

IGRS (International Geo-Hazards Research Society) Annual Conference 2014

**Tree Bio-electric Potential (TBP) Observation and Practical Earthquake (EQ) prediction experiment based on Multi-method at multi-point by engineers and civilians**

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**Abstract**

Plants are found to have instinct to catch precursor from huge earthquake as well as animals. It is known that animal's anomalous action before huge earthquake i.e. alignment to one direction of earthworm before Taiwan Chi-Chi EQ and rapid escape action of elephants at Sumatra EQ.

In the other hand, plants shows anomalous action sometimes, for example, Mimosa Pudica reacts when it is touched by hand, vent down before typhoon and anomalous action before EQ. Those anomalous actions were reported to plant physiologist Toriyama since middle of 1970 age.

Toriyama started to observe Tree Bio-electric Potential (TBP) since 1977 as tree is much easier than grass to measure TBP. The way of measuring TBP is put an electrode on the surface of tree and another electrode into ground, then measure electric potential between two electrodes.

28 EQs with magnitude of about 7.0 occurred between 1977 and 1989 around Japan, obvious anomaly was observed at 17 EQ of those. 5 patterns of anomalous potential were found in this period and more one pattern was found after then.

These anomalous actions may be caused by receiving electric magnetic (EM) signal through ground via root or ion through atmosphere at leaves or some other cause. As mechanism is not solved yet, possibility to predict the 3 elements of earthquake occurrence i.e. when, where and magnitude is very low, however, we can say that

possibility to know occurrence of huge earthquake soon is very high.

In order to predict EQ occurrence with high probability, it is important to combine data obtained from several methods. We are trying to observe EM signal at several frequency band with adjacent dual frequency from VLF to UHF, Aero ion concentration, Animal's anomalous action and Tidal level deviation as well.

Frequency band of EM signal from EQ focus is known to be emitted from DC to SHF. We wait at various frequencies at VLF, LF, MF, VHF and UHF at adjacent dual frequency, if a signal received at only one frequency, it may not be seismic, it may be some signal which has some meaning, if two signals received at both frequencies simultaneously, it may be seismic signal.

As it is known radon and ion is emitted before big EQ, we are observing aero ion concentration at 17 observation posts in Japan.

Daily action of fishes and snakes are observed numbers to across optical sensor, mouse action is observed by rotation motion, cat action is observed number of steps by walking counter on neck.

Tidal level deviation is measured at 187 points along cost line by Japan Meteorological Agency (JMA) and other public organization. It is able to know deviation in sigma by software processing.

It may be possible to judge huge EQ will occur soon, when anomalies are observed by some of those methods simultaneously. We will report anomaly data prior to great EQ observed by above mentioned 5 methods.