



## **Statistical Analysis of Triggering Susceptibility of Northern Tien Shan**

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Susceptibility of seismic activity of the Northern Tien Shan region ( $41^{\circ}$ - $46^{\circ}$ N,  $74^{\circ}$ - $82^{\circ}$ E) to impacts of natural factors (strong long-range earthquakes, lunar-solar tides, and magnetic storms) and man-made factors (underground nuclear explosions (UNE) and high-power electromagnetic pulses provided by magnetohydrodynamic (MHD) generator) is analyzed. The earthquake catalog of the region under study within the analyzed period (1975-2000) includes 15577 events of  $M > 1.67$ . Within this time period 330 UNE and 109 firing runs of MHD generator, which are considered as the possible man-made triggering factors, have been performed within or adjacent to the analyzed region. Various statistical methods (cross-correlation, spectral analysis, and RTL-analysis) were employed. For the used statement of problem and applied initial data the statistically significant patterns of triggered seismicity of the Northern Tien-Shan due to impacts of UNE and MHD generators were not found. The similar result was obtained, when the size of analyzed area was constricted to  $41^{\circ}$ - $44^{\circ}$ N,  $74^{\circ}$ - $76^{\circ}$ E around emitting dipole connected to the pulsed MHD generator. Large common periods of seismicity variation for time series of distant strong earthquakes and local seismic events were selected. There is significant number of common periods (7, 9, 14, 28, 186, and 16384 days) for variation of z-component of the earth tide and release of seismic energy that may point to an influence of the earth tides on the regional seismicity.