

A geomagnetic pulsation observed at Thailand just after the earthquake on December 26, 2004

Hiroyuki Shinagawa[1]; Toshihiko Iyemori[2]; Masahito Nose[3]; Desheng Han[4]; Michio Hashizume[5]; Yoshikazu Tanaka[6]; Mitsuru Utsugi[7]

[1] STEL, Nagoya Univ.; [2] WDC-C2 for Geomag., Kyoto Univ.; [3] DACGSM, Kyoto Univ.; [4] Earth and Planetary Sci., Kyoto Univ.; [5] Chulalongkorn Univ.; [6] Aso Volcanological Laboratory Kyoto Univ.; [7] Kyoto Univ.

A magnetic pulsation with a period about 3.8 minutes was observed 12 minutes after the origin time of Sumatra earthquake on December 26. At THJ in China, 10 degrees north in latitude, only a short period (i.e., about 30 seconds) magnetic pulsation was observed. At higher latitudes, no magnetic pulsation with these periods was observed. It is clear that the oscillation is not the effect of sensor oscillation, because of the timing relation between the origin time of the earthquake and the onset time of magnetic pulsation, and also because of the amplitude relation among magnetic components. The localized nature and oscillation period suggest that this magnetic pulsation was generated with a dynamo in the ionosphere caused by acoustic duct resonance between sea surface (or middle atmosphere) and bottom of the thermosphere. In this paper, we studied this event using a nonhydrostatic atmosphere-ionosphere coupling model which is able to treat acoustic waves. A preliminary result is presented and compared with the observation.