

VHF interferometric system for the study of pre-seismic atmospheric anomalies

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Fujiwara et al. (Geophys. Res. Lett., 2004) verified the appearance of anomalies in the atmosphere before earthquakes through observation of anomalous transmission of VHF electromagnetic (EM) waves beyond line-of-sight. The cross-correlation between the earthquake occurrences and the anomalies shows that the appearance of anomalies was significantly enhanced within 5 days before earthquakes. In order to verify the spatial correlation, thus, we developed VHF interferometric system to find the coming direction of scattered electromagnetic waves. In our previous system, there were the following problems when we use commercial FM digital tuners: (1) arbitrary initial phase, and (2) Ambient temperature dependence. In order to solve these problems, therefore, we developed our original FM digital tuner by using double balanced mixer.