

ULF/ELF electromagnetic phenomena preceding the 2004 Sumatra-Andaman earthquake

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Anomalous ULF geomagnetic field change is one of the most convincing and promising phenomena for earthquake-related electromagnetic studies such emissions from the crust of the source region. There has been a good deal of accumulated and convincing evidence of ULF magnetic signatures before large earthquakes as reported in the previous studies. Recently Ohta et al.(2006), reported the possibility of long distance propagation of ULF/ELF magnetic signal associated with large earthquakes. In order to verify this phenomena preceding large earthquakes (the 2004 Sumatra-Andaman earthquake (M9)), data observed at Matsushiro, Nagano, in Japan and Urmuqi in China have been investigated. We estimate the direction of arrival using the goniometric approach. The result shows there is a tendency the signals come from the epicenter region. It suggests that possibility of ULF/ELF signal penetration from the source region to the free space and/or atmospheric/ionospheric perturbation creates new electromagnetic signals due to weak discharges.