

# Is It Raining Harder? RainReady and Extreme Weather



In *RainReady*<sup>SM</sup> communities, better water management means that homes, schools, and businesses are prepared for rain—whether too much or too little. RainReady programs keep residences secure and dry, services running, and rivers and lakes clean.

With communities across the nation facing both flooding and drought, one question that people often ask is whether the weather really is getting worse, and if these changes are related to global climate change. As part of our guidance to communities on getting RainReady, CNT has reviewed the latest research.

## WHAT ARE GREENHOUSE GASES, AND HOW DO THEY AFFECT CLIMATE CHANGE?

Greenhouse gases are emissions from natural systems and various human activities that become “trapped” in the atmosphere. The most common greenhouse gas is carbon dioxide, which is a result of burning fossil fuels in order to power vehicles and industries. Though carbon dioxide is commonly found in the atmosphere by nature, human actions are changing these levels by increasing emissions and decreasing the amount of “sinks” – natural systems, such as forests, that remove carbon dioxide from the atmosphere. As the level of gases build up in the atmosphere, the global temperature increases – in turn causing unnatural changes in weather patterns. Human activity is responsible for almost all of the increase in greenhouse gases over the last 150 years.<sup>1</sup>

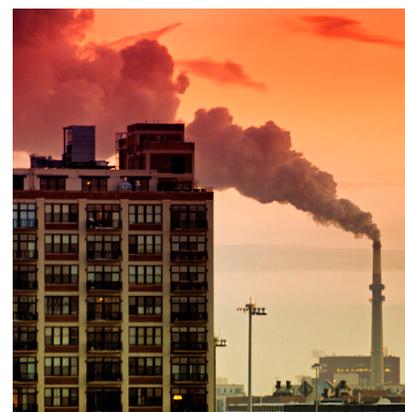
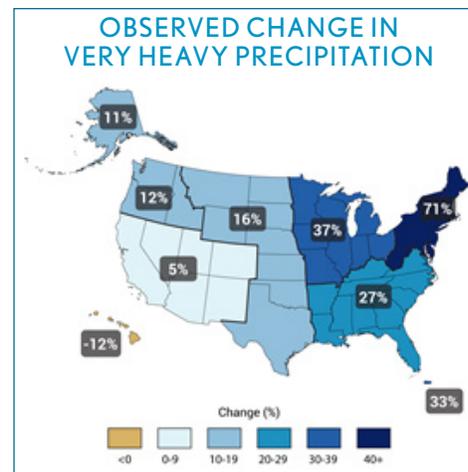


Photo credit: Seth Anderson, Flickr Creative Commons

## IS THE WEATHER IN MY COMMUNITY CHANGING?

The 2014 National Climate Assessment Report states that weather patterns across the country are indeed changing - notably in terms of the frequency of very heavy rainfall events.<sup>2</sup> Although there has been a general trend toward more precipitation over the past fifty years, the nature of the change differs across the country. While the Midwest has experienced a 37% increase in the quantity of heavy rain storm events (defined as the heaviest 1% of all rainfall events) during this period, the Southwest has only seen a precipitation increase of around 5%. Look at the map to see how precipitation levels have changed in your area.



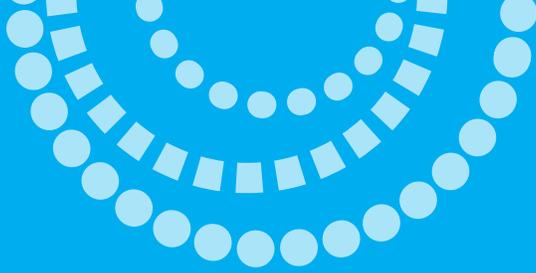
Map credit: National Climate Assessment Report

## HOW WILL I BE AFFECTED?

Despite the general trend toward more precipitation, weather patterns are unpredictable. The 2014 National Climate Assessment Report indicates if the level of greenhouse gas emissions continues to increase, heavy rainfall is predicted to occur up to five times as often as it does now in the Northeast, Midwest, and upper Great Plains by the year 2100.<sup>3</sup> However, the Southwest is projected to experience less rainfall than past levels. In short, areas which are prone to rainfall are going to experience more precipitation, while drought-prone areas may become drier.

Millions of homes and businesses are already feeling the impacts of increasingly severe weather. The damage and costs of events such as flooding, drought, and wildfires, will continue to escalate, affecting towns and cities across the nation. The impacts are made worse as a result of urban development – with the increase in large areas of impervious





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surfaces such as roads, sidewalks and parking lots increasing the volume of runoff from heavy rainfall that accumulates on the surface and ultimately floods homes and businesses. Because this water is not absorbed into the ground, communities used to relying on groundwater may be more vulnerable to water shortages and drought.

Your property and neighborhood face steadily increasing risks of being affected by wet basements, flooding or damage from droughts and subsidence unless actions are taken to address the problem.

## WHAT CAN I DO?

There are simple actions that homeowners, communities and states can take to reduce the impacts of too much and too little water. These are summarized on the [RainReady website](#).

In addition, there are actions you can take yourself, and government policies and regulations that deserve your support, that are critical to Reducing greenhouse gas emissions and ultimately the long term impacts of global climate change. For example, according to the Environmental Protection Agency, transportation activities are responsible for roughly 28% of greenhouse gas emissions; therefore legislation encourages the use of electric vehicles could play a big part in greenhouse gas reductions. Similarly, the generation and distribution of electricity contributes about 32% of our carbon emissions.<sup>4</sup> The Environmental Protection Agency suggests that this number could be reduced through increased efficiency of power plants and the use of nuclear energy rather than fossil fuels.<sup>5</sup> You can promote legislation designed to reduce greenhouse gas emissions by encouraging your community, state and federal elected officials to take action.

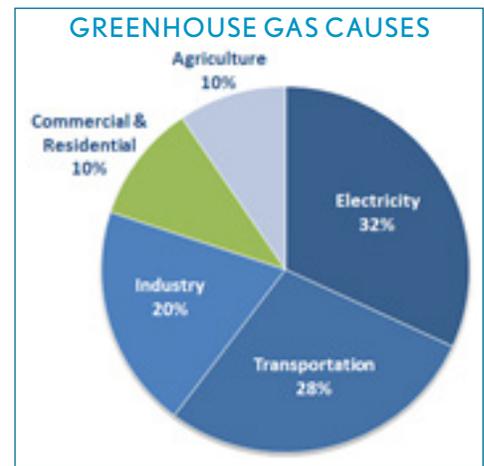


Table credit: EPA



Photo credit: Patrick - msqarmy.com, Flickr Creative Commons

Find out more about how climate change is affecting weather patterns at <http://nca2014.globalchange.gov/report>.

1. "Sources of Greenhouse Gas Emissions", Environmental Protection Agency, <http://www.epa.gov/climatechange/ghgemissions/sources.html>
2. "Electricity: Sources of Greenhouse Gas Emissions", Environmental Protection Agency, <http://www.epa.gov/climatechange/ghgemissions/sources/electricity.html>
3. "Heavy Downpours Increasing", 2014 National Climate Assessment Report, <http://nca2014.globalchange.gov/report/our-changing-climate/heavy-downpours-increasing>
4. "Sources of Greenhouse Gas Emissions", Environmental Protection Agency, <http://www.epa.gov/climatechange/ghgemissions/sources.html>
5. "Electricity: Sources of Greenhouse Gas Emissions", Environmental Protection Agency, <http://www.epa.gov/climatechange/ghgemissions/sources/electricity.html>

**DOES YOUR COMMUNITY HAVE A RAINREADY PLAN? LEARN MORE AT [WWW.RAINREADY.ORG](http://WWW.RAINREADY.ORG)**