MEETINGS

Addressing Climate Challenges in Developing Countries

Advanced Study Program/Early Career Scientist Assembly Workshop on Regional Climate Issues in Developing Countries; Boulder, Colorado, 19–22 October 2011

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The Early Career Scientist Assembly (ECSA) and the Advanced Study Program of the National Center for Atmospheric Research (NCAR) invited 35 early-career scientists from nearly 20 countries to attend a 3-day workshop at the NCAR Mesa Laboratory prior to the World Climate Research Programme (WCRP) Open Science Conference in October 2011. The goal of the workshop was to examine a range of regional climate challenges in developing countries. Topics included regional climate modeling, climate impacts, water resources, and air quality. The workshop fostered new ideas and collaborations between early-career scientists from around the world. The discussions underscored the importance of establishing partnerships with scientists located in typically underrepresented countries to understand and account for the local political, economic, and cultural factors on which climate change is superimposed.

One recurring issue throughout the workshop was that of managing complex impact assessments with a large range of results from global and regional models; variations between models are often not fully understood, accounted for, and/or communicated. Also problematic is the discrepancy between the spatial and temporal scales on which regional climate projections are made (tens of kilometers and ~30–100 years) and the scales that are of primary interest to many communities in developing countries (kilometers and 0–10 years) that are presently affected by climate change. Approaches for addressing uncertainty and scaling issues might include cost-effective ensemble dynamical-statistical approaches and/or coupling regional modeling efforts to better meet specific objectives (e.g., improved integration of hydrologic models). Facilitating effective "end-to-end" communication was identified as a critical research component to increase awareness of the wider challenges and opportunities facing scientists and end users alike. Such end-to-end communication would also help to ensure that research addresses the particular needs of the communities that are its focus.

Another issue discussed during the workshop was the incomplete understanding of aerosol processes and their influence on climate. There were intense discussions on the importance of observational data sets for the development and evaluation of aerosol parameterizations in climate models. Data sets are often not easy to use, and access in some countries is restricted. The need for an international open data policy was agreed upon. Chemically detailed air quality and aerosol measurements in highly polluted developing cities (e.g., in Africa) are also required, considering the significant health impact of pollutants. New collaborations from this workshop were initiated to propose observational campaigns, where the knowledge of the local investigators is indispensable for the success and long-term viability of campaigns.

Finally, participants noted that freely available community atmospheric and impact models, data, and analysis software could facilitate new research and that new projects could be stimulated by collaborative visits to institutions with scientists who work beyond their disciplines. At least one such visit has already been arranged. Participants discussed a desire for future workshops of this kind in which a culturally and topically diverse group of scientists have a forum to exchange ideas and foster formal and informal collaborative research partnerships.

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