

# Climate Change: Day 1

date: August 26, 2014

GEO 4930-06: Special Topics in Geography

Tuesdays and Thursdays: 11 a.m. - 12:15 p.m.

Bellamy Room 114

How do we know climate is changing? How do we know it is because of us?

## Compelling Evidence

- Seas are rising and becoming more acidic
- Temperatures are increasing and glaciers are melting
- Weather events are becoming more extreme (heat waves, hurricanes?, tornadoes?)
- How do we know this?

## Chasing Storms

- My passion is storms. If it spins, it wins. Frisbee.
- Hurricanes and tornadoes: Are they becoming more severe as the climate warms. How do we know?
- What will tomorrow be like? Decision making under uncertainty.
- The beauty of it all. [Adrift \(4.5 min\)](#)

## Contact Information

Professor James B. Elsner, Bellamy Room 310

Office Hours: TR 9 - 11 a.m., 2 - 3 p.m. (& by appointment)

Email: [jelsner@fsu.edu](mailto:jelsner@fsu.edu)

Twitter: [\[@hurricanejim\]\(http://twitter.com\)](#), [\[@FSU\\_Geography\]\(http://twitter.com\)](#)

## Goal

My goal is to help you understand the science behind global warming.

I will focus on severe weather: hurricanes and tornadoes. How are they changing? Changes in extreme weather and climate events, such as heat waves and droughts, are the primary way that most people experience climate change.

I will teach you the basics of weather and climate and I will challenge you to think critically about how and why tornadoes and hurricanes are changing as the climate continues to warm.

## Objectives

I want you to know how scientists come to know climate is changing. I want you to know how to draw and interpret a trend line. *Scholarship in practice.*

I want you to know what evidence exists that climate is changing. I want you to know how to explain why these changes are linked to human factors.

I want you to be able to list and explain the ingredients for tornadoes & hurricanes. I want you to explain if and why hurricanes/tornadoes might be more numerous and stronger as the globe continues to warm.

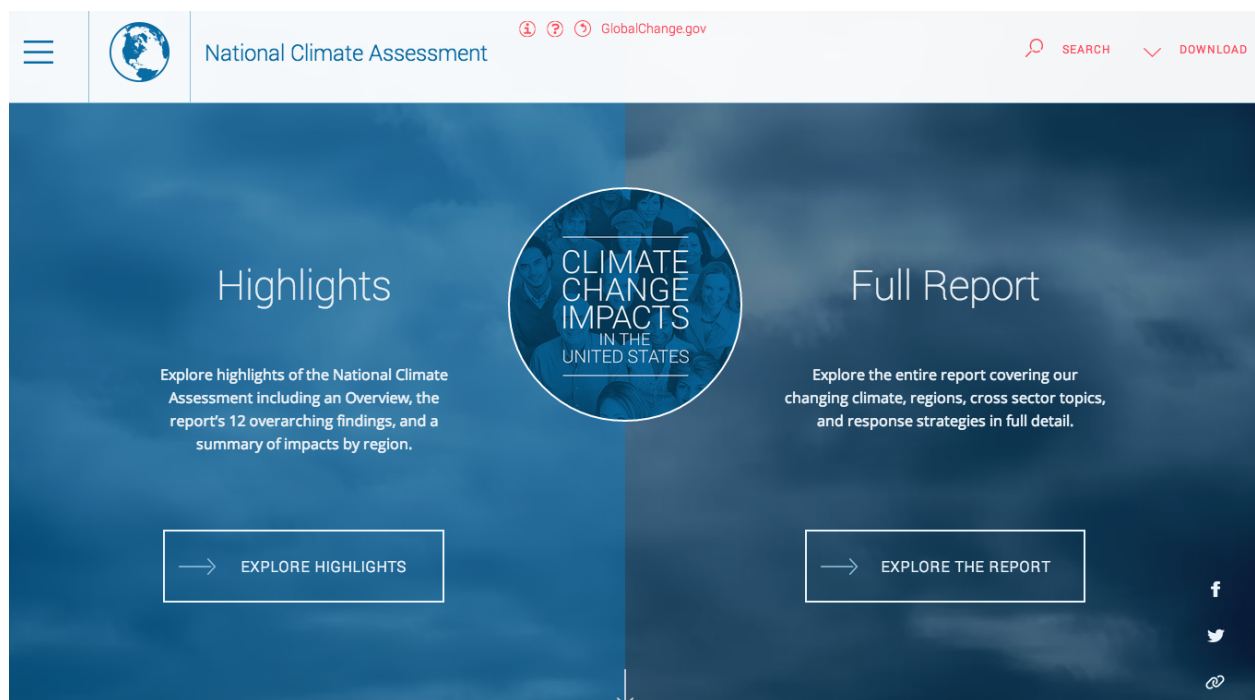
## Grades

Readings and class participation: 20%

Term project: 20%: plot a climate trend line and estimate its slope.

Exams (Three + An **Optional** Final): 60%: multiple choice, T/F

## Required Reading



[National Climate Assessment](#)

## My Passions

My passion for severe weather began as a kid growing up in Milwaukee wishing for a “snow day.”

Freedom from school. Push cars for cash. Interested in the nightly weather broadcast.

Forecasting is hard and humbling (sometimes humiliating): the bus would not make it to school.

Every spring I get the itch to chase tornadoes across the Great Plains.

## My Passions

Doing science. Teaching students how to do science. Teaching students how to think, write, and code as a scientist.

[Is coding the new literacy?](#)

## Exam Schedule

**Thursday September 18th**

**Thursday October 16th**

**Thursday November 20th**

No Makeup Exams. Stop by my office (**Bellamy 310**) if you are unavailable for these dates.

[Calendar](#)

## Broad Ideas

Meteorology vs geography: Expecting a meteorologist with three years of calculus to be good at analyzing climate data is like expecting a set theorist to be good at deriving the QG omega equation.

A challenge in teaching students about climate is to get them over the elitism of the calculus. Statistics is as important, even more so.

Did global warming cause that terrible tornado? Did it make it more likely? Did global warming make this hurricane season more/less active?

There is a systematic increase in tornado width and length during the past 20 years. Tornado width and length are correlated with tornado intensity.

## Feedback

[Poll Everywhere](#)

## Important Dates

- Tuesday, September 16 Review for Exam 1
- Thursday, September 18 Exam 1
- Tuesday, October 14 Review for Exam 2
- Thursday, October 16 Exam 2
- Tuesday, November 4 No Class (travel)
- Thursday, November 6 No Class (travel)
- Tuesday, November 18 Review for Exam 3
- Thursday, November 20 Exam 3

## Topics

- Temperature Trends (3 weeks)
- Precipitation Changes (2 weeks)
- Changes in Hurricane Activity (4 weeks)
- Changes in Tornado Activity (4 weeks)
- Changes in Other Extreme Weather (2 weeks)