

APPLICATION OF GRID-CHARACTERISTIC METHOD TO SOME SEISMIC EXPLORATION PROBLEMS IN THE ARCTIC

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Abstract. The aim of this work is simulation of wave propagation in the Arctic with the presence of different ice structures, using high-performance computing. In the given report grid-characteristic method is applied, which provides correctly describing the contact and boundary conditions.

Key words: numerical modeling, Arctic, seismic prospecting, grid-characteristic method, ice ridges, ice field.

Introduction

The question of developing the Arctic in Russia is of current importance as there are eight hydrocarbon fields, and their supplies are estimated approximately 2,7 trillion m^3 . The considerable barrier on way of oil extraction in north seas is presence of different ice formations, particularly, ice ridges, icebergs. One of the main stages of planning geological survey works is mathematical modeling, that allows significantly bring down the cost of carrying out seismic exploration. In this very work numerical experiments on solving problems of seismic exploration in the conditions of the Arctic shelf were carried out. Then applied to calculate the fluxes in the finite volume discretization of the governing equations.

References

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