

Analysis of Self-Organized Criticality in Seismological Models

Oleg Kharshiladze¹, Dimitri Amilakhvari¹ and Vasily Yu. Belashov²

¹Tbilisi State University, Georgia

²Kazan (Volga region) Federal University, Russia

Self-organized criticality (SOC) is an important discovery made in statistical physics and related fields at the end of the 20th century. The concept of SOC have been applied in different fields such as geophysics, cosmology, economics, sociology, biology etc. In this paper we investigate SOC in natural phenomena such as seismic processes. We have developed the computer and laboratory models, where we observed SOC by using the complex methods of nonlinear analysis. The results of laboratory experiments and computer simulation of block chains were processed with the help of Wavelets, Recurrence quantification analysis, Hurst R/S and fractal dimension analysis. The obtained results allow us to determine precursors of the SOC.

3rd Conf. of the Arabian Journal of Geoscience (CAJG), Nov. 2-5, 2020, Sousse, Tunisia

<https://www.performer2020.cajg.org/images/logo.png>

Preferred presentation type	15 min PowerPoint presentation
Submission track	Track 5. Exploration & Theoretical Geophysics, Seismic & Well Logging Methods, Mathematical Geosciences
Submission sub track	5.6: Theoretical and mathematical geophysics