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Climate simulations and services on HPC, Cloud and Grid infrastructures

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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 Climate community. These paradigms are modifying the way how climate applications are being executed. By using these technologies the number, variety and complexity of experiments and resources are increasing substantially. But, although computational capacity is increasing, traditional applications 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 run climate simulations and services on Grid, Cloud and HPC infrestructures and how to tackle them. The 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. To solve those challenges, solutions using DRM4G framework will be shown. DRM4G provides a good framework to manage big volume and variety of computing resources for climate experiments.

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