Fractional Derivative Approach for Pressure Transient data Analysis of Double Porosity Fractal Reservoir with Changing Wellbore Storage

Asha S. Mishra
Department of Mathematics, Valia Institute of Technology, Valia, Bharuch-393135, Gujarat, India, *akmishra_21@yahoo.com*

This paper presents the estimation of reservoir parameters and its characteristics through readily available dynamic pressure transient test data of oil and gas field by use of fractional derivative in fractal reservoir by fracture/matrix participation with changing wellbore storage effect in geological environment that are not possible by conventional techniques. The analysis of this type of data in reservoir engineering is known as "inverse problem" and one can obtain information about inter-well and vertical permeability distribution in reservoir. This is well known that the inverse problem has no unique solution unless the reservoir model is properly identified by means of diagnostics techniques of derivative analysis by Bourdet et al. in 1989. Fractal geometry plays vital role for heterogeneity characterization in form of dual porosity system given in. Pressure response is analyzed for flow in connected fracture network with matrix participation.