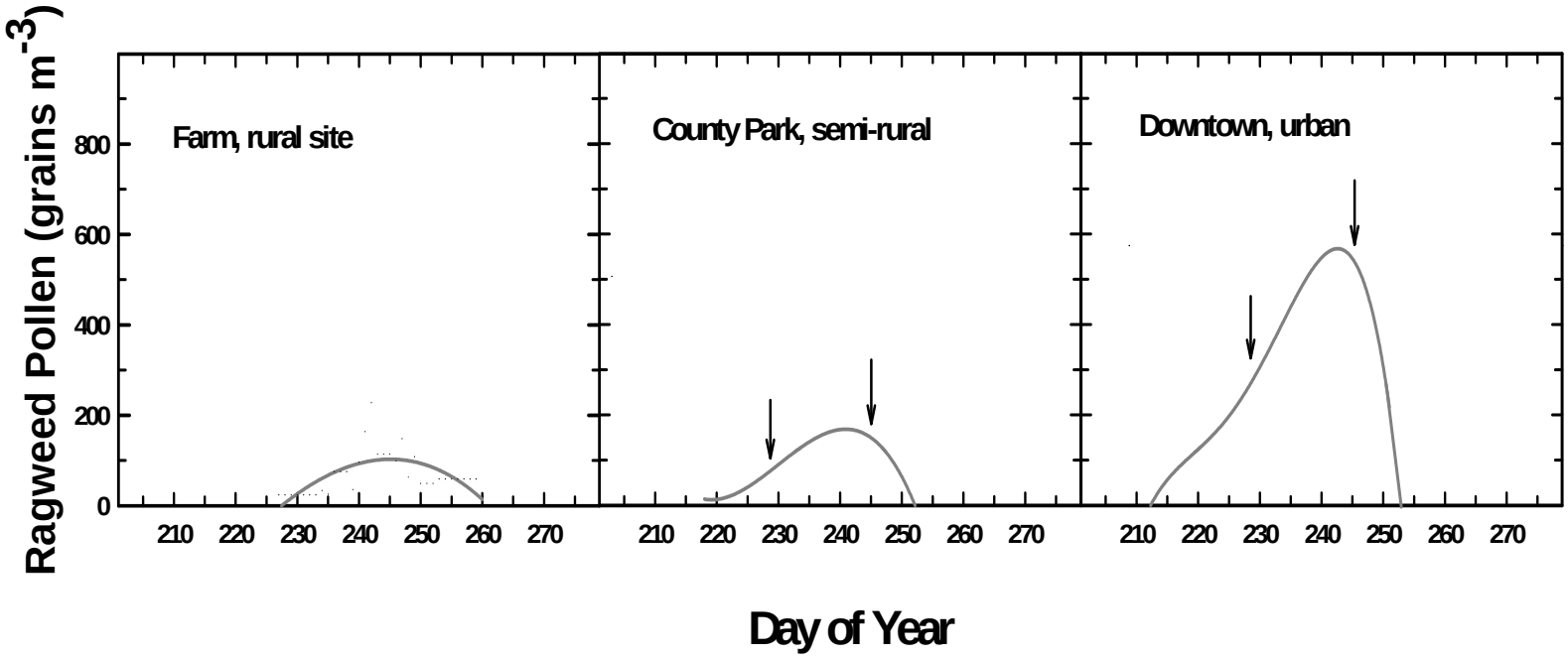
UMCP, USDA-BARC:
National Scale Assessment of the Impact of Climate Change on Asthma Morbidity
NIH, ~200k

Amir Sapkota, PhD
Assistant Professor
University of Maryland School of Public Health
Maryland Institute for Applied Environmental Health

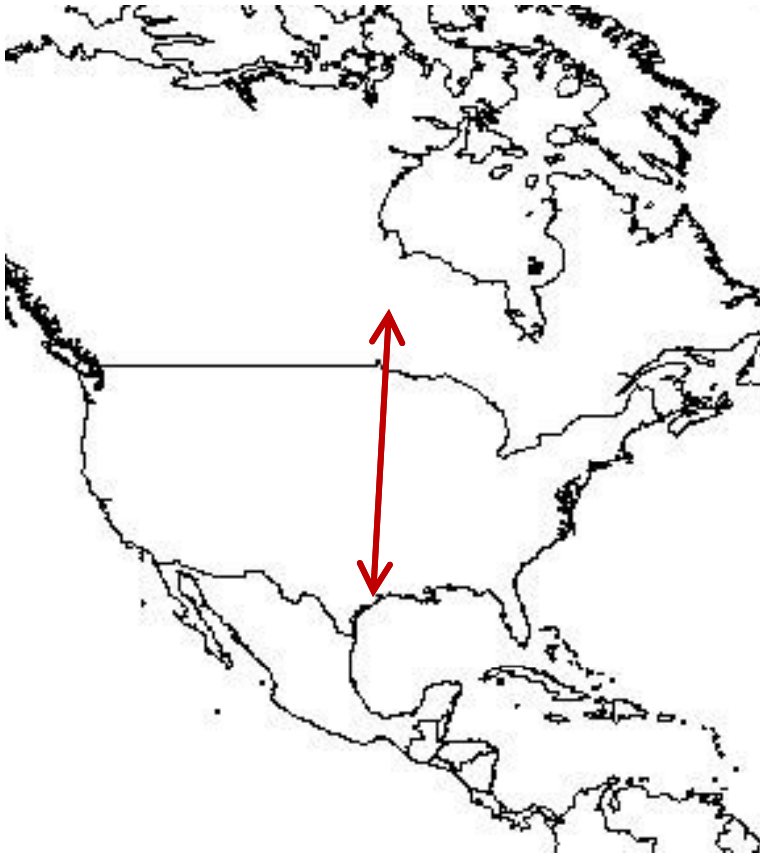
Lewis Ziska, PhD
Plant Physiologist
Crop Systems and Global Change Laboratory
USDA-ARS, BARC

Got ragweed?



Urban locale had longer growing season (milder winter), warmer temperatures, and more carbon dioxide.

Ziska et al. 2003, *JACI*, 111:290-295.



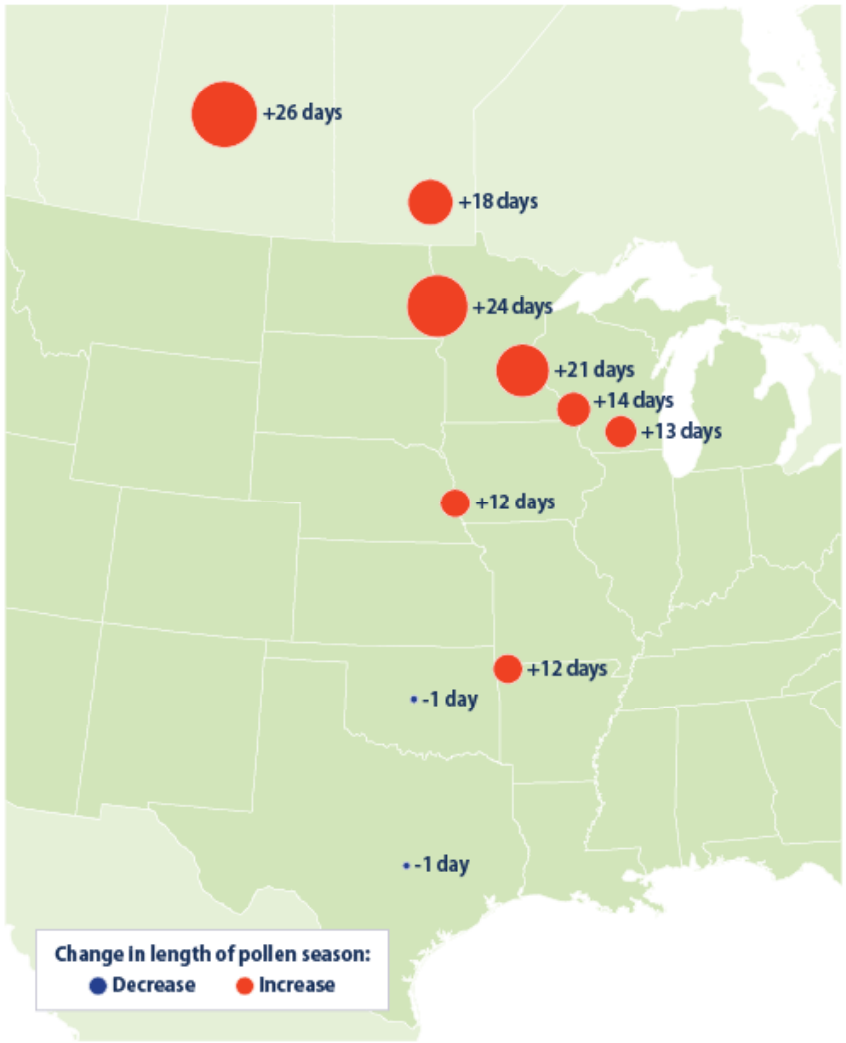
Scaling Up: Warming should increase with increasing latitude.
Is a climate signal apparent with respect to length of ragweed pollen season?

Climate signal: From June 21st to first frost.

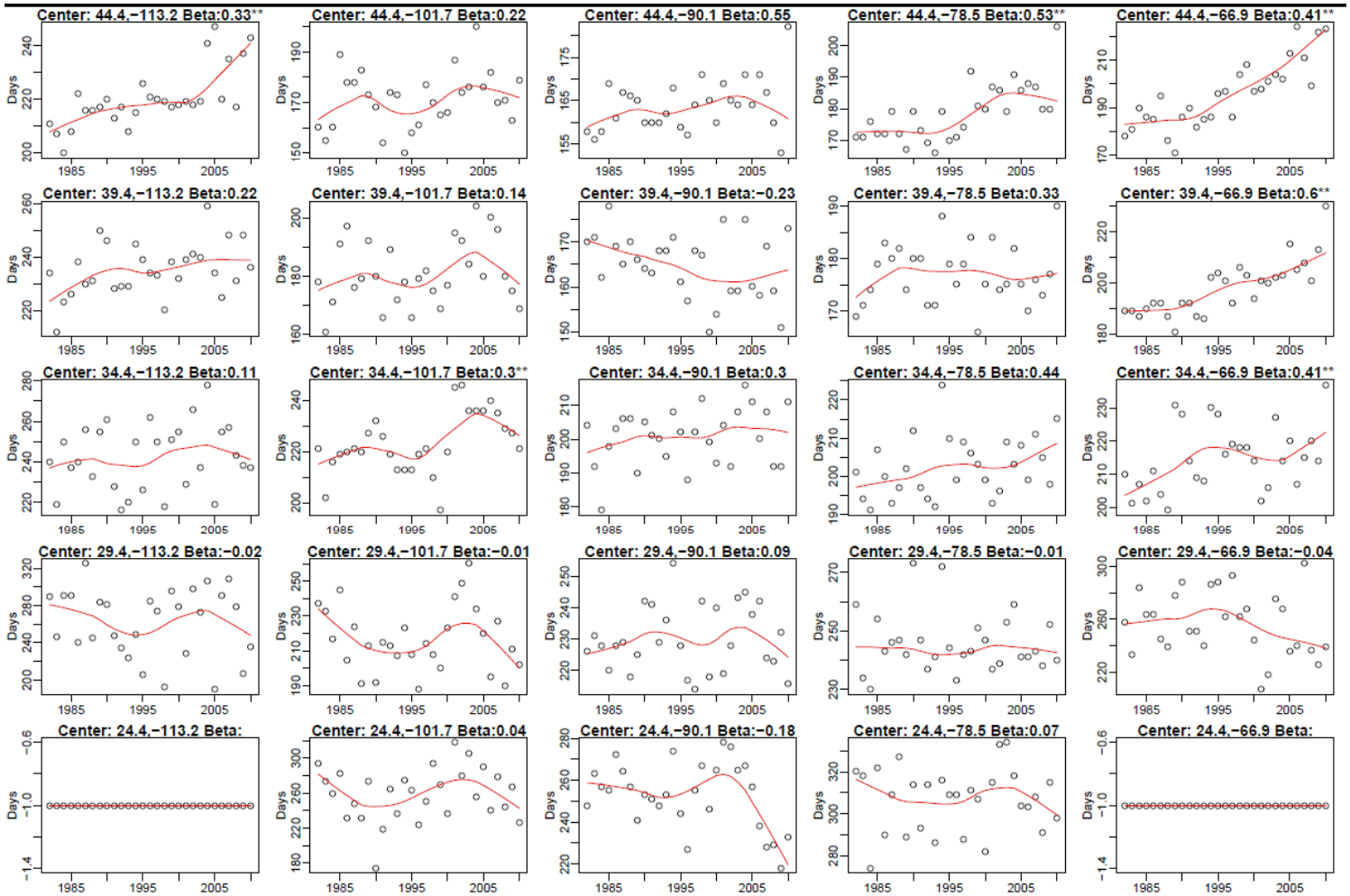
Frost Free Days, Pollen Season and Latitude

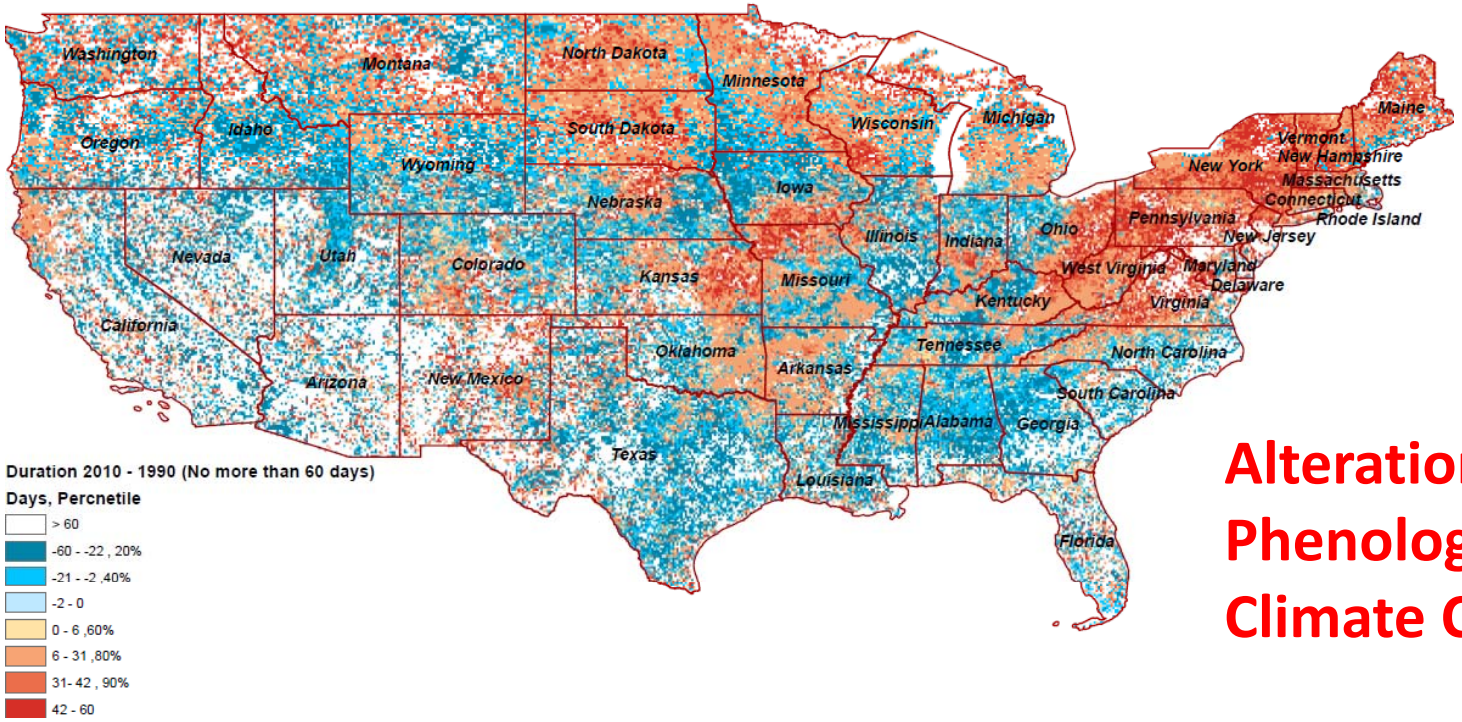
PNAS, 108: 4248-4251

Figure 1. Change in Ragweed Pollen Season, 1995–2011



Temporal trend in growing season length





Alteration in Plant Phenology Related to Climate Change

Why is this of interest to Public Health Researchers

EXPOSURE = Concentration X Frequency x Duration

Disease example: Asthma

Earlier onset of spring → earlier exposure to pollen

Higher temperature/CO2 → Higher concentration of pollen (potency?)

Longer growing season length → longer duration of exposure