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On the Feasibility of Employing a Territorial Anti-Seismic Early Warning and Protection System in Armenia

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As international experience shows, advances in modern science and technology in designing and introducing earthquake early warning systems (EEWS) in many countries significantly improved the effectiveness and feasibility of short-term early warnings of upcoming earthquake shakes and the use of territorial EEWSs. Despite the universal recognition of the EEWSs' efficacy in many countries and their encouraging experience, no territorial EEWS has yet been designed and implemented in the Republic of Armenia (RA), though we have painful statistics on the large human and material losses caused by previous devastating earthquakes, the country's high seismic activity, and risks, as well as the lowest seismic resistance of many objects.

The study of the EEWSs' international experience and the seismic situation in the RA shows that the design, development, and implementation of the country-wide integrated system of early warning of the population about upcoming earthquake shakes and preliminary anti-seismic protection of important objects is an important, realistic and feasible issue for the improvement of the RA seismic safety.

On the other side, the comparative analyses of the characteristics of the RA territory and the distribution of seismic sources and the network of seismic stations with the EEWSs' different working principles, algorithms, and architectures show that none of the on-site (local) or regional (network) early warning algorithms and EEWS architectures used can be applied in the proposed Armenian EEWS, due to which we started to develop a combined algorithm and architecture for the EEWS effective operation.

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