



Miami-Dade County and Climate Change: What every South Floridian needs to know!

Climate Change and the Environment

Why should you care about climate change?

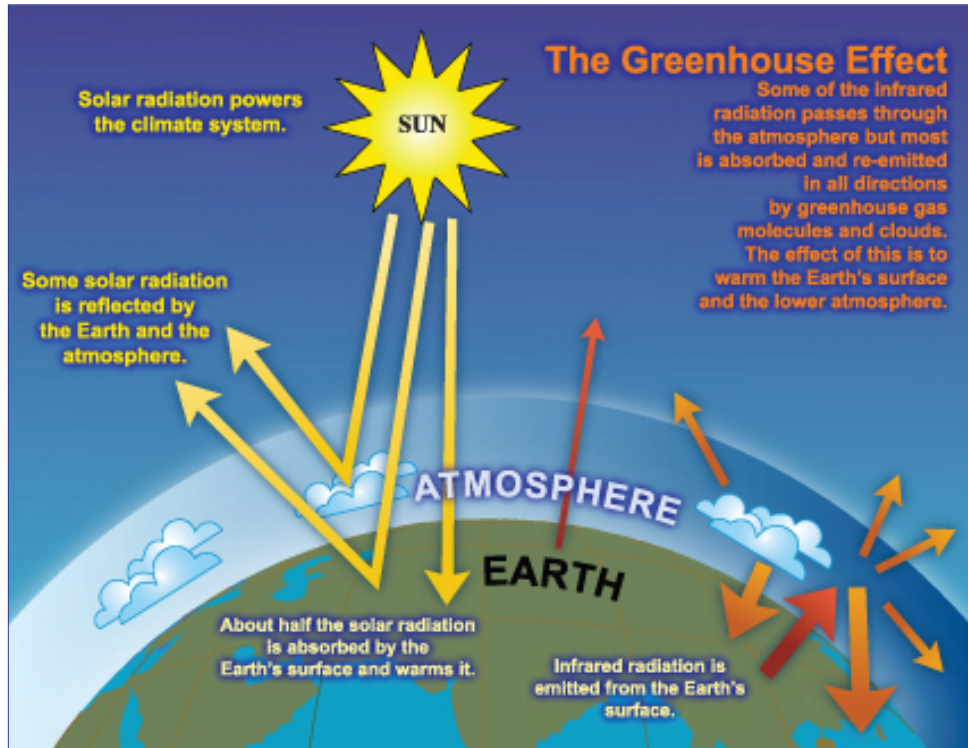


Figure 1. An idealized model of the natural greenhouse effect. Intergovernmental Panel on Climate Change 2007.

The well-being and sustainability of any community is dependent on a vibrant economy, a healthy environment, and an equitable and supportive community fabric. These three facets of sustainable communities (our natural, human and economic capital) are interdependent. If any one element is out of balance, the other two suffer. To ensure a healthy and prosperous future for ourselves, our children, and fellow residents, we must be good stewards of all three.

Climate change will cause the world's environments to change and will present many challenges and some opportunities to our human, natural and economic systems. We will all experience climate change in one way or another. We must work together to address and prepare for all aspects of climate change to ensure that our communities continue to prosper and support future generations to come.

What is Climate Change?

"Global Climate Change" refers to a changing of the earth's environment as we know it today due to the scientifically documented warming of the earth. Increasing levels of greenhouse gas emissions are causing this warming.

Atmospheric "greenhouse gases" occur naturally in the earth's atmosphere. These gases capture a portion of the sunlight that reaches the earth to warm the planet and support life. Greenhouse gases are also produced by the human use of fossil fuels such as coal, oil, and natural gas to

run our cars, cool and power our homes, schools, and businesses, and in the production and transportation of the goods and services that support our economy.

Based on historic and current greenhouse gas emissions levels, scientific research by the Intergovernmental Panel on Climate Change, a team of climate science experts from all over the world, predicts a worldwide increase in global temperature of 3.1 to 7.2 degrees Fahrenheit (1.8 to 4.0 degrees Celsius) by the end of the century. It may not sound like a lot, but a few degrees increase in overall global temperature will have dramatic impact not only on Miami-Dade County, but the world, changing our natural environment and the way of life we have come to know. Sea level rise, increasing droughts and floods, warmer temperatures in some places, colder temperatures in others, changing habitats and impacts to the plants and animals that currently inhabit them, are a few of the changes we may begin to experience.

It is important to understand one basic fact about climate change: the level of energy emissions is directly related to the rate of climate change. If the demand for energy can be reduced, the level of emissions, and therefore the rate of climate change, can be reduced as well.



Source: South Florida Water Management District

The good news is that the magnitude of the changes we will experience in the coming years can be made less severe. The stabilization and reduction of greenhouse gases in the atmosphere is possible through a comprehensive approach and partnership of residents, the private sector, and government to become more energy efficient, to become less wasteful of our resources, and to adopt "greener" and "smart" development practices. Small changes by Miami-Dade's 2.4 million residents can add up to big reductions in greenhouse gas emissions! But we must act now. Scientists predict that we have a decade or so to make the necessary changes that will lead to a meaningful decrease in the rate of climate warming.

How is Climate Change likely to impact Miami-Dade County's Environmental Resources?

Miami-Dade County has unique environmental treasures susceptible to climate change. The County is home to Biscayne Bay and Everglades National Park lands that provide habitat for many special plants and animals; coastal mangrove forests; rich coastal marshes; colorful coral reefs and rare habitats.

Scientists tell us that likely impacts to Miami-Dade County's natural resources and environment include:

Water Quality Degradation and Increased Pollution. Increases in the earth's surface temperature are expected to lead to an increase in heavy rain events. Greater stormwater run-off will wash higher concentrations of sediment, and pollutants from the ground's surface into adjacent water bodies such as Biscayne Bay, the Miami River, Barnes Sound and Florida Bay. Heavy rain events will also increase the likelihood of sewer overflow. Untreated stormwater runoff will adversely impact not only the quality of these waters but also the plants and animals that need clean water to live.

Miami-Dade County's coastal estuaries (areas where saltwater meets freshwater) play an important role in South Florida's ecosystem by serving as nursery areas for marine fish and other sea life. Additional fresh water inflows into these estuaries will change the salinity, nutrient and sediment concentrations of these waters, affecting their ability to support life.

Coral Reef Mortality. Southeast Florida's coral reefs and the marine life that depend on them are already at risk. Climate change will increase their vulnerability through rises in sea temperature and ocean acidification. Coral bleaching events are projected to increase and cause coral reef die-off, unless reefs can adapt. Ocean acidification will weaken the ability of marine organisms to build additional reefs.

Endangerment of Tidal Wetlands and Treasured Biodiversity. Coastal wetlands are one of the most valuable and the most rapidly disappearing ecosystems. Miami-Dade County's coastal wetlands are at risk to projected sea level rise. Salt marshes and mangroves, the two most common coastal wetland types, can withstand rising seas provided that the sediment beneath them builds up at the same rate as sea level rises or that they have a place to migrate to. Otherwise, if their coastal



Source: South Florida Regional Planning Council



Source: National Park Service

migration is blocked by bluffs, coastal development, or shoreline protection structures, then they will be “squeezed” out of existence as they are submerged by rising seas. Because Miami-Dade County has a highly developed shoreline, there will be areas of the County where coastal wetlands will have no where to go, unless planning measures are enacted.

Biodiversity refers to the richness of plant and animal life that currently inhabits our environment. South Florida’s plant and animal systems already face myriad challenges: invasive, non-native species; habitat loss and habitat fragmentation through land development; and exposure to pollution. Several imperiled plant communities in Miami-Dade County are particularly susceptible to climate change impacts: its pine rocklands, tropical hardwood hammocks and scrub.

Shifting Plants and Animals. Average temperature and rainfall, both quantity and timing, help determine what types of plants and animals live in South Florida. Changing climate will change or eliminate the areas suitable for many of South Florida’s native plants and animals. Plants and animals will typically migrate to more hospitable areas, when their habitat changes. Because Miami-Dade County is a highly populous urbanized county with limited natural lands, the potential for animals and plants to relocate within its boundaries is limited.

Benefits of a Healthy Ecosystem. South Florida’s plants and animals play an essential role in creating a healthy environment for you and your family by simply carrying out their ecological function. For example, South Florida’s mangroves, which thrive along the coast in brackish water, serve as nurseries for our fishing industry, protect the shoreline, help buffer South Florida from hurricanes, and remove carbon dioxide from the environment. Coastal wetlands help filter upland runoff and freshwater entering the bays by removing soil and other particles that are harmful to coral reefs and seagrass beds. This important function of the natural infrastructure will be lost if sea levels rise too quickly.

Everglades Restoration Complications. South Florida is partnering with the state and federal governments to restore and protect the Florida Everglades. The Comprehensive Everglades Restoration Plan (CERP) is designed to restore the historic sheet flow of water across the Kissimmee-Okeechobee-Everglades ecosystem, restoring natural habitats and helping to protect the region’s water supply. Global climate change will make this historic restoration effort more difficult and costly to complete.

Increased Risk of Wildfire. Due to a likely elevated risk of droughts, forested areas and the portions of the Everglades in Miami-Dade County will likely experience more wildfire events.

The good news is that we can all do our part to reduce our carbon emissions. Proactive planning and preparedness measures can be taken by government, the private sector and citizens to lessen the rate of climate change by cutting carbon emissions. Scientists tell us that if we cut our emissions, we can stabilize levels of carbon in the atmosphere and prevent severe climate and weather shifts from occurring.

What you and your family can do today to slow climate change

1. Use Fluorescent Light Bulbs: one fluorescent light bulb can last as long as thirteen regular light bulbs, and use only a fraction of the energy.
2. Drive Fuel Efficient Cars: Not only will you save money on gasoline, but you will reduce the level of carbon dioxide emissions from your car and help reduce global warming.
3. Air Dry Dishes: Instead of running the heated drying cycle on your home dishwasher, air drying your plates, bowls, utensils, etc. on a dish rack reduces the amount of energy being consumed.
4. Turn Down Your Hot Water Heater: Reducing the temperature on your hot water to 120 degrees saves energy, and energy-related costs.
5. Wash in Cold Water: If you use the proper detergent, washing in cold water instead of hot can get your clothes just as clean, while using less energy and reducing overall energy demand and costs.
6. Carpool: Carpooling to work or school reduces the number of vehicles on the road, reduces carbon dioxide emissions, and save gas. An alternative to carpooling is public transportation. Another option is to walk or ride a bicycle if your destination is nearby.
7. Regulate Home Temperature: Setting your home thermostat comfortably low during cooler months and comfortably high during warmer months can greatly reduce energy demand and energy emissions.
8. Only Do Full Loads: Washing only full loads of dishes or clothes reduces the overall number of cycles, thus reducing the overall demand for energy.
9. Consider a Hybrid or Alternative Fuel Vehicle: Hybrids and alternative fuel vehicles are more efficient and require less energy, thus causing less damage to the environment.
10. Finally, Use Renewable Energy Sources: Wind and solar energy sources are becoming more readily available and offer a more efficient means for energy production. Check with your local utility to see if any renewable energy sources are available near you.
11. Use reusable canvas bags instead of paper or plastic bags when shopping.

Sources include: Associated Content - The People’s Media Company, 2007



Positive changes come with small steps!

Be a steward of your planet today and for future generations to come! Miami-Dade County and the State of Florida are doing their parts. The County has appointed a Climate Change Advisory Task Force to plan for the future and recommend a climate action plan to the Board of County Commissioners. Florida Governor, Charlie Crist, is committed to addressing this issue at the State level. The Governor recently signed Executive Orders for action at the Climate Change Summit in Miami on July 13, 2007.

Useful Websites:

<http://www.myfloridaclimate.com/>

Learn more about Governor Charlie Crist’s actions and commitments to address climate change.

<http://www.volunteerflorida.org/>

Join the Serve to Preserve initiative and volunteer to help the environment.

<http://www.southfloridaclimatechange.org/>

Learn more about climate change initiatives, actions and events in the Southeast Florida region.

<http://www.energystar.gov/>

Energy Star is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy that helps Americans save money and protect the environment through energy efficient products and practices.

<http://www.responsiblepurchasing.org/>

Learn more about how you can make your purchases more socially responsible and environmentally sustainable.

<http://www.iclei.org/>

ICLEI—Local Governments for Sustainability is an international association of local governments and national and regional local government organizations that have made a commitment to sustainable development.

Please contact the South Florida Regional Planning Council with questions and comments related to this fact sheet: sfadmin@sfrpc.com or 954-985-4416



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