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New visualization tool for volume data, for both quick 3D-texture rendering and ray tracing.

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Visualization of simulation/observation data is important not only for research but also for public outreach.

The tools of scientific visualization are often designed for the former purpose. However, visualization for outreach purpose with these tools have often difficulties, because they often lack the functions such as camera work editing or drawing of modelled objects, texturing, etc. On the other hand, using general purpose 3DCG softwares, it is easier to visualize objects with higher quality. However, converting the data to the format which can be read by these softwares requires skills of computer graphics, and researchers do not have it in general.

We are now developing a GUI application to visualize volume data.

Our intension is to connect between these visualizations with different purposes.

For quick visualizations for research, we adopt video-board based volume rendering with 3D-texture, while automatically making Pov-Ray scene files for higher quality rendering with ray tracing.

We named it Oosawa. Oosawa implemented following features.

Support for multi-channel time sequence data, and time line based parameter settings, enabling us camera-path editing with dynamically moving data.

Partial support for octo-tree based high resolution data.

Filter stacking, such as blurring, level-adjustment, tracking, data-clipping, etc.

Making and exporting of isosurface mesh.

GUI settings for ray tracing options for Pov-Ray (radiosity, photon mapping, focal blur, etc.)

With these features, both quick visualization and time-consuming high quality rendering are achieved with single procedure. On the now, Oosawa is not implemented with the features for multiple values (such as combinations of temperature and density), or visualization of vector fields. We will add these features to Oosawa as the future works.

The binary and source code is published to the web. http://th.nao.ac.jp/˜takedatk/COMPUTER/OOSAWA/oosawa.html

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