Oral | Symbol G (General [Education and Outreach]) | General [Education and Outreach]

[G-02_29PM2]Geoscinece Outreach

Convener:*Takeyuki Ueki(Faculty of Risk and Crisis Management, Chiba Institute of Science), Jiro Komori(Teikyo Heisei University), Chair:Akihiko Shibahara(Geological Museum, AIST)
Tue. Apr 29, 2014 4:15 PM - 6:00 PM 423 (4F)
The aims of Outreach and geoscience education are to encourage developments that raise public awareness of geosciences through schools and/or public outreach by not only educators but also researchers. Therefore, any presentation related with these aims will be welcomed to this session. Depending on schedule and venue,some presentation will be changed to Poster presentations.

4:30 PM - 4:45 PM

[G02-P13_PG]Listen to the sound of earthquake! - Experiment of sonificated seismic wave in public relations events

3-min talk in an oral session
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Keywords:diversity of earthquake, edutainment, elementary school children, PowerPoint, sonification of seismic wave

Meteorological Research Institute (MRI) located in Tsukuba city carries out an annual public relations event titled "Otenki Fare Tsukuba" on a weekday during the summer school holiday. Every event has two to three thousands visitors mostly from Tsukuba city or neighbor cities. Typical visitors are a group of school child(ren) and their mother. This event is a good opportunity for MRI not only to appeal its research activities but also to diffuse basic knowledges widely on weather, earthquakes and so on.Edutainment titled "Listen to the sound of earthquake!" has developped (Hayashi and Takayama, 2009; *QJS*), by which we can hear a sound of any earthquake selected from a menu. The substance of the edutainment is just a presentation file created by Microsoft PowerPoint(R); and interactive operating environment with a menu is realized by using PowerPoint's functions of slide-show and animation. Therefore, the file can easily be modified by other technicians than the author.The contents, or various sounds of earthquakes, are WAVE-formatted sound data produced by 10 - 1000 times fast-forwarding using actually observed seismograms. The process, which assume that seismograms are time-series of compression wave transmitted in the air, sacrifices the physical accuracy, but the process without accompanying frequency modulation conserves the scaling law of the sound source; and then, we can feel a material of the source of "sounds of earthquakes" by listening differences of pitches, intensities and tones. The edutainment intends to make listeners understood on the existence of the diversity of earthquake based on various type of earthquake. By the way, "sounds of deep low frequency earthquake", which were processed by the same method as above, were used in the TV program of NHK titled "Megaquake III" in 2013 so that the difference of source mechanism between slow earthquakes and ordinary ones were explained."Listen to the sound of earthquake!" has been displayed for one of the attractions in "Otenki Fare Tsukuba" every year since 2007. Its display and contents have been improved; the line out from each personal computer (PC) is now divided into three headphones, in order to match the requirements of number of visitors increasing year by year, and the typical guests consisting of a mother and two children; in addition, contents has replaced after the occurrence of major earthquakes.However, there are still several problems remained. The first one is that 45-seconds experience is too short for most primary school children to feel the diversity of earthquake, which the edutainment want to teach them, from listening their sounds. They just simply enjoy and end. The second

one is that the interface using mouse and selecting contents from the displayed menu is becoming user-unfriendly for children in the age of smart phones and tablet PC. The last one is essentialness of multi-language interface.In the JpGU2014 meeting, PCs installed "Listen to the sound of earthquake!" will be displayed, after experiment, discussions on possible improvements and application to other public relations event will be welcomed.