



Climate Change Resources

EPA's Climate Change website (www.epa.gov/climatechange) provides a good starting point for further exploration of this topic. From this site, you can:

- View the latest information about EPA's climate change indicators (www.epa.gov/climatechange/indicators) and download figures as well as accompanying technical documentation.
- Learn more about greenhouse gases and the science of climate change, discover the potential impacts of climate change on human health and ecosystems, read about how people can adapt to changes, and get up-to-date news.
- Read about greenhouse gas emissions, look through EPA's greenhouse gas inventories, and explore EPA's Greenhouse Gas Data Publication Tool.
- Learn about EPA's regulatory initiatives and partnership programs.
- Search EPA's database of frequently asked questions about climate change and ask your own questions. Explore a glossary of terms related to climate change, including many terms that appear in this report.
- Find out what you can do at home, on the road, at work, and at school to help reduce greenhouse gas emissions.
- Explore U.S. climate policy and climate economics.
- Find resources for educators and students.

The screenshot shows the EPA Climate Change Indicators in the United States page. At the top, there's a navigation bar with links to 'LEARN THE ISSUES', 'SCIENCE & TECHNOLOGY', 'LAWS & REGULATIONS', and 'ABOUT EPA'. Below that is a 'Climate Change' section with a sidebar containing links to 'Climate Change Home', 'Basic Information', 'Greenhouse Gas Emissions', 'Science', 'Overview', 'Causes of Climate Change', 'Indicators of Climate Change', 'Future Climate Change', 'Impacts & Adaptation', 'What EPA is Doing', 'What You Can Do', 'Newsroom', 'Glossary', and 'Students Site'. The main content area features a large image of a coastal landscape with the title 'Climate Change Indicators in the United States'. Below the title, there are five categories: 'Greenhouse Gases', 'Weather and Climate', 'Oceans', 'Snow and Ice', and 'Society and Ecosystems'. A text box states: 'Observations across the United States and the world provide multiple, independent lines of evidence that climate change is happening now.' To the right, there's a 'Key Findings' section with a small image and a link to 'View all findings on indicators'. At the bottom, there's a 'Learn More' section with links to a print report and order price copies.

The screenshot shows the homepage of the United States Global Change Research Program. At the top, there's a logo for 'United States Global Change Research Program' and a search bar. Below that is a banner with the text 'Integrating federal research on global change and climate change'. The main content area has tabs for 'Home', 'Who We Are', 'What We Do', 'In the Agencies', 'News', 'Publications', and 'Resources'. A 'Spotlight' box highlights 'July 2012: Hottest Month Ever'. Below it, there are sections for 'Regional Climate Information' (Alaska, Northwest, Great Plains, Midwest, Northeast, Southwest) and 'Sectoral Climate Information'. On the right, there's a sidebar with links to 'Employment Opportunity at the USGCRP National Coordination Office', 'NASA Study Links Extreme Summer Heat to Global Warming', 'NOAA: July 2012 Hottest Month in Recorded U.S. History', 'Federal Registered - Interagency Climate Assessment and Development Advisory Committee (ICACAD) Open Meeting', 'Employment Opportunity at the USGCRP National Coordination Office', and 'RSS Feed for USGCRP News'. There are also social media links for Facebook and Twitter, and a link to 'National Global Change Research Plan 2012 - 2021 Available Now Click Here!'

Many other government and nongovernment websites also provide information about climate change. Here are some examples:

- The Intergovernmental Panel on Climate Change (IPCC) is the international authority on climate change science. The IPCC website (www.ipcc.ch/index.htm) summarizes the current state of scientific knowledge about climate change.
- The U.S. Global Change Research Program (www.globalchange.gov) is a multi-agency effort focused on improving our understanding of the science of climate change and its potential impacts on the United States through reports such as the National Climate Assessment.
- The National Academy of Sciences (<http://nas-sites.org/americasclimatechoices>) has

developed many independent scientific reports on the causes of climate change, its impacts, and potential solutions. The National Academy's Koshland Science Museum (<https://koshland-science-museum.org>) provides an interactive online Earth Lab where people can learn more about these issues.

- The National Oceanic and Atmospheric Administration (NOAA) is charged with helping society understand, plan for, and respond to climate variability and change. Find out more about NOAA's climate indicators and other activities at: www.climate.gov.
- NOAA's National Climatic Data Center website (www.ncdc.noaa.gov/oa/ncdc.html) provides access to data that demonstrate the effects of climate change on weather, climate, and the oceans.
- The Centers for Disease Control and Prevention (CDC) provides extensive information about the relationship between climate change and public health at: www.cdc.gov/climateandhealth/default.htm.
- The U.S. Geological Survey's Climate and Land Use Change website (www.usgs.gov/climate_landuse) looks at the relationships between natural processes on the surface of the earth, ecological systems, and human activities.
- The National Aeronautics and Space Administration (NASA) maintains its own set of climate change indicators (<http://climate.nasa.gov>). Another NASA site (<http://earthobservatory.nasa.gov/Features/EnergyBalance/page1.php>) discusses the Earth's energy budget and how it relates to greenhouse gas emissions and climate change.
- The National Snow and Ice Data Center's website (<http://nsidc.org/cryosphere>) provides more information about ice and snow and how they influence and are influenced by climate change.
- The Woods Hole Oceanographic Institution's website (www.whoi.edu/main/climate-ocean) explains how climate change affects the oceans and how scientists measure these effects.

For more indicators of environmental condition, visit EPA's Report on the Environment (www.epa.gov/roe). This resource presents a wide range of indicators of national conditions and trends in air, water, land, human health, and ecological systems.

The screenshot shows the Koshland Science Museum website. On the left, there is a 'User Login' form with fields for 'Username' and 'Password', and buttons for 'REQUEST NEW PASSWORD', 'Sign Up', 'Log In', and 'Connect'. To the right, the 'Earth Lab: Degrees of Change' section is displayed. It features a red banner with the title 'Earth Lab' and 'Degrees of Change'. Below the banner, there is a map of the world with various colored dots representing different climate data points. A text box states: 'Earth is warming. Heat waves have become longer and more extreme. Cold snaps have become shorter and milder. Northern Hemisphere snow cover has decreased. Rivers and lakes are freezing later and thawing earlier. Arctic sea ice has declined. Glaciers and ice caps are melting in many parts of the world.' Another text box asks, 'Why is this happening? What impacts will it have? What can we do about it?' Below these, there are sections for 'Changes' and 'Trends', each with a small image and a brief description.

The screenshot shows the NASA Global Climate Change website. At the top, the NASA logo and 'National Aeronautics and Space Administration' are visible. The main header reads 'GLOBAL CLIMATE CHANGE' with the subtitle 'Vital Signs of the Planet'. Below the header, there is a large map of the world showing global temperature anomalies. To the left of the map, there are four key indicators: 'ARCTIC SEA ICE MINIMUM', 'CARBON DIOXIDE', 'SEA LEVEL', and 'GLOBAL TEMPERATURE'. Each indicator has a small graph and a numerical value. To the right of the map, there are several interactive features: 'EYES ON THE EARTH 3D', 'SEA LEVEL VIEWER', 'CLIMATE TIME MACHINE', 'GLOBAL ICE VIEWER', and 'COMMUNICATIONS FROM THE FIELD'. The 'CLIMATE TIME MACHINE' section features a blog post titled 'my big fat planet' by Dr. Jenkins, with the subtitle 'My summer of curiosity and wonder'.

Endnotes

Introduction

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Summary of Key Points

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Greenhouse Gases

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Cape Matatula, American Samoa: 1976 AD to 2011 AD

South Pole, Antarctica: 1976 AD to 2011 AD

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Shetland Islands, Scotland: 1993 AD to 2002 AD

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Byrd Station, Antarctica: approximately 85,929 BC to 6748 BC

Greenland GRIP ice core: approximately 46,933 BC to 8129 BC

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