Hamilton
Planning and Economic Development

FACTSHEET: CLIMATE CHANGE

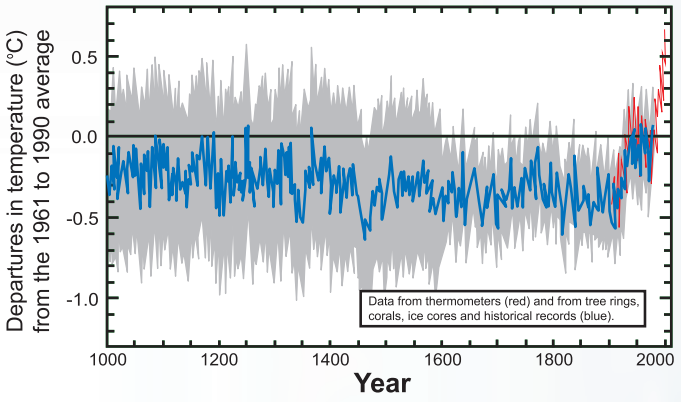
Climate Change is Happening

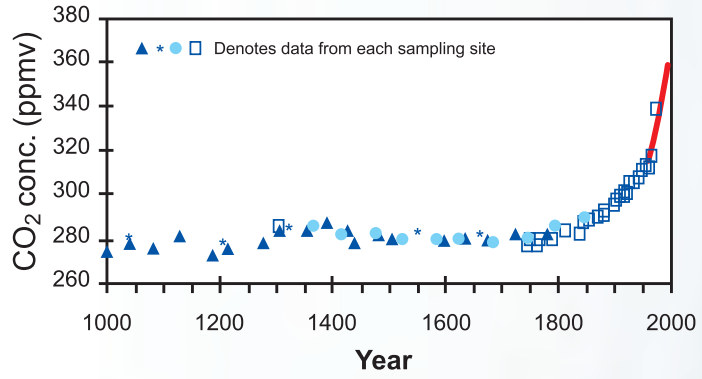
The International Panel on Climate Change (IPCC) has projected that climate change will:

- Increase the temperature of air and water around the world;
- Melt glaciers and increase sea levels;
- Increase the number and intensity of extreme weather events that give rise to heat waves, droughts, floods and soil erosion.

These changes have already begun. The IPCC has concluded that:

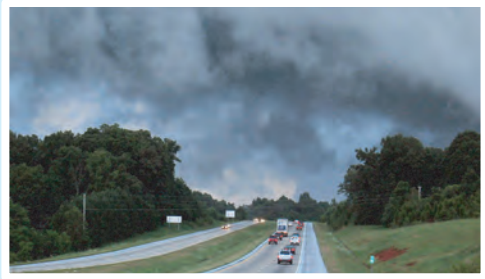
- Global average temperatures have increased by 0.4˚C to 0.8˚C over the 20th century;
- Ocean temperatures have increased by an average of 0.05˚C since the 1950s;
- The summer sea ice over the Arctic has shrunk by 10 to 15% over the 20th century; and
- The warming of the northern hemisphere during the 20th century is likely to have been the largest in any century in the past 1000 years.

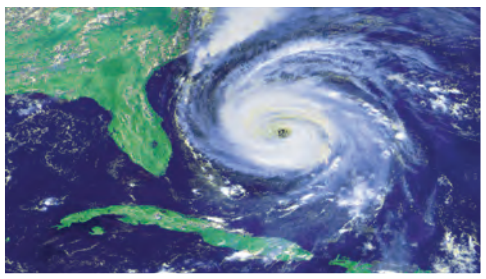


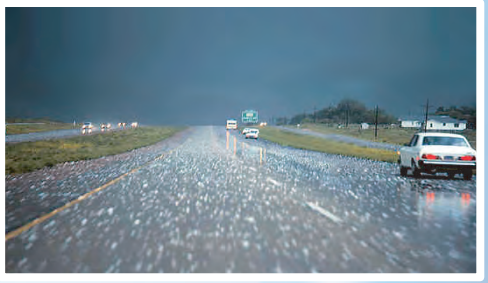


Human Activity is Contributing to Climate Change

Scientific research shows that human activities are increasing the concentration of Greenhouse Gases (GHG) in the atmosphere, resulting in change in temperature, which in turn cause changes in weather patterns. The IPCC has concluded that emissions of carbon dioxide (CO_2) due to fossil fuel burning are virtually certain to be the dominant influence on trends in atmospheric Co_2 concentrations during the 21st Century.







The Repercussions of Climate Change

Climate change is expected to:

- Increase the rates of death and disease associated with extreme weather events, poor air quality, insect-borne diseases and droughts in different regions of the world;
- Change food and water supplies by shifting rain patterns, soil moisture, water temperature & the availability of nutrients in ocean water;
- Increase economic losses associated with extreme weather events such as tornados, hurricanes, snowstorms and floods.

Sources of Greenhouse Gases

Environment Canada keeps inventories for six greenhouse gases (GHG). In 2002, it estimated that Canada emitted about 731 megatonnes of GHG from the following sources:

- 48% from the burning of fossil fuels in stationary sources in the electricity, petroleum, manufacturing, residential, and commercial & institutional sectors - CO_2
- 26% from the transportation sector – CO_2
- 7.5% from the "mining" of oil and natural gas
- 6.8% from industrial processes
- 8.1% from agricultural processes – CH_4 & N_2O
- 3.2% from waste management processes – CH_4.

Measuring GHG

A common unit of measurment is Kilograms or Tonnes of

CO_2 eq

or Carbon dioxide equivalents - the combination of 6 individual gases that cause climate change.

6 Greenhouse Gases: % of Contribution in Canada

- Carbon dioxide (CO_2) 78.8%
- Methane (CH_4) 12.9%
- Nitrous oxide (N_2O) 7.2%
- Perfluorocarbons
- Sulphur Hexafluoride
- Hydrofluorocarbons

Canada Commitments to Kyoto

Under the Kyoto Accord, Canada has committed to:

- Retarding climate change by reducing emissions of GHG; and
- Adapting to current and future climate change.

Retarding Climate Change

Actions to reduce GHG emissions:

- Increase the energy efficiency of buildings, appliances, fuel-burning equipment & vehicles.
- Promote the development and use of renewable energies & co-generation;
- Encourage alternate modes of transportation (e.g. biking, walking, public transit);
- Encourage high efficiency technologies (e.g. hybrid electric vehicles) and renewable fuels (e.g. biodiesel) for the transportation & industrial sectors;
- Encourage waste reduction programs and use of waste-related gases for energy.

Co-Benefits of these Actions

- Reduced emissions that contribute to smog, air toxics & poor health;
- Reduced energy costs for households, businesses, organizations & governments;
- Preservation of agricultural lands and greenspace;
- Local job creation in new industries focused on energy efficiency, renewable energies and co-generated energy;
- Stimulates a vibrant downtown and encourages and active and healthy lifestyle.

Adapting to Climate Change

Even if dramatic action is taken now to reduce greenhouse gases, it is understood that the climate is changing and that communities are vulnerable. Adaptive actions must be taken in order to reduce the negative impacts:

- Build new weather extremes into the planning process for infrastructure, development, roads, and watershed management;
- Establish emergency plans to respond to extreme weather events;
- Establish public health programs to reduce health impacts associated with climate change (e.g. heat alert programs, programs to control insect-borne diseases);
- Encourage tree planting and urban design practices that reduce the "urban heat island effect".

Co-Benefits of these Actions

- Adaptation actions can help to build more resilient infrastructure, strengthen emergency response, build capacity in the public health system to respond to diseases such as West Nile, reduce energy costs and create more energy-efficient, livable environments through urban design.

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