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Features of the Structure and Dynamics of the Aftershock Zone of the 1988 Spitak Earthquake

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S.N. Nazaretyan 1*, L. Mirzoyan 2

1 Territorial Survey for Seismic Protection of MIA Armenia,
8/1, Tsiternakaberd highway Yerevan, Republic of Armenia, 0082

2 Yerevan State University, 1 Alex Manoogian Str., Yerevan, Republic of Armenia, 0025

The 1988 Spitak earthquake (epicenter: $\varphi = 40,90$; $\lambda = 44,20$, $M = 7,0$, depth - 10 km, main shock duration - 35-45 sec) is one of the most multilaterally and detailly studied earthquakes in the world. Specialists from 42 countries have studied and are studying its various aspects. In the epicentral zone, networks of more than 30 seismic stations were created, which allowed us to determine the parameters of the aftershocks quite accurately. A comprehensive analysis of geological and seismological data allowed the authors to draw the following important conclusions: a) the aftershock zone of the 1988 Spitak earthquake has a complex structure due to the multiplate nature of the main event and the seismogenic formations (faults and seismogravitational structures) formed on the earth's surface; b) aftershock activity continues at present (01.01.2025). The process is divided into highly active (1988-1991) and weakly active (1992 - present) periods. The predominant part of the total aftershock energy (98%) was released during the active aftershock period (1988-1991), and in the passive period the total released aftershock energy is insignificant; c) In the passive period, relative activation is sometimes observed (for example, in 1996-2007), and in all segments, which is expressed by an increase in both the number of aftershocks and the released energy; d) against the general background of the attenuation of the number of aftershocks and their strength, no specific pattern of manifestation of strong ($M \leq 5.0$) aftershocks is observed. The well-known opinion is confirmed that the probability of manifestation of relatively strong aftershocks is greater immediately after the main event, within 30 minutes; e) from the point of view of the manifestation of aftershocks, the segment corresponding to the strongest and deepest shaking of the main event stands out.

Author: NAZARETYAN, Sergey

Presenter: NAZARETYAN, Sergey

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