Geomechanical Numerical Modeling of Well Wall in Drilling with Finite Difference Method

Authors : Marzieh Zarei

Abstract : Well instability is one of the most fundamental challenges faced by the oil and gas industry. Well wall stability analysis is a gap to be filled in the oil industry. The collection of static data such as well logging leads to the construction of a geomechanical numerical model, which will help in assessing the probable risks in future drilling. In this paper, geomechanical model was designed, and mechanical properties of the rock was determined at all points of the model. It was found the safe mud window was determined and the minimum and maximum mud pressures were determined in the ranges of 70-60 MPa and 110-100 MPa, respectively.
Keywords : geomechanics, numerical model, well stability, in-situ stress, underbalanced drilling
Conference Title : ICGPE 2020 : International Conference on Geosciences and Petroleum Engineering
Conference Location : Copenhagen, Denmark
Conference Dates : July 15-16, 2020