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Seismic-Based Production Forecasting for Shale Plays

Alice Guest¹, Simon Voisey², and Gabino Castillo³

¹Magnitude, Calgary, AB, Canada,

²Apache Corporation, Houston, TX, USA,

³CGG, Houston, TX, USA

Abstract

It is known that production of wells in hydraulically stimulated unconventional resource plays varies on the large as well on the small scales. The exact reasons for such variability are not clear but are related to changing reservoir conditions and/or the completion of wells. The purpose of this study is to evaluate the key effects that affect well production based on the physical laws and variability of properties as oppose to the studies based on the correlations between the production and the individual properties. We use an analytical solution of the linear flow to determine well production while estimating spatial variations of some of the key parameters entering the equation from seismic and log attributes. This calculation is done on a spatial grid with a map of estimated productivity for a region as an output. In this study we focus on a case of a gas flow from Haynesville shale formation.