

Karakterisasi reservoir karbonat dengan inversi tipe pori menggunakan pemodelan differential effective medium (DEM) pada Lapangan "X" di Jawa Timur = Carbonate reservoir characterization with pore type inversion using differential effective medium (DEM) model at "X" Field in East Java

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Abstrak

Sistem pori pada reservoir karbonat sangat kompleks dibanding sistem pori pada batuan klastik. Terdapat tiga jenis klasifikasi tipe pori pada batuan karbonat, yaitu Interparticle, Stiff dan Crack. Kompleksitas tipe pori tersebut dapat menyebabkan perubahan kecepatan gelombang-P sebesar 40%, serta membuat pengkarakterisasian reservoir karbonat menjadi hal yang sulit ketika estimasi gelombang S dilakukan hanya dengan tipe pori dominan saja (interparticle). Oleh karena itu, pemodelan modulus elastis batuan dengan memperhitungkan kompleksitas tipe pori pada batuan karbonat menjadi hal yang penting. Differential Effective Medium (DEM) merupakan salah satu metoda pemodelan modulus elastis batuan yang memperhitungkan heterogenitas tipe pori pada batuan karbonat dengan melakukan penambahan inklusi tipe pori sedikit demi sedikit kedalam material induk (host material) hingga proporsi materi yang diinginkan tercapai. Selain modulus elastis yang telah memperhitungkan heterogenitas tipe pori, pada penelitian ini juga dihasilkan jenis pori sekunder, persentase dari tipe pori primer dan sekunder, serta estimasi kecepatan gelombang shear.

.....Pore system in the carbonate reservoirs are very complex than the pore system on clastic rocks . There are three types of classification of pore types in carbonate rocks , the interparticle , Stiff and Crack . The complexity of the pore types can cause changes in P-wave velocity by 40 % , as well as create a carbonate reservoir characterization becomes difficult when the S wave estimation is done only with the type of dominant pore (interparticle) . Therefore , modeling the elastic moduli of rock taking into account the complexity of type pores in carbonate rocks become essential. Differential Effective Medium (DEM) is a method of modeling the elastic moduli of rock that takes into account the heterogeneity of types of pores in carbonate rocks by adding a pore -type inclusions little by little into the parent material (host material) until the proportion of the material is reached. In addition to the elastic moduli which has taken into account the heterogeneity of pore type. This research also produced the type of secondary pores , percentage of primary and secondary pore types , and the estimation of shear wave velocity.