

## عنوان مقاله:

A practical 4D seismic attribute to estimate saturation and pressure changes arising from reservoir production and injection

## محل انتشار:

دومین کنفرانس ملی ژئومکانیک نفت (سال: 1395)

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## خلاصه مقاله:

One of the main objectives of 4D seismic interpretations is to estimate the pressure and saturation change arising from reservoir production and injection. Estimation of these changes would assist to update the simulation and geomechanical models of oil and gas reservoirs. Different techniques have been recently proposed to estimate the pressure and saturation changes using 4D seismic data. Typically, these methods linearly decompose the effect of pressure and saturation changes. For calibration of the proposed equations, laboratory measurements, rock physics empirical relationships or reservoir scale simulation model and well production data have been employed. Although, they work reasonably well in their datasets, there is a need for extensive pre-setting steps to calibrate these equations that requires time and cost. In this paper, utilizing Rock Physics and Petrophysics principles, two independent attributes are developed to calculate the pressure and saturation changes, separately. Both equations are easy to apply, and requires not more than a few hours to produce those. In addition, they are easy to interpret. Although, these independent attributes were successfully implemented in one of the North Sea complex oil reservoir, both attributes are qualitative indication of pressure and saturation changes. Thus, this research is proposed to be .extended for making it more quantitative

## کلمات کلیدی:

4D seismic, Rock Physics, Pressure and saturation change inversion

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