

# Forecasting rupture dimension of Taiwan large earthquakes

## by pattern informatics

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### Abstract

The Pattern Informatics (PI) technique has been applied in retrospective forecasting many large earthquakes in different regions (Rundle et al., 2003; Chen et al., 2005; Chen et al., 2006), and some plausible predictions are published. The promise of PI is that changes in the seismicity rate are a proxy for changes in the underlying stress. Tiampo et al. (2006) used this method to objectively quantify the rupture zones of some large earthquakes occurred in the California area. PI roughness are calculated for different research regions which are centered in a main shock, and the roughness values greater than 1 are modified to 1. If the PI roughness of a cell is greater than 1, the statistical meaning is that some events are certainly to occur in it in future. Then mean and variance of cells with roughness greater than 0 are calculated. The rupture length is considered to be the threshold of research region which mean is 1 and variance is 0, and this threshold length is compared to the rupture length of events calculated from experience equation of California. In their result, some aftershocks of Landers event are obviously involved in the prediction of rupture zone, and enlarge the rupture length got from PI. But many results of other large events from PI well conform to the results calculated by experience equation. We try to apply similar procedure to some large events in Taiwan though the seismogenic mechanism is quite different to California.

### References

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