

Basin analysis. Principles and Methods (System Approach)

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The main purpose of the use of the system approach in basin analysis is to study sedimentary basins as integrated natural systems, to determine their structure and composition, genesis and stages of development, The integrated information allows to make a classification of basins, to estimate their oil and gas content and to work out the strategy of oil and gas prospecting and surveying works.

For classification: geotectonic location of the basin, history of geological development, age of sedimentary rocks, architecture of the basin, rate of sedimentation, climatic terms of sedimentation, lithological content of rocks, pressure and temperature in the bowels of basin. The classification made enables to make differentiated estimation of oil and gas content of the different types of sedimentary basins.

In the course of the system analysis of oil and gas sedimentary basins it is necessary to distinguish three consequent stages of researches. The first stage is based upon the results of system-structural and system-historical researches and is aimed to determine the structure of the sedimentary basin under examination and the history of its geological development. The second stage examines natural reservoirs, their collecting and screening features and is based upon the results of system-lithological and system-functional researches. The goal of the third closing stage of researches is the prediction of the oil and gas content of the sedimentary basins under examination.