

Making heat forecasts public health relevant on climate time scales: lessons learned

**WORKSHOP ON THE DEVELOPMENT OF
CLIMATE INFORMATION SYSTEMS FOR HEAT
HEALTH EARLY WARNING
28 JULY 2015**

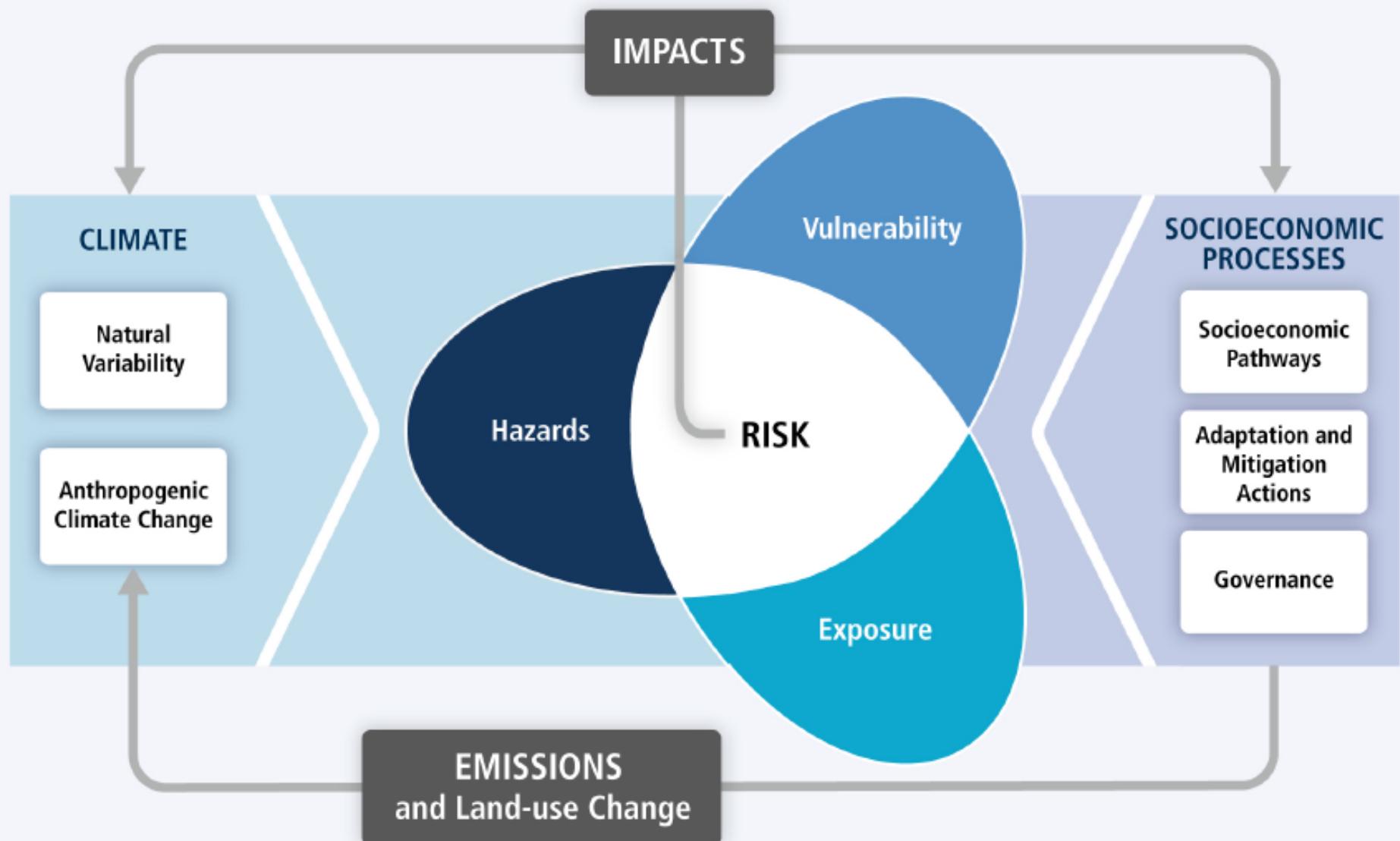
Kristie L. Ebi, Ph.D., MPH
University of Washington

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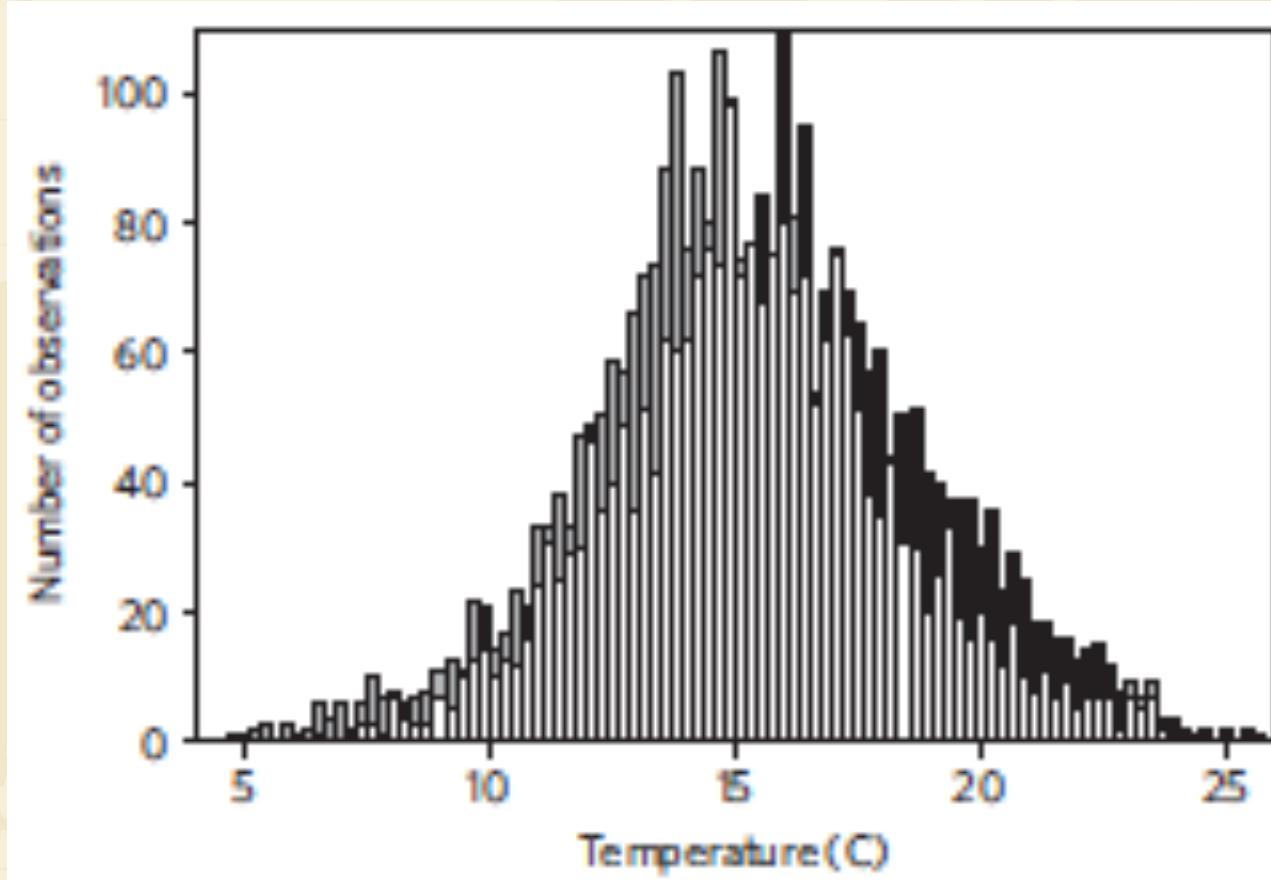
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Chattanooga Times Free Press Bennett

Temperature distribution of 2-day moving average of mean summer temperature



Astrom et al. 2013

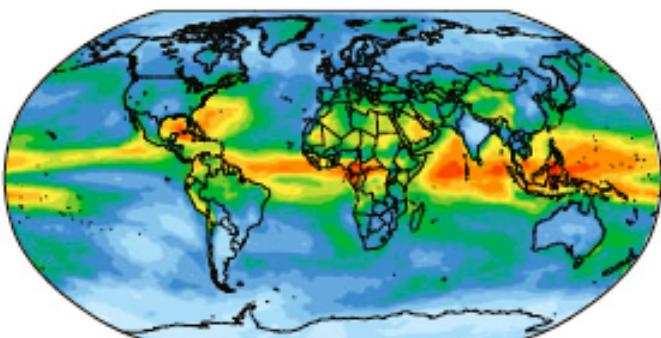
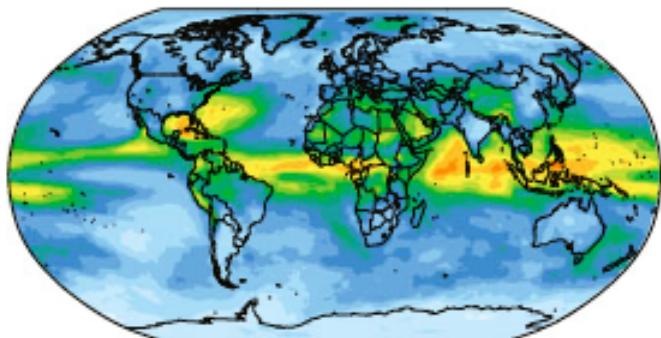
Occurrence of 1985-2005 T Max

% of Years in Each Period

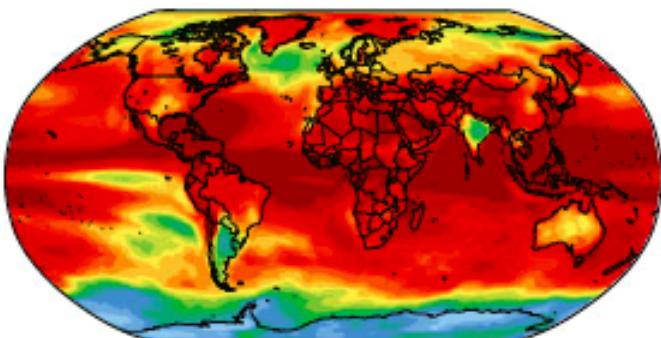
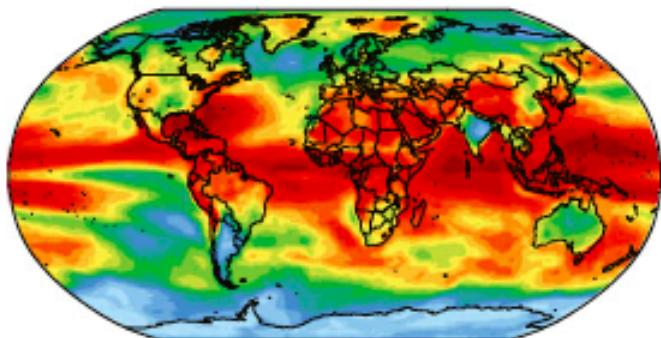
JJA - RCP 4.5

JJA - RCP 8.5

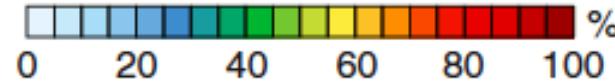
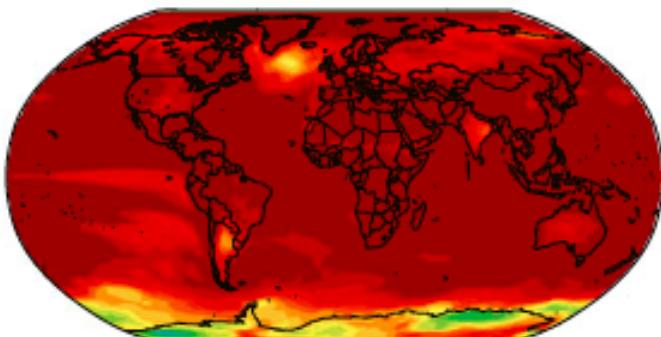
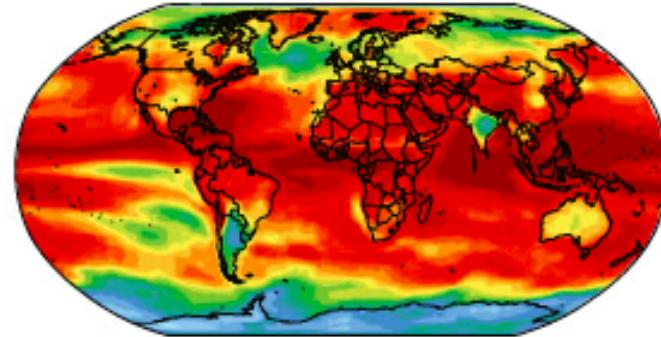
2016-2035



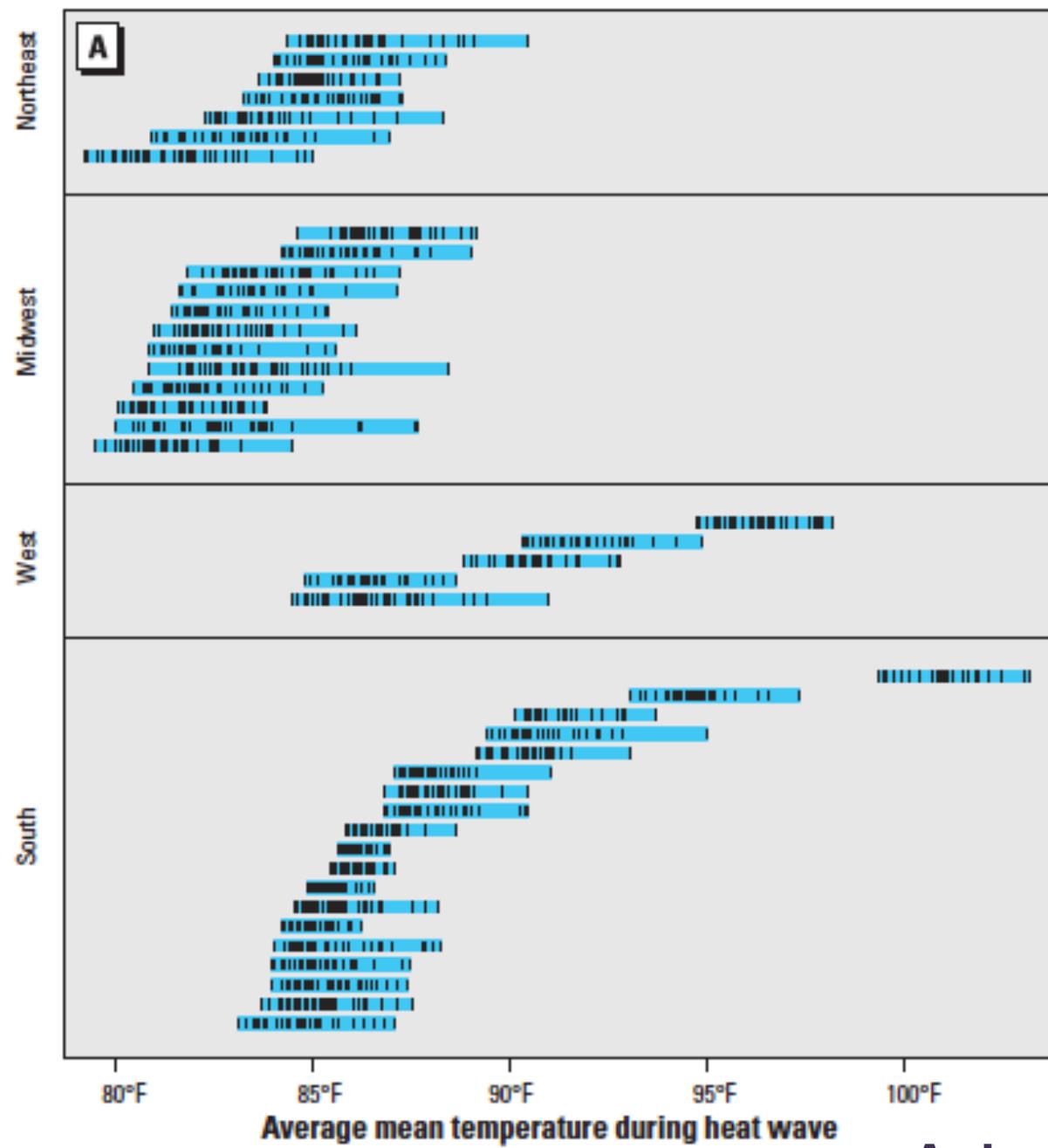
2046-2065



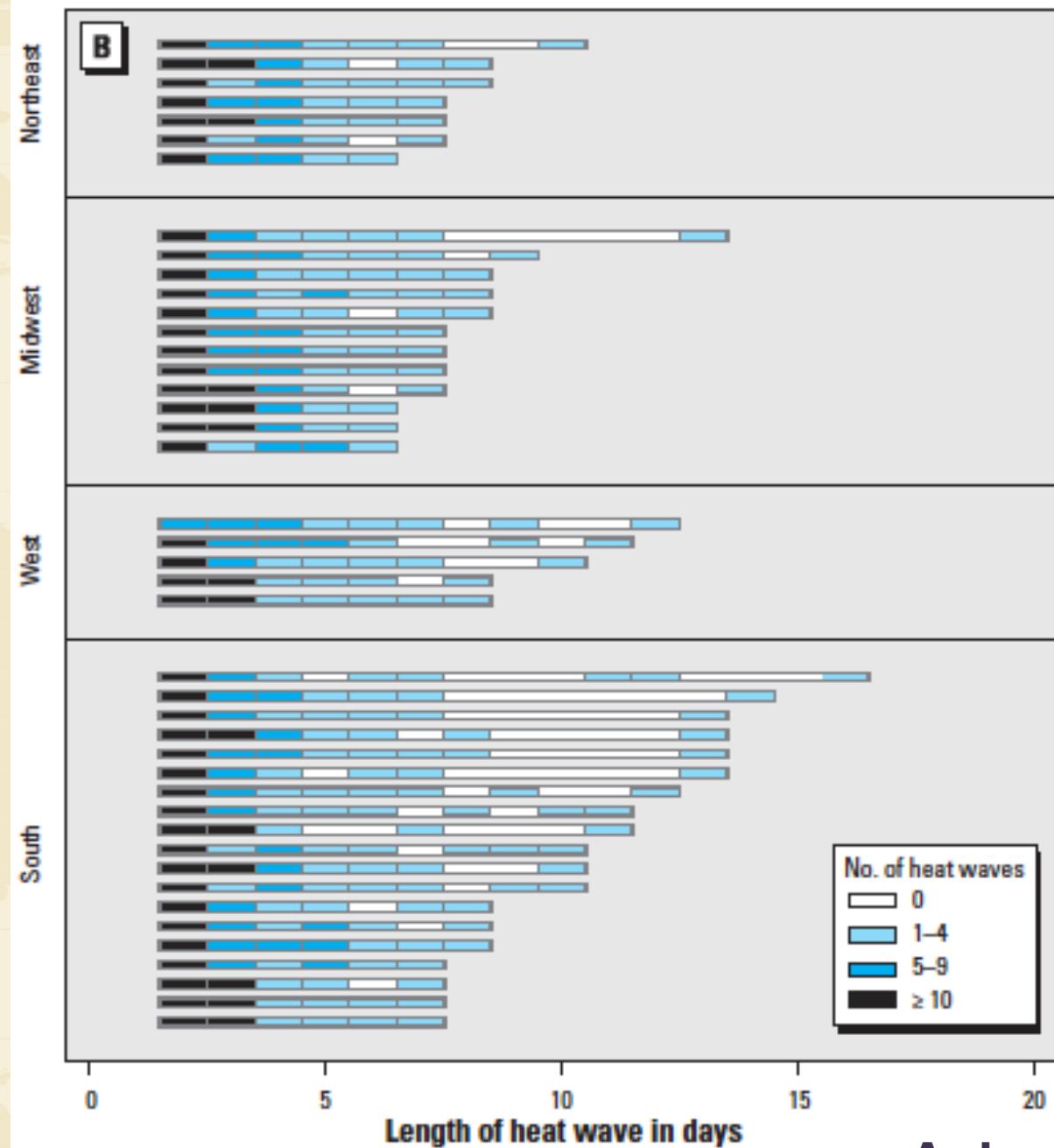
2080-2099



Diffenbaugh 2012



Anderson & Bell 2011



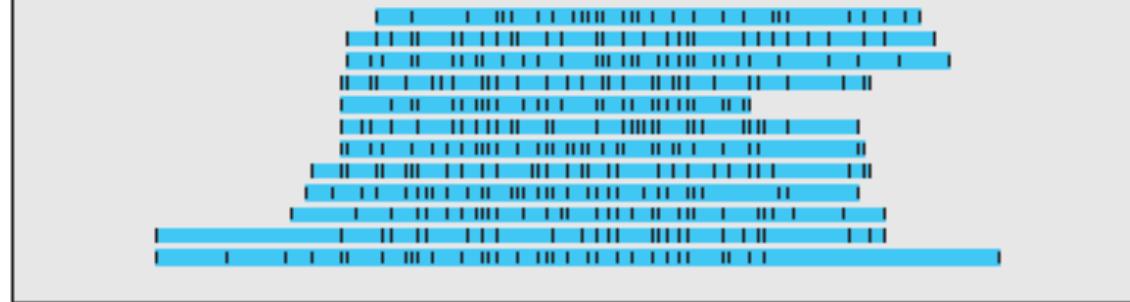
Anderson & Bell 2011

Northeast

C



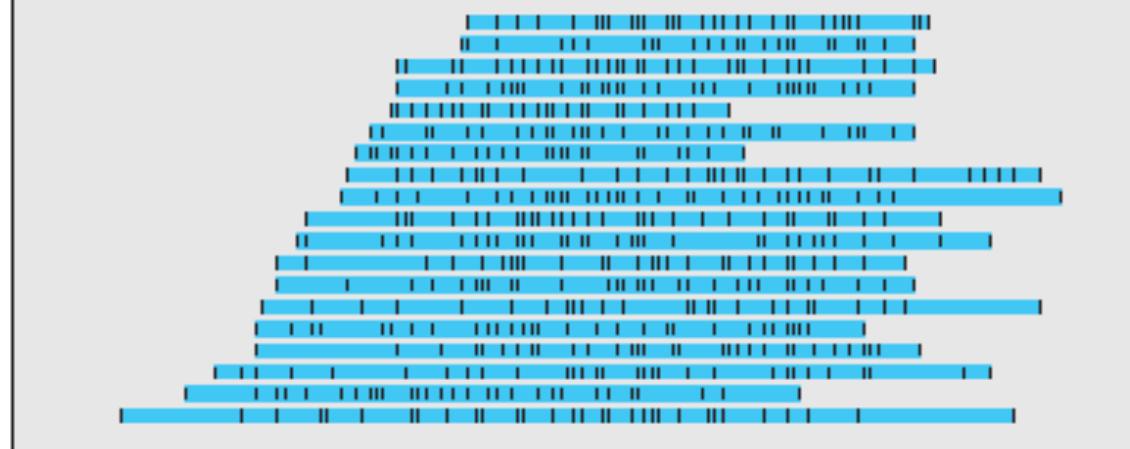
Midwest



West



South



1 May 1 June 1 July 1 Aug 1 Sept 30 Sept

Day in season of heat wave

Anderson & Bell 2011

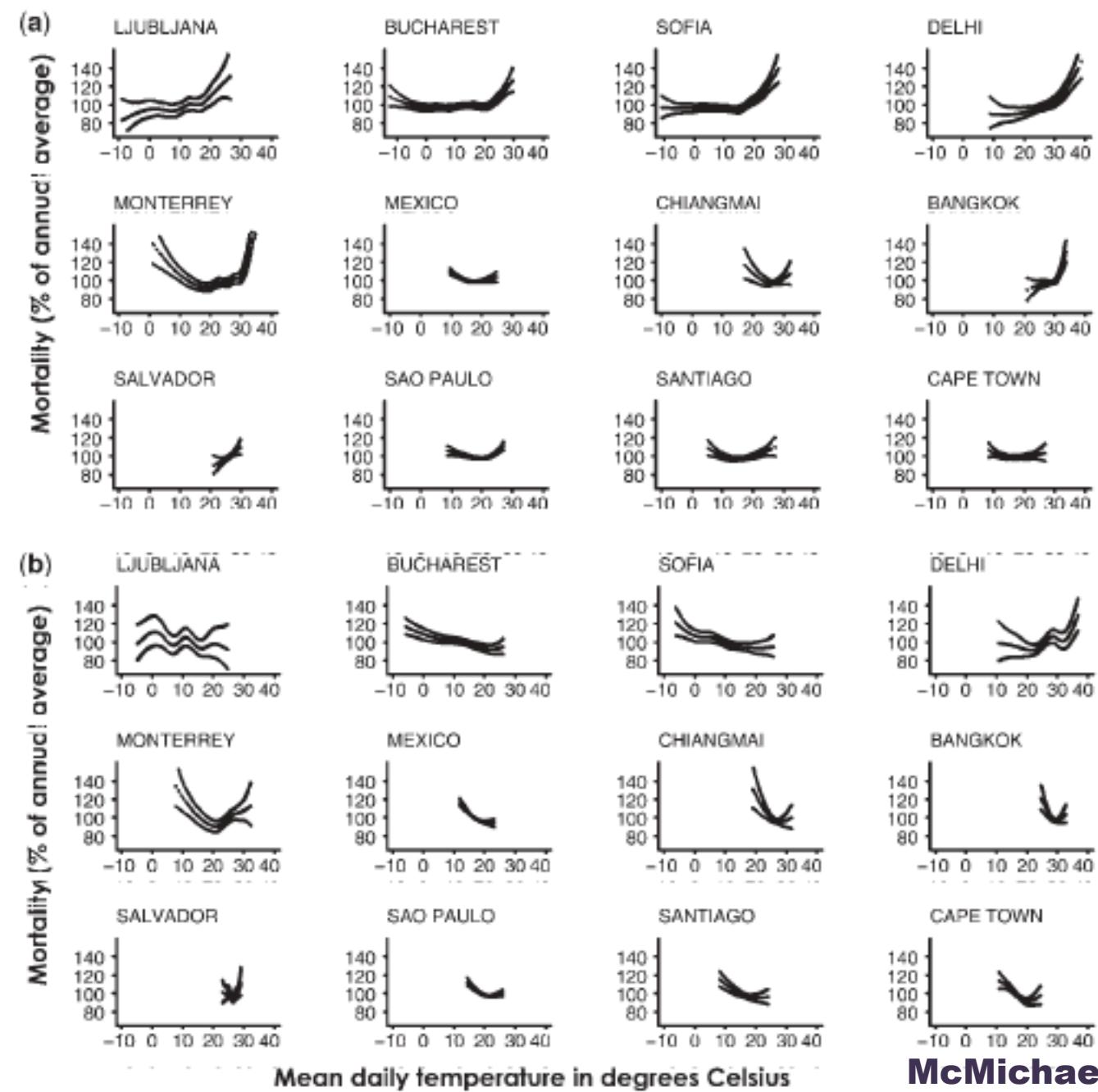
Certificate of Death

This is to acknowledge the death of

On the _____ Day of _____ In the year _____

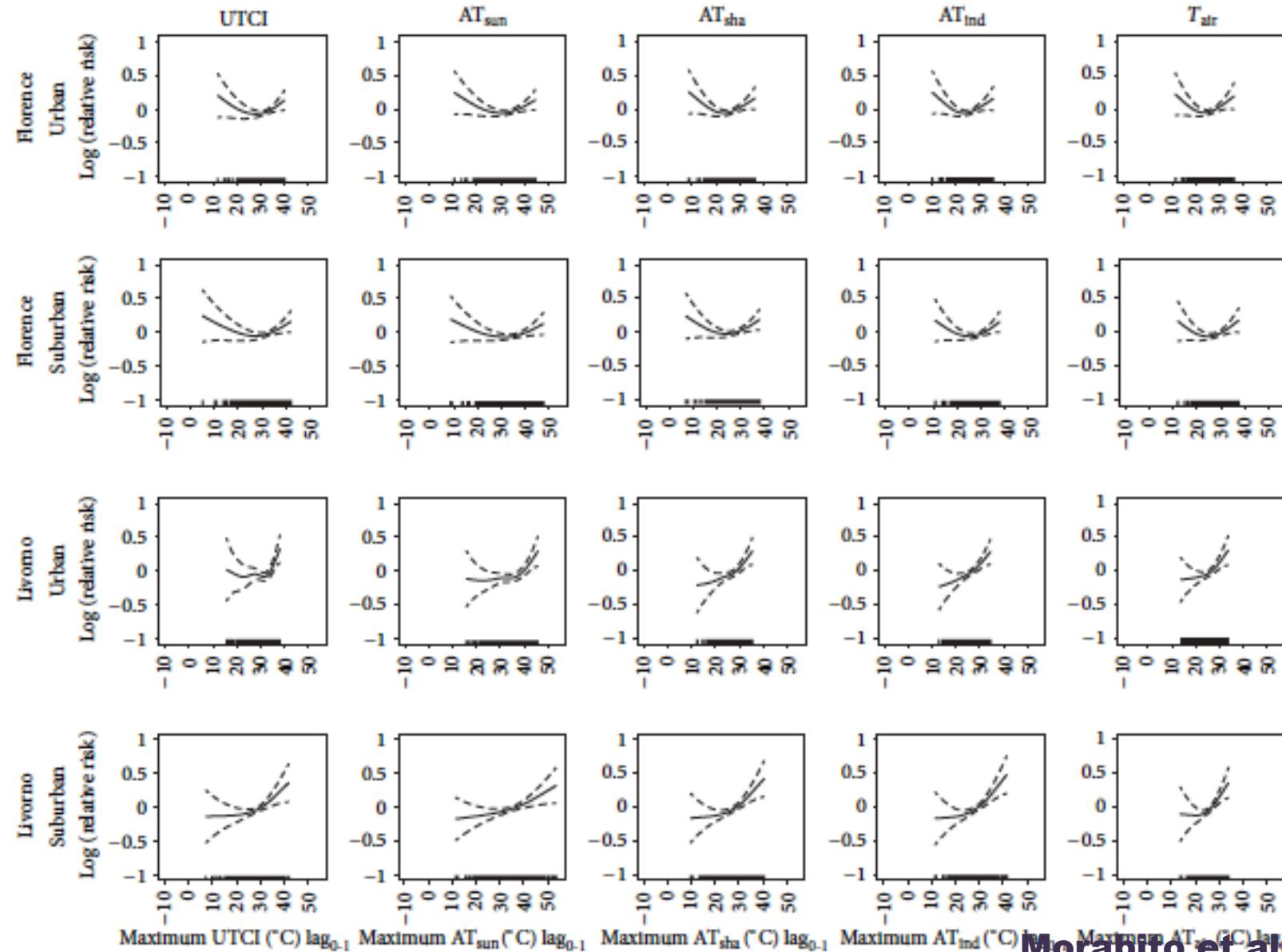
At: _____.

Signed,



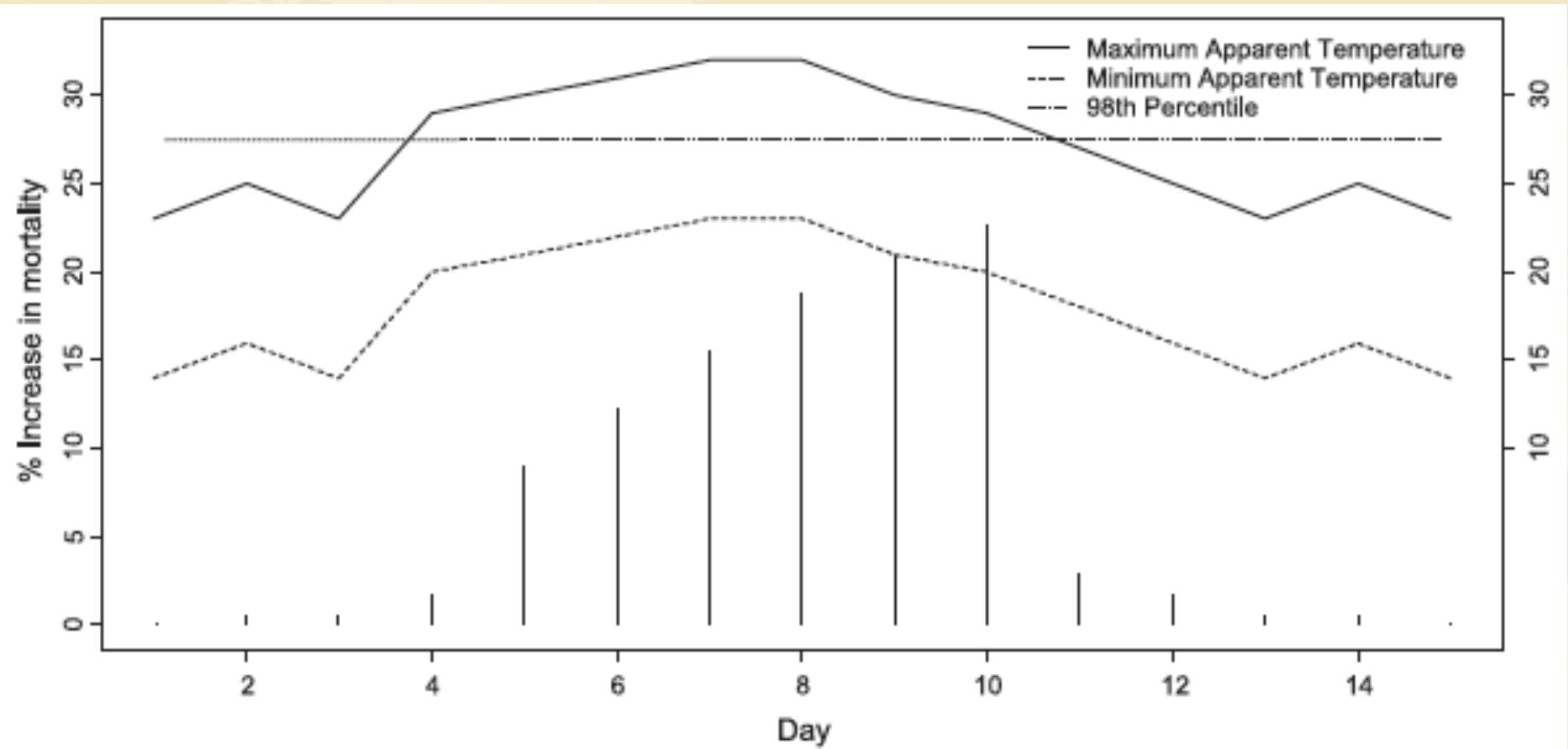
McMichael et al. 2008

Relationship between daily maximum thermal predictors & daily mortality of adults > 75 years of age



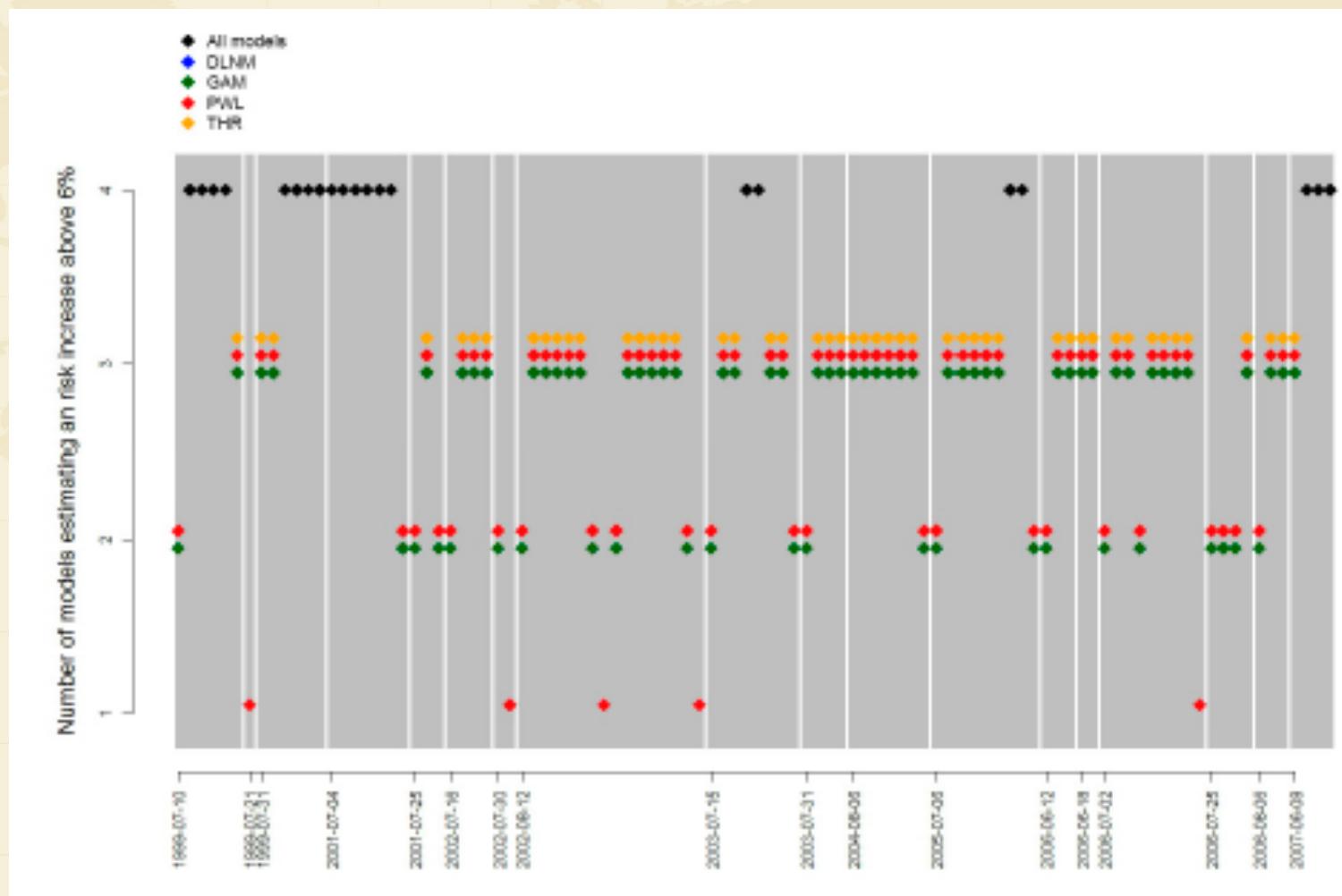
Morabito et al. 2014

Expected excess mortality from a heatwave scenario, Stockholm



Rocklov et al. 2011

Comparison of which epidemiological models identify heatwave days as risk days



Astrom et al. 2015

Risks factors

- Age: infants; 65 years of age and older
- Certain chronic medical conditions / mental illness / using certain medications
- Income and poverty status
- Homelessness
- Social isolation
- Access to health care
- Access to cooling facilities
- Neighborhood characteristics

Extreme Heat and Risk of Early Delivery Among Preterm and Term Pregnancies

Nathalie Auger,^{a,b} Ashley I. Naimi,^c Audrey Smargiassi,^{a,d} Ernest Lo,^a and Tom Kosatsky^e

Heat stress, dehydration, and kidney function in sugarcane cutters in El Salvador – A cross-shift study of workers at risk of Mesoamerican nephropathy

Ramón García-Trabanino^a, Emmanuel Jarquín^b, Catharina Wesseling^c, Richard J Johnson^d, Marvin González-Quiroz^{e,f}, Ilana Weiss^g, Jason Glaser^g, Juan José Vindell^h, Leo Stockfeltⁱ, Carlos Roncal^d, Tamara Harra^d, Lars Barregard^{i,*}

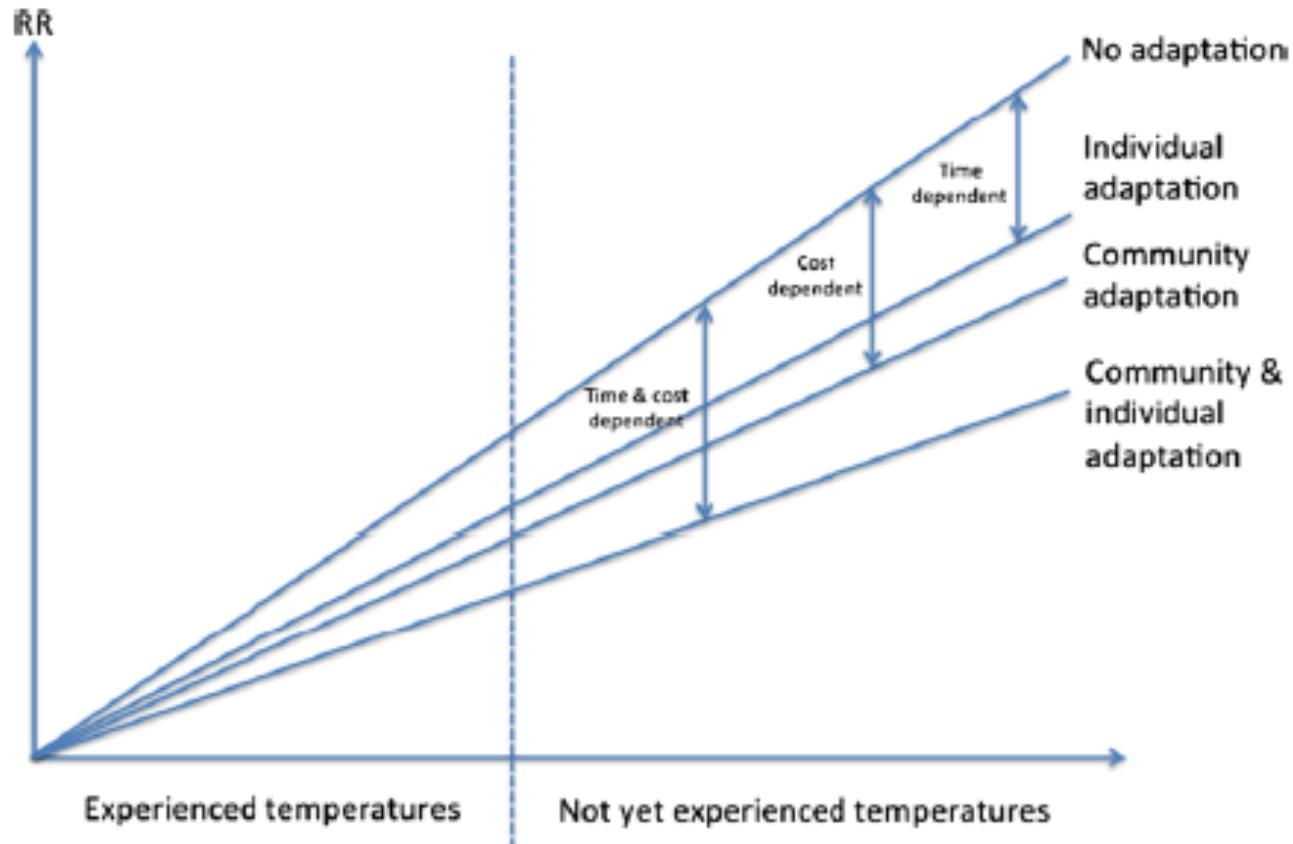
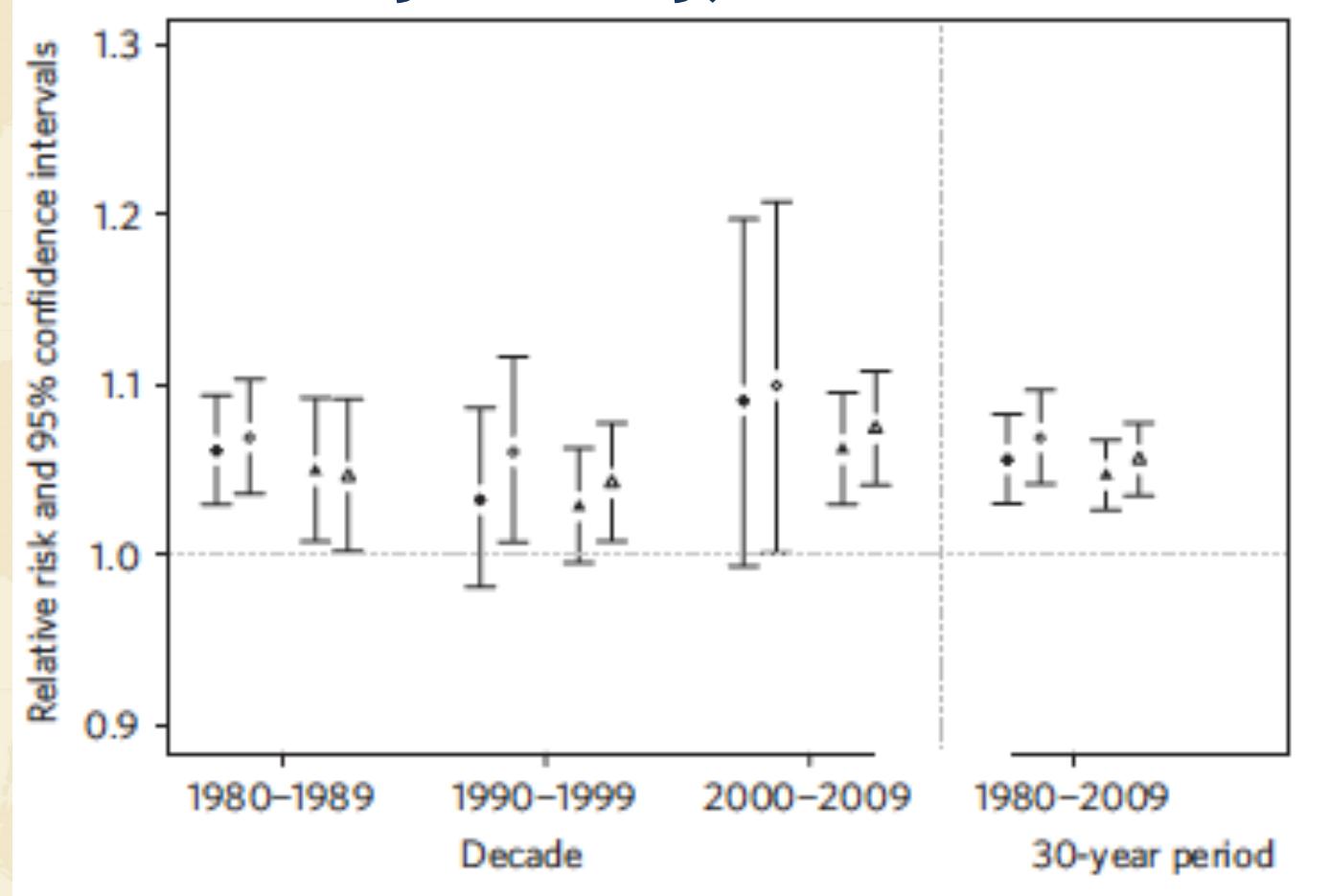


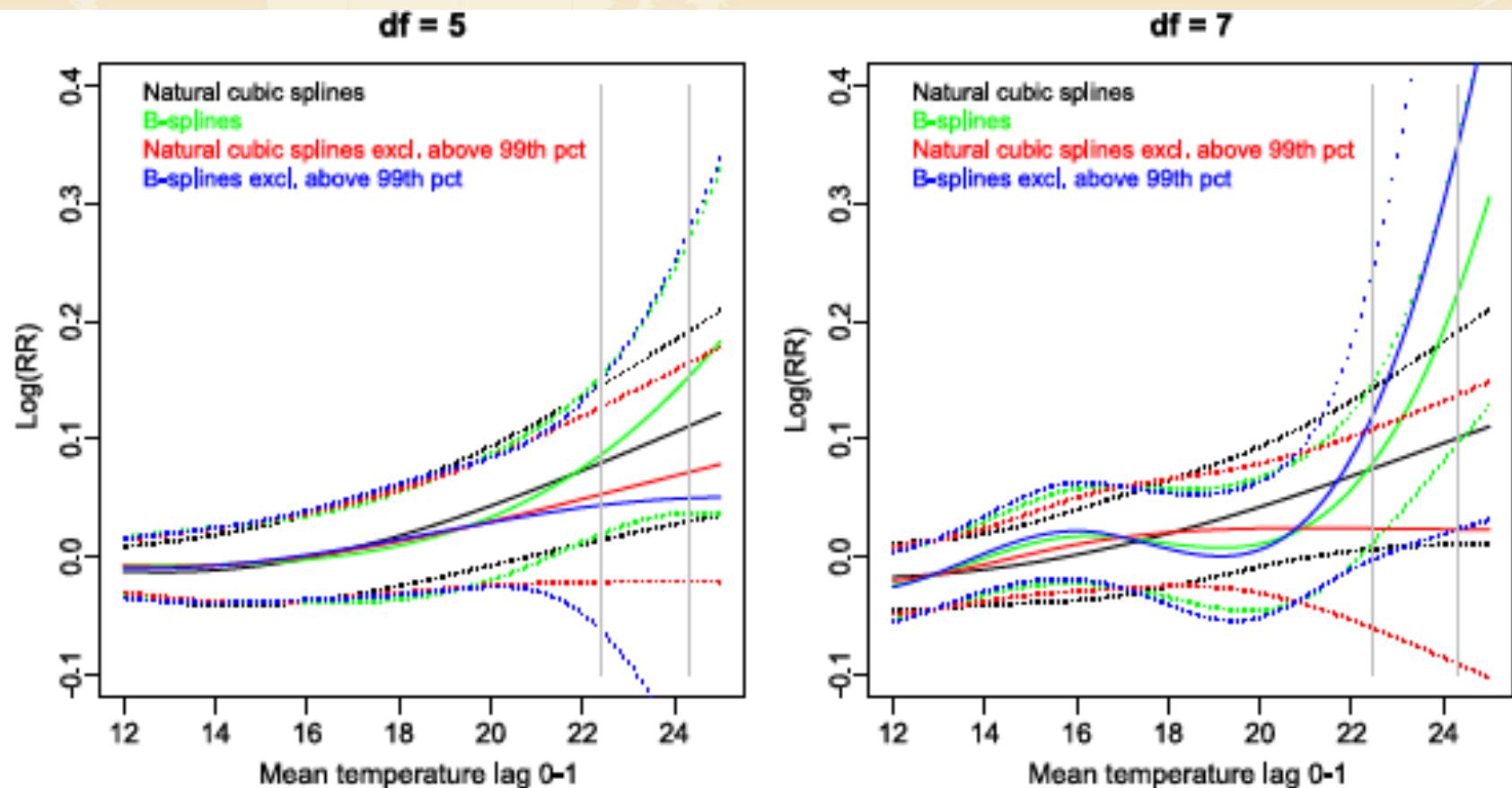
Figure 2. Hypothetical relative risks (RR) of mortality in relation to experienced and future temperatures under different adaptation types.

Mortality related to temperature extremes for 1980-2009, Stockholm



Astrom et al. 2013

Projecting heat effects in Stockholm county





This canine friend is not amused. Photo: TT

Sweden agency hikes heat warning to 'extreme'

Published: 24 Jul 2014 09:41 GMT+02:00

Updated: 24 Jul 2014 09:41 GMT+02:00

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Swedish weather agency SMHI has raised its weather warning to class 2, giving notice of "extremely high temperatures" in parts of the country.

