

IMPACTS OF CLIMATE CHANGE

The impacts of climate change are diverse and influence both natural and human systems. The impacts will challenge us to adapt for the purpose of mitigating and accommodating the changes to natural systems that will affect human systems such as food and fiber production, health and economics.

Educators have the potential to inspire decisions, actions, and change. The information in this module is focused on the impacts of climate change. It provides information and resources for you to bring into the classroom to help students understand not only the urgent need for change, but also the opportunity to be part of the transformation.

The purpose of this module is to reinforce the urgency to act by identifying the environmental and social consequences of global warming.

PROFESSIONAL DEVELOPMENT FOR EDUCATORS

DURATION:20 MIN

IMPACTS OF CLIMATE CHANGE

Rajendra K. Pachauri, while Chairman of the Intergovernmental Panel on Climate Change (IPCC), summarized key messages from the Fifth Assessment Report at the United Nations Climate Summit in 2014. The full message is available at this URL: http://www.ipcc.ch/pdf/press/140923_RP_statement_NY.pdf

ONE: HUMAN INFLUENCE

Human Influence on the climate system is clear and clearly growing.

- Atmosphere and oceans have warmed
- Snow and ice have diminished
- Sea level has risen

TWO: WE MUST ACT QUICKLY

We must act quickly and decisively if we want to avoid increasingly destructive outcomes.

- Food and water shortages
- Increased poverty
- Forced migrations that could increase the risk of violent conflict
- Extreme droughts and floods
- Collapse of ice sheets, flooding our coastal cities
- Steady rise in our death toll, especially among the world's poorest

THREE: THE FUTURE

We have the means to limit climate change and build a better future.

- Renewable energy is a real option

- Tremendous opportunity to improve energy efficiency
- Further reduce emissions by stopping deforestation

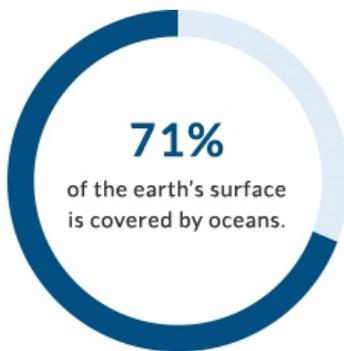
CONSEQUENCES OF CLIMATE CHANGE

Not all consequences of climate change are negative, but the impact of the negative consequences far outweigh the potential benefits of the positive consequences.

Selected negative consequences of climate change:

- Oxygen-poor ocean zones are growing
- Rainforests are releasing CO₂ (a greenhouse gas) as regions become drier
- Droughts are causing extensive vegetation die-off and greater incidents of forest fires, which release CO₂ into the atmosphere.
- Changes in migration patterns of birds and animals
- Disruption to food chains
- Species loss; for example coral reefs are adversely affected by rising ocean temperatures and acidification

IMPACTS OF MELTING ICE CAPS



1 BILLION +
humans (mostly in Asia) live
in low-lying coastal regions.

Significant impacts from melting ice caps:

- Rising sea levels and release of methane (a greenhouse gas)
- Loss of polar bear population
- Salt water contamination of fresh water systems (rivers, aquifers, coastal wetlands, rice paddies)
- Flooding of low-lying areas

The video below is by Chris Mooney of *The Washington Post* and addresses the NASA and NOAA findings that 2015 was the hottest year on record.

IMPACTS OF CLIMATE CHANGE

 Impacts of Climate Change - 2 - PowerPoint Presentation

MORE INFORMATION AND RESOURCES

IMPACTS OF CLIMATE CHANGE

- A University of British Columbia online course <https://www.youtube.com/user/climateliteracy>
 - Of particular interest related to this section is *Module 7 Climate Change Impacts* https://www.youtube.com/playlist?list=PLAhtWWrZTgn_t6r31ZT97B5X5w_wG_ndF
- NASA Climate Science Investigations <http://www.ces.fau.edu/nasa/>
 - Focused on the impacts of climate change <http://www.ces.fau.edu/nasa/impacts/>
- The Pacific Institute for Climate Solutions *Climate Insights 101* <http://pics.uvic.ca/education/climate-insights-101>
- Pacific Institute for Climate Solutions *Examples of Global Warming* (7:08 minutes) <http://www.youtube.com/watch?v=Vttl3ZYQpy4&feature=youtu.be>
- A video report on the evidence and impacts of climate change <https://www.youtube.com/watch?v=j91h4uUSXSI>
- IPCC Fifth Assessment Report website <http://ar5-syr.ipcc.ch/>
 - Of particular interest is the *2014 Summary for Policymakers by Working Group II on Impacts, Adaptation, and Vulnerability* https://ipcc-wg2.gov/AR5/images/uploads/WG2AR5_SPM_FINAL.pdf
- *The Washington Post*, What the Earth will be like in 10,000 years, according to scientists. <https://www.washingtonpost.com/news/energy-environment/wp/2016/02/08/what-the-earth-will-be-like-in-10000-years-according-to-scientists/>
- Voice of America video on the impacts of climate change <http://www.voanews.com/content/un-report-world-isnt-prepared-for-impacts-of-climate-change/1883060.html>
- This video includes global warming predictions for temperature and precipitation through the year 2099 <http://www.space.com/22965-climate-change-impact-nasa-s-21st-century-predictions-video.html>
- The World Ocean Review provides an overview of the concerns for coastal areas as water levels rise <http://worldoceanreview.com/en/wor-1/coasts/>
- Skeptical Science provides thoughtful review of climate change "controversies" http://www.wunderground.com/climate/facts/negative_impacts.asp