scale-dependent physics parameterizations (e.g., convection and atmospheric chemistry) are ongoing (as they are for LAMs), and these models' computational costs remain high. When these challenges are surmounted, these models' high resolution and global coverage will have the necessary fidelity to study regional climate processes.

In addition to these approaches, statistical methods and, in particular, uncertainty quantification could play a leading role in the development of policy-relevant regional climate change studies. Workshop attendees agreed that climate scientists must work more closely with climate data users to better understand user needs and to ensure appropriate use of high-resolution methods, as high-resolution information may not be relevant for all policy decisions. Furthermore, climate change simulations (at any resolution) will be more valuable in the decision-making process if the output comes with a full uncertainty characterization. Indeed, robustness of the simulation data will likely be more important than increasing resolution, participants noted.

In concluding the workshop, participants recommended that future research should focus on engaging scientists who work on a broad range of scales to enable knowledge transfer and to improve understanding of where various approaches are justified and adequate for stakeholders and data users. In such a setting, participants agreed that merging traditional LAMs with high-resolution and variable-resolution techniques could be an exciting avenue of research.

The workshop group planned to reconvene during summer 2011 to discuss preliminary results from this new class of high-resolution models and the models' ability to inform regional climate change. The workshop agenda, participant list, and a white paper synthesizing the workshop findings, as well as further information on upcoming workshops, will be available at http://public.lanl.gov/ringler/BDBS/BDBS.html.

—Sara A. Rauscher and Todd D. Ringler, Los Alamos National Laboratory, Los Alamos, N. M.; E-mail: rauscher@lanl.gov

Three Cups of Tea: Building Collaborations to Assess Earthquake Hazard in Pakistan

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The *M*7.6 Muzaffarabad, Pakistan, earthquake struck the Pakistani Kashmir on 8 October 2005, claiming more than 80,000 lives. The earthquake underscored two points about earthquake hazard in Pakistan: first, that it is high, and, second, that it is poorly understood. In Karachi, for example, hazard is generally considered to be low, yet this rapidly growing megacity is as close to a major strike-slip fault system as Los Angeles is to the San Andreas fault.

The Pakistani engineering community has sought guidance from seismologists on improved characterization of seismic hazard. This requires both improved hazard assessment methodology and improved constraints on the critical inputs to seismic hazard maps, for example, assessment of fault slip rates and geological site characterization. These inputs are currently unavailable. Efforts to map seismicity and attenuation and to estimate fault slip rates have been hampered by political instability. Yet there is no shortage of intellectual energy—Pakistan boasts an eager community of trained earthquake professionals.

This confluence of circumstances provides a unique opportunity for capacity-building projects. Collaborative endeavors blending research and training can help develop critical capacities. A number of collaborations have been going on, quietly, in recent years.

To encourage such collaborations, a workshop was held in Nepal focused on modern methods for seismic hazard analysis. With support from the Office of Foreign Disaster Assistance and the U.S. Geological Survey and local coordination by the National Society for Earthquake Technology, Nepal, the workshop was attended by 18 Pakistani and Nepalese earthquake professionals. Of the 13 Pakistani participants, seven were from Pakistani universities and six were from leading private and government organizations involved with hazard assessment.

The workshop provided an overview of open-source tools for hazard assessment, including OpenSHA (http://www.opensha.org) and the USGS Global V_s^{30} Map Server (http://earthquake.usgs.gov/vs30/). The program included hands-on exercises using these tools. For example, one exercise involved generating scenario ShakeMaps using the distributed computing capabilities of OpenSHA. In a postworkshop survey, all of the participants indicated that they looked forward to putting the tools to use in future research. Discussions among participants both during and after the workshop focused on possible opportunities to continue collaborations to better assess and communicate earthquake risk in Pakistan and Nepal.

The success of the workshop far outweighed the not insubstantial organizational difficulties that characterized its orchestration. Scientific meetings in locations where all too often the news is not good inevitably raise concerns among bureaucrats. In addition, scientists who seek funding for projects that combine practical research with capacity-building training often watch their proposals fall between the cracks—to the frustration of researchers who have seen how even modest projects deliver enormous "bang for the buck." Organizers of the Nagarkot workshop were reminded of humanitarian and best-selling author Greg Mortenson's mission to promote peace by building schools in Pakistan, and to build relationships, one cup of tea at a time. Mortenson promoted the idea that trust between nations is an outgrowth of mutual respect between individuals, and the seeds sown at the grassroots level are the ones that take root. Tea indeed fueled the seismic hazard workshop, and the workshop group's "third cup of tea" has sealed enduring friendships as well as close working relationships among participants.

Photos from the workshop and a list of organizers and participants can be found in the electronic supplement to this *Eos* issue (http://www.agu.org/eos_elec/).

—Susan E. Hough and Alan Yong, U.S. Geological Survey, Pasadena, Calif.; E-mail: hough@gps.caltech.edu