Basin (MMVB).

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Seismology information is used by Earth Sciences professionals dedicated to earthquake analysis and structural geology for Neo-tectonic application. Oil business normally, did not pay too much attention to this information because drilling activity never exceed 7.5 Km investigation. However, active basins or field located in foothills are vulnerable for earthquake and risk should be evaluated.

Casabe, Casabe South and Peñas Blancas fields are associated to strike-slip fault system, which is extended to Galán, Cardales, Gala and Llanito fields. All these fields are located between two large main active fault systems associated to Palestina-Bucaramanga strike-slip faulting.

Determine epicenters, measure mass rock acceleration caused by small earthquake is also valuable to be considered by drilling and production activity. Collected seismological information about the current earthquake activity associated to energy propagation indicated some orientation along the main active fault systems e.g Bucaramanga fault; however Casabe-Peñas Blancas trend is located in a very quiet zone where vertical stress related to overburden reflects the main stress direction, indicating an extensive regime, where normal faults are the principal structure associated.

Seismology data indicates historically that no movement is associated to the main strike-slip fault system called Casabe-Llanitos fault, and large population of the earthquake information shown seismic epicenters located between 70 – 200 Km depth, where energy can be dissipated before arrive in surface. However, small earthquakes can affect production, as recorded in April 2011, where a small shallow earthquake located 5 Km away from the field affected field production because pressure dissipation through the field.