

## Relationship between the fault length, the recurrence interval, and the thermal gradient in Japanese inland area.

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Information on the recurrence interval of an inland active fault is valuable for not only disaster prevention planning but also the scientific aspect. Recently, promoted by the Headquarters for Earthquake Research Promotion and other organizations in Japan, vigorous studies on inland active faults have been made. The results enable us to refer many kinds of information on the fault activity including the recurrence intervals of individual active faults. However, since it is difficult to infer an accurate history of the activity of a fault, the uncertainty of the recurrence interval is vary large in many cases. If we can use a certain physical parameter which represents the characteristics of the crust to estimate the average recurrence interval of a fault, the situation will be much improved. We here discuss the usefulness of fault length and geothermal gradient data for the estimation of the accurate recurrence interval. The fault length data are reevaluated by referring horizontal gradient distribution of gravity anomalies. In order to evaluate the utility of the geothermal data, we examine a relationship between the recurrence interval and the geothermal gradient in Japanese inland area. The spatial distribution of the geothermal gradient is estimated by low (longer than 100km)-pass-filtering of the gradient data observed in deep (deeper than 1000m) boreholes. As the results, it is suggested that the upper limit of the recurrence interval has a tendency to be short in the region where the geothermal gradient is high. Moreover, recurrence interval - fault length relations seems to be controlled by the thermal condition. Combination of these relations can be used for the precise estimation of the earthquake recurrence interval.