



## **Extension of the Aki-Utsu b-Value Estimator for Incomplete Catalogs**

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The Aki (1965) maximum likelihood estimate of the Gutenberg–Richter b-value is extended for use in the case of multiple catalogs with different levels of completeness. The most striking feature of this newly derived estimator is its simplicity—it is more manageable than the well-known and already easy to use Weichert (1980) solution to the analogs problem. In addition, confidence intervals for the newly derived estimator are provided.

### References:

- Aki, K. (1965). Maximum Likelihood estimate of b in the formula  $\log N=a-bM$  and its Confidence Limits. Bull. Earthquake Res Inst., Tokyo Univ. 43, 237-239.
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- Weichert, D.H. (1980). Estimation of the earthquake recurrence parameters for unequal observation periods for different magnitudes, Bull. Seism. Soc. Am. 70, 1337-1346.