茨城地方の地震発生のパターンの
定量化と予測（2）
―茨城県3か所の地震データの解析と予測―

Earthquake Prediction Methods in Ibaraki District (2)
―Data Analysis and Prediction of Earthquakes in Three Points, Ibaraki Prefecture―

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In an initial report, earthquake prediction methods were studied in the Tsukuba area and the possibility of earthquake prediction using the MT system was shown. Based on these results, further studies were carried out in three areas in Ibaraki prefecture (Tsukuba, Hitachinaka, and Juo) to test the possibility of earthquake prediction one hour in advance in each area. Specifically, S/N ratios expressed as items R_0 to R_{15} were obtained by periodic analysis of vibration velocity (μm/s) for six minutes calculated in 1/100-second steps, scaled by 2^n. Using these S/N ratio patterns, distances were calculated by the RT method in the MT-system from one hour before to four hours after the earthquake. Changes in these distances were then analyzed by the two-tailed T method, which made prediction one hour before the earthquake possible. The prediction error in each area, calculated using the data obtained in the three areas, was about 43％, or 2 to 3 levels on the Japanese seismic intensity scale. It was demonstrated that the prediction error differs depending on the data processing method and that all the items resulting from occurrence of each earthquake were separate.

Key words : earthquake, vibration wave form, earthquake of Tsukuba area, MT-system, RT method, two-tail T method, periodic analysis, S/N ratio, Forecast, distance, Taguchi methods

1. これまでの研究と今回の研究の目的

　筆者らは，第1報[1]において，つくば地区の1基の地震計の2008年4月25日から5月13日までの地震動データから，地震発生の1時間前の地面振動

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