Visualization for Large Scale Eruption Clouds Simulations

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The aim of this paper is to present visualization results for large-scale eruption clouds simulation.

The eruption-clouds simulation and its visualization are useful for nature disaster simulations. At present studies, large-scale eruption-clouds simulations are performed with high-resolution grid. Since such large-scale simulation provides huge volume-data, effective visualization methods are essential for analysis of them.

One of effective visualization methods for such large-scale, high-resolution eruption clouds simulations is animation using volume rendering, because volume rendering is easy to avoid occlusion problem, which is caused in the case of visualizations for complex phenomena, such as eruption-clouds. And, animation easily presents dynamic change of simulated phenomena.

In this study, we have made volume-rendering animation for large-scale eruption clouds simulation, by using MovieMaker [1]. The aim of MovieMaker is to make a sequence of images from one Tera-byte simulation data within one night. We have confirmed that the MovieMaker is able to achieve the goal, in some tests. Present version of MovieMaker has volume rendering and so on, as visualization methods. In our presentation, we will show the volume-rendering animation of large-scale eruption clouds simulation, and talk about how to make it, in detail.

[1] Hitoshi Uehara, Shintaro Kawahara, Nobuaki Ohno, Mikito Furuichi, Fumiaki Araki, and Akira Kageyama, "MovieMaker: High Performance Movie-Making System for High-Resolution Data", Joint meeting for Earth and Planetary Science 2005, J031-0005