Fault plane morphology : a key for earthquake prediction

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Although, probabilistic approaches are frequently used for earthquake prediction studies, the existing earthquake data are not sufficient to obtain a successful probabilistic model. Therefore, deterministic models like one suggested here become very important for the earthquake prediction studies. The idea used in development of the suggested model is based on the fact that earthquakes, especially those occurring along strike-slip faults, are essentially controlled by the asperities exist along the fault plane. Therefore, if locations, sizes and shapes of these asperities can be determined by producing a morphological map of the fault plane, it may be possible to predict a future earthquake with its location, time and magnitude. However, in order to produce such morphological maps of fault planes, a new technology which will enable earth scientists to penetrate down to 30-40 kilometers into the earth crust is needed to be developed.