Contribution ID: **346** Type: **Poster (+) Presentation**

Mathematical Modeling of the Effect of Acoustic Waves on oil Recovery in Porous Media

Wednesday, 2 June 2021 16:00 (1 hour)

To this day, the petroleum industry is still searching for alternative ways to improve hydrocarbon recovery from the reservoir. The residual oil blotches may consist of about 30% - 40% or more of a volume fraction. The interest in applying Enhanced Oil Recovery (EOR) techniques on the additional amount of oil is because conventional methods cannot produce it. EOR is one option of the technologies required to increase reserves. EOR technologies such as chemical injection, gas injection, or thermal processes are not applicable for all reservoir conditions. Issues such as injectivity stability, oil composition, mineral precipitation, and reservoir depth serve as a first estimation of when a method should be implemented in a given reservoir. The increase in oil production due to seismic activity has been reported for more than 70 years and can be considered an effective EOR technique. In this research, we present a novel analytical framework that can forecast the oil recovery as a result of acoustic vibrations. The presented analytical model aids in improving understanding of various properties influencing oil recovery as a result of acoustic vibrations. Our analytical model is validated against series of experimental data under different boundary conditions. The proposed model may be further integrated into the reservoir simulation to improve their predictive capabilities.

Time Block Preference

Time Block B (14:00-17:00 CET)

References

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