



**NCAR**

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**Climate and Global Dynamics Division • Climate Change Research Section**

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20 March 2013

R&D 100 Awards  
100 Enterprise Drive  
Suite 600, Box 912  
Rockaway, NJ 07866-0912

Dear R&D 100 Awards:

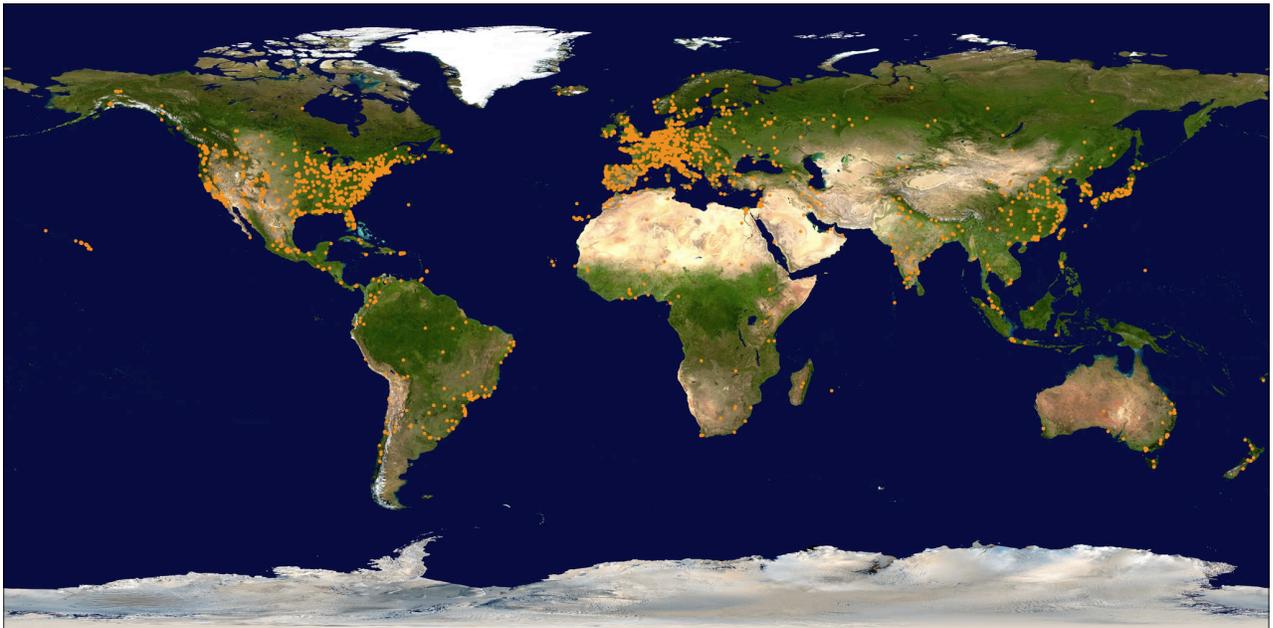
We are writing to support the selection of the Earth System Grid Federation (ESGF) as an R&D 100 awardee for 2013.

The impact of the ESGF on the advancement of climate science research and our understanding of climate change cannot be overstated. Our best estimates of future climate originate from the model projections performed by the world's leading modeling centers. Because no single model is demonstrably superior to all others, a result of both the extreme complexity of the climate system and scientific uncertainties in model formulations, the ability to examine the results of many models has proved to be crucial in improving of scientific understanding of future climate change.

Model simulations from the fifth phase of the Coupled Model Intercomparison Project (CMIP5) will underpin a major part of the upcoming Fifth Scientific Assessment by the Intergovernmental Panel on Climate Change. Through ESGF, thousands of researchers can access the CMIP5 database, which now exceeds 50 Petabytes (and will ultimately reach 100 Petabytes) distributed over the modeling center archives on 4 continents. The ability of thousands of researchers to easily access, search, discover and obtain the data from a large, multi-model archive of climate simulations is truly transformational. The ESGF system provides secure access to a scientific gold mine of information.

In the future, the ESGF system will enable major advances in our understanding of the past and future climate change. It will also allow the scientific community to provide the more detailed and more reliable forecasts of climate change that governments and society require for developing successful adaption and mitigation strategies.

To highlight the success of the ESGF, we show a world map of the current distribution of users.



*Climate scientists anywhere in the world can access the ESGF research centers and climate data products. Each dot represents a registered site, which total over 25,000.*

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Because of these impacts, we firmly believe that the ESGF developers are deserving of an R&D 100 award.

Sincerely,



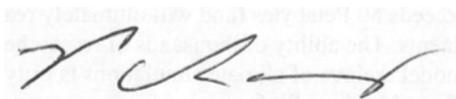
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Member, National Academy of Engineering,  
Former Chair, National Science Board  
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Robert Dickinson,  
Member, National Academies of Science and Engineering  
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Antonio J. Busalacchi  
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Chairman of the Joint Scientific Committee for the World Climate Research Programme  
Chairman of the National Research Council Board on Atmospheric Sciences and Climate