

**First Meeting of the International Group on Attribution of Climate-related Events
(ACE).
NCAR, Boulder, Colorado, 26 January 2009**

The first meeting of the International Group on Attribution of Climate-related Events (ACE) was held at NCAR in Boulder, Colorado to discuss the research needed to provide authoritative assessments of the causes of anomalous climate conditions and extreme weather events. Because of resilience arising from natural variability, the main way climate change is manifested on societies around the world is through changes in extremes. As a result, the scientific community faces an increasing demand for regularly updated appraisals of evolving climate conditions and extreme weather. Such information would be immensely beneficial for adaptation planning. A group of climate scientists representing the United Kingdom, United States, Australia, Canada, and South Africa assembled to discuss how to meet this challenge.

A clear conclusion of the meeting was that there are important research needs in developing an attribution service sufficiently reliable and timely to be applied routinely. Extensive development and validation of models will be needed alongside intelligent use of homogenized observations and the development of process understanding. Models capable of reliably simulating and resolving processes at the appropriate scales for assessing impacts and methods for generating risk estimates of extreme events will be needed. A consistent use of terminology and close collaborative international teamwork will be required to maintain an authoritative voice when explaining complex multi-factorial events such as the recent Australian wildfires. Some examples discussed at the meeting included the European heat-wave of 2003, the prolonged drought in the Southwest U.S. and the record minima in Arctic sea ice of 2007 and 2008.

The meeting discussed opportunities to coordinate efforts internationally, including climate modeling experiments. A variety of different modeling approaches were considered. An analysis of European summer temperatures that compared an ensemble of typical “climate resolution” simulations with both anthropogenic and natural forcings versus one with just natural forcings concluded that human influence had very likely doubled the likelihood of the high seasonal temperatures observed in 2003 over the European region. This serves as one example of how robust information can be presented in the face of continuing scientific uncertainty. Models of substantially higher resolution will likely be required to capture the essential physical processes responsible for events such as floods. The meeting concluded that atmosphere-only models constrained by prescribed sea surface temperature patterns, could be used as part of a toolkit to address the causes of specific events, but that atmosphere-ocean coupling and the causes of the SSTs also had to be addressed.

The group affirmed that attribution is a core component of a climate service to provide regular updates on monitoring, explanation, and prediction. Participants agreed that there is a strong link between an event-attribution activity and seasonal and decadal forecasting which will require an increased near real-time numerical experimentation activity. Understanding the past is key to developing trust in forecasts of what is likely to happen

in future. We invite scientists interested in the challenging issue of event attribution to join us as we develop this program of research.

Acknowledgements

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