CHICAGO COMMUNITY CLIMATE ACTION TOOLKIT

Find this and other climate action tools at
climatechicago.fieldmuseum.org

CLIMATE CHANGE

IN THE WINDY CITY AND THE WORLD

FIELD MUSEUM

BOEING

ANSWERS TO QUIZ QUESTIONS

1. What's the difference between weather and climate?
   Weather refers to short-term changes in the atmosphere.
   Climate is the average long-term (at least 30 years) weather pattern of a specific location. Climate change refers to shifts in the average long-term patterns of local and global conditions.

2. What's the difference between climate change and global warming? How are they related?
   Climate change refers to changing patterns in temperature, precipitation, humidity, wind, etc.
   Global warming refers specifically to the rise in the Earth's average temperature. Climate change and global warming are related because the rise in temperature is what causes the other climate patterns to change.

3. Describe the "natural" greenhouse effect and the "enhanced" greenhouse effect.
   The natural greenhouse effect occurs when natural sources such as oceans, lakes, forests, and other green spaces release greenhouse gases (GHGs) into the atmosphere that in turn trap the sun's energy, causing the Earth to warm. Natural sources not only put GHGs into the atmosphere, but they also take them back out. This cycle creates a carbon balance.
   The enhanced greenhouse effect occurs when human activities that burn fossil fuels release additional carbon into the atmosphere. This excess amount of carbon causes more warming than would naturally occur.

4. How is climate change today different from the past?
   For the first time in the history of the planet, it is human activities, and not just natural events, such as the Earth's rotation cycle or emissions from volcanic eruptions, that is causing the climate to change.
   Also, the rapid rate at which this warming is occurring has never been seen before.

5. What is happening to the carbon cycle?
   The additional GHG emissions from human sources today are creating an imbalance in the carbon cycle that results in too much carbon dioxide in the atmosphere. Because of this increase, the Earth's average temperature is rising at a faster rate than ever before.

6. How is climate change affecting people, plants, and animals in the Chicago region?
   There are lots of impacts to discuss. Here are some from the booklet. Brainstorm some more as a group!
   - An increase in extreme weather events has led to more heat waves and floods;
   - Milder winters are causing Lake Michigan to be frozen for a shorter period during the winter;
   - Plant hardiness zones have shifted, changing what types of plants can thrive in the region;
   - Changes in temperatures, rainfall, and seasonality threaten wildlife habitat.

7. What is one action we can take to *mitigate* (reduce) climate change?
   Reduce the amount of fossil fuel energy we use so less carbon dioxide is being emitted into the atmosphere (mitigation).

8. What is one action we can take to help people, nature, and animals *adapt* to changes that are already inevitable?
   Protect and restore natural habitats (forests, prairies, wetlands, woodlands, rivers, lakes, oceans, etc.) and green

CLIMATE CHANGE IS A REGIONAL AFFAIR

Climate change doesn't have political boundaries. This booklet shows the impact that climate change will have on the broad Chicago region. To address these impacts, we will have to take climate action in our individual lives, communities, cities—and region. Together, we can make a difference and improve our quality of life at the same time.

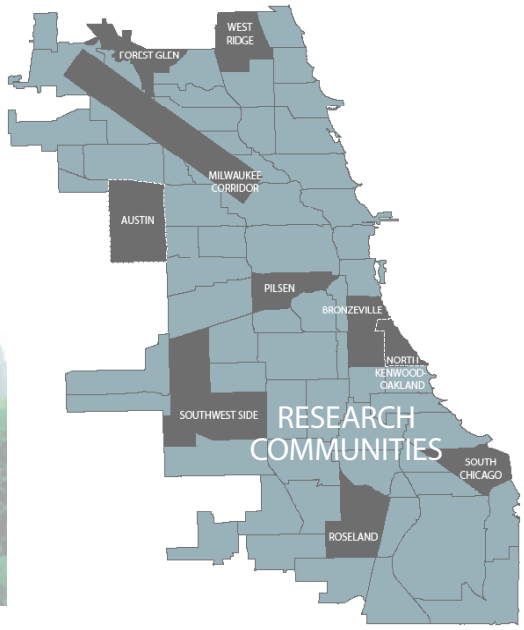
INTRODUCTION

This booklet is informed by studies conducted by Field Museum anthropologists in nine communities throughout Chicago (see map). The studies were commissioned by the Chicago Department of Environment to engage diverse communities in the Chicago Climate Action Plan. Visit http://fieldmuseum.org/climateaction to download reports.

Research conducted by The Field Museum in nine communities from 2008 to 2011 suggests that many residents in the Chicago region think climate change is real and is an important issue that needs to be addressed.

But… they often don't connect it to their lives here or understand what we can do about it.

This booklet provides Chicago region leaders and residents with a basic understanding of climate change as it relates to our region, so they can take action informed by scientific and local knowledge.



QUIZ AND DISCUSSION QUESTIONS

Do you have more questions about climate science? Check out the FAQs page on the Chicago Community Climate Action Toolkit website:

climatechicago.fieldmuseum.org/faq

What did you learn? Answer these questions to make sure you're understanding the most important points about climate science and how climate change relates to the Chicago region. Feel free to refer back to the booklet, but try to answer the questions in your own words, to help you become more comfortable articulating these ideas. Check your answers against the answers on the reverse side.

1. ***What is the difference between weather and climate?***
2. ***What's the difference between climate change and global warming? How are they related?***
3. ***Describe the "natural" greenhouse effect and the "enhanced" greenhouse effect.***
4. ***How is climate change today different from the past?***
5. ***What is happening to the carbon cycle?***
6. ***How is climate change affecting people, plants, and animals in the Chicago region?***
7. ***What is one action we can take to mitigate (reduce) climate change?***
8. ***What is one action we can take to help people, nature, and animals adapt to changes that are already inevitable?***

DISCUSSION QUESTIONS: CLIMATE CHANGE AND YOUR COMMUNITY

1. ***How do you think people in your community understand, relate to, or don't relate to climate change, as it is defined and explained in this booklet?***
2. ***What populations make up your community? How do you think their understandings might differ based on age, background, gender, etc.?***
3. ***What changes in climate have you noticed in your community since two generations ago? One generation? How have these changes impacted community life? Individuals' lives?***
4. ***The Chicago Climate Action Plan and the Climate Action Plan for Nature focus on ten different aspects of our lives related to climate change (see p.19). Which of these issues do you think community members might relate to most? How so? Share some specific community stories around these issues.***
5. ***Climate Change in the Windy City and the World encourages communities to take action in two areas: reducing the amount of fossil fuel energy we use and caring for natural areas and green spaces. How are individuals and organizations in your community already taking one or both of these actions? In closing, brainstorm how they might do more, based on what you've learned through this booklet and your discussion.***

LEARN MORE ABOUT HOW YOU CAN LEAD THE WAY

CHICAGO COMMUNITY CLIMATE ACTION TOOLKIT

provides a broad array of multimedia tools for learning about climate change and taking local climate action. climatechicago.fieldmuseum.org

BIBLIOGRAPHY

Thinking about a climate action project in your community? Learn about other tools in the Chicago Community Climate Action Toolkit that can help you move from knowledge to action:
climatechicago.fieldmuseum.org/tools

GENERAL RESOURCES:

Power Shift Network includes 50 youth-led environmental and social justice groups working together to build the youth clean energy and climate movement. The website features strong projects and a media toolkit. powershift.org/

Center for Climate Change and Energy Solutions provides a reliable and understandable introduction to global climate change with a series of brief reports entitled Climate Change 101: Understanding and Responding to Global Climate Change. https://www.c2es.org/publications/cliamte-change-101/full-book

Skeptical Science presents common climate skeptic arguments and gives suggestions on how to refute them with real findings from climate science. skepticalscience.com/argument.php

Wisconsin Initiative on Climate Change Impacts presents adaptation science and strategies. wicci.wisc.edu/adaptation.php

Alliance for Climate Educationaims to educate young people on the science of climate change and empower them to take action. acespace.org/

Climate Generation: A Will Steger Legacy offers resources on designing climate change curricula, lesson plans, and educational activities for a range of age groups. climategen.org

WE ACT for Environmental Justice is a national leader of the climate justice movement and convenes the Environmental Justice Leadership Forum on Climate Change, comprising over 35 organizations. weact.org/Programs/MovementBuilding/TheWEACTforClimateJusticeProject/AdvancingClimateJusticeConference/tabid/330/Default.aspx

NOAA's Essential Principles of Climate Science aims to increase the public's understanding of basic climate science, and provides educators with entry points into discussions of climate change. https://www.climate.gov/teaching/essential-principles-climate-literacy/essential-principles-climate-literacy

CHICAGO REGION RESOURCES:

Chicago Conservation Corps Blog provides up-to-date information about a range of environmental and climate action initiatives and events in the Chicago area. chicagoconservationcorps.org

The Chicago Climate Action Plan (CCAP) is the City of Chicago's comprehensive and detailed strategy to lower heat-trapping emissions that cause climate change. chicagoclimateaction.org/

The Climate Action Plan for Nature (CAPN), created by the Chicago Wilderness conservation alliance, addresses climate change impacts on nature in the four-state Chicago Wilderness region. It complements the Chicago Climate Action Plan. https://cdn.ymaws.com/chicagowilderness.site-ym.com/resource/resmgr/Publications/Climate_Action_Plan_for_Natu.pdf

Climate Action Plan for Nature: Community Action Strategies is a companion piece to the Chicago Wilderness Climate Action Plan for Nature (CAPN). The Strategies document lays out five strategies that communities and residents can undertake to help the region's nature adapt to climate change. climatechicago.fieldmuseum.org/learn#capn

Union of Concerned Scientists – Action Alerts in the Midwest guides the public in advocating for local and regional policy change on climate-related issues important to the Midwest. ucsusa.org/action/alerts/midwest-actions.html

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INTRODUCTION

This booklet also presents some best practices in climate action from The Field Museum's research and our work around the Chicago region. They demonstrate the diverse and creative ways in which communities are responding to climate change.

The examples in this booklet also show the power of building on communities' strengths—such as Do-It-Yourself (DIY) skills, thriftiness, conserving water, and growing food—to implement broad climate action strategies in locally meaningful ways that will encourage widespread participation.

The Field Museum works with community partner organizations to develop and carry out local climate action projects. The projects build on cultural heritage and other community strengths to implement the region's climate action plans while simultaneously addressing community concerns. They aim to improve local quality of life as well as influence broader efforts for social and environmental change.

KEY TAKEAWAY POINTS

Even if you don't memorize all the science, we hope you'll remember these key ideas:

1. The world's scientists overwhelmingly agree that climate change is happening and is caused by human activities.
2. People in the Chicago region are also concerned about climate change and want to understand more about how it relates to their lives.
3. Climate change affects different regions in different ways and is already impacting the Chicago region.
4. People everywhere are finding ways to live that will reduce the impact and help their communities adapt to the changes that are inevitable.
5. "Climate action" will not only address climate change, but can make our communities better places to live.

CHICAGO COMMUNITY CLIMATE ACTION TOOLKIT

The Field Museum worked with partners in four Chicago neighborhoods to develop and implement community-led climate action projects.

Each project builds on research conducted by Museum anthropologists, which identified local strengths and concerns that can serve as springboards for engaging communities in the region's two climate action plans.

Learn more and download tools: climatechicago.fieldmuseum.org.

In Forest Glen, Boy Scout and Girl Scout troops are engaging homeowners in water conservation and promoting climate- and nature-friendly outdoor practices.

In Pilsen, community organizations are transforming a vacant lot into a native garden where children can play and families can learn about climate change.

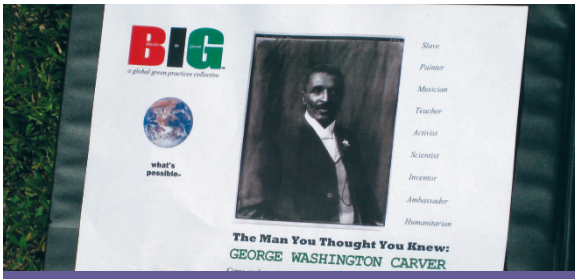
In Bronzeville, community organizations are building on the neighborhood's African-American history to develop culturally meaningful gardens, healthy vegan cooking events, and green tours.

In South Chicago, youth organizations are creating a community-wide exhibit that celebrates local green practices and their community's vision for a green future.

CHICAGO REGION ORGANIZATIONS ARE MOBILIZING THEIR COMMUNITIES

Fernwood United Methodist Church in Chicago's Roseland neighborhood composts and encourages community members to donate leaves and food scraps in return for a discount on goods at their farmers' market. The composting provides natural fertilizer for the farmers and the church–run community garden while reducing the amount of landfill waste.

The Little Village Environmental Justice Organization (LVEJO) participates in national and international climate justice efforts and leads local campaigns on public transit, water, and clean power. It advocates the closing of Chicago's two coal-fired power plants, including the Fisk plant in Pilsen (pictured).

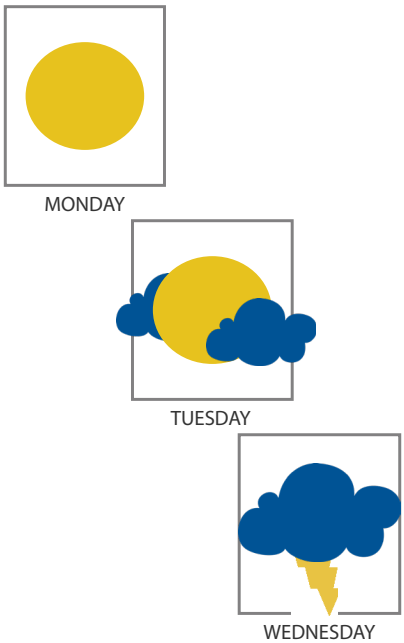


Blacks in Green (BIG) builds awareness of climate change in Chicago's South Side communities through "Green-Village-Building" activities that highlight African-American sustainable traditions. These include classes run in partnership with the University of Chicago and cultural activities such as movie discussions, green "expos," and story circles.

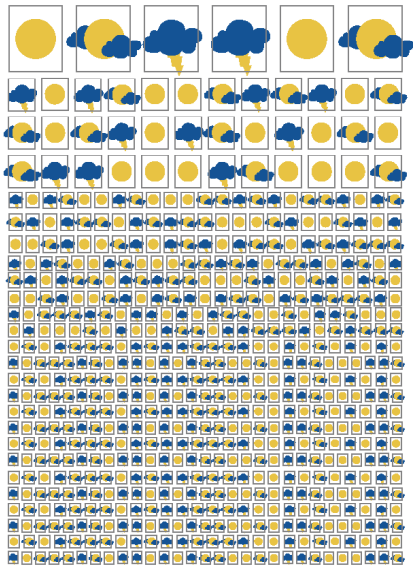
The Council of Islamic Organizations' "Green Ramadan" campaign promotes green living and climate action among Chicago region Muslims as part of a long-term solution to social disasters in Africa, including drought and famine in Somalia.

WHAT'S THE DIFFERENCE BETWEEN WEATHER AND CLIMATE?

Weather is short-term changes in the atmosphere: what we experience day-to-day.



Climate is the average long-term weather *pattern* of a specific location: how the atmosphere behaves over many, many years.



WHAT IS CLIMATE CHANGE AND WHAT DOES IT HAVE TO DO WITH GLOBAL WARMING?

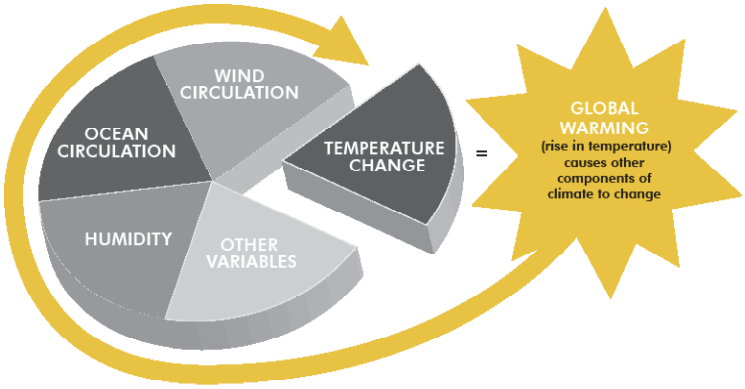
Climate change refers to changing patterns of things like temperature, precipitation, humidity, and wind and ocean circulation over long periods of time.

Climate change today is caused in large part by human activity such as burning fossil fuels like coal, petroleum, and natural gas.

Global warming is the rise in the Earth's average temperature.

It is caused by an increase in the amount of greenhouse gases in the atmosphere. These gases trap heat.

Components Of Climate Change



CHICAGO REGION RESIDENTS ARE MAKING A DIFFERENCE

When she leaves the house, one resident from Chicago's Roseland neighborhood disconnects all of her non-essential appliances. Her monthly bill has been reduced by $100.

Some residents in Chicago's Pilsen and Southwest Side neighborhoods learned to conserve water from a 1970s TV campaign in Mexico called "Cierrale!" ["Turn it off!"]. One resident said it was as popular as the U.S. "Got Milk?" ads.

Volunteer stewards have been working with the Forest Preserve District of Cook County since 1977 to revitalize Glenview's Harms Woods.

To save money and energy, an electrician/carpenter built this solar water heater for his family's home in Chicago's Jefferson Park neighborhood, duplicating what he did at his recreational home in the Polish countryside.

THE CHICAGO REGION IS LEADING THE WAY

Local governments and communities around the Chicago region are taking climate action and improving quality of life at the same time. The projects described here provide just a few examples of how climate change work can also help advance issues as diverse as food access, economic development, religion, youth education, open space, and cultural heritage.

Photo courtesy of the City of Chicago

With more than 60% of trips less than three miles, Chicago encourages biking as a mode of transportation. The City plans to add 8–25 miles of bike lanes each year.

Photo courtesy of the City of Chicago

In 2011, the City of Chicago helped launch Energy Impact Illinois (energyimpactillinois.org), an innovative program that connects residents and businesses with the contractors and financing options available for energy efficiency work.

Photo courtesy of the City of Chicago

In 2001, the City installed a green roof on City Hall. Studies revealed the surface temperature to be as much as 78°F cooler than the temperature on the traditional black tar roof of the Cook County half of the building.

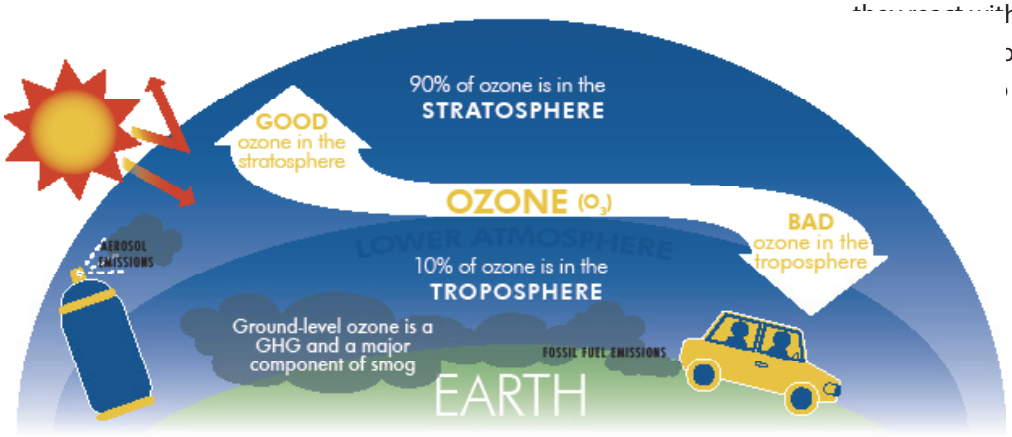
The City of Chicago is working with partners including The Field Museum to create a Climate Ready Checklist for natural area and green space managers to help them take climate change into account in future planning.

WHAT DOES CLIMATE CHANGE HAVE TO DO WITH OZONE?

People we talked to during our research sometimes confused today's climate change crisis with the problems that we faced with the ozone layer in the 1970s. In fact they are related but different challenges.

Ozone in the upper atmosphere blocks UV-B radiation emitted by the sun from entering our atmosphere. This is important (good) because high levels of UV-B radiation can cause severe skin damage, including skin cancer. Human-made aerosols depleted some of this ozone, creating the "hole in the ozone layer." Since the 1970s, international efforts have successfully reduced the amount of ozone-depleting aerosols through legislation that banned the use of the chemicals that caused the problem.

Ground-level ozone (bad) in the lower atmosphere is a greenhouse gas (GHG), like CO_2. Burning fossil fuels creates pollutants that become ozone when they react with heat and sunlight. Ozone is a component of smog, and a climate change.



HOW DO WE KNOW CLIMATE CHANGE IS REAL?

Scientists throughout the world have conducted thousands of studies on climate change.

They overwhelmingly agree that climate change is happening and our Earth is warming, due mainly to human activities that burn fossil fuels.

In the Chicago region, many of the residents we surveyed believe that climate change is real in part because of what they know about changes happening in the Arctic: loss of ice cover and the danger this poses for polar bears. They also tend to associate climate change with dramatic weather events around the country and the world—including, for immigrant residents, in their home countries.

Residents are also noticing the effects of climate change in the Chicago region, such as stronger storms, hotter summers, and even acorns falling earlier from trees.

FACT:
97 out of 100 scientists who study climate conclude that climate change today is largely caused by human activity.
www.skepticalscience.com

In February 2011, a Chicago blizzard stranded Lake Shore Drive commuters overnight. Global warming increases moisture in our atmosphere, resulting in extreme storms like this one.

Photo courtesy of Carrie Porter, patch.com

CITIES WILL LEAD THE WAY

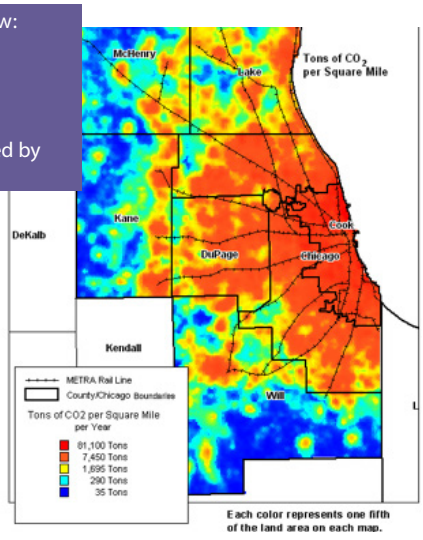
Cities are often pointed to as a major cause of climate change because they produce so many emissions. But in fact, they offer the solution.

In cities, everything is closer together. This pattern supports local businesses, encourages people to ride trains and buses instead of drive, and shortens travel times.

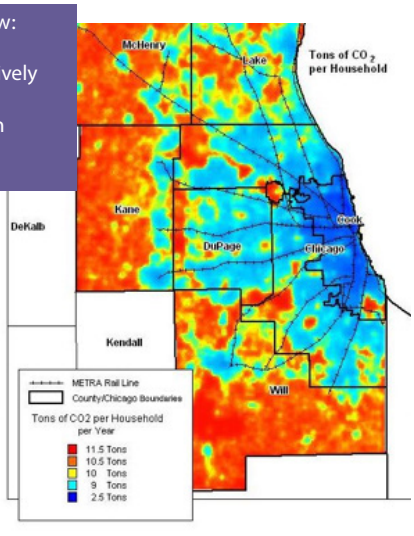
The effect: much lower emissions per household.

A New View of Cities and Climate Change:
CO_2 Generated by Automobiles in the Chicago Region per Year

Traditional View: Cities produce large amounts of greenhouse gases (GHGs) when measured by square mile.

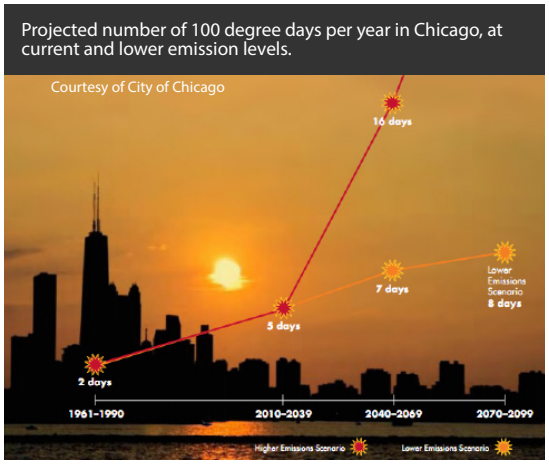


Emerging View: City dwellers produce relatively low amounts of GHGs when measured by household.



SO... WHAT CAN WE DO? ACT NOW!

It's not too late to make a difference. Two climate action plans have been created for the Chicago region (see below). These plans aim to help the region lower greenhouse gases ("mitigation") and cope with changes already underway ("adaptation"). The City of Chicago's plan commits to reducing GHGs to 25% below 1990 levels by 2020 and 80% by 2050.



Projected number of 100 degree days per year in Chicago, at current and lower emission levels.

Watch a video about climate action in the Chicago region: http://vimeo.com/35327081

Chicago Climate Action Plan:
5 Strategies for the City of Chicago

1. Energy Efficient Buildings
2. Clean and Renewable Energy Sources
3. Improved Transportation Options
4. Reduced Waste and Industrial Pollution
5. Adaptation

Learn more: chicagoclimateaction.org

Climate Action Plan for Nature:
5 Strategies for the Chicago Region

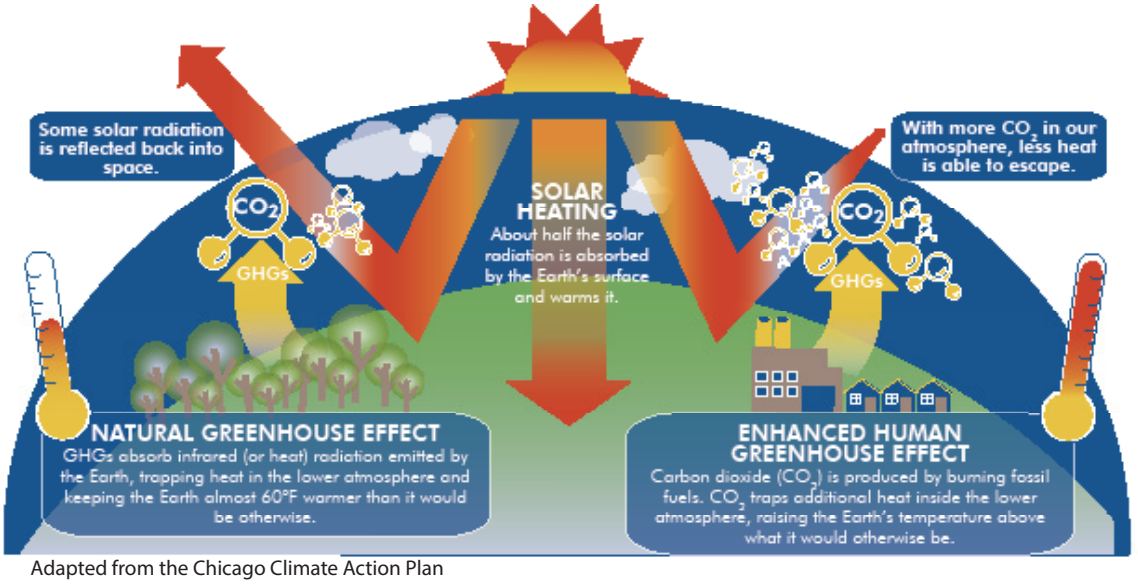
1. Climate-Friendly Gardens and Lawns
2. Water Conservation
3. Monitoring
4. Stewardship
5. Climate Change Education

Learn more: climatechicago.fieldmuseum.org/learn#capn

HOW DOES HUMAN ACTIVITY CAUSE CLIMATE CHANGE?

We burn fossil fuels when we do things like drive, heat our homes, dispose of waste, and process food. Burning fossil fuels produces greenhouse gases (GHGs), the most significant being carbon dioxide (CO_2). GHGs trap heat in the Earth's lower atmosphere.

GHGs are also produced by many natural sources such as forests and oceans. This is called the "natural greenhouse effect." But it is the additional amount of human-produced GHGs, which produce the "enhanced human greenhouse effect," that is causing the climate to change too quickly today.



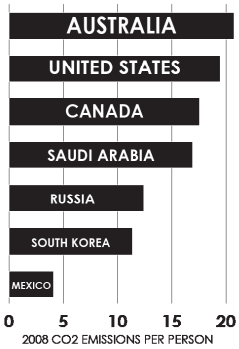
Adapted from the Chicago Climate Action Plan

HOW DOES HUMAN ACTIVITY IN THE CHICAGO REGION CAUSE CLIMATE CHANGE?

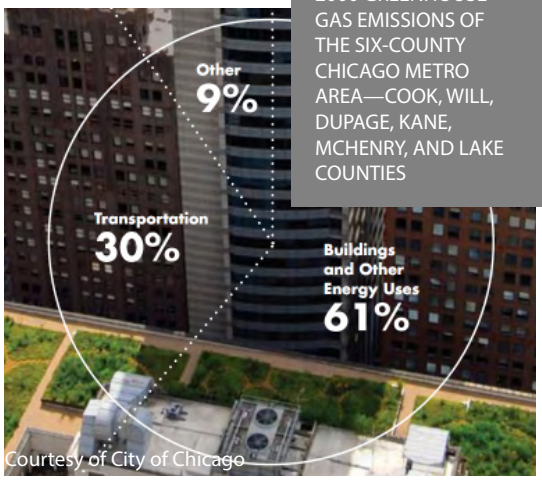
People we talked to often do not realize that the major cause of climate change is the use of energy produced by burning fossil fuels (coal, petroleum, natural gas). Many national and local climate change initiatives focus on reducing energy consumption, largely through commercial and residential retrofits (tightening up buildings so less energy leaks out).

As shown below, energy use makes up 61% of greenhouse gas (GHG) emissions in the Chicago region. In the city of Chicago, it makes up 70%.

FACT:
The U.S. has more CO_2 emissions per person than any other country except Australia.

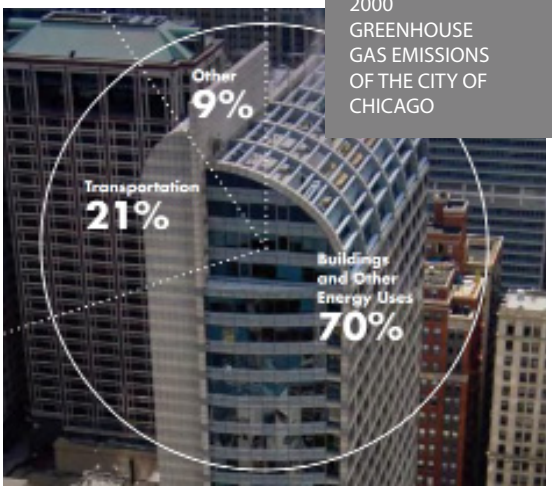


Data courtesy of the U.S. Department of Energy



2000 GREENHOUSE GAS EMISSIONS OF THE SIX-COUNTY CHICAGO METRO AREA—COOK, WILL, DUPAGE, KANE, MCHENRY, AND LAKE COUNTIES

Courtesy of City of Chicago



2000 GREENHOUSE GAS EMISSIONS OF THE CITY OF CHICAGO

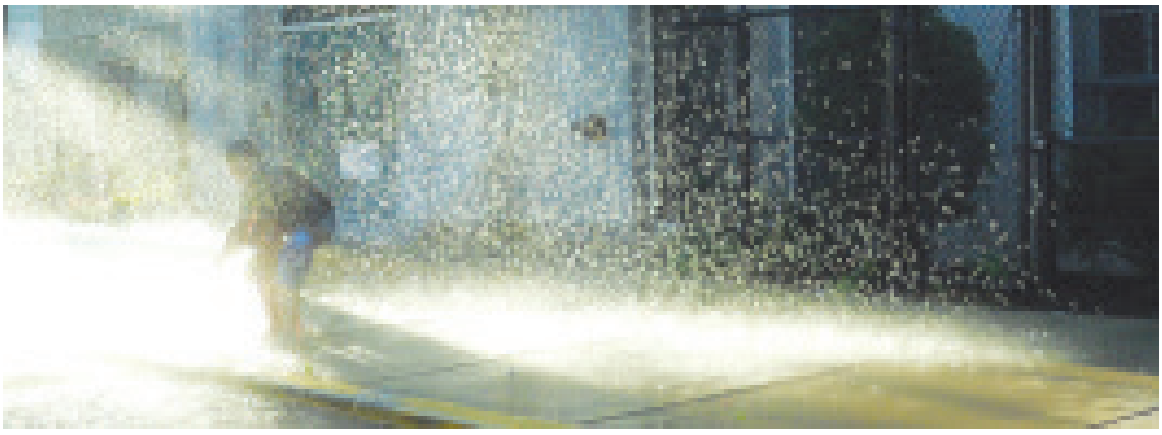
CLIMATE CHANGE IS AN ENVIRONMENTAL JUSTICE ISSUE

People in regions of the world that contribute the least to climate change—including sub-Saharan Africa, low-lying Indonesian Islands, and the Arctic—will likely suffer the most.

In the places that contribute the most to climate change, including the U.S. and other industrialized countries, climate change will have a greater impact on economically disadvantaged communities and communities of color. This is because these communities often lack access to the resources needed to cope with extreme weather events.

African-American residents in Chicago and around the country often reference Hurricane Katrina as a climate injustice.

739 people died from Chicago's heat wave in 1995. Most were low-income elderly. Their deaths remind us that climate change will have the greatest impact on those lacking the resources to adapt.



CLIMATE CHANGE LINKS THE LOCAL TO THE GLOBAL

Climate change is a global issue, but it affects different parts of the world in different ways. Some areas will get more floods while others will suffer from droughts.

Some places, like the Chicago region, may experience a change in when and how much rainfall they receive. The region is expected to have wetter winters and springs, and long periods of dryness in the summer punctuated with more extreme storms and flooding.

The world's northern regions, such as the Arctic, are seeing the greatest changes first. These include extensive permafrost and glacial melt and increasing sea surface temperatures.

Many of the Chicago region's immigrant communities maintain very close ties with their home countries and are often affected by international climate events.

The Chicago region's Polish community rallied to help people in Poland affected by severe flooding in 1997 and 2010 (left).

Hurricanes in Mexico in 2010 caused some people to migrate to Chicago's Pilsen community as "climate refugees" (right).

HASN'T THE CLIMATE ALWAYS BEEN CHANGING?

Yes, the climate has always been changing, but the current warming trend is different because:

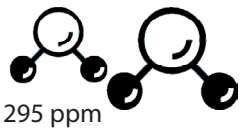
- It is largely caused by human activities.
- CO_2 levels are the highest they have been in over 800,000 years.
- The rate of increase has never been seen before.

Chicago is like many other industrial areas when it comes to the causes of climate change. In the early 1900s, Chicago was booming. It was the beginning of the Century of Progress.

But some progress comes at a price: intensifying levels of CO_2 accelerated climate change.

FACTS:
Levels of CO_2 have risen 25% in the last century.

CARBON DIOXIDE
in ppm (parts per million)



295 ppm
1900

385 ppm
2007

Courtesy of the U.S. Department of Energy

Many scientists say we need our CO_2 levels back below 350 ppm this century to avoid irreversible impacts.

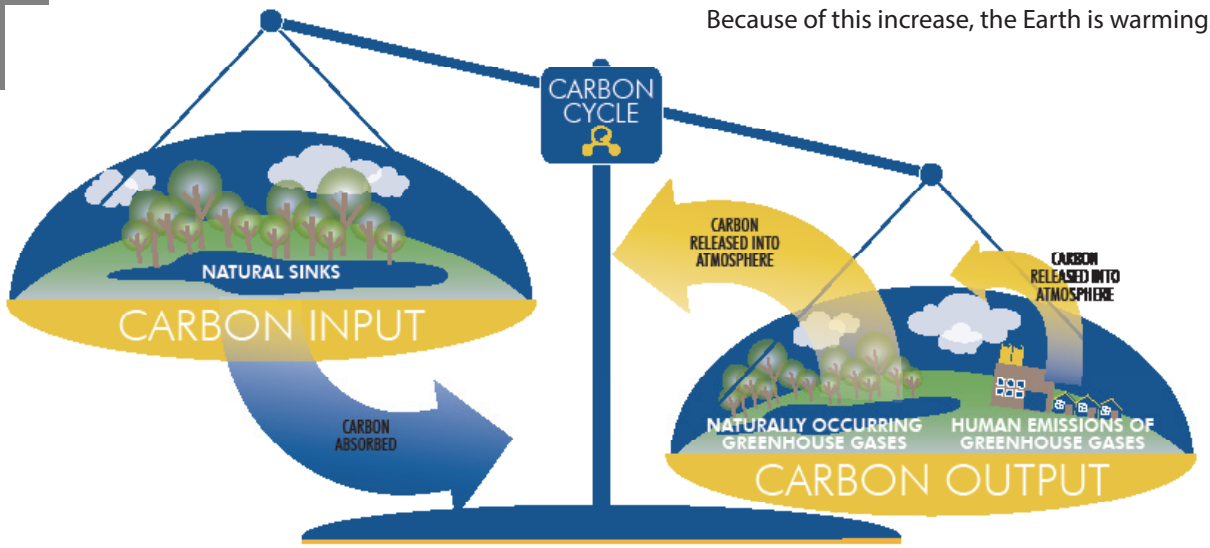
Photo public domain

WHY ARE CO_2 LEVELS SO HIGH?

Natural sources like plants, animals, oceans, and soils have always released more carbon into the atmosphere than human activities do. But in the past the amount of gases released by natural sources was balanced by the amount of gases being absorbed by natural "sinks."

Sinks include oceans, lakes, forests, and other green spaces. They keep the amount of CO_2 in the atmosphere in check. This process is called the "carbon cycle." Cutting down trees and reducing the quality of Earth's natural sinks greatly reduces the sinks' ability to store carbon.

The added emissions from human sources today create an imbalance in this cycle that results in too much CO_2 in the atmosphere. Because of this increase, the Earth is warming.



HOW WILL CLIMATE CHANGE CONTINUE TO ALTER LIFE IN THE CHICAGO REGION?

Climate change may continue to alter many aspects of life in the Chicago region. Scientists anticipate increases in...

- Heat-related diseases like heart attacks and asthma;
- Flooding, affecting residences, public transportation, and bridges;
- Electricity shortages and changes in energy demands;
- Government expenses, such as landscaping, road maintenance, and emergency response.

Climate change is also expected to affect nature and wildlife. Scientists project that…

- Animals and plants may become stressed from too much heat and too much or too little precipitation;
- Rivers, lakes, and wetlands may become more polluted from increased stormwater run-off, which picks up sewage, garbage, fertilizer, etc. that then flows into these waterways;
- Invasive species and pests may become a bigger issue.

The Chicago region doesn't have polar bears, but climate change threatens animals here too. The Hine's emerald dragonfly (left) is an endangered species only found in a few remaining wetlands, including some in the Chicago region. The Bobolink (right) is already rare in the region due to a scarcity of large open spaces for nesting and food. Climate change threatens the habitat of both.


Photo courtesy of Paul Burton


Photo public domain

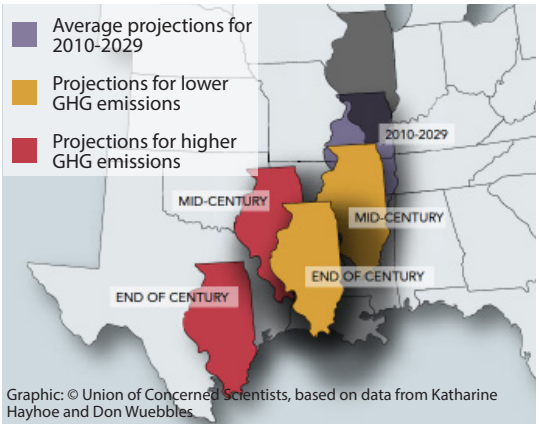
WHAT IS ALREADY CHANGING IN THE CHICAGO REGION?

The Chicago region's average temperature is increasing. Temperatures have risen by 2.6°F since 1980. The change in temperature is causing Lake Michigan to be frozen for shorter periods of time during the winter.

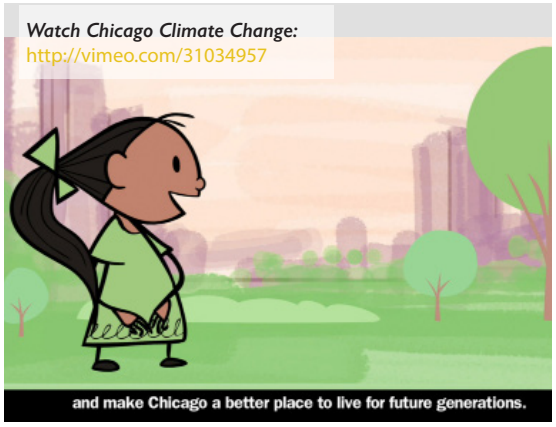
The region is experiencing more extreme weather events, including heat waves, flooding, and more 100°F summer days.

In September 2008, a record-breaking 6.5 inches of rain fell in a 24-hour period in Chicago. Many parts of the city were quickly flooded by the overflow of the Chicago River, resulting in widespread damage to cars and buildings. In Albany Park, on the northwest side of the city, dozens of residents were evacuated from their homes because of dangerously high waters. In 2011, this record was broken when 6.86 inches fell on July 23rd. Primarily due to this single storm event, Chicago experienced its wettest July on record.

This map shows the projected summer climate changes over this century for Illinois relative to existing average summer temperature and precipitation found throughout the United States. For the higher-emissions case, the Chicago region would have a summer climate more like eastern Texas by the end of the century.



Graphic: © Union of Concerned Scientists, based on data from Katharine Hayhoe and Don Wuebbles



HOW DO WE CORRECT THE IMBALANCE IN THE CARBON CYCLE?

Many of our natural sinks have been greatly fragmented or completely lost to development, agriculture, and pollution.

Oceans and lakes are likely to reach a CO_2 intake threshold in the future. This means that they would not be as good at capturing and storing carbon, so more carbon would remain in the atmosphere.
As a result, our remaining natural sinks would be less effective at reducing the amount of CO_2 in the atmosphere than they have been in the past.

Preserving and restoring the sinks we do have left is essential to addressing today's climate change challenge.

FACTS:
Lake Michigan and the green spaces in the Chicago region, including 75,500 acres of parks and forest preserves in Cook County, act as CO_2 sinks.

These areas are also critical in providing habitat for the region's plants and animals.

A Greener Vision for the Chicago Region


Image courtesy of Chicago Metropolitan Agency for Planning

There are 370,000 acres of protected land in the Chicago region. This map depicts a vision of an expanded network of waterways and open space.

Hegewisch Marsh, a 130-acre wetland on Chicago's Far Southeast Side, is a natural "sink." It survived incredible industrial pollution and is now being restored.

Chicago's suburbs contain some of the best remaining tallgrass prairie and oak savanna. Their deep roots store a substantial amount of carbon.

WHAT EXACTLY IS CHANGING?

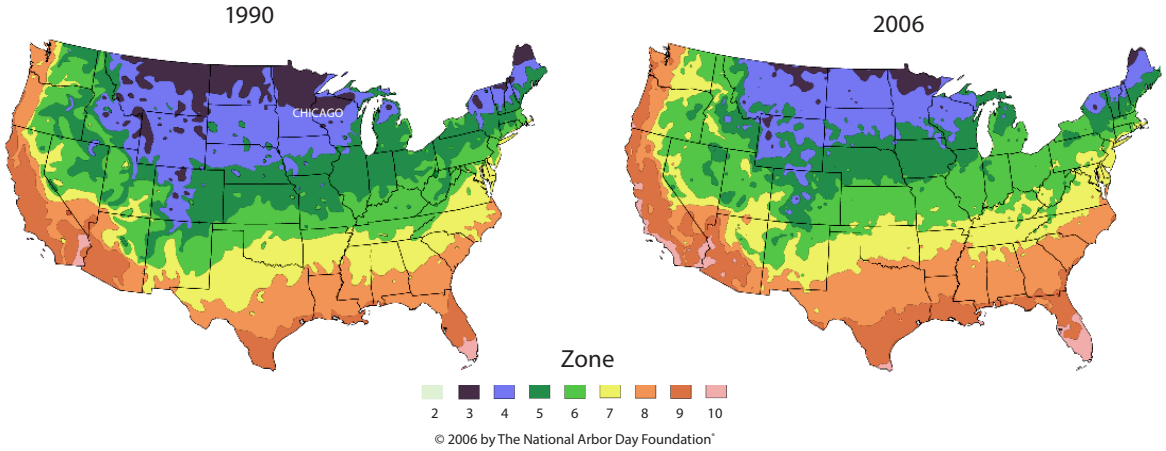
The Earth's temperature has increased about 1°F over the past 100 years. This has resulted in changes in the atmosphere, ice, ocean, and land.

These changes have already made the climate less stable, resulting in some regions experiencing more extreme storm events and flooding, as well as rising sea levels, and others facing drought.

In many regions, spring is coming earlier, which is disrupting natural processes. For example, some animals that migrate, such as insect-eating birds, are finding that the animals or plants they are accustomed to eating are no longer around when they arrive. The scientific term for this is "phenological mismatch."

The plant hardiness zone in the Chicago region is changing. This measurement uses average annual minimum temperatures to determine which plant species thrive in which climatic regions. During the past 15 years, over half the U.S., including the Chicago region, warmed one hardiness zone. Plants that once thrived in this region now fare better farther north.

Plant Hardiness Zone



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