Low frequency passive seismic: a new geoscience technology for the oil and gas industry

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A growing number of passive, low frequency seismic surveys at different oil and gas field locations throughout the world have indicated a relationship between certain micro-tremors and the presence of hydrocarbons. These narrow-band, low frequency (from ~1Hz to ~10Hz) micro-tremor signals offer new types of seismic attributes for the optimization of decisions for exploration and development phases of hydrocarbon exploitation. These micro tremors are being used by a growing number of oil and gas operators to reduce exploration risk in gas, oil, and heavy oil prospecting. In contrast to conventional 2-D and 3-D seismic technologies, these data may be acquired by entirely passive methods and thus do not require artificial seismic excitation sources such as explosives or mechanical vibrators.

This talk will cover how the data is acquired, including information about equipment, field operations, and survey design. Also discussed will be an overview of how the data is processed and analyzed, using examples of surveys conducted in various countries around the world.