

ATS/CIRA Colloquium

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**The Usability of Climate Science
in Planning and Management**

Hosted by Christian Kummerow

**3 p.m. Thursday, Sept. 26
ATS room 101**

Using global-averaged, surface temperature as a measure, the last time the monthly average was below the 20th century average was February 1985, more than 34 years ago. The median age of the world's population is 33 years. Hence, more than half the world's population has never experienced a month when the temperature was below the 20th century global average. Since the decade starting with 1980, each decade has been warmer than the previous. The temperature difference between the decades has been larger than the range of variability of the temperature measurements. Ice and permafrost are melting; sea level is rising. We are in a time of rapid climate change. Though we have developed policies such as the Kyoto Protocol and the Paris Agreement, and we have made substantial progress on the use of renewable energy, atmospheric carbon dioxide emissions continue to increase. Therefore, the evidence suggests we will not disrupt the observed climate trends in the foreseeable future.

On one hand, the knowledge provided of our future by climate science provides an enormous opportunity. We do not rely on speculation or the magic of the crystal ball. On the other hand, our inability to use this knowledge to mitigate, effectively, dangerous levels of warming highlight the difficult challenges of human behavior and entrenched power structures that must be addressed. Increased efforts to adapt to climate change will be required. These efforts are challenged by the fact that we are in a period of rapidly changing climate and this non-stationarity will continue over our lifetimes and the lifetimes of the coming generation. We will require, essentially, adaptive adaptation. Development of sound, evidence-based adaptation plans will require knowledge of climate change and how to use that knowledge.

Though climate scientists have generated motivational knowledge and posed observations and climate-model projections as useful for applications, the experience of many planners and managers is that climate knowledge is often not usable. For the past decade, I have been a part of a team of social scientists, climatologists, and practitioners focused on the usability of climate knowledge¹. From this work, we have developed models of engagement to advance usability. Successful use of climate knowledge, often, relies on multi-constituency problem solving with climatologists working interactively to develop meaningful fits between climate data and knowledge and the practitioner's needs.

This talk highlights the challenges of real-world use of climate-model projections and describes the context in which climate knowledge fits into problem solving. A scenario management approach, to manage uncertainty and place climate information in context with management decisions, is described.

¹ Great Lakes Integrated Sciences and Assessments Project: <http://glisa.umich.edu/>