Evaluation of Cloud, Grid and HPC resources for big volume and variety of RCM simulations

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Cloud, Grid and High Performance Computing have changed the accessibility and availability of computing resources for Earth Science research communities, specially for Regional Climate Model (RCM) community. These paradigms are modifying the way how RCM applications are being executed. By using these technologies the number, variety and complexity of experiments and resources used by RCMs simulations are increasing substantially. But, although computational capacity is increasing, traditional apps and tools used by the community are not good enough to manage this large volume and variety of experiments and computing resources.

In this contribution, we evaluate the challenges to execute RCMs in Grid, Cloud and HPC resources and how to tackle them. For this purpose, WRF model will be used as well known representative application for RCM simulations. Grid and Cloud infrastructures provided by EGI's VOs (esr, earth.vo.ibergrid and fedcloud.egi.eu) will be evaluated, as well as HPC resources from PRACE infrastructure and institutional clusters. And as a solution to those challenges we will use the WRF4G framework, which provides a good framework to manage big volume and variety of computing resources for climate simulation experiments.