

The several Records of tsunami induced magnetic field obtained by the JMA Chichijima observation station(CBI).

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Through the geomagnetic field, electrically conducting seawater movement generates electric fields and currents in generally. Furthermore, the current induces secondary magnetic fields. Our Chichijima geomagnetic observation station (CBI) is located on the solitary island in the Pacific Ocean. Addition this, located the tsunami observation station (Futami tide gauge) that is subject to the JMA. We are able to obtain concurrent tsunami and magnetic data because the distance between these observation points is only 1 km. So, this Chichijima Island is suitable in order to research tsunami induced magnetic fields research. We have investigated in CBI data (samples taken every 1 second) and Chichijima Futami tide gauge data (every 15 seconds) from 1995 to 2013, finally obtained 9 events tsunami induced phenomena. The many of the signal of these events is small, but three of them has clear record, the 2011 off the Pacific coast of Tohoku Earthquake Tsunami (2011/3/11 M9.0), The 2010 Chile earthquake (2010/2/27 M8.8) and 1996 the Irian Jaya Earthquake Tsunami (1996/2/17 M8.1). The other events are weak, but their magnetic signals are detectable enough. it may be worth worldwide renown that so many induced magnetic phenomena have been found in one observation station Chichijima (CBI). In the low solar activity periods, the induced magnetic signal may be detectable, if the half tsunami amplitude is 20cm or over. Some of these events might have been disturbed and dismissed due to magnetosphere substorm, even though the induced magnetic field was enough to detect. Each of above-mentioned three examples has over 1 m tsunami height, and clear induced magnetic record. Especially, in spite of weak magnetosphere substorm, the record of the 2011 off the Pacific coast of Tohoku Earthquake Tsunami is very clear. So, on 1 m or more-high tsunamis, it is safely said that the induced magnetic fields is detectable definitely. These induced magnetic field records will be one of mediation between the geomagnetic science and the tsunami disaster prevention science.

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