

Preliminary report of electromagnetic monitoring on the slow-slip and seismically locked areas around the Tokai Earthquake region

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Existence of fluid on seismogenic zones has a key role on great earthquakes because high pore pressure in a fault zone allows sliding at low shear stress (e.g., Blanpied et al., 1992). Seismic surveys reveal a heterogeneous distribution of reflectors which may be attributed to heterogeneous fluid distribution and may indicate the role of fluid on the earthquake occurrences. However, other factors can explain such reflectors, so that independent geophysical surveys and monitoring sensitive to fluid are required for further discussion. Electromagnetic surveys have revealed fluid distribution in seismogenic zones (e.g., Unsworth et al., 2000) because enhanced electrical conductivity at subsolidus temperatures is principally controlled by the presence of water. In this study, we introduce a new electromagnetic monitoring system with two 50km-length ocean bottom cables off Toyohashi, where a slow-slip and seismically locked areas near the Tokai earthquake region. We present feasibility studies to detect fluid distribution and its migration, and report preliminary result of self-potential measurement.