

Natural time analysis for earthquake

Masashi Kamogawa[1]; Yuki Tomizawa[1]; Toshiyasu Nagao[2]; Seiya Uyeda[3]

[1] Dep. of Phys., Tokyo Gakugei Univ.; [2] Earthquake Prediction Res. Center, Tokai Univ.; [3] none

<http://www.u-gakugei.ac.jp/~kamogawa/>

Seismicity as a critical phenomenon has been actively discussed by many authors (e.g., Bak and Tang., 1989; Turcotte, 1997; Sornette, 2000; Rundle et al., 2003; Keilis-Borok and Soloviev, 2003). It has been shown that EQs reveal dynamic evolution characteristic to critical stage when their time series is analyzed in the framework of natural time, which was introduced by the Varotsos' group (e. g., Varotsos, 2005; Varotsos et al., 2002). The possible usefulness of natural time analysis in predicting catastrophic events has been demonstrated not only for the subjects of our immediate concern, but also for other critical phenomena, including sudden cardiac death (Varotsos et al., 2004; Varotsos et al., 2005).

Here we introduce our recent results in 2000 Izu swarm earthquake (Uyeda et al., J. Geophys. Res., 2009). We also show the case of large earthquake such 1995 Kobe earthquake. Furthermore, statistical properties of time-series of seismicity in natural time will be shown.