Studi perubahan ketebalan lapisan sebagai akibat pembebanan dan geohistori sumur q-1, sumatera tengah

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Abstrak

Method in calculating thickness changes of sedimentary layers caused by compaction (decompaction) has been developed to reconstruct geohistory of the basin accurately. Decompaction method which is used in this research proposed by Angevine et al (1987) and several input from other researchers such as Van Hinte (1978) and Perrier and Quiblier (1974) are also applied.

Thickness changes calculation of sedimentary layers caused by compaction (dccompaction) is based on the reduction of porosity with depth and assuming volume of grain to be constant. Parameters which are needed in this calculation include trend of porosity reduction, initial thickness, ages, depth and compaction factor of sedimentary layers.

Porosity reduction during burial is unique and different for lithology types with different depositional environment or facies. Grouping of layers based on depositional environment or facies is necessary to produce an accurate porosity trend of the layers.

Case study of Q-1 Well, which is drilled in Kampar Block, Central Surnatera Area produced seven groups with different depositional environment or facies. Each group has different porosity trend for each lithology type (shale and sandstone or limestone).

Geohistory analysis can be constructed accurately if thickness changes caused by compaction are known. This analysis is used to potray vertical movement of a stratigraphic horison as an indicator of subsidence and uplift history in the basin since the horison was deposited.