Genesis of the New York Climate and Health Project

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NCAR Workshop
Temperature-Mortality Association in 11 US Cities


Just kidding!

Funding Opportunity

- EPA Request for Applications (RFA) published Jan 7, 2000, for studies “Assessing the Consequences of Interactions between Human Activities and a Changing Climate”
- Proposals were due April 26, 2000
- Full RFA can be viewed at: http://epa.gov/ncer/rfa/archive/grants/00/00humanrfa.html
Context

One year before, I had been invited to join the NSF-funded “Metro East Coast (MEC) climate impact assessment” – part of the U.S. National Assessment of the Potential Consequences of Climate Variability and Change.

MEC project was co-directed by Cynthia Rosenzweig, a climate impacts scientist at NASA Goddard Institute for Space Studies, and Bill Solecki, a geographer and land use modeler, now at Hunter College.

In MEC assessment, I looked at health implications of ozone projections for the NYC metro area from the GISS GCM/chemistry model (Drew Shindell), with help from two masters students.

I was frustrated by un-realistic ozone estimates in the NYC metro area from the global chemistry model.
Assessments of Consequences of Climate Change

Focus of RFA
Tools that adapt & integrate models from the two disciplines

Human Dimensions Models
- Human Dimensions Research
  - sociology, economics, psychology, urban planning

Natural Sciences Models (Incorporating Climate)
- Natural Science Research
  - biology, chemistry, hydrology, ecology, medicine
Strategy for Proposal

• Use MEC work and collaboration as a spring-board
  • A pre-existing collaboration is always good
  • Preliminary findings that point towards further research also is a good thing.
• “human dimension” component would be urban sprawl
• “natural sciences” component would be climate change
• We would combine the two and look at health impacts
• Seek to overcome limitations of the coarse GCM scale to get more realistic ozone estimates for NYC metro area
• Easy to include temperature too
Team Building

• MEC team already included the global climate piece (Cynthia Rosenzweig) and urban land use/cover (Bill Solecki and Chris Small).

• Needed to add regional-scale climate modeling and regional-scale air quality modeling.

• Roni Avisser at Rutgers was a regional scale climate modeler using the RAMS model, with some ties to GISS – he agreed to join.

• NY State Dept of Environmental Conservation had a team, headed by ST Rao, doing regional-scale air quality modeling using CMAQ model, EPA’s newest and best air quality model – he too agreed to join.

• For health team, I needed a coordinator and a grad student
Questions we Proposed to Address:

1. What changes in the frequency and severity of extreme heat events are likely to occur over the next 50 years due to a range of possible scenarios of LU/LC and climate change in the MEC region?

2. How might the frequency and severity of episodic concentrations of ozone (O₃) and airborne particulate matter smaller than 2.5 mm in diameter (PM₂.₅) change over the next 50 years due to a range of possible scenarios of LU/LC and climate change in the MEC region?

3. What is the range of possible human health impacts of these changes in the MEC region?

4. How might projected future human exposures and responses to heat stress and air quality differ as a function of socio-demographic features across the MEC region?