Development of a data-handling platform for simultaneous observation using multiple-type infrasound sensors

*Yuichiro Inoue[1], Masa-yuki Yamamoto[1]

1. Kochi University of Technology

Infrasound, which is a low-frequency pressure wave with a frequency of 20 Hz or less, is hard to be attenuated when propagated through the atmosphere and has characteristics that is easy to propagate over long distances.

In Kochi University of Technology, our Laboratory succeeded in producing a low cost and high-performance infrasound sensor by joint development with companies.

In this research, own propose is to develop a new data format of infrasound observation that fills up the difference between multiple file formats between sensors, conversion software from existing data format to a new data format, and a website that performs simultaneous real-time graph drawing of two kinds of infrasound sensors.

The suggested format name is "infs", where information necessary for analysis is to be saved in the header block as 256 bytes. Then, the observation data is stored in the following successive 21 bytes data blocks. We developed software to convert the existing WIN format to the infs format by using Go language.

The created website converts observation data transmitted from two types of infrasound sensors installed at two remote locations into a laboratory data, and converts the saved data into an output format that can be displayed on a web browser, creating graphs on the browser.

The proposed new data format "infs" will be used in the laboratory in near future. In addition, we created a repository on infs format on GitHub web site that supplies exchanging anonymous information for programmers so as to be used outside the laboratory.

In the server side program developed for creating the Web site, in addition to collecting and managing the observation data collected about every 14 minutes was reduced into about every 13 seconds, the function to determine the simple 5-level alert system from the collected observation data was equipped.

In this research, we proposed a new data format for infrasound observation, conversion software from WIN format, creating of a web page with drawing quasi real-time graph of the observed data with developing, and operation of all the functions is confirmed.

Keywords: Infrasound, Data handling