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AUTHOR: ③ Liu, Cheng-jung (0491/2973/2837)

TITLE: ④ A graticule for macroseismic estimation for the focal depth of earthquakes

PERIODICAL: ⑤ Ti Ch'iu Wu Li Hsüeh Pai, v. 10, no. 2, 1961, 113-119

TEXT: The purpose of this article is to simplify the estimation of focal depth within permissible error range by means of a graticule. Various formulas have been employed by seismologists. The author recommends the following general formula applicable to all cases:

$$h = \Delta_i \sqrt{10^{(I_0 - I_i)/S} - 1} \quad (7)$$

where  $h$  = depth of the centrum,  $\Delta_i$  = isoseismic radius,  $I_i$  = intensity at the centrum  $S$  = a parameter, and  $I_0$  = epicentral intensity. In terms of common logarithm the formula will become

$$\log h = \log \Delta_i - \frac{1}{2} \log (10^{(I_0 - I_i)/S} - 1) \quad (8)$$

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A graticule for macroseismic ...

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Taking  $x = I_0 - I_i$ ,  $y = \frac{1}{2} \log (10^{(I_0 - I_i)/S} - 1)$ , and  $S$  as a variable parameter, the basic points are established with  $x = I_0 - I_i$  as an abscissa and  $y = \log \Delta_i$  as an ordinate. By means of graticules, the values of  $S$  and  $h$  for 19 earthquakes in China were estimated. The  $S$  values for eastern China are lower than those for western China. Based on data obtained from 61 earthquakes,  $S$  values increase with increasing focal depths. There are 4 figures and 1 table. English-language references are: Gutenberg, B. and Richter, C. F., Earthquake Magnitude, Intensity, Energy and Acceleration, Bull. Seism. Soc. Amer., v. 32, 1942; Blake A., On the Estimation of Focal Depth from macroseismic data, Bull. Seism. Soc. Amer. v. 31, 1941.

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