

A method of analysis of a geological structure and relative changes in stress in the layers located above the mining workings of an underground mine. Data from a mobile measurement data recorder (3) and from a central station of a mine seismic system (10) obtained as a result of closely correlated in time recording of low-frequency seismic noise ($D_{n.cz.}$) from the surface system and of seismic bursts generated by mining ($D_{w.cz.}$) are transmitted to a stationary processing center (1). Recorded measurement data in time windows of preferably 30-seconds, in the form of the 3-axis recordings of low-frequency seismic noise ($D_{n.cz.}$) and seismic bursts generated by mining ($D_{w.cz.}$), are processed using a method of seismic interferometry for the noise recordings, and passive velocity/attenuation tomography for the recordings of the mine bursts. On this basis, isolines of the transverse wave velocity of the longitudinal wave velocity/attenuation in the method of passive velocity/attenuation tomography are determined for the studied area (7). These isolines represent the average state of relative changes in stress (ΔNP) in the layers above the mining workings (B). For a mining burst (W), the location coordinates (X, Y, and Z) and the calculated time (T_o) of its occurrence are correlated with the times (T_p) of the first arrivals of the longitudinal.