

Aplikasi metode stokastik dalam pemodelan litofasies lapangan "Z" sub cekungan Jambi = An application of stochastic methods for lithofacies modelling in "Z" field Jambi sub basin

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Abstrak

Suatu model persebaran litofasies sangat penting dalam proses karakterisasi reservoir. Dengan adanya model kita dapat memperhitungkan nilai keekonomian dari reservoir tersebut termasuk menyusun program pengembangan reservoir selanjutnya, serta dapat pula menjadi masukan sebagai model statik dalam proses simulasi reservoir. Dua metode geostatistik dalam memodelkan fasies telah dilakukan dalam penelitian ini yaitu, sequential indicator simulation dan truncated gaussian simulation. Kedua metode tersebut menggunakan analisa model variogram, namun truncated gaussian simulation memperhitungkan konsep model pengendapan litofasies sementara sequential indicator simulation tidak memperhitungkan konsep tersebut. Untuk memodelkan porositas zona reservoir digunakan metode sequential gaussian simulation. Atribut impedansi akustik digunakan sebagai konstrain dalam setiap pemodelan. Dari hasil penelitian disimpulkan bahwa apabila data sumur yang tersedia terbatas dan pemodelan dikonstrains oleh atribut impedansi akustik, metode truncated gaussian simulation lebih baik dalam memetakan persebaran litofasies dibandingkan dengan metode sequential indicator simulation.

A model of lithofacies distribution is very important in the process of reservoir characterization. By using this model, we can calculate the economic value of the reservoir. It also can be used as an input static model for reservoir simulation. Two methods of geostatistics stochastic in facies modeling have been done in this research, sequential indicator simulation and truncated gaussian simulation. Both of methods use the variogram model analysis, however truncated gaussian simulation consider the concept of depositional models of lithofacies while sequential indicator simulation not. Sequential gaussian simulation method has been used to model the reservoir porosity zone. Every modelling process use acoustic impedance attribute as lithofacies constrain. The study concluded that if the well data is sparse and acoustic impedance has been used as constrain, truncated gaussian method will produced a better model than sequential indicator method.