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## Interdisciplinary Approaches to Climate Change Research and Training

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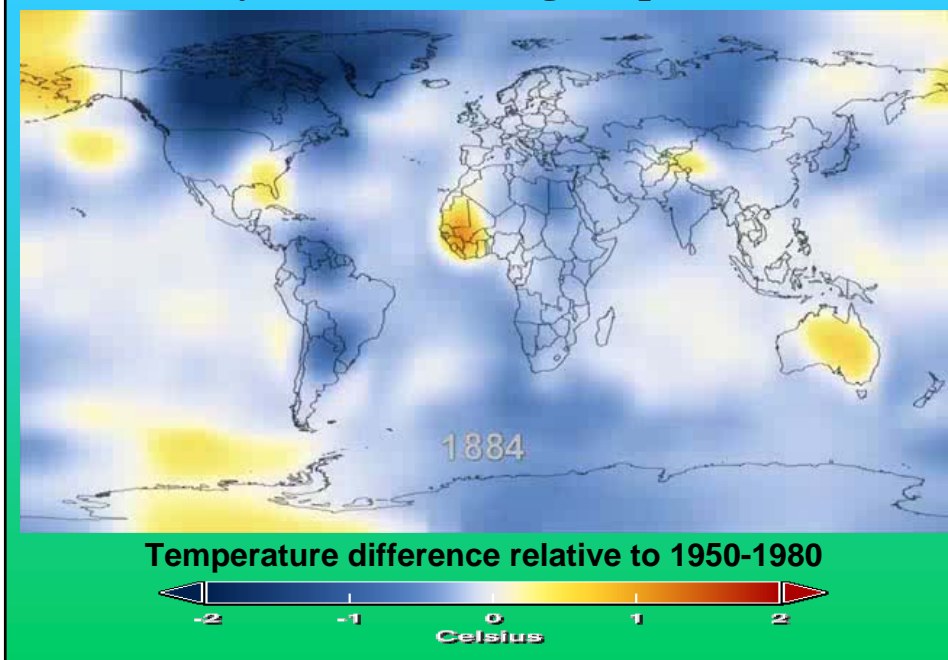
# Interdisciplinary Approaches to Climate Change Research and Training

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On behalf of the  
Interdisciplinary Humanities Group  
for the Study of Climate Change



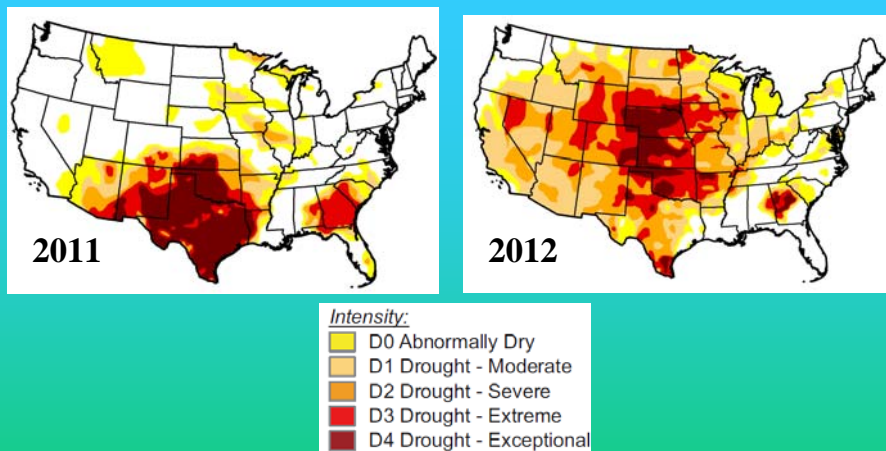
## Why is climate change important?



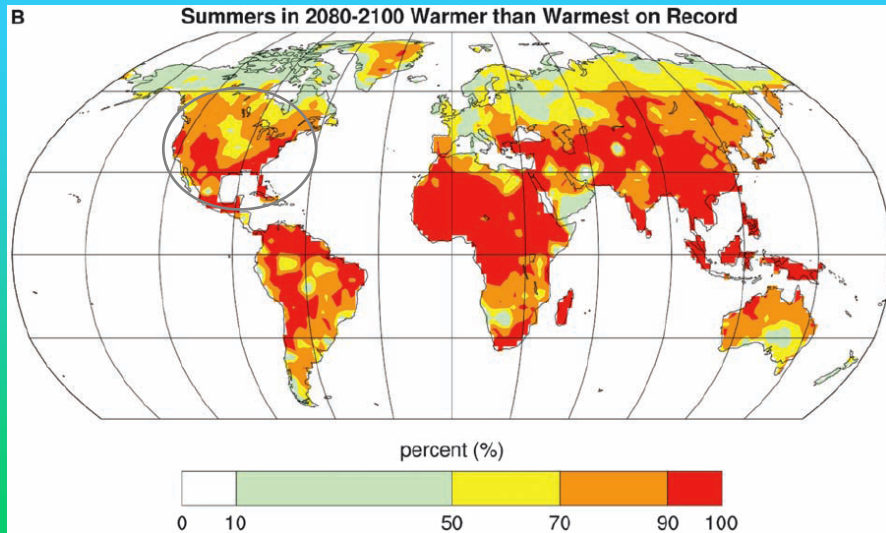
## Climate change has likely contributed to recent extensive flooding in the U.S.



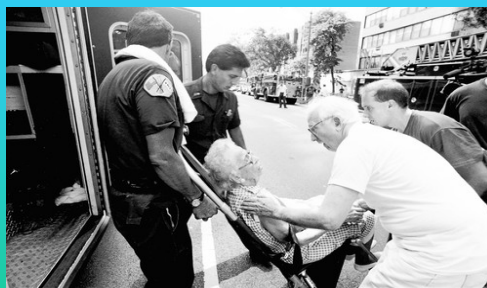
## And recent drought



**In the future, most summers are likely to be hotter than any experienced thus far**

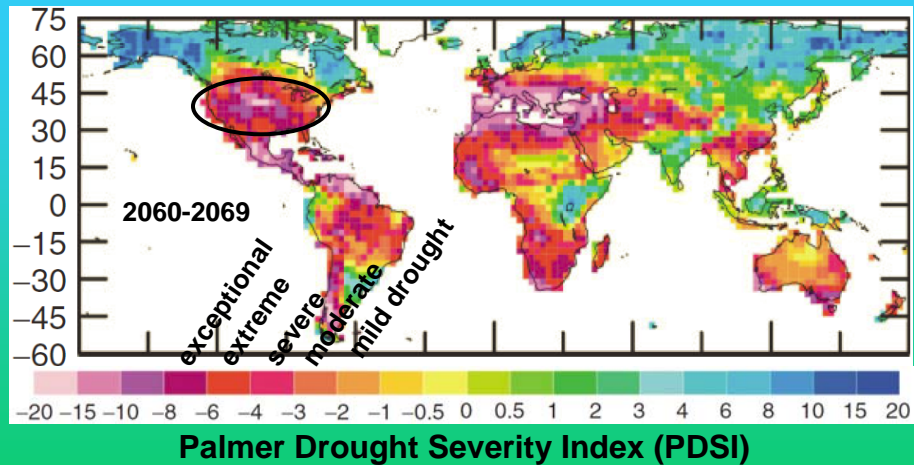


**For many Midwestern cities, dramatic increases are predicted in the number of Chicago 1995-like heat waves**  
**- responsible for ~ 700 deaths in 1995**



<b>Before 1990:</b>	<b>0.01 per year</b>
<b>Today:</b>	<b>0.13 per year</b>
<b>2070-2100:</b>	<b>2.74 per year</b>

**Much of the world is likely to experience much more frequent and stronger droughts by the 2060s**



**Developed countries are causing the problem, but developing countries experience most health costs**

**Countries proportional to CO<sub>2</sub> emissions (1950-2000)**



**Countries proportional to climate-sensitive health effects**





## Why is climate change best approached from an interdisciplinary perspective?

Natural scientists have established, beyond a reasonable doubt, that humans are the primary cause of current climate change ...

... but most Americans are not yet convinced

### Opinions About Global Warming: 2006-2011

Is there solid evidence the earth is warming?	2006	2007	2008	2009	2010	2011
	%	%	%	%	%	%
Yes	77	77	71	57	59	63
Because of human activity	47	47	47	36	34	38
Because of natural patterns	20	20	18	16	18	18
Don't know	10	10	6	6	6	6
No	17	16	21	33	32	28
Mixed evidence/Don't know	6	7	8	10	9	9
	100	100	100	100	100	100

The impediments to effective climate change action are no longer scientific; they are now sociological, political, and economic

Therefore, only a truly interdisciplinary approach can identify all of the obstacles, and all of the solutions, to this complex problem.



## **How might an interdisciplinary approach be funded?**

**One possibility:**

**NSF REU (Research Experiences for Undergraduates)  
program**

- 10 students per summer for 3-5 years
- top students from across the country spend 8-10 weeks at WMU, receiving interdisciplinary training
- each student conducts a research project under the guidance of a primary mentor (possibly with two other faculty as committee members)
- students receive ~\$5,000 stipend

**Research projects could address scientific, sociological, political, economic, ethical, and other aspects of climate change**

**What is the effect of climate-induced increases in severe rainfall events for mobilization of PCBs from Kalamazoo River sediments, and are the health consequences likely to be spread equally across economic strata?**

**What has allowed Europe to enact climate change legislation while the U.S. has not?**

**What parts of climate science are well understood by the general public, and why are other parts poorly understood?**

**REU students would also participate in a series of workshops that provide an interdisciplinary perspective**

**Science of climate change**

**Politics of climate change**

**Sociology of climate change**

**Economics of climate change**

**Ethics of climate change**

