# SOLAR FLARES, STRONG MAGNETIC STORMS AND VARIATIONS IN THE LEVEL OF SEISMIC NOISE IN THE NORTHERN TIEN SHAN

**Sycheva N.A.**

Schmidt Institute of Physics of the Earth of Russian Academy of Sciences, Moscow, Russia

e-mail: nelya@ifz.ru

Although the presence of the influence of solar activity on the seismicity of the Earth can be considered established, as evidenced by many works (Sobolev G.A., Feinberg E.V., Gulyelmi A.V., Tarasov N.T., etc.), it is of interest to search and analyze new examples in which the influence of geoeffective solar flares on seismicity is manifested (or not), and magnetic storms with a sharp start.

Studies of the influence of solar flares and magnetic storms on the parameters of seismic noise (on the example of the Northern Tien Shan) were carried out by the author earlier, the results are presented in (Sycheva et al., 2011).

The purpose of this work is to continue studies of the influence of solar flares and magnetic storms on the parameters of seismic noise (using the example of the Northern Tien Shan), with verification of the previously obtained results. The test is an example of an abnormal outbreak on September 6, 2017. The re-analysis has become especially relevant after recent publications (Tarasov, 2017, 2021, 2019) about the first response to outbreaks - the suppression of global seismicity, after which, with a delay, activation of regional seismicity may occur.

The paper considers strong magnetic storms caused by class X solar flares that occurred in the 23rd and 24th solar cycles and their relationship with seismicity. We use data on the time dependences of seismic noise parameters (mean level, standard deviation, RMS) recorded by stations of the KNET seismic network (Kyrgyz net) when monitoring the territory of the Bishkek geodynamic proving ground (BGPG, Northern Tien Shan).

The analysis of the seismic noise level in the period with the outbreak of 06.09.2017 confirmed the results of previous studies (2000-2006) on the influence of solar flares and magnetic storms on the seismicity characteristics of the Northern Tien Shan territory.

An increase in the level of seismic noise (RMS) can be considered a reaction to these exogenous factors. An increase in the RMS of seismic noise reveals a more stable correlation with a magnetic storm than with the solar flare preceding it.