

movie using Rangely Oil Field earthquake data illustrates such a run. A dynamic correlation of earthquakes with the static pressure field is established. We demonstrate that many episodes of seismic activity are not random in space or in time. There are several episodes of earthquake migration in time along the strike of the principal fault from deep to shallow locations. Other migrations seem to be reflected from the ends of the seismically active zone back along the original path. The technique is particularly applicable to real time monitoring of geophysical experiments related to earthquake generation, modification or prediction.

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RELATIONSHIP BETWEEN SEISMICITY  
AND GEOLOGIC STRUCTURE IN WESTERN JAPAN

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Most large on-shore shallow earthquakes in western Japan have been associated with faults having a previous history of Quaternary displacements. However, the number of such Quaternary faults is very great and their average length is short, so that identification of the most active and dangerous faults is more difficult than in areas such as California or New Zealand that are dominated by obvious master faults. Physiographic features of Quaternary faulting are far more abundant in western Japan than has usually been thought by geologists. Difficulty in recognition has been caused by heavy vegetation, a long history of agricultural modifications, recent volcanism, and numerous massive landslides. The most active-appearing faults trend either northwest or northeast, with predominantly strike-slip displacements of late Quaternary age reflecting east-west compression with remarkable uniformity. The overall pattern is a mosaic-like structure of individual crustal blocks; only the Median Tectonic Line and the Fossa Magna -- both rejuvenated features with earlier histories of vertical displacement -- have demonstrated lengths of active strike-slip faulting exceeding 100 km. Rates of displacement on individual faults, based on  $C_{14}$  ages of displaced terraces, are generally an order of magnitude less than that of the San Andreas fault, although the cumulative total may be greater. Some of the highest rates are on faults without large documented historic earthquakes, such as along the Median Tectonic Line in Shikoku. No creep has as yet been observed on major active faults.

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