

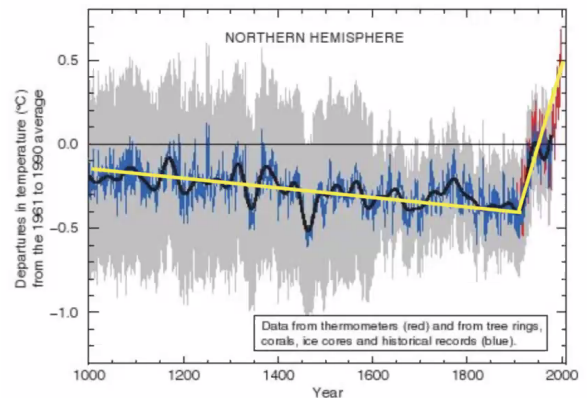
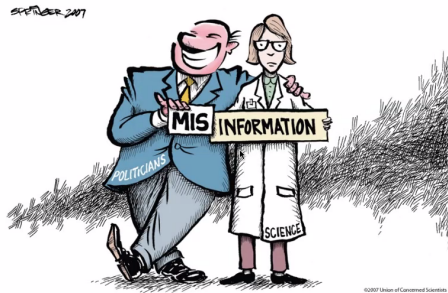
GLY102 Lecture

4/27/21

Review

The temperature "Hockey Stick" and its controversy

An introduction to science and politics



Mann, Bradley, and Hughes, 1998, 1999

^ 1000 yr long record of global temperature. The Earth was steadily cooling and that trend was reversed around the time of the industrial revolution due to greenhouse gasses.

24%
of Americans ...

... believe that **half of climate scientists, or fewer**, think human-caused global warming is happening.

36%

... believe that between **51 and 90 percent of scientists** think global warming is happening.

17%

... **correctly understand that almost all climate scientists think global warming is happening.**

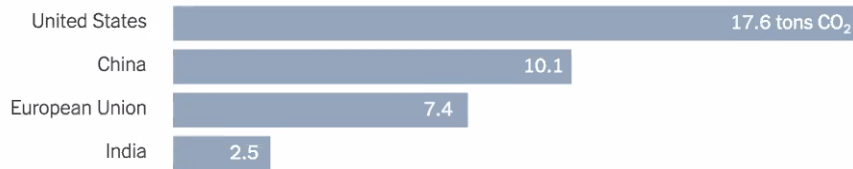
21%

Don't know

GHG emissions

Who's number 1?

Per capita CO₂ emissions 2019

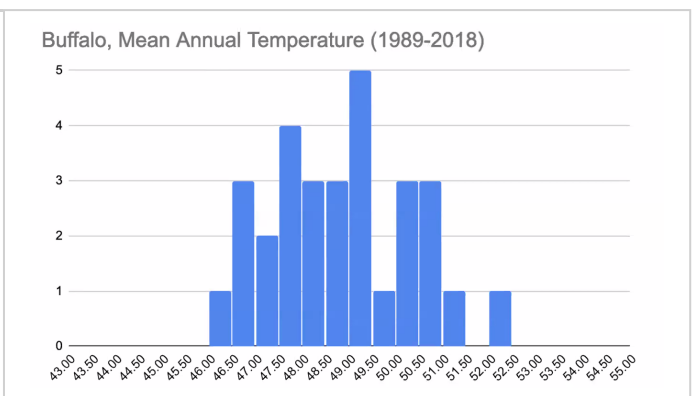
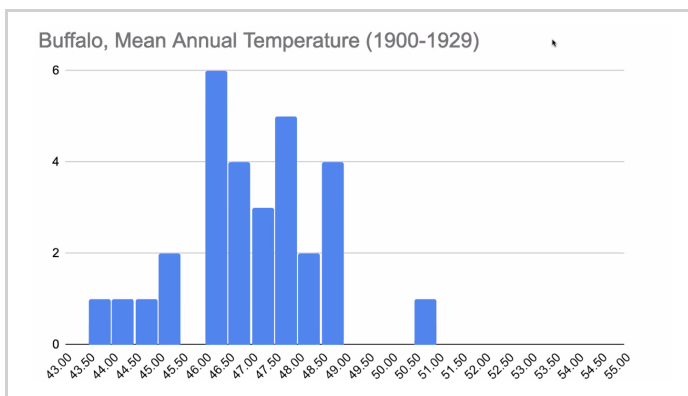


- US emits most CO₂ per capita (among large developed nations)
- China emits most CO₂, period (by a LOT)
- US CO₂ emissions have leveled off, as natural gas replaces coal
- The consequence of more gas (and CO₂ savings) is a little artificial: **higher emissions of methane** are the result.

Methane has more than 80 times the warming power of **carbon dioxide** over the first 20 years after it reaches the atmosphere. Even though **CO₂** has a longer-lasting effect, **methane** sets the pace for warming in the near term. At least 25% of today's warming is driven by **methane** from human actions.

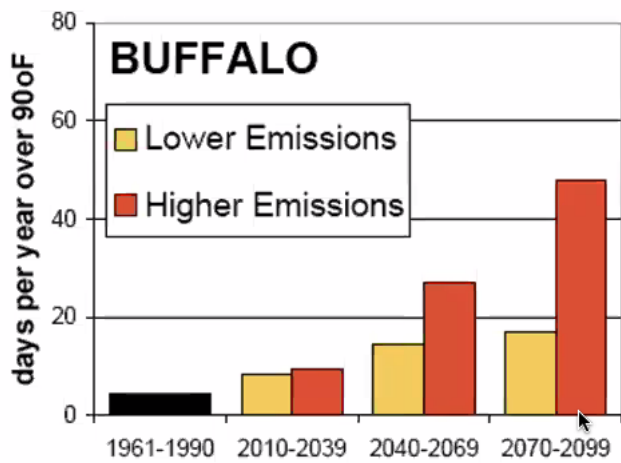


Impacts of climate change in the US

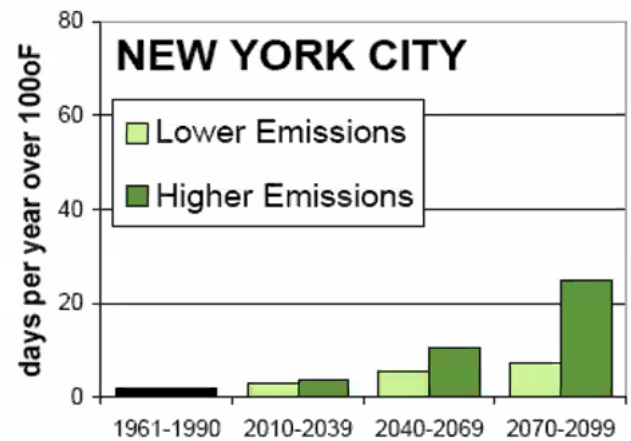
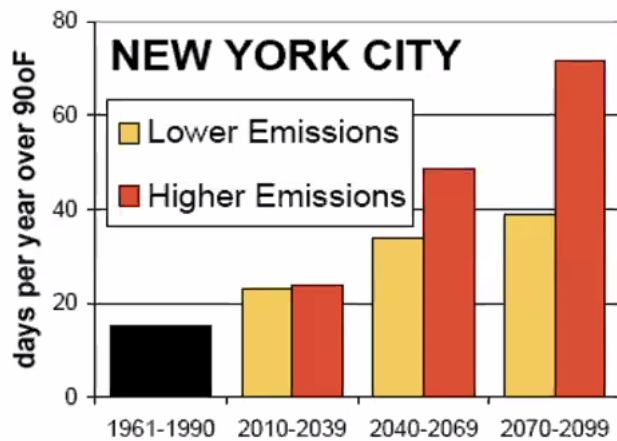
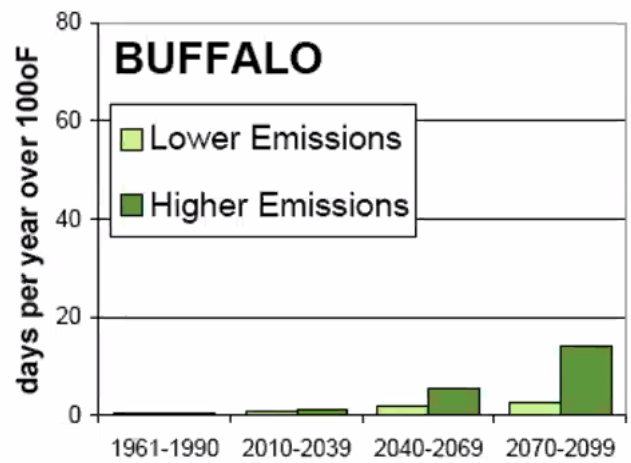


Buffalo and WNY has experienced warming of about 2°F

No. of days >90°F



No. of days >100°F



<https://globalchange.gov>

What are the key impacts in different regions of the US?

- **NE:** rural impact, skiing, maple; urban, coastal, tourism, fisheries; human health;
- **SE:** coastal and low lying regions increased flooding, urban infrastructure, severity of storms?
- **SW:** forest livelihood, drought, wildfire; impacts on indigenous peoples, water management
- **NW:** irrigation, heat/drought, coastal fisheries, heat illness, disease
- **Alaska:** Ice thinning