Tsunami Simulation

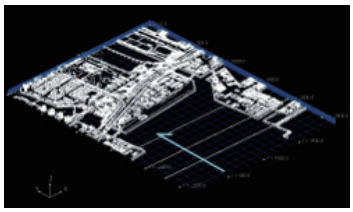
scSTREAM Function

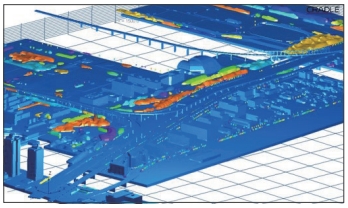
Helps predict tsunami damage and arrange disaster prevention measures

The Importance of Predicting Disaster

It is important to predict and prepare for disasters in order to save lives and reduce damage. scSTREAM enables users to simulate the effect of tsunami in short amount of time, predict potential damage in widespread area, and consider several possible scenarios in advance.

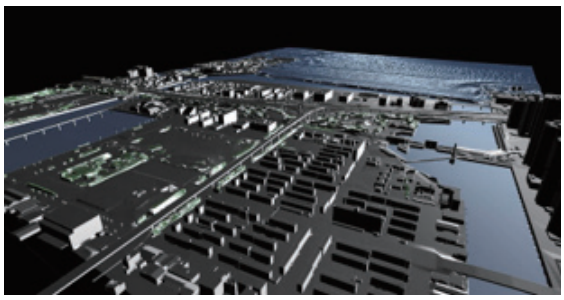
Large Scale Analysis Model





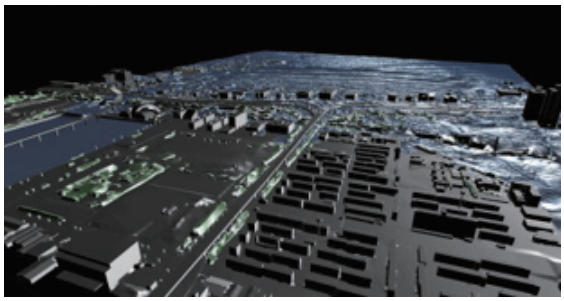
Size of domain: 2.0km x 2.7km
Number of mesh elements: 56 million
Calculation time: 3 days (2.4GHz-CPU, 24 parallel processing)

Analysis Results (Time Order)



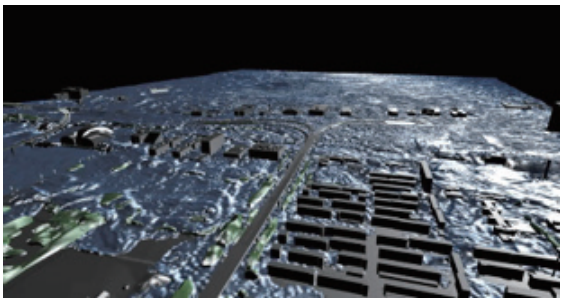
After 60 seconds

Tsunami wave from offshore reaches land. Geographical features of surroundings and sea bed structures affect the wave velocity and height.



After 120 seconds

Once reached land, tsunami wave slows down due to buildings and other obstacles. On the other hand, velocity around rivers and canals increases more rapidly than any other area. As analysis result shows, river flow reaches upstream in short time.

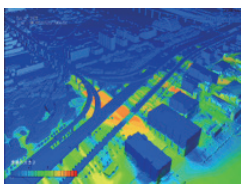


After 180 seconds

As time progresses, entire city is flooded. Due to the influence from geographical features and buildings, tsunami behavior is complicated. In certain spots, tsunami wave emerges from land side.

Notes

Unpredictable phenomena occur in real tsunami situation, such as building collapse and debris overflow, which are difficult to represent in prior simulations. Nevertheless, performing simulations by time order helps plan disaster prevention measures, such as identifying evacuation spots and estimating the time needed to evacuate.



The rate of progress of tsunami