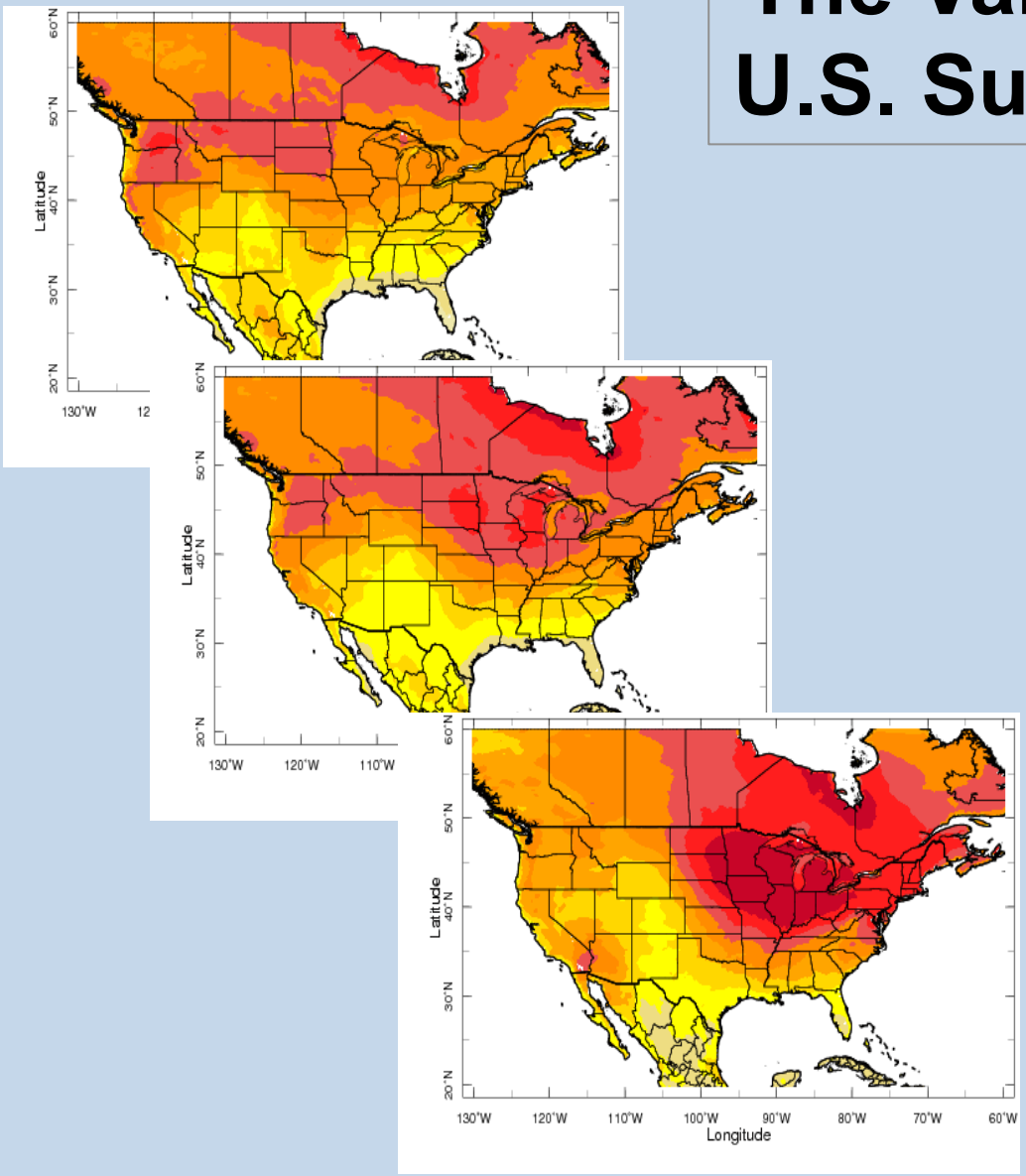
The Varying Character of U.S. Summer Heat Waves



Bradfield Lyon
University of Maine, Orono

Tony Barnston
IRI, Columbia University

NOAA Webinar

April 28, 2016

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NOAA
U.S. DEPARTMENT OF COMMERCE

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International Research Institute for Climate and Society
EARTH INSTITUTE | COLUMBIA UNIVERSITY

Heat Wave Definition(s)

Variable

→ Daily maximum, minimum, mean temperature
→ Include humidity (Apparent Temp. [T_a], Equivalent Temp. [T_{eq}], Heat Index)

Magnitude/Threshold

→ Absolute (35 °C), Relative (95th percentile, 99th percentile…)

Duration

→ 1 day, 3 days, 5 days…

- *From a **physics** perspective, we expect differences in behavior based on definition… (frequency, persistence, spatial distribution)*

- *From an **impacts** perspective, we expect differences in sensitivity based on definition… (health, energy, agriculture…)*

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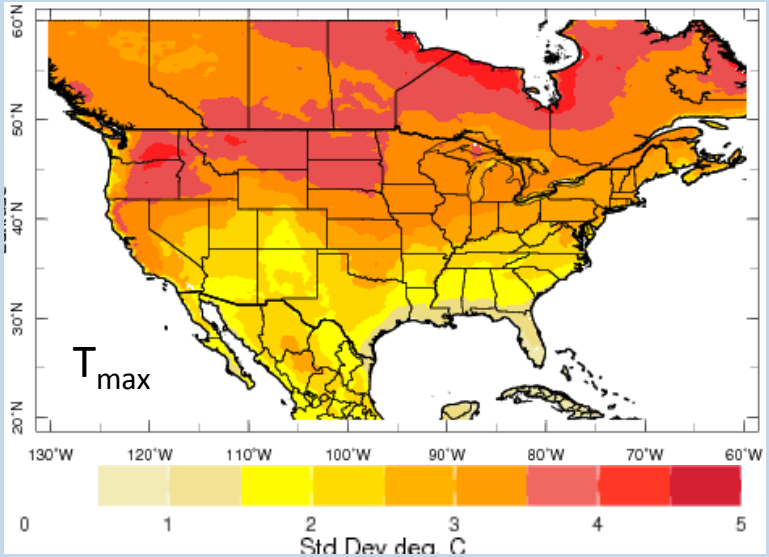
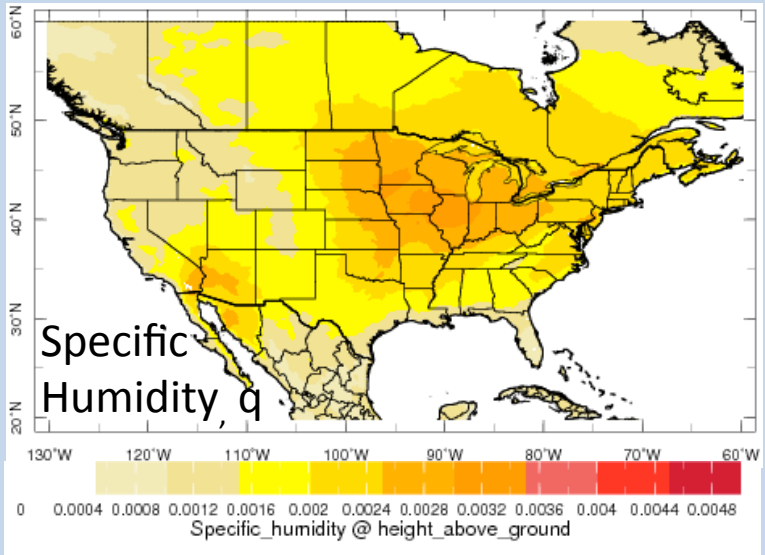
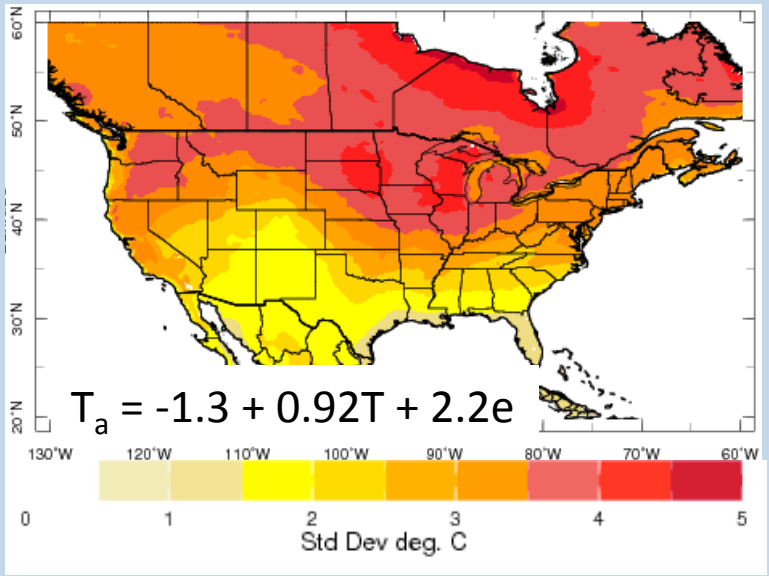
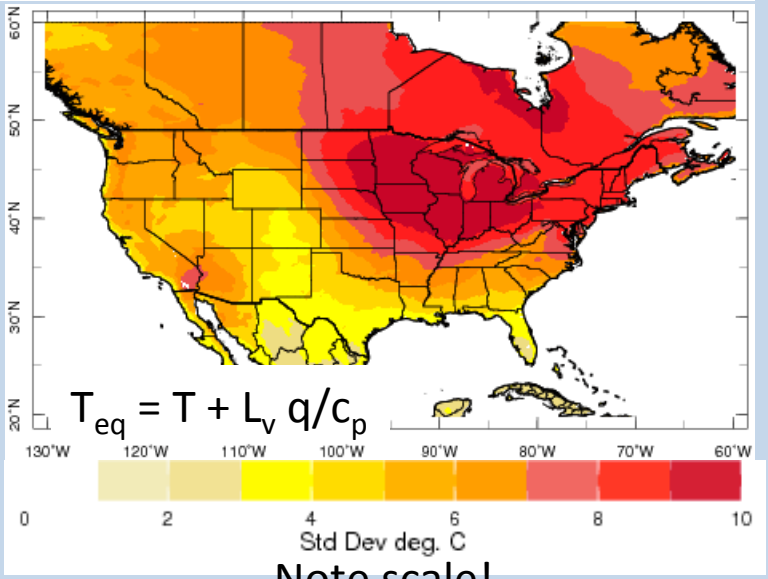
Standard Deviation of Daily Variables (Jun-Aug, 1979-2014, NARR)









Note scale!

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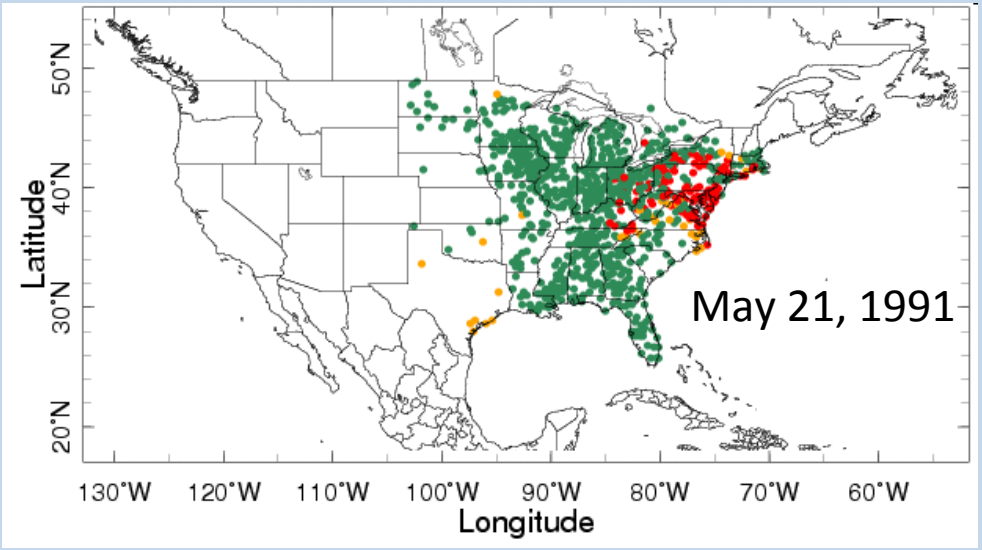
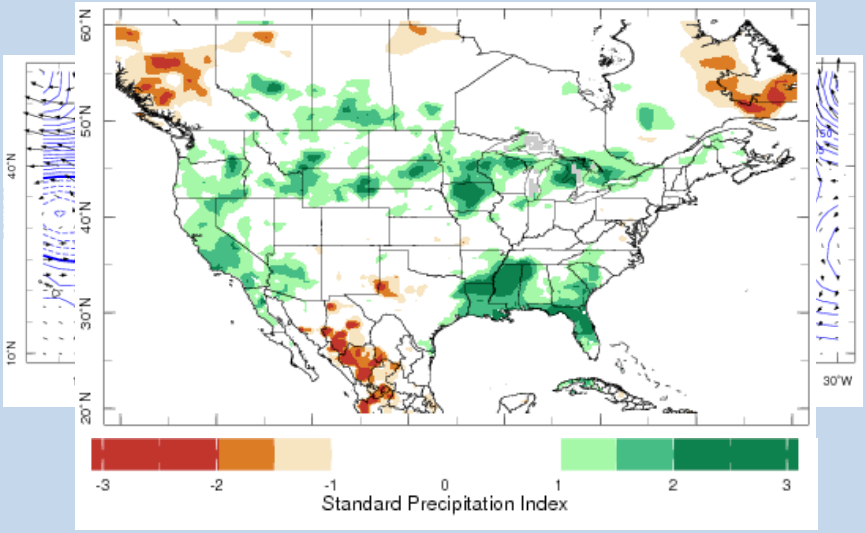
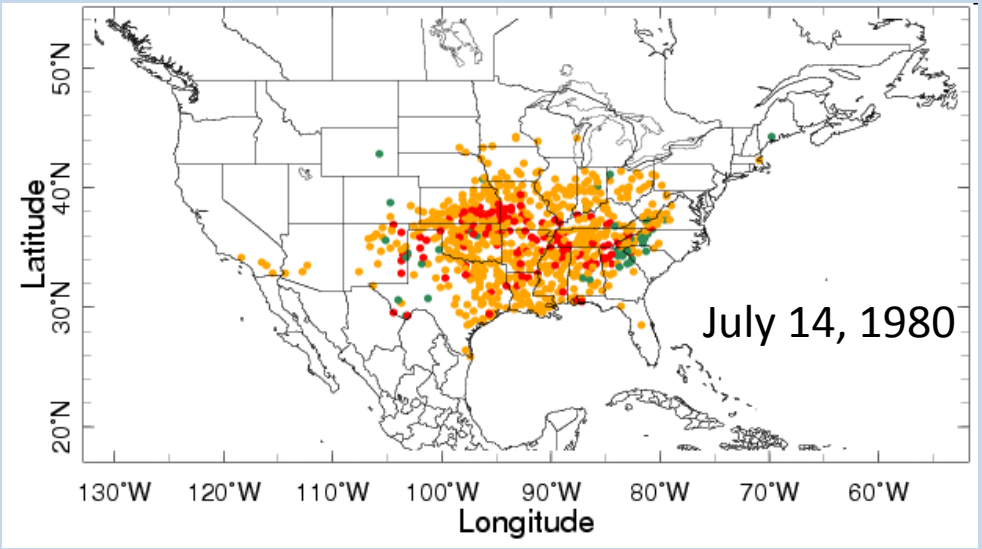
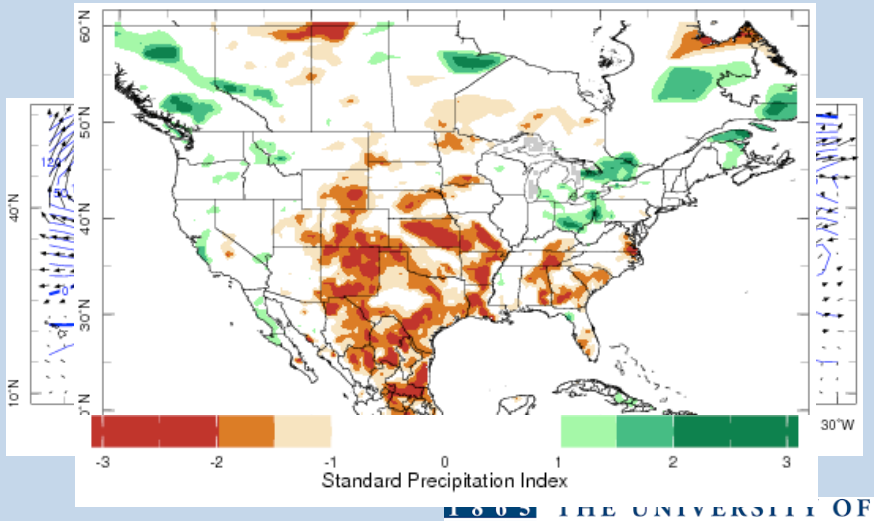
Heat Wave Examples

Minimum Temp Maximum Temp Both T_{max} & T_{min}









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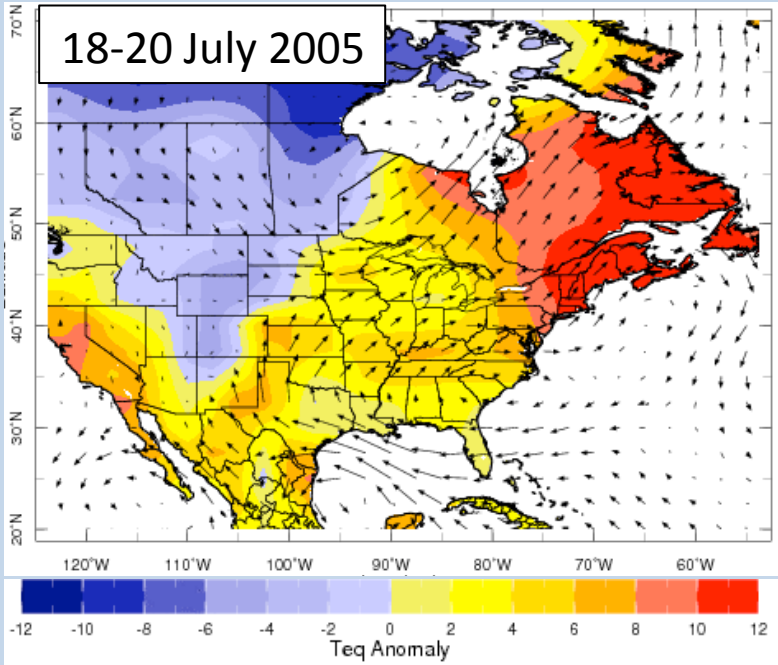
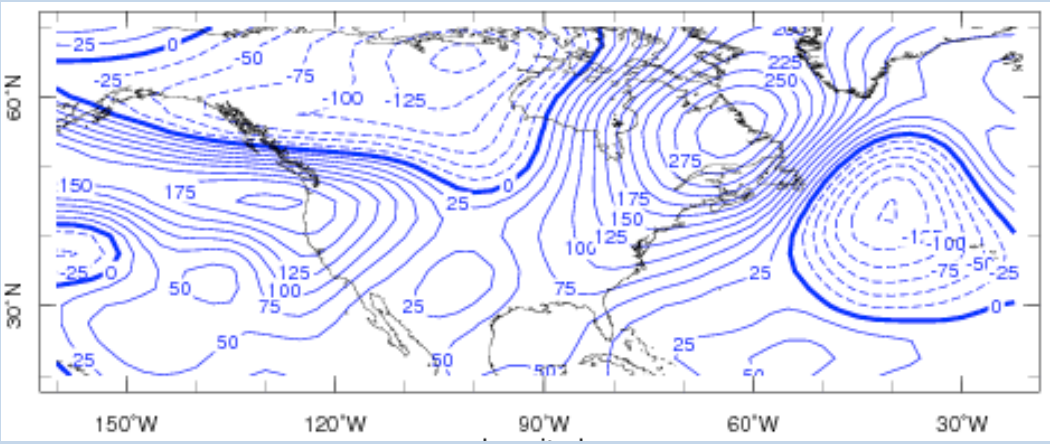
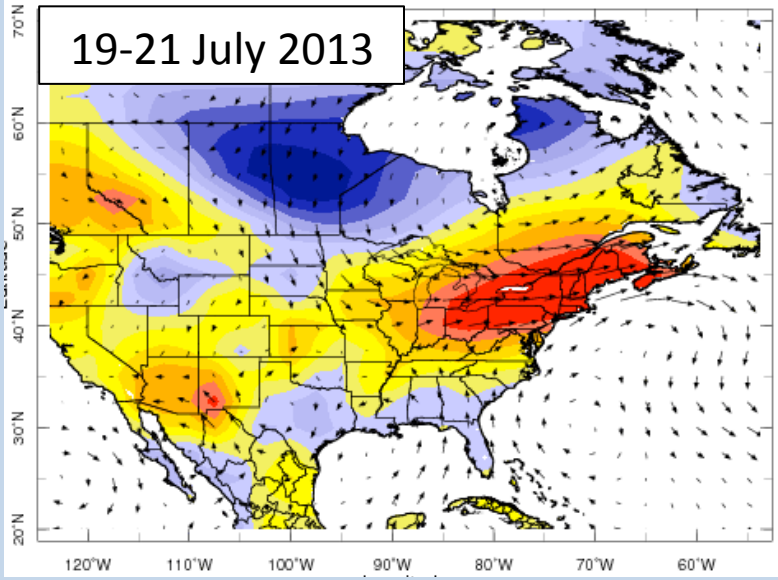
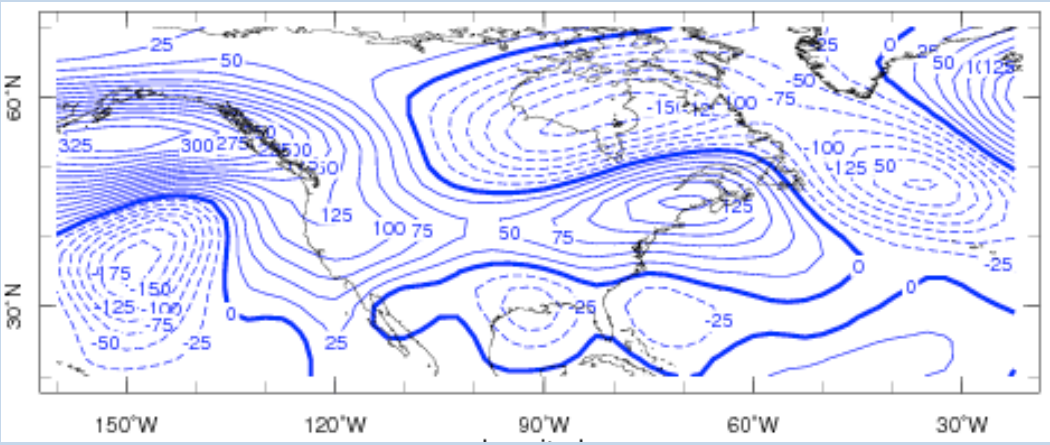
Heat Wave Examples (T_{eq} > 95th, 3+ days)









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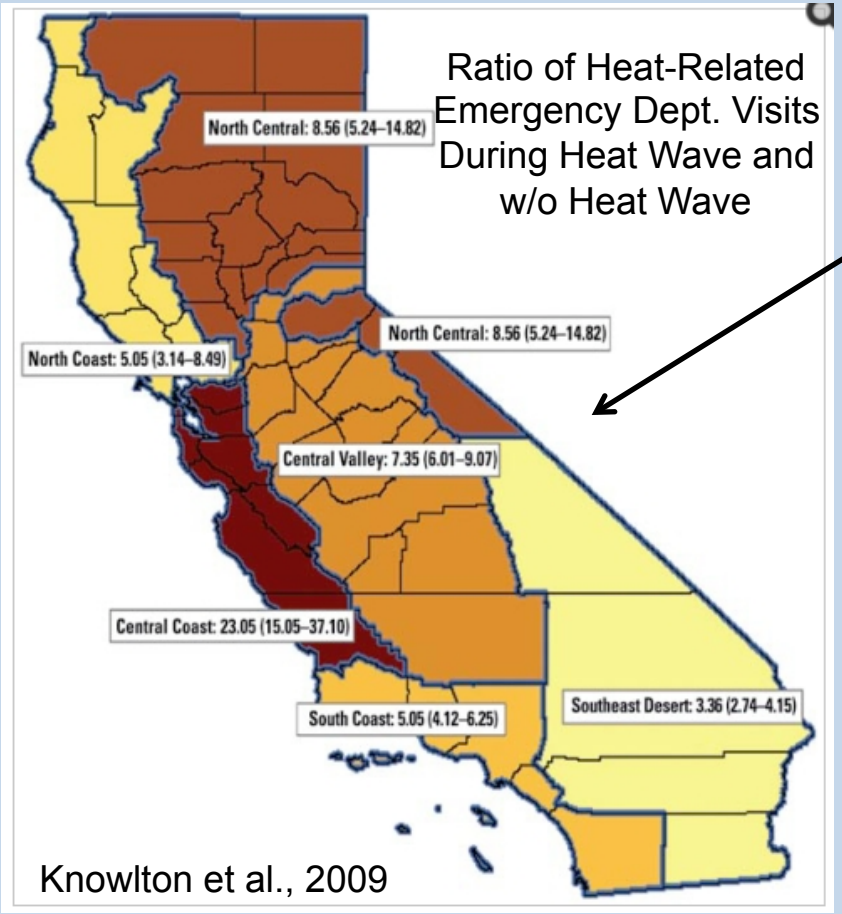
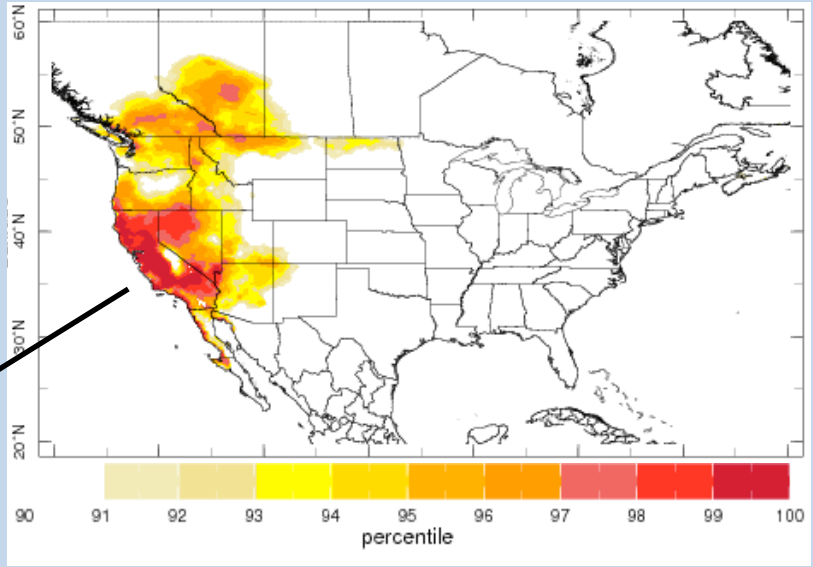
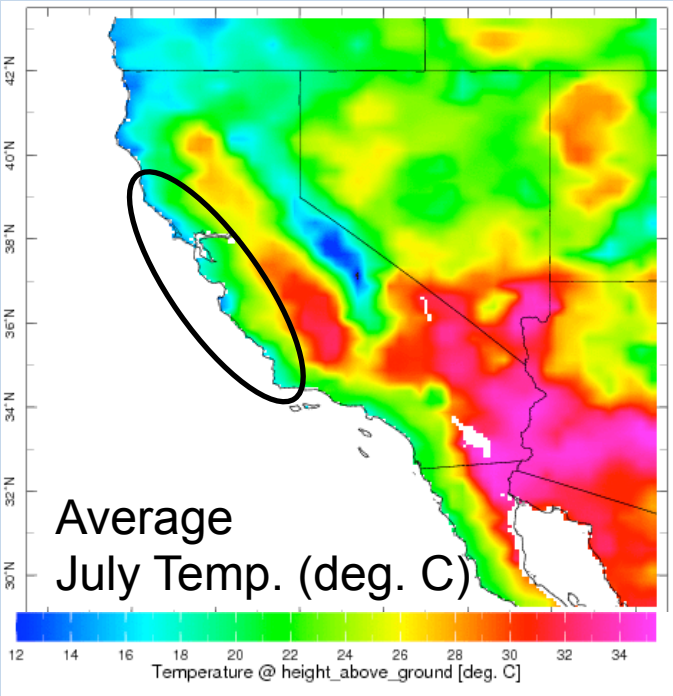
Impacts

"California" Heat Wave of 2006



22-26 July 2006





… *with much more to come*