EGEE USER FORUM

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Gridifying the Soil and Water Assessment Tool (SWAT) for the sustainable development of the Black Sea region

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The Soil and Water Assessment Tool (SWAT) is one of the main tools used in the hydrology community. In the EU/FP7 EnviroGRIDS project it is used to study the Black See catchment and to simulate complex scenarios. In several cases, such as the study of the interplay of global and local scenarios, the availability of substantial computing resources in the Grid is important.

Detailed analysis

We have ported the SWAT application to the Grid (EGEE infrastructure) and we are preparing to offer the software infrastructure to allow users a seamless access. Ease of use is provided by the availability of a simple yet complete monitoring (based on the Dashboard), and on a low- latency robust job service (Ganga/Diane). In order to further improve performances and the parallelization options within the EnviroGRIDS project, existing tools and activities will be integrated from within the Ganga/DIANE infrastructure, depending on performance and other user requirements.

Conclusions and Future Work

Using grid technology in hydrology is a great opportunity to push it to another level, enabling people to simulate more and more complex and much larger models of our environment. It also brings a new, interesting use case to the grid itself, and provides important experience in solving problems like the parallelisation of applications that were not originally designed to run on the grid.

Impact

This work aims to offer a service to the whole hydrology community. The utilization of grid massive computing power makes problems like the calibration and uncertainty analysis of large SWAT models solvable in reasonable periods of time. Thus it will enable the community to undertake much bigger challenges.

Keywords

envirogrids, grid, swat, ganga, diane, black sea, hydrology

URL for further information

http://www.envirogrids.net/

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