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インドネシア・西スマトラ地震前駆現象研究プロジェクト

Earthquake Precursor Research Project in West Sumatra, Indonesia

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Indonesia is one of the most active regions in crustal activities such as earthquakes and volcanic activities. After the 2004 Sumatra-Andaman earthquake, they had more than 60 $M > 6$ earthquakes in Sumatra region. According to reports on the earthquake-related electromagnetic phenomena associated the 2004 Sumatra-Andaman earthquake, the following findings have been reported: (1) post seismic ionospheric phenomena recorded by magnetometers and GPS arrays. These are caused by acoustic waves / acoustic gravity waves derived by surface displacement, (2) precursory phenomena registered in GPS-TEC variations in Sumatra region, VLF reception variations onboard satellite and ground base antennas, and (3) precursory phenomena associated with ULF geomagnetic changes. The precursor project is based on the concept of a validation test in previously obtained results. We will install 10 ULF electromagnetic stations (continuous MT stations) in Padang region including Pegai and Siberut islands near subduction front. The islands are considered to be close to the asperity, so it is expected that there is a possibility to capture electromagnetic changes associated with pre-seismic slip associated with a subductive mega-earthquake.

Keywords: West Sumatra, precursory phenomena, earthquake, GPS-TEC, ULF geomagnetic change, VLF reception variation