

## Visualization of a Cloud Simulation using Super-Droplet Method: Particle-based Visualization using Point Sprite

# Shintaro Kawahara[1]; Fumiaki Araki[1]; Shin-ichiro Shima[1]; Kanya Kusano[1]

[1] ESC/JAMSTEC

<http://www.es.jamstec.go.jp>

We performed the cloud and rainfall simulation with the new concept called super-droplet, and tried to visualize its results using the original visualization program with the point sprite method. In this method, particles which means each super-droplet are expressed with the texture image of a sphere. RGBA color of each texture image was set based on the particle radius of super-droplet. When a large amount of objects with the transparency is drawn, the computational cost to decide the drawing order of these become very huge. However, it was significantly reduced by the original data management algorithm based on the grid which was set in simulation area. We also reduce the computational cost for drawing by data reduction based on particle radius of super-droplet. As result of visualization that used the developed program, we could observe the cloud formation and the rainfall process by minuscule droplet of water at the particle level.