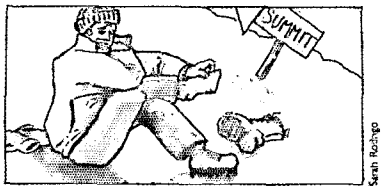
MONITORING ITCHY AND SCRATCHY



Have you noticed a persistent itch recently that just cannot be scratched away? Well, you're probably living in one of the America's itchiest cities, as determined by the University of Delaware's Center for Climatic Research and the Lanacane Itch Information Center.SM Together, they release a daily index that ranks the itchiness of cities throughout the country in four categories ranging from "high concern" to "minimal concern." The rankings are determined by evaluating relative humidity, temperature, and wind information. Cities that have a relative humidity of below 20% for more than three consecutive days are most liable to be areas of "high concern." Not surprisingly, high-altitude cities tend to be the itchiest. Denver, Colorado, Albuquerque, New Mexico, and Flagstaff, Arizona, are among the locations that are consistently in the "high concern" category.

focused on Philadelphia, and the analysis will soon be extended to include Detroit.

Our general approach involves using a mesoscale atmospheric model (the MM5) to simulate historical weather conditions associated with oppressive air masses. We first establish base-case control simulations and then model the same episodes using modified surface characteristics associated with various levels of citywide implementation of UHI mitigation. Our findings suggest that increasing urban albedo by 0.10 can lead to large regions of air temperature depressions averaging 0.5°C over much of the day. Higher levels of mitigation are possible and are expected to correspond to even more significant temperature depressions.

The modeled differences in urban meteorology are added to the observational data corresponding to each episode and used in conjunction with models relating oppressive air mass characteristics to health. In our approach, air masses are identified using a variety of statistical procedures. The resulting airmass identification scheme places each day within a particular airmass type and permits identification of those air masses historically associated with elevated human mortality. The specific airmass categories are dry polar, dry temperate, dry tropical, moist polar, moist moderate, and moist tropical (a particularly oppressive subset of moist tropical is most responsible for excess deaths). By linking the meteorological model output with the Spatial Synoptic Classification system, we hope to project how large-scale mitigation of the urban heat island might impact the frequency of oppressive air masses and associated heat-related mortality rates.—David J. Sailor (Tulane University), Laurence S. Kalkstein, and Eva Wong. *"The Potential of Urban Heat Island Mitigation to Alleviate Heat-Related Mortality—Methodological Overview and Preliminary Modeling Results for Philadelphia"* (*Fourth Symposium on the Urban Environment*).

Land Surface Parameterization Effects in Inland Tropical Storm Simulations

Do land surface processes and land–atmosphere interactions matter even for synoptic weather events such as tropical storms? This is the focus of our ongoing investigation. Traditionally land–atmosphere interactions have been considered important under weak synoptic conditions. However, there is growing evidence that with finer grid spacing in numerical models, the ability to simulate fine scale features and hence the structure and intensity of land–atmosphere feedback becomes more important.

We compared the performance of the MM5 using two different land–atmosphere schemes to understand the importance of land surface processes and land–atmosphere interactions in the mesoscale and synoptic-scale weather associated with Tropical Storm Allison's (2001) movement through North Carolina from 15 to 18 June 2001. Two sets of simulations were performed. The first employed the Oregon State University land surface model coupled with the MRF PBL scheme, while the second simulation was completed using the Pleim–Xiu land surface model coupled with the asymmetric convective model. We used three nests (with 5-, 15-, and 45-km grid spacing) with one-way interaction between the respective domains and integrated the simulations for the 72 h until 0000 UTC 18 June 2001. Results from the two simulations were compared with several surface and remote sensed observations and analysis.

The results indicate that the representation of model land–atmosphere interaction is important even for simulating synoptically driven events. Land surface