Thermodynamics vs Dynamics?
a holistic approach to extreme event attribution

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Framing the attribution question

The 2 historic approaches used in weather@home

Otto et al., 2015
FAR comparing different methods

Uhe et al., under review
FAR dependence from region size

Uhe et al., under review
What is an event? - Heat wave in Serbia 2012

Heat

Heat stress

Sippel and Otto, 2014
Thermodynamics - conditional attribution

Given the weather pattern, how were the temperatures, precipitation and associated impacts influenced by climate change? (Trenberth et al. 2015)

Meredith et al. 2015
Example: simple chaotic system

Otto et al., submitted
Record UK precipitation January 2014

Schaller et al., under review
The European heat wave of 2003

Mitchell et al., in prep.
Is the model any good?

A 2003-like example

Days 60-90

Days 10-25

climateprediction.net
the world's largest climate forecasting experiment for the 21st century
A systematic look at biases

Sippel et al. submitted.
References


Mitchell et al. (2015) the european heatwave 2003. in prep


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