

SibFU scientists optimized locating of oil and gas deposits

Scientists of Siberian Federal University have suggested a new method that allows improving efficiency of locating and exploring hydrocarbons deposits. RIA Science portal first published the information about the research.



According to experts, locating and exploring hydrocarbons nowadays face a number of obstacles, for example heterogeneous upper sections of oil-and-gas wells or low-yield deposits.

To counter this, scientists are actively developing comprehensive geophysical methods and technologies based on illuminating deposits with seismic radiation and detecting noise seismic emissions after an artificial disturbance.

"We have suggested a passive seismic-electric method that makes it possible to register the mutual-correlation function of seismic and electric noises," says **Danil Kudinov**, an assistant professor at the University's School of Military Engineering.

Scientists conducted experimental works using this method, and measured the mutual-correlation function at hydrocarbon deposits in Khakasia. A two-channel geophysical device, developed at the University, has made it possible to record seismic and electric noises in the range of 0.1–20 hertz band.

"In both cases, high-yield deposits, located 1,800-2,000 meters beneath the surface, were marked by maximum mutual-correlation function levels that exceeded natural levels by five to seven times. This indicates a seismic-electric effect taking place," **Kudinov** noted.

According to Kudinov, maximum mutual-correlation function levels are detected when seismic and electric noises coincide in both their time and phase. This is the reason why their simultaneous detection expands the range of signs used to identify hydrocarbon deposits.

This has brought hope that locating such deposits using direct search methods will become more effective, the researchers said. In order to implement the passive seismic-electric method still further conducting lots of fieldwork in various geological-geophysical conditions is a must.

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