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A European Network for Earth System Modeling

Sophie Valcke, Reinhard Budich, Mick Carter, Marie-Alice Foujols, Éric Guilyardi, Michael Lautenschlager, René Redler, Lois Steenman-Clark, Nils Wedi

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NEWS

A European Network for Earth System Modeling

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The increasing complexity of Earth system models and the computing facilities needed to run those models put a heavy technical burden on research teams active in climate modeling. To ease this burden, a European collaborative venture called PRISM was initiated in December 2001 to organize a network of experts in order to share the development, maintenance, and support of Earth system modeling software tools and community standards. PRISM was recently reorganized, and a new Web portal (<http://prism.enes.org>) was unveiled in July 2006.

The PRISM network was developed with the hope that advancing specific common standards and tools will reduce the technical development efforts of individual research teams, facilitate the assembling, running, and postprocessing of Earth system models based on state-of-the-art component models, and hence facilitate scientific collaboration between the different research groups in Europe and elsewhere.

PRISM was successfully initiated as a European project under the Framework Programme 5 in 2001–2004. Its long-term support is now ensured by multi-institute funding from 16 key European institutions and computer

manufacturers contributing to a project called the PRISM Support Initiative. The main PRISM partners currently are C&C Research Laboratories, NEC Europe Ltd. (Germany), Centre Européen de Recherche et Formation Avancée en Calcul Scientifique (France), Centre National de la Recherche Scientifique (France), Gruppe Modelle und Daten from the Max-Planck-Institut für Meteorologie (Germany), European Centre for Medium-Range Weather Forecasts, National Centre for Atmospheric Science from the University of Reading (UK), and Met Office (UK).

Organized around five areas of expertise, the PRISM addresses metadata, code coupling and input/output, integration and modeling environments, data processing and management, and computing issues. The strength and success of PRISM is in providing a network allowing Earth system model developers to share their technical expertise and experiences. The benefit of the current PRISM organization is to allow 'best of breed' software tools to naturally emerge, although this means that PRISM relies on the developments done in the different partner groups to propose technical software solutions to Earth system modelers.

In the areas where unique standards have to be predefined, for example, for metadata

definition, the key role of PRISM is to provide the European entry point for international coordination—for example, with the U.S.-led Earth System Modeling Framework (ESMF) project—within the World Climate Research Programme (WCRP). Given its long-term institutional support, PRISM is now well placed to seek additional funding to provide more networking and coordination activities or to help specific technical developments within the partner groups. Additional contributors (European or not) are most welcome to join, bring in additional expertise, and ensure a wider distribution of the PRISM tools and standards.

—SOPHIE VALCKE, Centre Européen de Recherche et de Formation Avancée en Calcul Scientifique, Toulouse, France; E-mail: valcke@cerfacs.fr; REINHARD BUDICH, Max-Planck-Institut für Meteorologie, Hamburg, Germany; MICK CARTER, Met Office, Exeter, U.K.; ERIC GUILYARDI, Centre National de la Recherche Scientifique, Université Pierre et Marie Curie, Paris; MARIE-ALICE FOJJOLS, Institut Pierre-Simon Laplace, Université Pierre et Marie Curie, Paris; MICHAEL LAUTENSCHLAGER, Gruppe Modelle und Daten, Max-Planck-Institut für Meteorologie; RENÉ REDLER, C&C Research Laboratories, NEC Europe Ltd., Sankt Augustin, Germany; LOIS STEENMAN-CLARK, National Center for Atmospheric Science, University of Reading, Reading, U.K.; AND NILS WEDI, European Centre for Medium-Range Weather Forecasts, Reading, U.K.

Kamchatka Volcano Warnings for Aviation Discontinued

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The program that provides warnings to the international aviation community when volcanoes on Russia's Kamchatka Peninsula erupt stopped providing these notices on 1 March due to a loss of funding.

As of 1 January 2007, the Federal Unitary Enterprise State Air Traffic Management Corporation of Russia halted its funding for the Kamchatka Volcanic Eruption Response Team. KVERT is a collaborative project of scientists from the Russian Institute of Volcanology and Seismology, the Kamchatka Experimental and Methodical Seismological Department, and the Alaska Volcano Observatory (AVO). AVO is a cooperative program of the U.S. Geological Survey, the University of Alaska Fairbanks Geophysical Institute,

and the Alaska Division of Geological and Geophysical Surveys.

In addition to the discontinuation of aviation warnings, the loss of funding means that KVERT can no longer provide AVO and others such as the U.S. National Weather Service with access to its volcano eruption forecasts and its ground-based monitoring systems, according to AVO Scientist-in-Charge Tom Murray.

Eruptions from the 29 active volcanoes of the Kamchatka Peninsula can send volcanic ash high into the atmosphere where it can become a serious threat to planes traveling on routes between Asia and North America. The ash can clog a plane's air filter system; damage electronics, including power generators and navigation equipment; and even cause engine failure.

"The interruption of observational vigilance and this rapid notification process reduces the margin of safety [for aircraft]," Murray said. "The lack of damaging encounters in the 14 years of KVERT operations during a period of frequent explosive volcanic activity is testimony to their success to date."

The AVO will continue its own monitoring of these volcanoes via satellite and provide hazard warnings for the aviation community. However, these warnings are likely to be not as complete or as timely as the KVERT warnings because the AVO no longer has access to the Russian ground-based observational monitoring systems.

"Without a fuller suite of data to look at and also without the familiarity and expertise with the volcanoes that our Russian colleagues possess, AVO in no way can describe activity as fully as KVERT, and AVO will not even attempt to," Murray said.

—SARAH ZIELINSKI, Staff Writer