Development of software for infrasound data analyses and examples of infrasound generated by Mt. Sakurazima eruptions.

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Infrasounds is known as pressure waves whose frequency range is lower than 20 Hz. Due to the characteristics of distance propagation in atmosphere, infrasounds generated by volcanic blasts, large-scale earthquakes, and artificial eruptions like rocket-launchs can be observed.
In Kochi University of Technology, low cast infrasound sensors have been developed with piezoelectric type devices (Izumi et al. ,2006) as well as with laser diodes and PSDs (Position Sensitive Devices)(Yamada, 2009).Infrasound observation by Chaparral Physics Model-2 sensors have been set up at Syowa station (Antarctica) since 2008, and at Uchinoura Space Center (Kagoshima) since 2007, and have been continuously operated for a few years.
After ending of the observation at Uchinoura in October 2009, two infrasound sensors are in operation of Kanazawa University from November 2009 (to March 2010), aiming at investigation of infrasound generated by sprites because, in winter, there are many large-scale thunders in Kanazawa district.Observed infrasound data are archived as WIN-format binary files. The WIN-format frequently used for earthquake observations is usually treated in Unix workstations, so that softwares for quick-look display and analyses are only intended for the use of UNIX as well.
In this paper, development of software for quick-look of waveform and FFT for the infrasound data on windows PC will be introduced.Purpose of this study is to realize spectral and direction-finding analyses for infrasound data on Windows PC. Using the software, rocket-induced infrasound data taken at Uchinoura previously reported by Suzuki et al. (2008) as well as infrasound data observed at Syowa station are analyzed Mt. Sakurazima has been showing signs of volcanic activity since last year. As the Uchinoura station is located only 25 km from the volcano, many infrasound signals were observed there, so, infrasound data from Mt. Sakurazima could be analyzed by the software.In this paper, overview of the developed software and analyzed examples of archived infrasound data will be shown.

References:
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