Why Is Recent Climate Change Human-Caused?
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Greenhouse Gas Emissions
Recent climate change has occurred due to an increase in greenhouse gases (the most abundant of which is CO$_2$), which act to keep heat from escaping Earth’s atmosphere, hence warming the Earth.

- Sinks are reservoirs that absorb and store carbon. Presently, we are emitting more CO$_2$ than can be absorbed by the Earth’s natural sinks.
- 91% of emissions come from burning fossil fuels.
- 9% of emissions come from deforestation.

Unprecedented Atmospheric CO$_2$
Climate change has been occurring for millions of years due to orbital changes and natural occurrences. For instance, the Earth’s position relative to the sun can change Earth’s temperature.

- Recent climate change is not due to orbital changes, but rather due to the unprecedented amount of CO$_2$ in the atmosphere.
- Today’s CO$_2$ levels are around 400ppm which is 40% more than the highest natural levels over the past 800,000 years.

Human Attributes Match Observations
The match models to current observations, human causes must be included in the model.
- Natural causes alone cannot account for recent temperature and sea level increases, pointing to the fact that humans are affecting climate change.

What Can I Do to Lower My Emissions?
- Turn off lights/electronics
- Conserve water
- Switch to fluorescent light bulbs
- Carpool
- Walk or bike instead of driving
- Invest in clean energy
- Eat less red meat
- Shop online instead of at storefronts

Interesting Facts
- Only 40% of our carbon footprint comes from direct energy use, the rest is from buying consumer goods/services.
- It takes 4-8 lbs. of CO$_2$ to produce 1 lb. of consumer goods.

Acknowledgments
1. CDIAC/NOAA-ESRL/GCP/Joos et al 2013/Khatiwala et al 2013
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3. www.globalwarmingart.com
4. Edf.org/climate/human-activity-is-causing-global-warming
5. IPCC 2013 Working Group I Report