GEOPHYSICAL MONITORING OF TECHNOGENIC HAZARDS ON ANTHROPOGENIC SOILS

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Rock stability estimation tasks on anthropogenic soils require both preliminary survey and ongoing real-time monitoring providing alerts on possible cave-in threats. To resolve this task it is necessary to apply novel approach to stress-strained state of the rocks estimation. The work describes a unique method, based on Earth's natural pulsed electromagnetic field (ENPEMF) recording. Method's key feature is distinguishing time variations of ENPEMF signal against diurnal oscillations and technogenic signals. Spatial correlation between relative signal intensity and stress-strained state of the rocks is experimentally demonstrated, indicating that the method can be used for technogenic hazards monitoring on anthropogenic soils. Field testing of the method was carried out for two years on the cave-in occurrence near Solikamsk town. Authors make conclusions on the efficiency of the solutions applied for dangerous geodynamic processes monitoring on anthropogenic soils.

Key words: monitoring, Earth's natural pulsed electromagnetic field, ENPEMF, anthropogenic soils, geodynamics, cave-in.

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Received 28.03.2019