Researchers from St. Petersburg State University and Moscow State University have developed an algorithm for neural networks, accelerating the treatment of surface seismic waves. Development allows you to more accurately identify hazardous objects, such as paleorubers and exhaustion zones, in the upper part of the geological section.

In Russia, about 70% of explored hydrocarbons are in the Arctic and Far Eastern seas, but in industrial development only 5% due to difficult conditions. Seismic studies help detect potentially dangerous objects. Including these data must be taken into account during the construction of drilling platforms and bottom infrastructure.

The new algorithm based on the Multichannel Analysis of Surface Waves (MASW) technology significantly accelerates data processing and creates highly detailed three - dimensional models of transverse waves. Previously, this method was processed only by 8-10% of the data, but now the specialists of St. Petersburg State University have trained the EfficientNetB4 neural network to process the entire array of information.

“Such development can significantly increase the detail of the study of the upper part of the geological section and more precisely identify hazardous processes, such as paleovers and zones of rough -volume deposits. The neural network used correctly restores high-speed anomalies, and these data are easily confirmed by independent seismic observations, ”said Vyacheslav Polovkov, head of the project, director of the project, director of the advanced engineering school of St. Petersburg State University, Technologies and Business Processes for the Mineral Saw Complex.