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Nota di contenuto	Intro -- Contents -- Development of the Structure of a Unified Hydrobiological and Hydrochemical Database for the Information and Analytical System "Lake Onego and Its Cathment" -- References -- Analysis of Current Fields and Beryllium-7 Concentration in the Shore Area of the Southern Coast of Crimea in the Summer of 2016 According to the Modeling Results -- 1 Introduction -- 2 Parameters of the Numerical Model and Description of Experiments -- 3 Analysis of Current Fields, Reconstructed with Ultra-High Resolution -- 4 Comparison of the Results of Two Experiments (With a Resolution of ~500 m and ~1.6 km) -- 5 Conclusion -- References -- Digital Examination of Pore Space Characteristics and Structural Properties of a Gas Condensate Field Reservoir on the Basis of CT Images -- 1

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Sommario/riassunto

This book presents short papers of participants of the 9th International Scientific Conference-School for Young Scientists «Physical and Mathematical Modeling of Earth and Environment Processes. A special focus is given to the extraction of hydrocarbon resources, including from unconventional sources. An alternative to the use of hydrocarbons as a main source of energy on the Planet in the coming decades is unlikely to be found. At the same time, the resource base of hydrocarbons is quickly depleted, in particularly, large and accessible oil and gas fields. The shale oil and gas, Arctic hydrocarbon stocks, gas hydrates, coal bed methane, oil and gas from deep horizons can become new sources. "Deep oil" may be the most promising source of expanding the resource base of hydrocarbons according to many experts. New technologies are required to their development. Efficient low-cost technologies can be created on the basis of geomechanical approach, i.e., through the use of a huge elastic energy stored in the rock massif due to rock pressure. The creation of new breakthrough approaches to the development of hydrocarbon fields is very important in today's geopolitical conditions and requires the involvement of young minds and strength. International activities, including the youth scientific schools, can become an effective tool for exchange of information and the organizing of interdisciplinary research of processes in geo-environment. The book presents the new results of the experimental and theoretical modeling of deformation, fracture, and filtration processes in the rocks in connection to issues of creating scientific fundamentals for new hydrocarbon production technologies. The investigations of the dependence of well stability and permeability of rocks on the stress-strain state in conditions of deep horizons and high rock pressure are also represented.

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