Development of Global Water Simulation Model

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Abstract

There is no doubt that the global warming has an effect on the water cycle in underground. In order to solve the problem of increasing population growth rate and drought, it is important to understand the change of water cycle quantitatively. Therefore, the aim of this project is to assess quantitatively the water cycle in the main continents of the world using the General Purpose Terrestrial Fluid-Flow Simulator (GETFLOWS).

This year, we evaluated the performance of GETFLOWS on the UV2000. The results are as follows:

1. The calculation speed of GETFLOWS on the UV2000 is equivalent to the speed in our company's PC clusters.

2. Using performance analysis tool, we found that the matrix solver optimized for the PC clusters is also worked well on the UV2000. Thus, the use of optimization for the UV2000 is not of high importance.

3. To solve the problem of slow reading file data is to use work area or the RAM disk when running a large model with a high-parallel computing.

Keywords:　watershed simulation, water cycle, large-scale simulation