Study of dynamics of tsunami ionospheric hole from geomagnetic observation

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Approximately several minutes after the occurrence of the mainshock of the M9.0 off the Pacific coast of Tohoku Earthquake on 11 March 2011, various geo-electromagnetic phenomena was in Japan and even in the magnetic conjugate point of Japan (i.e. Australia) through magnetic field lines as a field align current. In this paper, we show electromagnetic phenomena after the 2011Tohoku earthquake in the ionosphere such as tsunami ionospheric hole, seismo-field align current, Rayleigh-wave-induced ionospheric arc current, and seimic- ionospheric ring current (SRIC). SRIC was highly related to tsunami ionospheric hole observed by GPS-TEC.

Keywords: Magnetic field, Earthquake, Tsunami, Tsunami ionospheric hole