

Classification of Sedimentary Basins According to Their Structural Genesis, Evolutionary History and Calculated Hydrocarbon Maturation Zones: Study Area Pannonian Basin System

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We develop the concept that sedimentary basins can be classified according to their structural genesis and evolutionary history.

Basins can be classified according to the so called "basin building blocks" they contain. This building block approach helps us to understand the basin evolution and allow a comparison of basins. The basic unit is the basin cycle, which consists of the sediments deposited during one tectonic episode. Simple basins have only one sedimentary or tectonic cycle. Most basins, however, contain more than one tectonic/sedimentary cycle, and are called polyhistory basins. Basins, both simple and complex, may be classified by analyzing their geologic history in the context of plate tectonics. The major elements of this history are (1) basin-forming tectonics, (2) depositional cycles or sequences, and (3) basin-modifying tectonics.

The model presented here is designed to link common elements of petroleum systems and plays to natural stages in basin evolution. It shows that basins with similar subsidence history in the same tectonic region have experienced the same modifying tectonics and have similar trap types.

With the support of numerical modeling we can also make predictions on maturation of the hydrocarbons in the basin.

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