

# IS THERE A DANGER OF STRONG EARTHQUAKE IN SHAMAKHI?

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Recently there are repeated threatening warnings about another forthcoming natural disaster like the one that occurred in Shamakhi (Azerbaijan) in February 13, 1902 with 8-9 intensities, But our studies in 1989-1991 years on the association between seismicity and oil production within the Absheron (Azerbaijan) – Cheleken (Turkmenistan) rift of the Caspian Sea we came to conclusion that there is a possible reason for this earthquake was most likely the development of oil fields in Absheron.

We first discovered the effects of negative interaction between the wells, between groups of wells, between the individual blocks of the oil field and even between fields. We have proved that incorrect development of the largest offshore oil field “Guneshli” especially after uncontrolled use of hydraulic fracturing technique, which led to unacceptable pressure differences in the medium, destruction of oil fields and, consequently, led to many fold increase in the number of weak earthquakes.

The obtained data emphasize once again the results of our previous experiments showed that any, even very weak impacts produced at great distances, such as hundreds of kilometers, can affect the behavior of the medium. These negative effects, which revealed by us twenty years ago, now obtained in various regions of the world as a consequence of the same uncontrolled development of oil fields by using mentioned method and damaging mediums to a large degree: Russia, USA, UK.

In the XIX century the major Shamakhi region earthquakes occurred on 09.08.1828,  $M = 5.7$ , on 11.06.1859,  $M = 5.9$ , on 28.01.1872,  $M = 5.7$ : there were no significant events for 160 years prior to these earthquakes. The first earthquake coincides with the starting of oil producing in Absheron and with the warfare on Caucasus, the second one – with the beginning of more intense oil production using derricks - about 20 thousand tons per year, and, finally, the third one - with the next jump in production using boreholes - hundreds and thousands tons of oil per year!

In the late XIX century the intensity of oil fields development has increased many times. These intensive works could not but affect the state of the medium and led to increased seismic activity in Absheron and in the surrounding area and caused the catastrophic earthquake in Shamakhi as a result. After which the Nobel brothers had installed the first seismological station in this part of the world in 1903.

During the entire subsequent period under the continuing impact of the oil fields development in Absheron the frequency of weak seismic events has increased many times in the Shamakhi region, but significantly decreased their magnitude, the trend which has remained up to this date.

This region, in which the release of the accumulated energy occurs practically always, is very sensitive to all variations of stress state of the medium in Absheron and the Caspian Sea which in turn, are in our view a kind of guarantee that we should not worry about the expectation of strong events in the Shamakhi region.