



A study of VAN method in Kozu-shima Island, Japan

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We investigate the pre-seismic telluric current anomalies in Kozu-shima, Island, Japan. To predict earthquake, pre-seismic telluric current anomalies have been studied for a long time. However, to the author's knowledge, it is only the group of P. Varotsos in Greece who has been successfully predicting earthquakes for more than a couple of decades. However, the reproducibility of their method, called the VAN method, has so far been barely verified elsewhere. In Japan, VAN-like telluric current measurements were intensively conducted after the devastating 1995 Kobe earthquake. During the observation period (1996-2000) possible pre-seismic anomalies were observed when M5-class earthquake occurred close (<20km) to a station. In most of these cases, however, the pre-seismic anomaly was observed only once at one station. On the other hand, at the Kozu-shima Island station, which is of extremely low noise, we observed 19 VAN-type anomalies for 23 M>3 earthquakes which occurred within 20 km of the station from May 14, 1997 to June 25, 2000. It has also been demonstrated that the correlation between the observed anomalous changes and the subsequent earthquakes is statistically very high. In this paper, the high heterogeneity under Kozu-shima Island is studied, though only for the shallow depth, by VLF-MT survey. In addition, current injection into the ground was also conducted for the resistivity survey. It was verified that various features of the observed anomalous changes were different from those of changes caused by artificial sources and induction of geomagnetic disturbances.