



## **ULF magnetic transfer function analysis using the wavelet for monitoring of crustal activity**

**K. Hattori (1)**, H. Ishikawa (2), M. Harada (3), I. Takahashi (2), C. Yoshino (1), and N. Isezaki (4)

(1) Marine Biosystems Research Center, Chiba University, Japan (2) Graduate School of Science and Technology, Chiba University, Japan (3) Venture Business Laboratory, Chiba University, Japan (4) Department of Earth Sciences, Chiba University, Japan  
(hattori@earth.s.chiba-u.ac.jp / fax +81-43-290-2859)

The southern part of Kanto District, Central Japan is situated in front of the triple junction of three plates (Pacific, Philippine Sea, and Eurasia), and the tectonic activity associated is remarkable. In order to investigate the electromagnetic phenomena associated crustal activity, the precise ULF electromagnetic measurement network has been established. At each station, three magnetic components and two horizontal electric components are observed. There are two arrays with interstation distance of 5 km in Izu and Boso Peninsulas. In this paper, the features of interstation transfer functions (ISTF) have been investigated. ISTF means the correlation between the site and the reference site. Usually FFT is used for estimating transfer function but wavelet transform is applied in this paper.

We analyzed data observed at Mochikoshi and Seikoshi stations in Izu Peninsula in the periods of 2000-2003 (4 years). The distance between two stations is about 5 km. As a reference station, Kakioka operated by Japan Meteorological Agency is used for estimating transfer functions in this paper. The distance from our stations is about 150 km. In comparison to the mechanical data, we analyzed the strain data observed Toi station, which locates about 5km from Seikoshi station. Main results are as follows; (1) There are three anomalous changes in the magnetic transfer function. (2) The above three anomalous changes are seemed to be associated with the crustal activities, which are not only earthquake activities associated with 2000 Izu island swarm and M5.1 earthquake near Izu stations but also crustal activities without earthquakes. (3) The magnetic anomalous changes are started a few days prior to the mechanical changes.