



climateprediction.net

Tessella is working in partnership with staff from the University of Oxford, the Rutherford Appleton Laboratory, the Met Office and the University of Reading on the *climateprediction.net* project. The project is part funded by the Department of Trade and Industry through their eScience programme.

Business Problem

Climate scientists around the world use a sophisticated model developed by the Met Office to predict changes in the global climate. The model is parameterized so that predictions can be made of changes caused by, for example, increased CO₂ emissions, and Monte Carlo methods can be used to combine the results from independent runs of the model.

The model is computationally very expensive, so extremely long runs on supercomputers are needed to get meaningful results. The time and cost involved means that large numbers of such runs on supercomputers are not feasible.

Tessella Solution

Tessella has worked in the *climateprediction.net* team to develop the Met Office model into a distributed computing application. Instead of running a few models on individual supercomputers, a Windows-based version of the model is distributed to members of the public. Each model has a different set of parameters, and runs for several months on each PC, returning data to a central server.

Tessella's involvement in the project began with assisting with the initial port of the Met Office model to Windows. Following this, Tessella worked on the development of the client framework. This allowed users to:

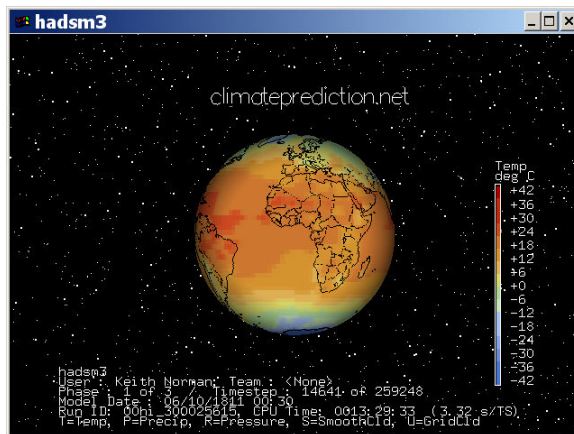
- register their participation
- download the model and parameter files
- run the model in a user interface in such a way that it did not interfere with the normal workload of that machine
- return data automatically to the servers via the internet.

Over 60,000 downloads of the client were made during the first year of the experiment, following the public launch in September 2003, making climateprediction.net one of the most widely-distributed global eScience projects ever undertaken.

As public interest in the project increased, Tessella have also provided significant help in the development of the climateprediction.net website (<http://www.climateprediction.net>). Tessella provided assistance in the look and feel of the site, and improved access to the site for non-Internet Explorer web browsers.

Results and Benefits

All of Tessella's staff come from scientific or engineering backgrounds, and are trained in software engineering. Coupled with our experience in developing complex client-server systems in a range of computing environments, this has enabled us to work closely with the climateprediction.net collaboration team to implement the system.



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