



Detection of the Long Period Long Duration (LPLD) Events in Time- and Frequency-Domain

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A b s t r a c t

Long Period Long Duration (LPLD) signals are unusual seismic events that can be observed during hydraulic fracturing. These events are very similar in appearance to tectonic tremors sequences, which were first observed in subduction zones. Their nature is not well known. LPLD might be related to the productivity of the reservoir. Different methods of the LPLD events' detection recorded during hydraulic fracturing are presented. The author applied two methods for LPLD detection – Butterworth filtering and Continuous Wavelet Transform (CWT). Additionally, a new approach to LPLD events detection – instantaneous seismic attributes – was used, common in a classical seismic interpretation but not in microseismic monitoring.

Key words: Long Period Long Duration (LPLD), microseismicity, microseismic monitoring, hydraulic fracturing, shale gas.