

Development of the atmospheric ion concentration measuring system for earthquake prediction

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It has been indicated before that the atmospheric ions are effective in the short-term earthquake prediction (Tributsch, 1978). In addition, sudden changes of atmospheric ion concentration had been confirmed before Kobe Earthquake (M7.3) in 1995 (Satsutani, 1996).

At the seismo-environmental laboratory of Okayama University of Science, aiming at earthquake prediction, continuous measurement of atmospheric ion concentration has been carried on since 1998. The positive large ion concentration in the atmosphere increased before western Tottori Earthquake (M7.3) in 2000 and Geiyo Earthquake (M6.7) in 2001 (Wadatsumi et al., 2003).

However, there is a limit in investigating the relation between atmospheric ion concentration and earthquakes in single point measurement of only Okayama University of Science. Therefore, measurement at multipoint is indispensable. For that purpose, many atmospheric ion concentration measuring instruments are needed. However, since the measuring instrument used conventionally is expensive and large-sized, it does not fit multipoint measurement. We developed the cheap and small measuring instrument which aimed at multi-point measurement. Moreover, we developed the software for realizing automatic measurement using a personal computer. Furthermore, we performed examination of the management technique of the measuring instrument installed in the remote places, and examination of the data transmission technique.

From May 2004, the measuring instrument developed by this research has been installed in six points. Now, the multi-point measurement network is under construction.

In this presentation, we explain construction of the recording system of measurement data, the measure against a noise, and the latest measurement data.