

## Monitoring Potential Temblor Localities as a Supplemental Risk Control System

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**Abstract :** Without question, the basic method of prevention of human and material losses is the provision for adequate strength of constructions. At the same time, seismic load has a stochastic character. So, at all times, there is little danger of earthquake forces exceeding the selected design load. This risk is very low, but the consequences of such events may be extremely serious. Very dangerous are also occasional mistakes in seismic zoning, soil conditions changing before temblors, and failure to take into account hazardous natural phenomena caused by earthquakes. Besides, it is known that temblors detrimentally affect the environmental situation in regions where they occur, resulting in panic and worsening various disease courses. It may lead to mistakes of personnel of hazardous production facilities like the production and distribution of gas and oil, which may provoke severe accidents. In addition, gas and oil pipelines often have long mileage and cross many perilous zones by contrast with buildings. This situation increases the risk of heavy accidents. In such cases, complex monitoring of potential earthquake localities would be relevant. Even though the number of successful real-time forecasts of earthquakes is not great, it is well in excess, such as may be under random guessing. Experimental performed time-lapse study and analysis consist of searching seismic, biological, meteorological, and light earthquake precursors, processing such data with the help of fuzzy sets, collecting weather information, utilizing a database of terrain, and computing risk of slope processes under the temblor in a given setting. Works were done in a real-time environment and broadly acceptable results took place. Observations from already in-place seismic recording systems are used. Furthermore, a look back study of precursors of known earthquakes is done. Situations before Ashkhabad, Tashkent, and Haicheng seismic events are analyzed. Fairish findings are obtained. Results of earthquake forecasts can be used for predicting dangerous natural phenomena caused by temblors such as avalanches and mudslides. They may also be utilized for prophylaxis of some diseases and their complications. Relevant software is worked out too. It should be emphasized that such control does not require serious financial expenses and can be performed by a small group of professionals. Thus, complex monitoring of potential earthquake localities, including short-term earthquake forecasts and analysis of possible hazardous consequences of temblors, may further the safety of pipeline facilities.

**Keywords :** risk, earthquake, monitoring, forecast, precursor

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