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## Application of Microtremors to Identify Hydrocarbon Reservoirs

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### Abstract

A new tool to identify and delineate hydrocarbon-bearing geological structures by analyzing low frequency seismic signals has been developed by Spectras. It provides a direct hydrocarbon indicator for the optimization of borehole placement during exploration, appraisal and production. Hydrocarbon Microtremor Analysis (HyMAS) exploits the selective absorption and hydrocarbon induced amplification of low frequency seismic background noise. In contrast to conventional 2D and 3D seismic technologies, HyMAS is entirely passive and does not require artificial seismic excitation sources. Instead, the ever-present seismic background noise of the earth acts as the driving force for the generation of hydrocarbon indicating signals. The seismic background noise spectrum is modified in a different way when interacting with geological structures containing hydrocarbon filled pores compared with interaction with similar structures not containing hydrocarbons. Some methods of microtremor survey are defined in this paper. The present work discusses the history and methods of microtremor survey. A review of literatures and projects undertaken earlier in the same field will briefly be discussed.

