Tsunami prediction in the Nankai subduction zone
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<2011 Tohoku Tsunami Simulation>
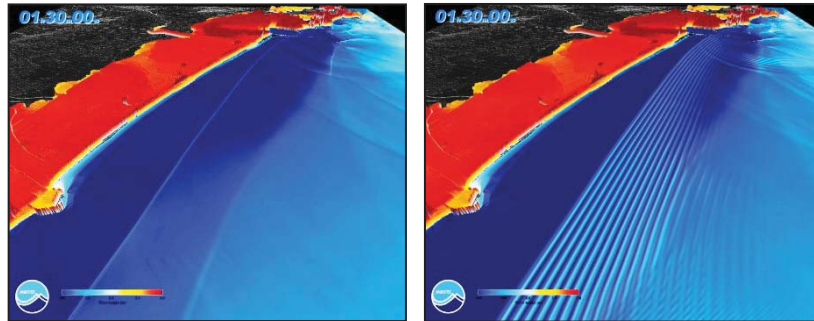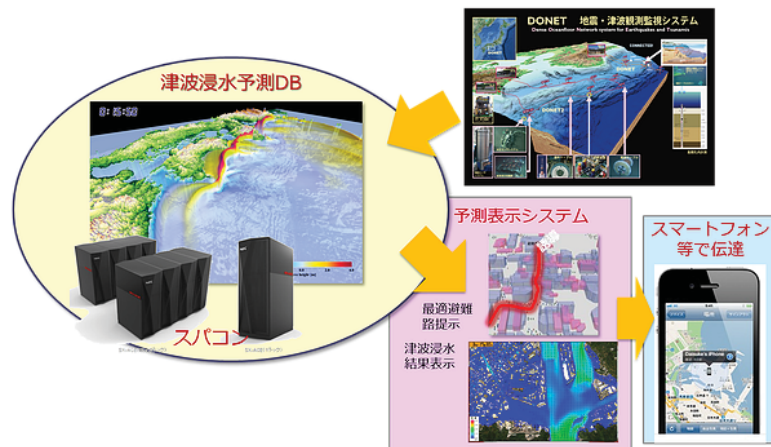

Numerical tsunami simulation based on the long-wave theory

Numerical tsunami simulation based on the Boussinesq dispersive theory

<Tsunami Prediction using Super-computers>

Database based tsunami prediction system (under development)

We develop a tsunami simulation code named JAGURS under a collaboration among several tsunami research institutes. The long-wave equations are commonly used in the tsunami prediction, but it is essential to include the characteristics of tsunami dispersion for detail investigations. Accordingly, JAGURS solves the nonlinear Boussinesq dispersive equations in both of spherical and Cartesian coordinates. A variable nested algorithm is used to increase spatial resolution in the target region. JAGURS is optimized on super-computers such as the K computer and Earth simulator to conduct large-scale tsunami calculations with high-speed.

Our research focuses on the Nankai subduction zone in the southwestern Japan, where the great earthquake accompanied by tsunami is anticipated to occur in the near future. Tsunami database including all possible tsunami scenarios in the Nankai subduction zone is being created with JAGURS on the super-computers to enhance awareness of residents and countermeasures of the local-governments.

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