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Comparison of Microbaroms at SYOWA Station, Antarctica and Woomera Prohibited Area, Australia

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Infrasound is sub audible sound (pressure wave), and that frequency range is cut-off frequency of sound (e.g., 3.21 mHz for 15 degree Celsius isothermal atmosphere) to 20 Hz (that is lowest frequency of human audible band). This frequency range is one of the new horizons of the remote sensing in the Earth's atmosphere, for example, a large earthquake in Sumatra region generated great Tsunami also produced such kinds of waves in atmosphere and shaking Earth itself by free vibration mode as well as affected even upon the upper atmosphere. Last decade, for the purpose of monitoring nuclear tests, a global infrasound network is constructed by CTBTO. The CTBT-IMS infrasound network has 60 infrasound stations and each station contains at least 4 infrasound sensors (arrayed station), they can detect a some-kiloton TNT level atmospheric explosion in range of some 1000 kilometers. This network is enough for monitoring nuclear tests, but much sparse for detecting and analyzing in detail of natural infrasound phenomena.

We organize a community called Infra-Sound Observation Project (ISOP) for propose of to develop *regional scale* infrasound observational networks in the Japanese Islands and around the Japanese Antarctic Stations. Now, the networks are construction and pilot observation phase. A Chaparral sensor was firstly put on the field of the Japanese Main Antarctic Station (SYOWA Station) as a part of the JARE 49 expedition in 2008. Until now, we have continued single sensor pilot observation to assess reliability of the observation system under the extreme climate condition of Antarctica.

In this talk, we will show current status of pilot observation and briefly summarize characteristics of infrasound recorded at SYOWA Station, Antarctica. In addition, at June 2010, we had done infrasound observation of reentry of the HAYABUSA at Woomera Prohibited Area (WPA), Australia. So, we will make a comparison between microbaroms detected at SYOWA station and that detected at WPA.

Keywords: Infrasound, microbaroms, ocean atmosphere coupling, Syowa Station