AOGS 2005

Benioff Strain Release Before Earthquakes in China: Accelerating or Not?

C. S. JIANG[1] and Z. L. WU[1,2]

[1]*Institute of Geophysics, China Earthquake Administration, Beijing 100081, China*
[2]*College of Earth Science, Graduate School of Chinese Academy of Sciences, Beijing 100039, China*

We systematically analyzed the Benioff strain release before the 65 earthquakes with M_S over 6.0 in China from 1978 to 2003 to investigate the generality of the widely discussed accelerating moment release (AMR) phenomenon before strong and intermediate-strength earthquakes. A strong or intermediate-strength earthquake is selected as a "target earthquake", and retrospective analysis of seismic activity before the "target earthquake" is performed. Simple searching area (three circular areas with different radius centered at the epicenter of the "target earthquake") and unified temporal range (8 years) are taken in the analysis. Justification of whether AMR exists is by both visual inspection and by power-law curve fitting. It is found that nearly half of the earthquakes under consideration exhibit clear pre-shock AMR property, and nearly 1/3 of the events seem to be sensitive to the searching area. AMR behavior shows apparent focal mechanism dependence: 12 out of 14 dip-slip earthquakes with stable moment release characteristics against the changing of searching areas exhibit AMR characteristics, while 12 out of 19 strike-slip earthquakes with stable moment release characteristics exhibit AMR behavior.

Keywords**:** accelerating moment release (AMR); earthquakes in China;critical-point-like model of earthquakes; intermediate-term earthquake prediction.