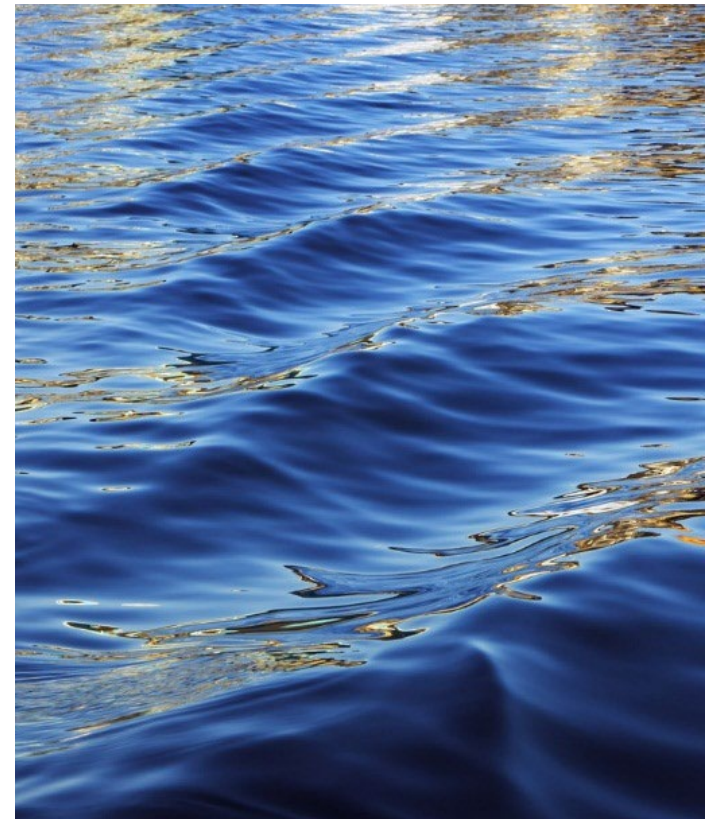




# Cry of the Earth, Cry of the Poor

Laudato Si' We are all related



# WHO IS MY NEIGHBOR

Am I My Brother's Keeper? (Gn. 4:9)



[This Photo](#) by Unknown Author is licensed under [CC BY-SA](#)

Who Is My Neighbor? (Luke 10:29)



[This Photo](#) by Unknown Author is licensed under [CC BY](#)

# For All My Relations

- Mitakuye Oayasin – Lakota prayer coming out of the sweat lodge
- Who is my brother? My Neighbor?
  1. Those who look like us?
  2. Those near us?
  3. Poor?
  4. People of color?
  5. Other culture?
  6. Four legged?
  7. 7<sup>th</sup> Generation?

# WHAT DO THESE RECENT STORIES HAVE IN COMMON?

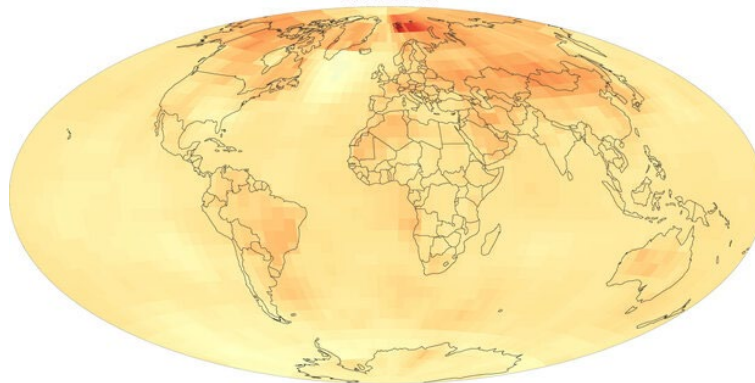
- [Panama Island has to be abandoned](#)
- [Drought and hunger beset Ethiopia](#)
- [Florida face 40% increase in property insurance](#)
- [Migration To The Southern Border Increase Driven by Drought and Instability](#)
- [Canadian Wildfires Force People to Leave Their Home](#)
- Extinction rates increased



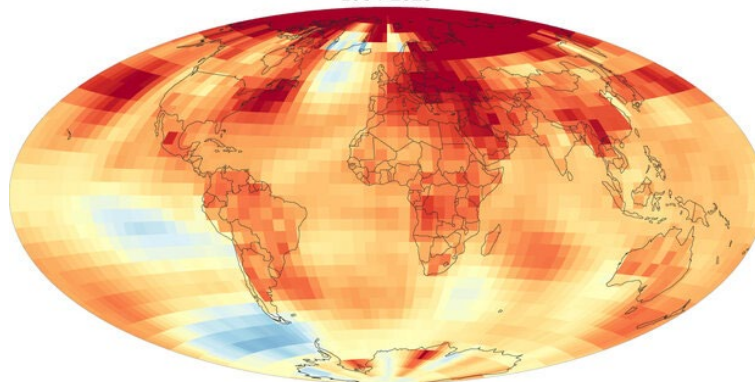
# Heating Planet

WARMING OVER PAST 30 YEARS IS MUCH FASTER THAN LONG-TERM TREND

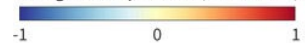
1901-2023



1994-2023



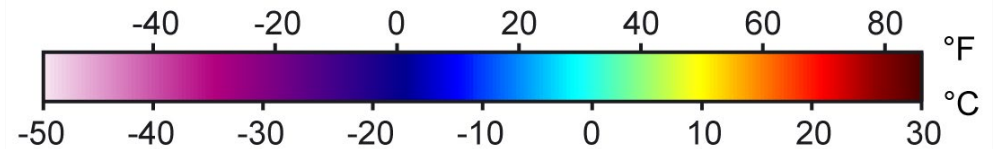
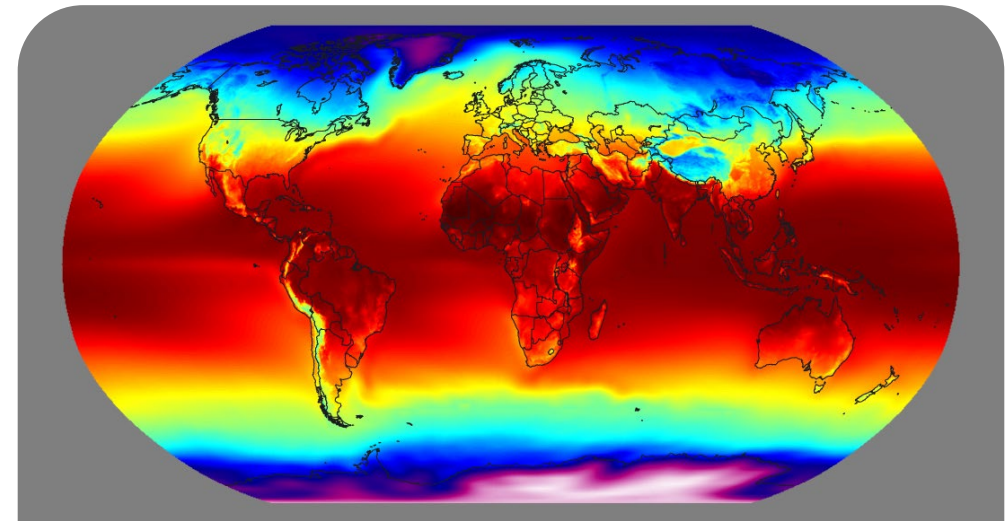
Change in temperature ( $^{\circ}$ F/decade)



NOAA Climate.gov  
Data: NCEI

# Climate Trends

- Climate and weather are different – Weather addresses the atmospheric conditions and patterns in the here-and-now
- Climate addresses long-term trends

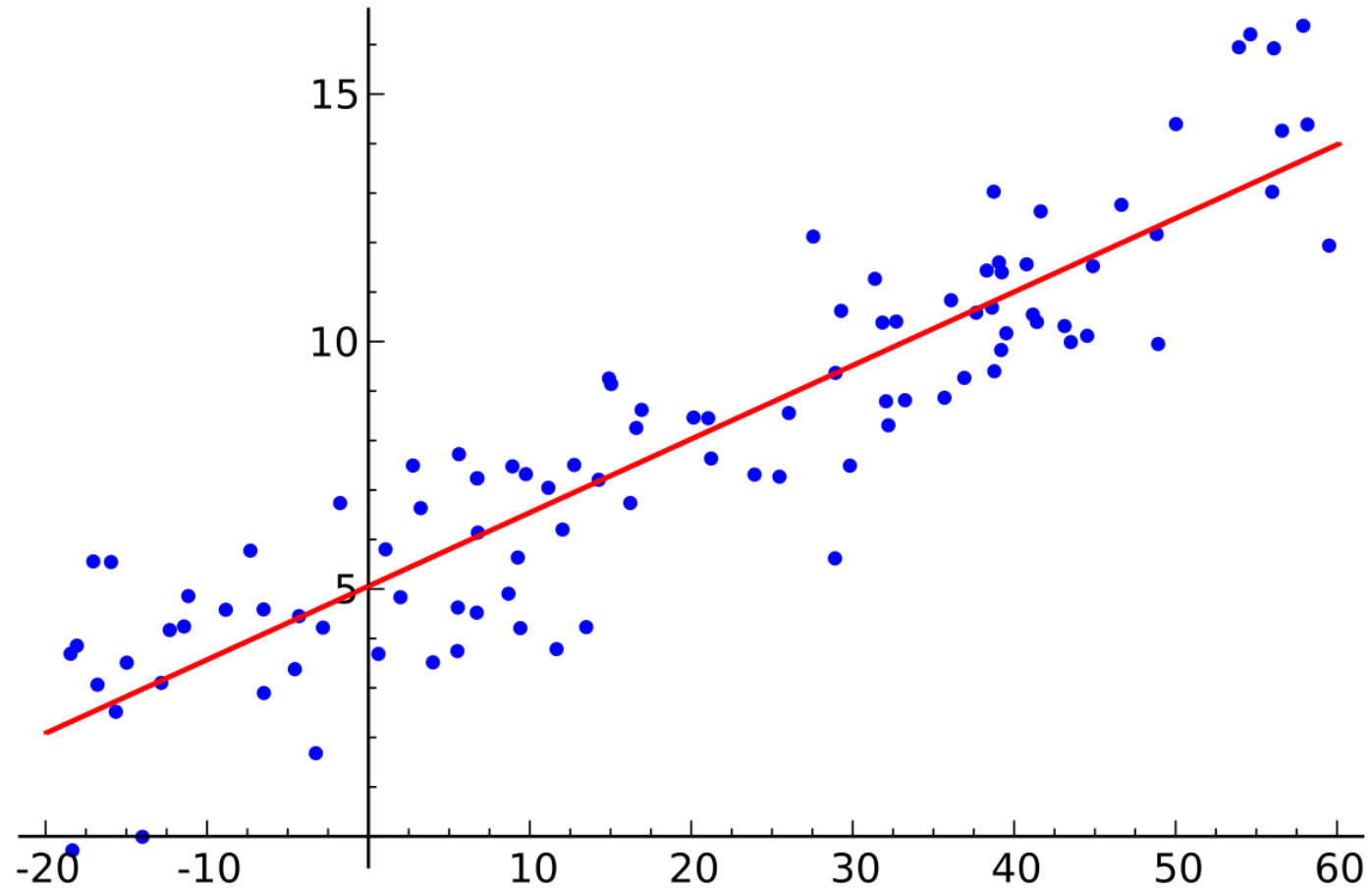


**Annual Mean Temperature**

[This Photo](#) by Unknown Author is licensed under [CC BY-SA](#)

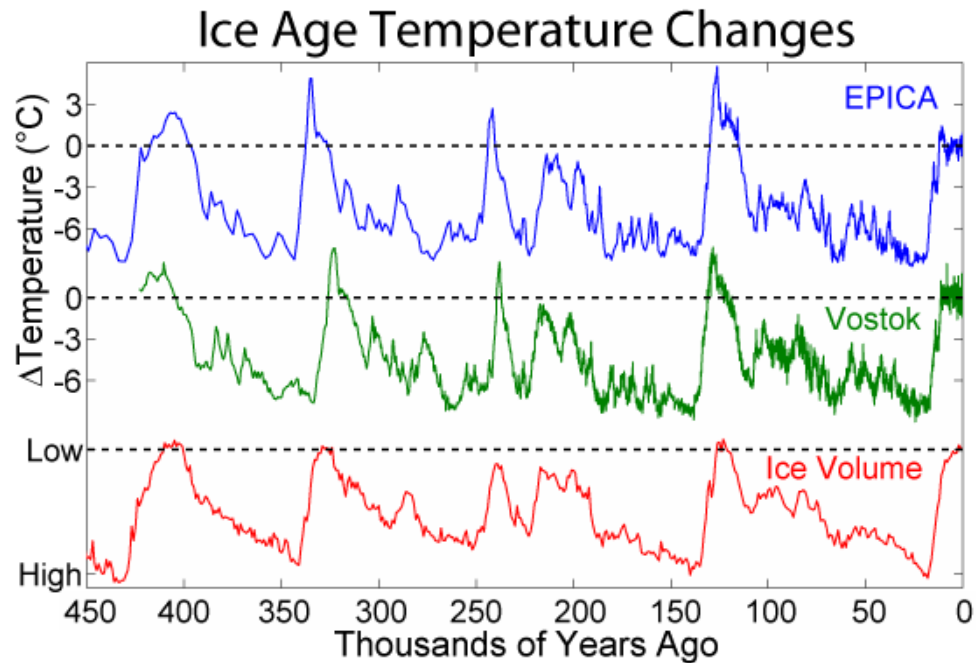


# Regression Analysis Metaphor

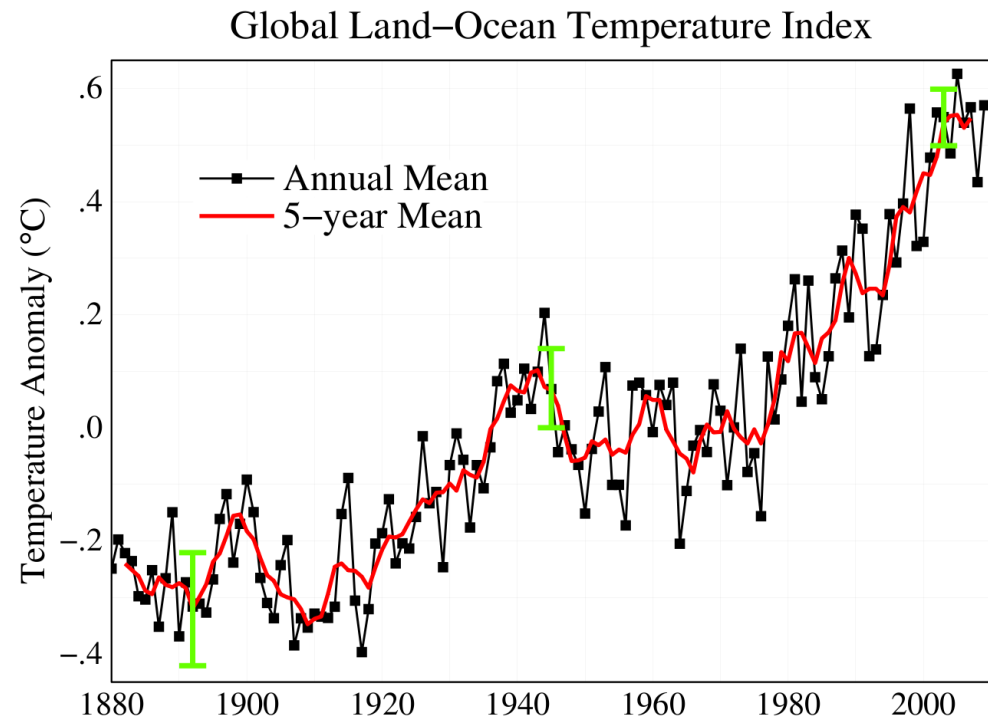


[This Photo](#) by Unknown Author is licensed under [CC BY-SA](#)

# Earth Is Warming



[This Photo](#) by Unknown Author is licensed under [CC BY-SA](#)



[This Photo](#) by Unknown Author is licensed under [CC BY-SA](#)



# Earth is Warming

- Temperatures are rising 2X the rate on land as at sea.
- Rising faster in the Northern than the Southern hemisphere
- Temperatures have risen 4X faster in the Arctic than the rest of the world
- Intergovernmental Panel on Climate Change (IPCC) estimates that the increase in temperature will be between 1.5° F. and 8.5° F. warmer by 2100 than it was in 1900.
- Last ice age global temperatures were only 9° F. cooler than they are now.
- Seawater is becoming more acidic.

# Earth is Warming

- Differences between daytime and nighttime temperatures are decreasing
- Mid-latitude growing season has gotten longer.
- More droughts and forest fires
- Intensity of storms have increased
- Earth has been warmer in the past; however, the current acceleration rate in the rise of temperatures is unprecedented

# How Earth's Temperature Records Are Compiled

## Past 150 Years

- For the past 150 years, actual measurement

## Older Recording – Proxies

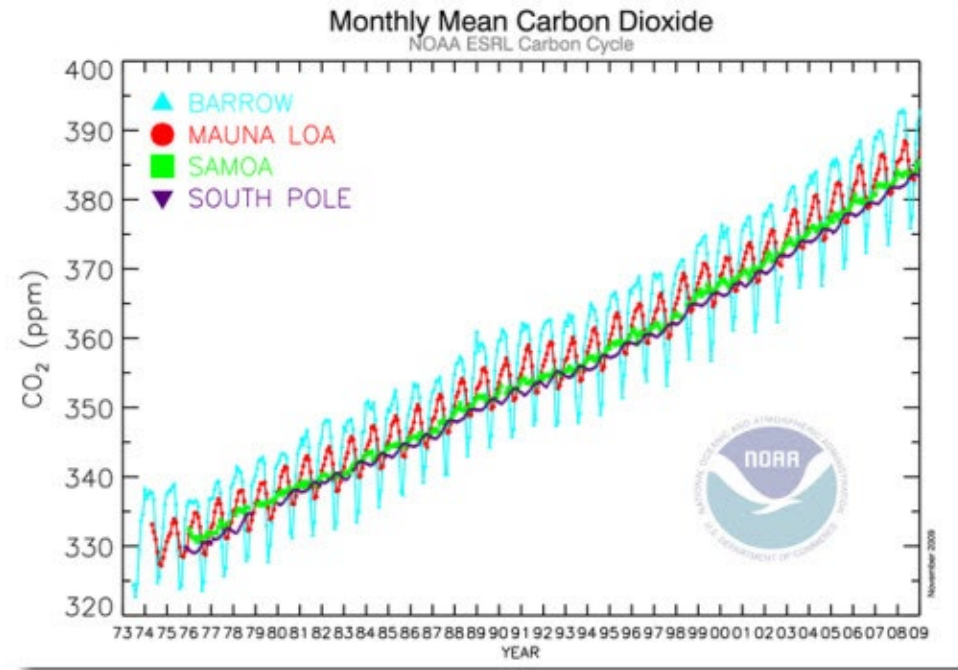
- Tree rings – thickness responds to temperature variations
- Coral reefs – Work best in warmer tropical waters
- Lakebed sediments – Pollen at each level tells something about plants and temperature when they were first formed
- Ice cores – In Greenland, Arctic and Antarctic the bubbles in each layer of the core sample gives temperature estimate at the time of formation

# Greenhouse Effect

- Certain gasses such as CO<sub>2</sub>, Methane (CH<sub>4</sub>) and Water Vapor inhibit the sun's energy/heat from easily escaping back into the atmosphere. These are triatomic gasses, because their molecules consist of three or more atoms. They vibrate at the frequency of infrared radiation
- Other common greenhouse gasses include ozone (O<sub>3</sub>) and Nitrous Oxide (N<sub>2</sub>O)
- Simple two atom gasses such as Nitrogen and Oxygen have little heat trapping effect (the two most abundant gasses in our atmosphere)
- Past records show a strong correlation between CO<sub>2</sub> and temperature

# CO<sub>2</sub> and Temperatures

- Amount reported in parts per million by volume (ppm)
- During the last ice age it was about 170 ppm
- Most recent human history it was 280 ppm
- Now it is over 400 ppm – the highest level in 3 million years



[This Photo](#) by Unknown Author is licensed under [CC BY-SA-NC](#)

# Global Warming Potential (GWP)

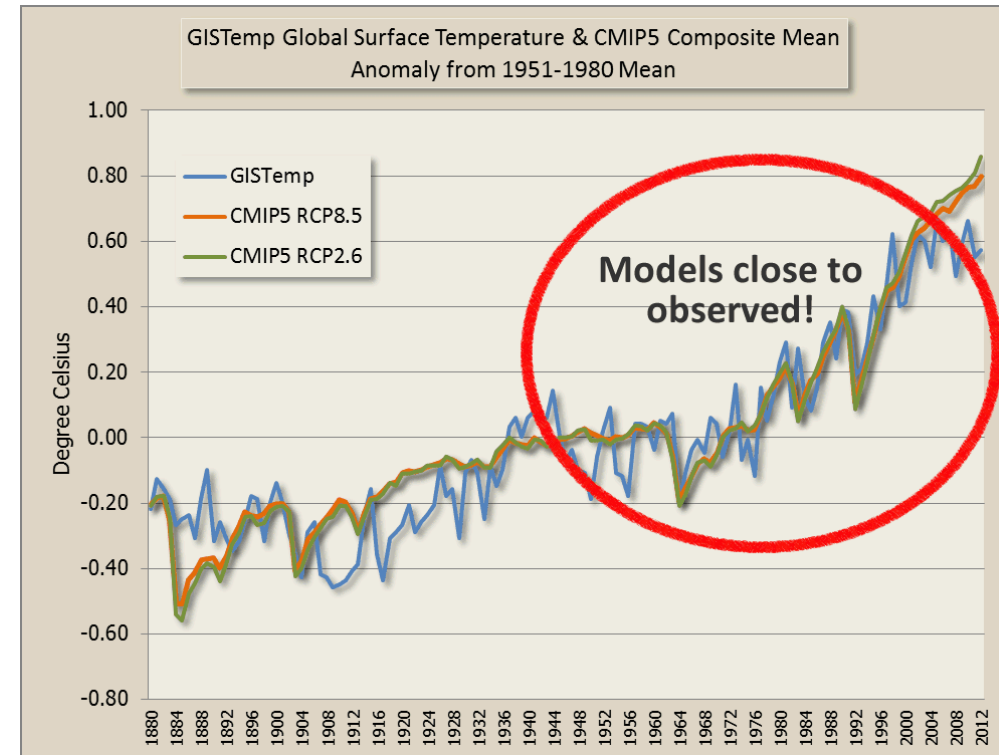
- Measures the impact of other greenhouse gasses relative to Carbon Dioxide.
- One ton of Methane has the impact (given the same volume) as 28 tons of Carbon Dioxide over a 100 year period
- Carbon Dioxide stays in the atmosphere for a century and is dispersed throughout the world.

# Climate: The Human Element

- Question that has both research and social implications – To what degree are the changes in the climate we observe due to human impact? To what degree are they *anthropocentric*?
- Use computer models to estimate different kinds of impacts on understanding what has happened to the present and projections of temperature going forward.
- Through the late 19<sup>th</sup> and early 20<sup>th</sup> century models conformed to observed data pretty well.
- In second half of the 20<sup>th</sup> century there is a divergence that is accounted for when human activity is subsequently factored in.

# Sequestered Carbon

- Much of carbon has been sequestered in the ground and water.
- Basis of fossil fuel – when it is burned the carbon is released into the atmosphere
- Sequestering continues to the present – oceans have absorbed much of the excess carbon to the present



This Photo by Unknown Author is licensed under [CC BY](https://creativecommons.org/licenses/by/4.0/)



# Projecting Into the Future

- Heat waves, disease vectors, floods, flooding of coastal cities and low lying island nations (i.e. Maldives) are baked in.
- These could be more intense depending on the amount of temperature rise.



[This Photo](#) by Unknown Author is licensed under [CC BY-NC-ND](#)

# Projecting into the Future

- As permafrost melts – methane is released (Positive feedback loop). Part of Permian extinction
- As arctic ice melts albedo effect (reflection of radiation is lessened since the dark sea absorbs heat while the white ice reflects it (Another positive feedback loop))

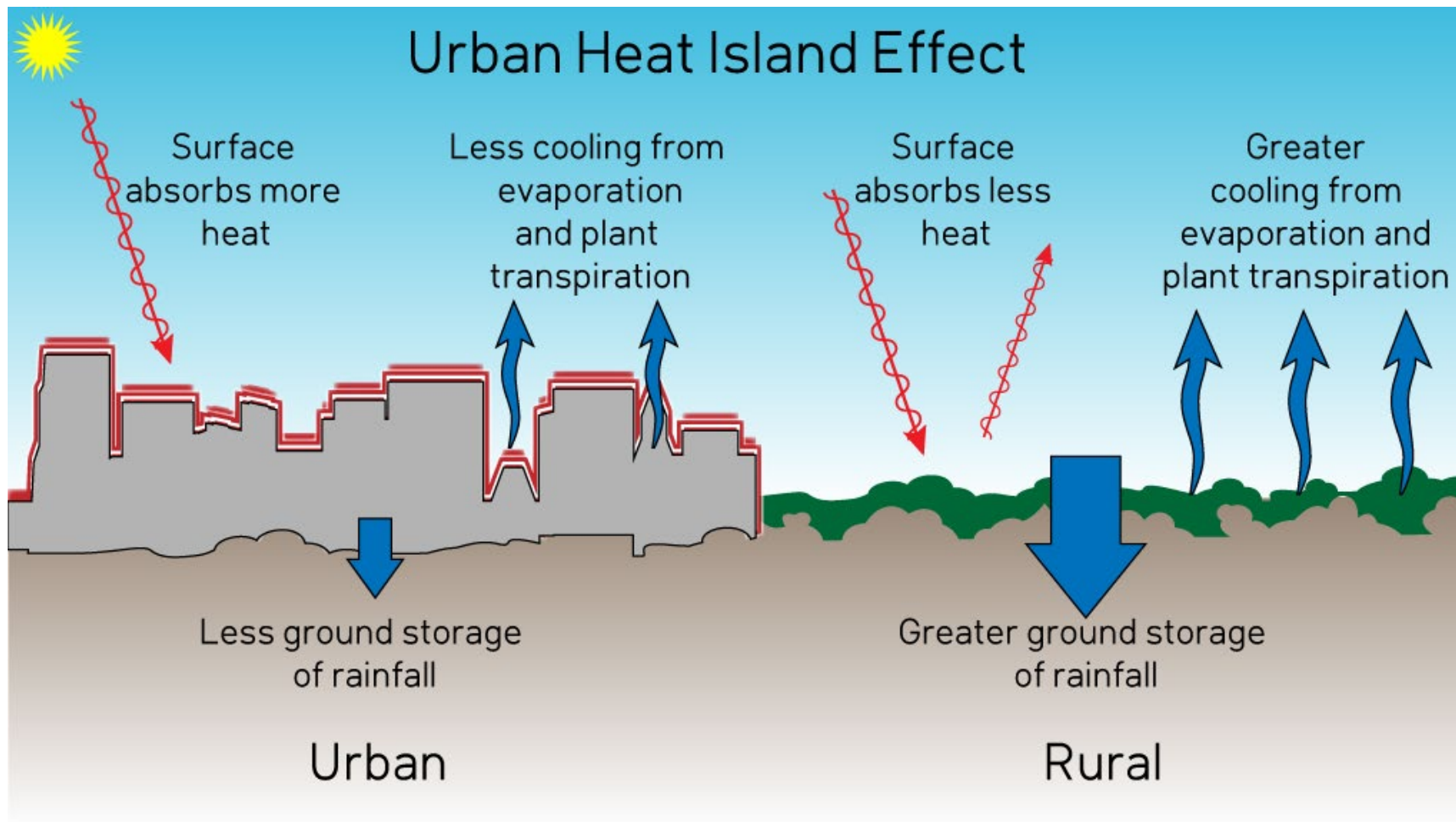


[This Photo](#) by Unknown Author is licensed under [CC BY-SA](#)

# Climate Commitment

- The earth is going to continue to warm even if we were stop burning all fossil fuels today
- CO<sub>2</sub> remains in the atmosphere for over a century.

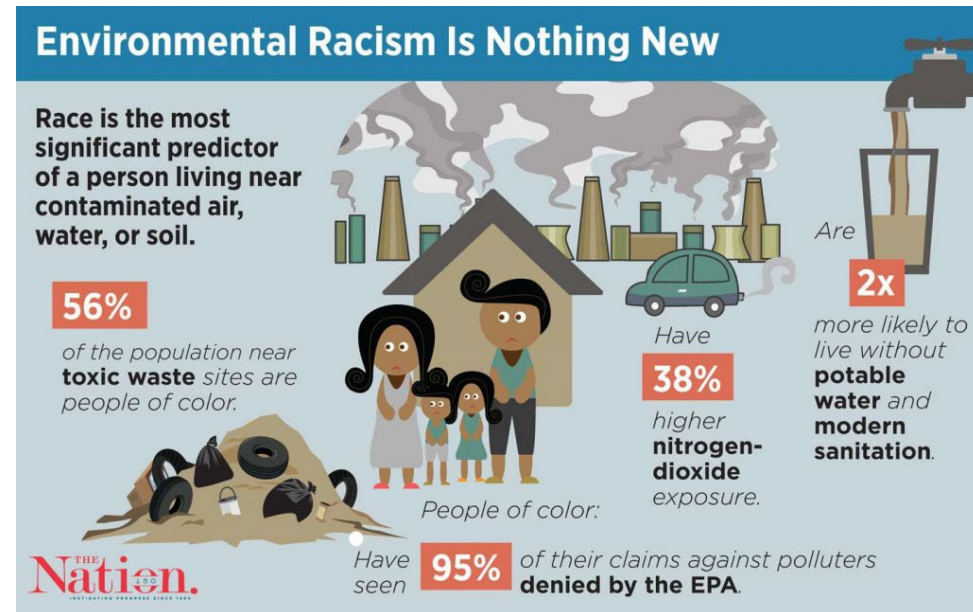
# Fossil Fuel Use, Heat Islands and the Poor



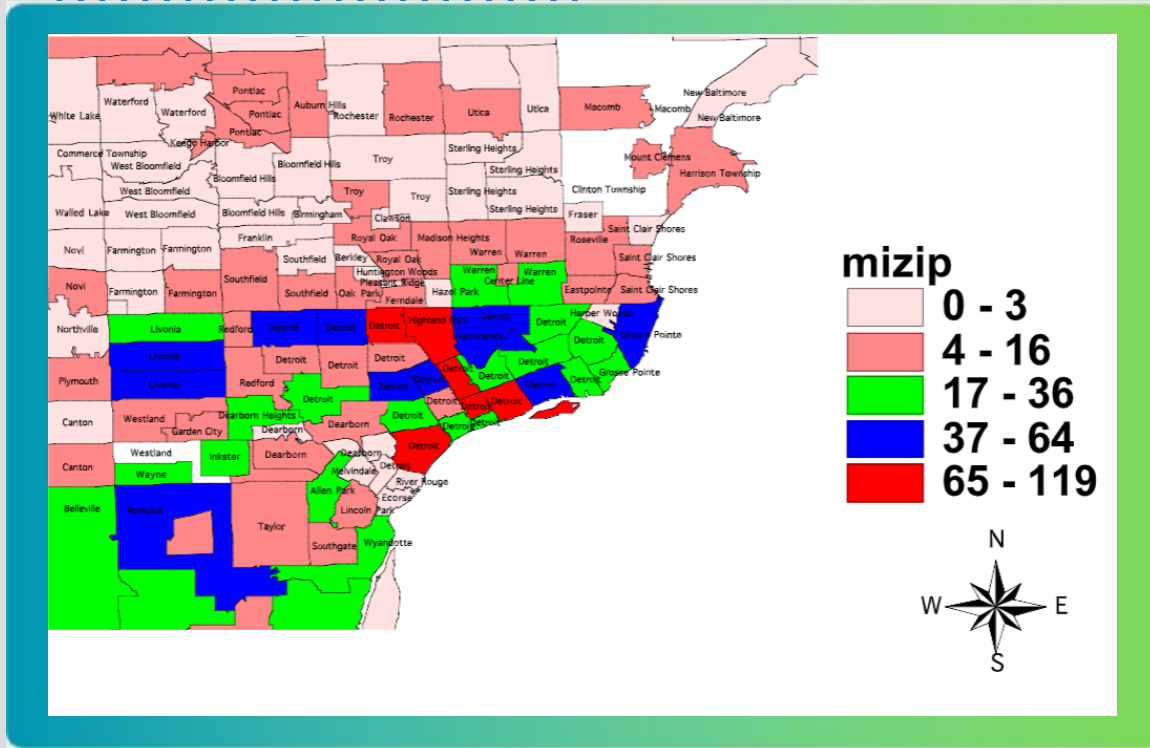
[This Photo](#) by Unknown Author is licensed under [CC BY](#)

# ENVIRONMENTAL JUSTICE

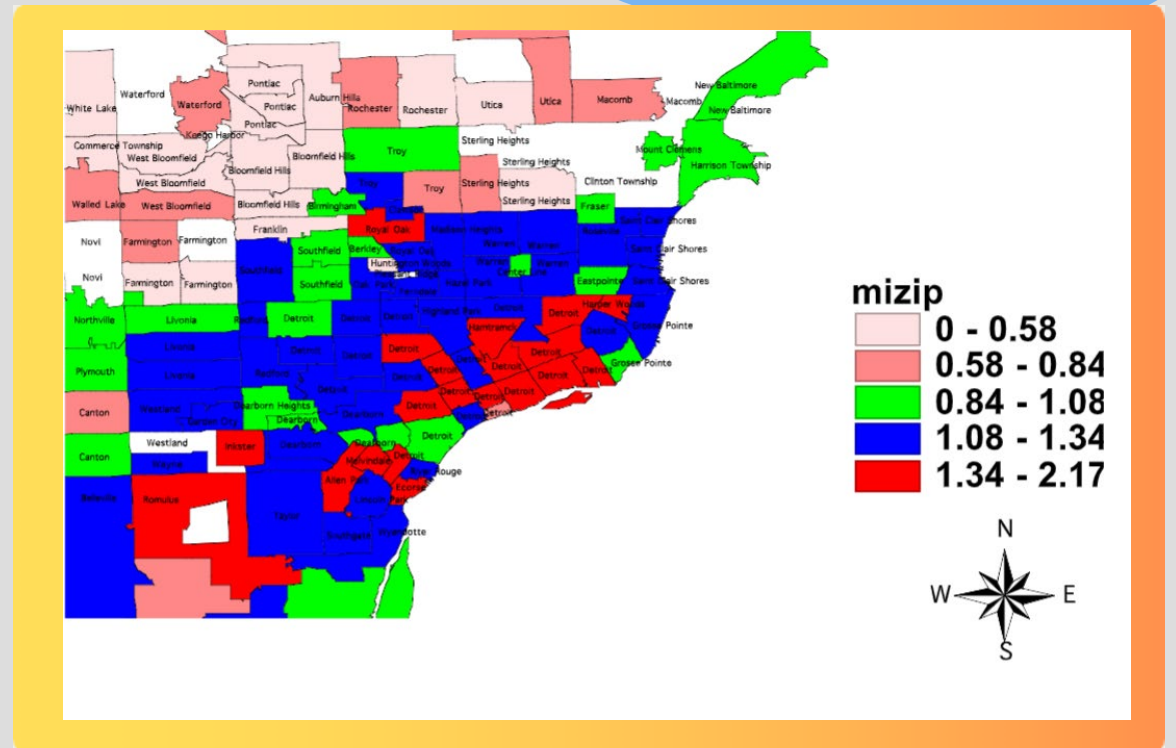
- Relationship Between Race, Social Class, exposure to pollution and the public health
- Michigan 1990 and 2020 (Hockman and Morris)
- People of color are more exposed to most forms of pollution, especially the most noxious airborne pollutants – i.e. incinerators, factories, power plants.
- Those forms of pollution have the greatest impact on rates of cancer, asthma and low birth weight.



[This Photo](#) by Unknown Author is licensed under [CC BY-SA-NC](#)

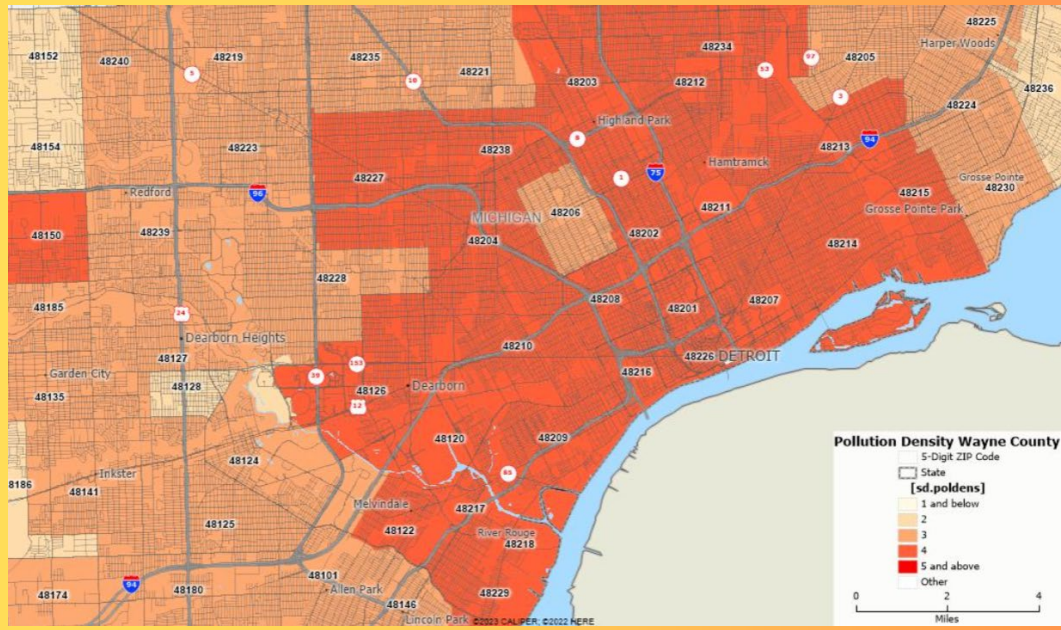


Incineration Rates

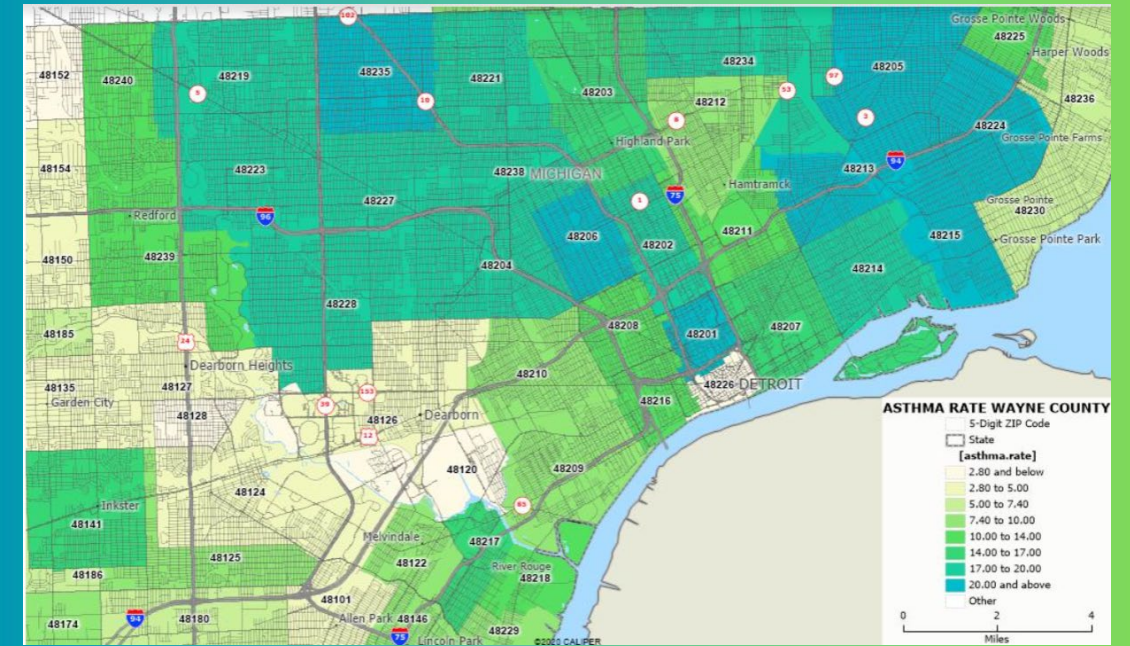


Cancer Index

Data from ~1990



Pollution Density



Asthma Rates

Data from 2020

# HOW DO I CARE FOR MY NEIGHBOR?

- Live Simply So That Others May Simply Live (St. Paul VI)
- Lower My Use Of Energy And The Earth's Resouces
  1. Building Maintenance (Stop Air Leaks)
  2. ENERGY STAR: lighting, appliances, etc. for our homes and parishes
- Wean Away From Fossil Fuels and To Renewables (i.e. Solar, Wind, Geo-Thermal
- Make Your Voice Heard in Lansing (John Freeman can help you) and in Washington D.C. (Leah Wiste can help you) in support of climate justice legislation

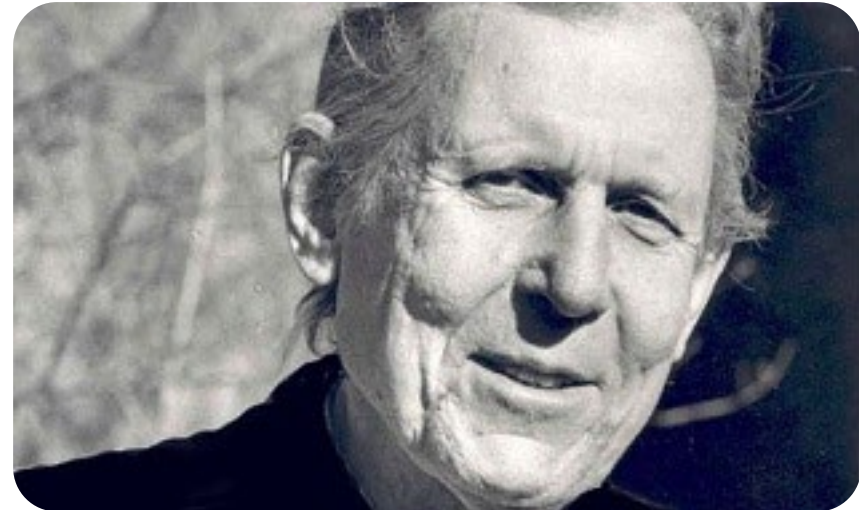


# GOOD NEWS – TODAY YOU CAN BEGIN TO MAKE A DIFFERENCE

- Money saved from going to DTE can be used to feed a hungry person, advance our mission, etc.
- Spillover effects – at St. Elizabeth between 1997 and 2010 we reduced our utility bills by 70% and reduced our demand charge by \$300/month
- As Jerry Lawson will tell you, you can not only track energy saved and \$\$ saved, but greenhouse gas offsets as well.
- As you will hear this afternoon, you will receive the tools (MiIPL) and the means to solarize your houses of worship without impacting your budget (E.g. Solar Faithful, Michigan Saves, etc.) and making your facilities safer and healthier as well.

# We Are All Part Of the Web Of Life

- We are a communion of subjects, not a collection of objects (Thomas Berry)
- We are “apart of”, not “apart from” creation
- Adam was put into the Garden to cultivate it, not cover it with asphalt (Gn. 2:15)
- We are gardeners and co-creators of a fertile and fecund future as we usher in the coming Reign of God for all God’s children.



[This Photo](#) by Unknown Author is licensed under [CC BY-NC](#)