

The detection of weak seismo-electromagnetic fields and the location of the source regions from the asymmetry of the wave form

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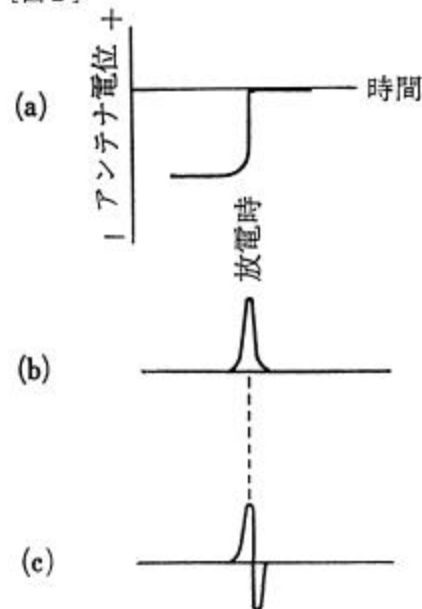
Before great earthquakes, anomalous electromagnetic pulses have been observed. Monitoring the electromagnetic fields is effective in predicting the imminent earthquakes, but usually these anomalous fields are too weak to detect by current methods. A simple method was invented to detect the weak fields and locate the source region, making use of asymmetry of the wave form. The pulse has the wave form which depends on the source distance. Where the distance is shorter than the several wave lengths, the form is asymmetrical. But the form of distant lightning or manmade noise is symmetrical. So, by accumulating the asymmetries, even the weak fields are detected. The degree of the asymmetry shows the distance, and the source region is located by observing at two sites or more.

[図1] 放電路に平行な電界の振幅 (位相項は省略)

$$[式1] \quad E_r = \frac{\mu_0 ds}{2\pi D} \left(\frac{c^2}{D^2} Q + \frac{cdQ}{D dt} + \frac{d^2Q}{dt^2} \right)$$

μ_0 : 透磁率 c : 光速 静電界 誘導電界 放射電界
 ds : 放電路長 Q : 放電量
 D : 放電路から観測点までの距離 (放電路に垂直)

[図2]



[図3]

距離 (λ)	代表的な波形
0.1 - 0.2	
0.7 - 1	
2	
5 - 7	

伝搬距離による受信波形の変化