

## The earthquake trigger which I understood by electromagnetic wave observation

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I performed electromagnetic wave observation in broadband to catch an earthquake harbinger and studied an electromagnetic wave and pulsing electromagnetism and the fluctuation phenomenon in the V/UHF Zone, but, from direct wave observation of the FM broadcast, the abnormal data of the electromagnetic pulse understood that there was a constant regularity.

Therefore I discovered that the fluctuation direction of the electromagnetism pulse almost agreed with high and low tide of the ebb and flow by the observation graph of the FM electric wave when I investigated ebb and flow and an earthquake record similar to a rule and the relations of the electromagnetic wave pulse thoroughly.

Thus an earthquake of approximately 20% occurred in the vicinity of approximately 60%, a high tide in the vicinity of the ebb tide of the big tide when I inspected earthquake statistics and ebb and flow and the electromagnetism pulse of the observation place neighborhood, and the ebb and flow async part of the electromagnetism pulse understood what I concentrated on before and after an earthquake.

Therefore, it may be said that the ebb and flow is earthquake trigger because most electromagnetic phenomena show the deep connection with the earthquake, and it can be the circumstantial evidence.

When ebb and flow increases a huge gravity change in the earth crust, the mechanism that an electromagnetism pulse synchronizes with ebb and flow has concentration and dispersion of the pressure in the earth crust, and piezoelectricity and electromagnetism occur, and an electromagnetism pulse occurs by friction or whit destruction when it is in the vicinity of critical point.

When this electromagnetism pulse arrives to the surface of the earth; from the ground radiation is spread, and can receive it as a noise to last for broadband.

On the other hand, the electromagnetism generated by addition and subtraction pressure in the earth crust collects in the earth surface and forms the electromagnetic fields such as plus and minuses.

When an electromagnetic wave passes the earth surface of this electromagnetic field, with the electron beam design of the cathode-ray tube, I receive action such as winding or the refraction depending on the strength, and the strength of the electromagnetic wave shakes, and a steep changing design comes out to a record graph as a curve and a pulsing line in the plus and minus direction.

Therefore, I expect it that the direct wave observation of the electromagnetic wave is shaken by ebb and flow synchronization, and valuable data of crustal movement and the foretelling an earthquake are provided by the discovery of the phenomenon.

As a document, I show a fluctuation phenomenon and the ebb and flow of the FM broadcasting electric-wave and an earthquake and an electromagnetism pulse phenomenon.

Keywords: An earthquake, A harbinger, Trigger, A pulse, Ebb and flow



## Establishment of NPO Japan Earthquake Precursor Comprehensive Observation Center and Experiment of earthquake prediction

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NPO JEPCOC has been established on January 7 2015.

NPO JEPCOC is operated by hardware engineers who develop observation system, software engineers who develop data collection and display system and ordinary people who observe various phenomena.

Multi-method at multi-point observation is performed; first of all, we inspect correlation between actual occurred earthquake and observed anomaly.

We start from Tree Bio-electric Potential (TBP) observation and dual frequency observation at multi-frequency band and we try prediction of earthquake occurrence in the near future.

We plan to cooperate with other groups which are observing tidal level deviation, air ionization, and so on.

Frequency band of EM observation is VLF (3~30kHz, under development), LF (30~300kHz), MF (300~3MHz),

VHF (30MHz~300MHz) and UHF (300MHz~3GHz, under development)

TBP and dual frequency EM are being observed at 9 posts in Japan at this moment.

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, Animals 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, and it may be seismic signal.

As it is known radon and ion is emitted before big EQ, air ionization concentration is being observed 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.

Keywords: prediction, bio potential, EM, tidal, ion, radon

## Investigation of preseismic- ionospheric disturbance observed by the DEMETERs

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We investigate pre-seismic- ionospheric disturbance observed by the DEMETER. The data was ISL (Electron density and temperature) and IAP (Ion density and temperature). Since there are several papers concerning the pre-seismic ionospheric disturbance by using the data of electron/ion densities and temperature, we verify the reported pre-seismic anomalies by means of superposed epoch analysis.

Keywords: Earthquake, Ionosphere, DEMETER

## Construction of multi-parameter EM stations in Kochi under the national program and its scientific background

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IUGG inter-association working group on Electromagnetic Studies of Earthquakes and Volcanoes organized biennial general assembly in Konstancin Jeziorna, Poland in September 2014. During the meeting one of the major conclusion was that the combination of multi-parameter survey is only the way to achieve a practical earthquake forecast. However, we dare to say, the most important point is that each parameter must be clarified scientific substantial clue. Otherwise, the forecast itself has no meaning.

We installed electromagnetic observation devices in ULF and VHF bands in February 2015 in Kuroshio town, western part of Kochi Prefecture under the, what we call, national earthquake prediction research project. We will install VLF device in the future.

The reason why we select Kuroshio town is as follows:

1)According to the official statement of Cabinet Office, the highest tsunami height is reported (the worsted case; 34m) impending mega-quake along the Nankai trough.

2)Last Nankai Earthquake in 1946, clear macroscopic anomalies such as underground water changes, crustal deformations were reported.

In the presentation, we would like to present the latest data and future plan for the tactics of the short-term earthquake prediction research.

Keywords: Electromagnetics, Kochi, Kuroshio town, Earthquake prediction