The feature of seismicity cycle from seismicity change

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There are seismicity cycles with repetitions of large earthquakes, and the durations are hundreds to tens of thousands of years. The period of observations for modern seismology is about a hundred years, and is only a small portion of one cycle. Therefore, it is difficult to recognize what portion of the earthquake cycle the current seismic activity corresponds to.

Itaba et al (2005) evaluated quantitatively the seismic activity of large earthquake occurrence zones (LEZ), and clarified the features of the seismicity cycle by the relation between the lapsed time from the last large earthquake, and the present seismic activity. According to this, aftershock activity is continuing over a very long time (it is equal to about one cycle; hundred to tens of thousands years) far rather than it is known until now.

In this research, we investigate the relation between the change of seismicity of LEZ with a short recurrence time (e.g., Park-field segment of San Andreas Fault System) and the presumed seismicity cycle. From these relations, we verify the validity of the presumed feature of seismicity cycle.