

## Statistical Changes in the 3-component Geomagnetic Fields at Okutama site in Central Japan before and after the 2011 off

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We have observed the 3-component geomagnetic fields with a fluxgate magnetometer at the Okutama site in Central Japan, at 1 Hz sampling since December 2003 and at 32 Hz sampling in and after May 2008. This site is located just outside the area where the seismic activity increased after the 2011 off the Pacific coast of Tohoku Earthquake. In this study, we checked whether or not there are statistical changes in the observed data before and after the earthquake. However, the daytime data included noises mainly from trains driven by DC electric power. Therefore, we used only the nighttime data from 2:30:00 to 3:04:08 JST. The power spectrum densities, especially of the period range from 1/16 s to 45 s, had seasonal variations. The annual median, 1st quartile, and 3rd quartile were calculated for the differences between the power spectrum densities and their seasonal variations. As a result, we found (1) the variations of the annual interquartile range, especially for short period spectrum ranges, were in harmony with those of geomagnetic indices and the solar activity and (2) the annular medians for all period spectrum ranges decreased after the earthquake though the declined levels were within the annual interquartile ranges just before the earthquake. One of the possible reasons of the decreases may be the change of the local groundwater condition after the earthquake though we could not ignore the effect of saving electricity due to a power shortage in Japan after the earthquake.

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