

Earth Science Application overview in EGEE infrastructure

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Due to the large variety of ES applications it is not possible to describe all the results obtained. However some ES applications, already ported, provide scientific results published in international journal and conference proceedings, and included in PhD report. Those results are a mean to convince the ES community of the potentiality of the Grid infrastructure like EGEE. The ES applications that already obtained results could be used to point out the kind of problems very well suited to Grid infrastructure like statistical approaches (monte Carlo method, ensemble of jobs..), sharing data or algorithm, performing a very large number of independent jobs that permits to have a rapid solution.

3. Impact

The role of Grid technology to get scientific results depends on the motivation to use Grid. As for the need of more computing resources like for the earthquake application, without Grid the results will be obtained too lately to have an impact on the community. As for sharing algorithms like Geocluster, Grid avoids to implement locally the software that is never a straightforward task or to adapt the code; also the resources allotted via the Grid permit to use the software at full scale. As for sharing data Grid avoids to duplicate large sets of data that is not always possible and permits to develop common tools..

4. Conclusions / Future plans

All the applications have been ported on EGEE. There are no average conditions. In seismology some jobs uses MPI, others need to use simultaneously 200-400CPUs, or to access the geoscope data centre to process systematically on Grid all the data, or to carry out simulation. In atmospheric chemistry one application processed and handled 70000 files, the other application is a long run simulation and the output data are transferred to local storage in the laboratory. In hydrology, one application

Provide a set of generic keywords that define your contribution (e.g. Data Management, Workflows, High Energy Physics)

Earth Science, data management, workflow

1. Short overview

Earth Science (ES) is an all-embracing term for sciences related to the planet earth covering a large and diverse user community, Academy, organisation and industry. Since 2000 within DataGrid and CrossGrid ES applications from various domains (seismology, hydrology, geosciences, geology, pollution, atmospheric chemistry ...) have been ported on a Grid infrastructure in order to get more computing resources, to share data and algorithms and to explore or produce large data sets. Some applications a

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