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The summary of the research of seismo-electromagnetic phenomena observed by the observation network of Chubu University

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Earth Watch Safety Net Research Center of Chubu University has established electromagnetic observation network in order to study seismo-electromagnetics. We have observed ULF/ELF electromagnetic waves in order to catch the emissions from the focal region of earthquakes. And we have observed VLF electromagnetic waves at Kasugai in order to measure the change of the propagation characteristic in the ionosphere and atmosphere disturbed by the energy from the epicentral region.

In this study, we talk about the result of the observation by this network. Anomalous ULF emissions and excitations of Schumann resonances were observed at Nakatsugawa station in the case of the 2004 Mid-Niigata Prefecture and 2007 Noto Hantou earthquake. And we found some ULF emissions propagated from the direction of the epicentral area of 2007 Noto Hantou earthquake. However, in the case of the 2008 Iwate-Miyagi Nairiku earthquake and 2009 Suruga-Bay earthquake, we could not find anomalous ULF/ELF signals, and could not find ULF electromagnetic waves possibly propagated from the epicentral areas. But we found some changes of the propagation characteristic of VLF electromagnetic waves before these earthquakes.

The observed ULF/ELF/VLF anomalies possibly associated with earthquakes were not so convincing enough to forecast the earthquakes at this stage. These anomalies observed by ULF/ELF/VLF ranges would be only a little hint of the mechanism and scenario of the generation of the seismo-electromagnetic phenomena. And so we need more event studies, further observation and interdisciplinary research.

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Keywords: seismo-electromagnetics, ULF/ELF/VLF observation, Schumann resonance