

## Characteristic precursors of earthquakes around Metropolitan area in Japan

# Shinichi Uda[1]; Mika Maeda[2]

[1] Network the Earth; [2] none

1. The appearance of ripple structure of cloud short term before earthquakes is already presented at the 2004 fall meeting of seismological society of Japan.

2. The magnitude, precursor time and epicenter are determined as follows.

a.  $M = \log kA$

Where M: magnitude, A: area in km<sup>2</sup>, k: coefficient in proportion to area (i.e., 10000km<sup>2</sup>; 1, 500000km<sup>2</sup>; 2, 3400000km<sup>2</sup>; 3, 25000000km<sup>2</sup>; 4)

b.  $T = 6.9M - 28.4$

Where T; days from the first appearance of ripple structure of cloud

M: magnitude

c. The epicenter is not easy to determine in case of large earthquakes.

Though, epicenters of trench type earthquakes have a tendency to situate at east end of ripple structure of cloud.

3. How is the ripple structure of cloud generated? Because ripple structures are recognized in atmosphere by smoke of forest fire when cloud is not distributed, they are generated by atmospheric gravity wave.

4. Before the occurrence of earthquakes around Metropolitan area such as NW of Chiba prefecture, SW of Ibaraki prefecture, E off Ibaraki prefecture, characteristic cloud which contains ripple structure appears spreading to eastward, ENE-ward or SE-ward.