

The Challenge



Flames from the Okanagan Mountain Park fire in 2003 are visible above the city of Kelowna.

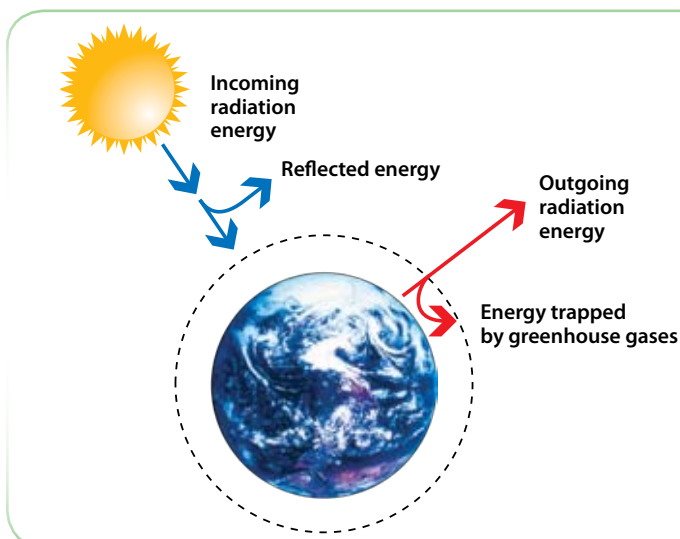
We've all seen signs that our climate is changing – from devastating storms, to longer summer droughts, to the warmer winters linked to the mountain pine beetle epidemic threatening Interior forests. Some people argue that these changes are natural; that the earth's climactic patterns have always varied from year to year and decade to decade. However, in November 2007, the Intergovernmental Panel on Climate Change (IPCC) - representing the most respected climate experts worldwide - issued a report with the most decisive evidence yet to support three key conclusions:

- ***the earth's climate is changing***
- ***the change is being caused by human activities, and***
- ***its effects will worsen if no action is taken.***

The Problem Is Real

The Intergovernmental Panel on Climate Change is the world's foremost authority on the subject, drawing on the expertise of more than 2,500 scientists from 130 countries. Established by the World Meteorological Organization and the United Nations Environment Programme, the IPCC has coordinated four major assessments of global climate change, dating back to 1990. In its 2007 report, the panel concluded that global warming is now unequivocal and is "now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level."

Globally, 11 of the last 12 years (1995 to 2006) rank among the warmest since 1850. The IPCC has also concluded that atmospheric carbon dioxide equivalents (the standard measurement for greenhouse gas emissions) increased from a relatively stable 280 parts per million to over 380 parts per million over the past 150 years. According to analysis of ice cores, current concentrations are the highest on



The Greenhouse Effect

When the sun's energy reaches earth most of the energy warms the atmosphere and the earth's surface. The earth then radiates some of this energy back into space as infrared rays. Greenhouse gases in the atmosphere trap some of the infrared rays before they escape resulting in additional warming of the earth.

Burning fossil fuels, and other human activities, have increased levels of greenhouse gases in the atmosphere. This has increased the atmosphere's capacity to trap energy by accentuating the greenhouse effect and raising global temperatures.

record for the last 650,000 years. The IPCC also noted that “anthropogenic warming could lead to some impacts that are abrupt or irreversible, depending upon the rate and magnitude of the climate change... Climate change is likely to have some irreversible impacts.”

The temperature increases described by the IPCC are primarily due to fossil fuel combustion and land use changes which release increased levels of carbon dioxide, methane and nitrous oxide (greenhouse gases). These gases trap solar heat within the atmosphere, in the same way a greenhouse does, resulting in an overall rise in global temperatures.

But climate change means much more than warming. It has the potential to permanently alter life as we know it.

The IPCC says we can expect to see:

- rising sea levels, decreased snowpacks and increased glacial melting
- increased heat waves and drought occurrences, and
- increased extreme precipitation events, leading to increased flood risks.

It also concludes that, because of global warming, we face increased risks of:

- extinction for up to 30 per cent of plant and animal species, and
- decreases in global food production.

All of these impacts have the potential to devastate our quality of life. And - because of our position in the northern hemisphere - British Columbia is one of the places feeling the greatest effects from global warming.

The Problem Is Here

Many parts of British Columbia have been warming at a rate that, in some cases, is more than twice the global average. Over the last 50 - 100 years, B.C. has lost up to 50 per cent of its snow pack, and total annual precipitation has increased by about 20 per cent. At the same time, our communities have been experiencing longer summer droughts as weather patterns grow increasingly erratic. This is consistent with IPCC findings that note that global warming is greatest over land and at the highest northern latitudes.

According to the latest report on climate change prepared by Natural Resources Canada, British Columbia is already facing:

- increasingly frequent and severe water shortages, which will affect everything from agriculture to hydroelectric power generation, and will require complex trade-offs, especially in densely populated areas
- risks of land loss, resource changes and shifts in related economic, social and cultural values in coastal communities as sea levels continue to rise

“Taking refuge in the status quo...is avoiding responsibility and being generationally selfish. Every molecule of carbon dioxide released into our atmosphere by human activities matters. It hangs there for decades or even centuries, and adds to the accumulated burden of global warming on our planet.”

B.C. Speech from the Throne,
February 2008



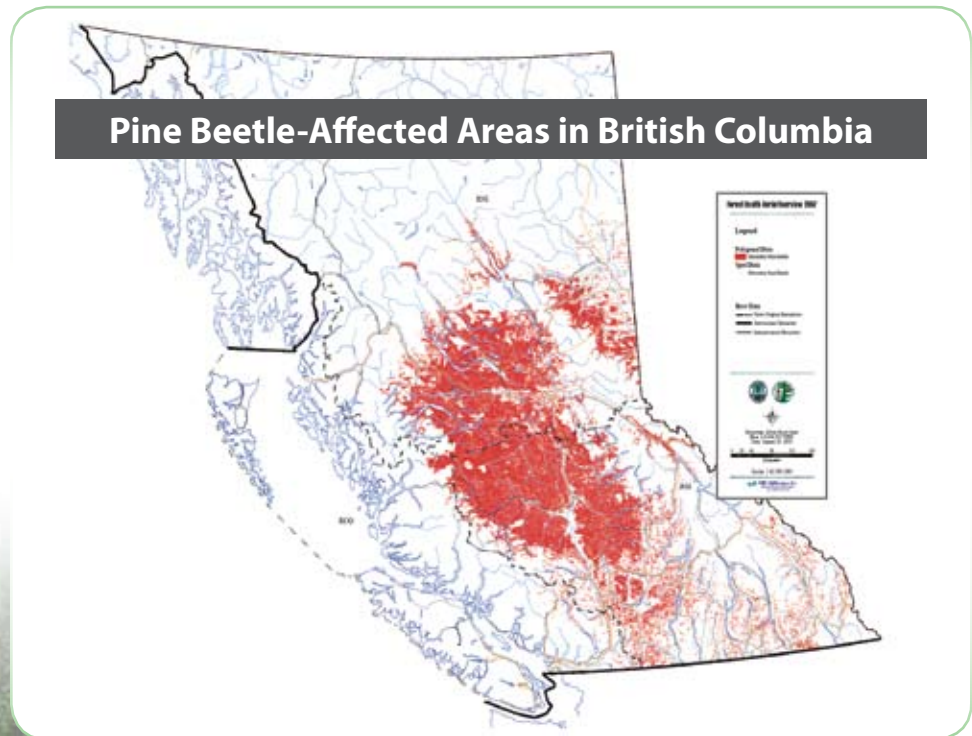
Winter storm damage in Beacon Hill Park, Victoria.



An aerial view of a British Columbia forest affected by the pine beetle epidemic.

- challenges to critical infrastructure, including pipelines and transportation networks, many of which are located in narrow valleys and vulnerable to flooding, slides, etc.
- increased stress on our forests and fisheries, and
- higher costs, including costs for insurance and post-event clean-up and restoration, associated with more extreme weather events.

Warmer winters have also contributed to the mountain pine beetle epidemic, which has destroyed more than 13 million hectares of pine forest - an area equivalent to four times the size of Vancouver Island. The beetle's numbers have historically been controlled by cold winters and warmer weather is directly linked to their devastating spread.



Doing Nothing Is Not An Option

The scientific evidence is now overwhelming, and so is the urgent need for action. The changes already set in motion in the earth's atmosphere will affect every one of us, and the longer we wait before taking action, the higher the economic, environmental and social costs will be. In addition, as noted by the IPCC, "There is high agreement and much evidence that mitigation actions can result in near-term co-benefits (e.g. improved health due to reduced air pollution) that may offset a substantial fraction of mitigation costs."

The UK government recently commissioned an independent review on the economics of climate change. The Stern Review concluded that "the benefits of strong, early action considerably outweigh the costs." The report estimated the costs of mitigating climate change at one per cent of global gross domestic product - compared to a loss of up to 20 per cent of global GDP if we do nothing.

Average Annual Temperature Increase in B.C. in the 20th Century

Global warming has its greatest impact on jurisdictions in the Northern Hemisphere, including British Columbia. The illustration above shows the change in average temperatures in B.C.'s regions in the 20th century.

The numbers may appear small, but what they show is that parts of B.C. are warming at a rate more than twice the global average of 0.6 degrees during the same period.

For more on the impacts of climate change in B.C. – including interactive maps that let you make your own projections – go to <http://www.pacificclimate.org/resources/climateimpacts/rbcmuseum/>

