

Rising global temperatures are expected to cause more droughts, floods, heat waves, severe storms and urban smog. In Canada, the effects of climate change are already being felt, as evidenced by earlier onset of spring, earlier northern ice breakup, thawing permafrost, a longer fall, changes in crop cycles and tree growing areas, fractured ecosystems, and an outbreak of insect infestations.

Over the past 25 years, Arctic sea ice has decreased about 20%, an area roughly twice the size of Texas.<sup>1</sup>



This image can be downloaded at: [www.amap.no/acia/index.html](http://www.amap.no/acia/index.html). Photo courtesy of ACIA (2004)

## Arctic

- **Over the past few decades**, temperatures in the Arctic have risen at nearly twice the rate as in the rest of the world. Average winter temperatures in the western Canadian Arctic have increased by up to 4° C.<sup>2</sup>
- **Polar bears** depend on sea ice to hunt seals. Melting arctic ice means there is a high risk that polar bears and some seal species will face extinction.<sup>3</sup>
- **Climate change** is threatening the health and food security of some Northern Indigenous Peoples, challenging the very existence of some cultures.<sup>4</sup>

## Sea-level rise

- **Rising sea levels** will increase coastal erosion and cause a shoreward retreat of the coastline. Low-lying coastal areas around the world, such as the coast of Florida, Bangladesh and many coastal areas in Canada (especially in the Arctic), are expected to be flooded.<sup>5</sup>

## Biodiversity

- **Scientists estimate** that one million species, or a quarter of the world's land-based plants and animals will be at risk of extinction by 2050 in response to shifting habitats due to climate change.<sup>6</sup>
- **A number of bird species** of the several hundred million birds that migrate to the Arctic each summer, are projected to lose more than half of their breeding area from climate change.<sup>7</sup>
- **Throughout B.C.**, salmon and other species that rely upon the water volumes and cool temperatures provided by glacial flows are at risk of being heated out of their homes. In the summer of 2004, record high temperatures in the Fraser River were blamed for large salmon mortalities.<sup>8</sup>

## Socioeconomic impacts

- **In 2004**, the global insurance industry claimed \$44 billion in insured losses due to extreme weather events such as floods and hurricanes.<sup>9</sup>
- **Recent scientific evidence** suggests a link between human-induced climate change and an increase in storm intensity and duration. The percentage of destructive category 4 and 5 storms in the tropics has nearly doubled during the past 30 years.<sup>10</sup>
- **The mountain pine beetle epidemic** in British Columbia has been described as the worst forest insect infestation in North America. Infestations are normally controlled by intense cold snaps in the winter, but warmer winters have been one of the factors enabling the infestation to grow into an epidemic, destroying more than \$9 billion worth of timber in 2002 alone.<sup>11</sup>

## Health

- **In the summer of 2003**, Europe experienced summer temperatures that were unprecedented on instrumental record. This heat wave claimed the lives of an estimated 20,000 people.<sup>12</sup>
- **Hotter summer temperatures** associated with climate change are expected to worsen smog. Health Canada estimates that air pollution already kills an estimated 5,900 Canadians every year while the Ontario Medical Association states that it costs the Ontario economy almost \$1 billion annually.<sup>13,14</sup>

<sup>1</sup> National Snow and Ice Data Center/NASA (2005) Sea Ice Decline Intensifies

<sup>2</sup> Arctic Climate Impact Assessment. Impacts of a Warming Arctic. 2004.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

<sup>6</sup> Thomas, C. *Extinction risk from climate change* Nature, 2004.

<sup>7</sup> Arctic Climate Impact Assessment. Impacts of a Warming Arctic. 2004.

<sup>8</sup> Williams, B. 2004 *Southern salmon fishery post-season review. Part one: Fraser River sockeye report*. 2005.

<sup>9</sup> Munich Re. *Topics Geo – Annual review: Natural catastrophes 2004*.

<sup>10</sup> Emanuel, K., Increasing destructiveness of tropical cyclones over the past 30 years. *Nature*, 2005; Webster, P., Changes in Tropical Cyclone Number, Duration, and Intensity in a Warming Environment. *Science*, 2005.

<sup>11</sup> Statement by B.C. chief forester in "Pine beetle infestation at epidemic proportions," *Vancouver Sun*, November 23, 2002.

<sup>12</sup> American Journal Public Health French cities during the August 2003 heat wave. 2004.

<sup>13</sup> Ontario Medical Association. *Illness Cost of Air Pollution 2005 Report*. [www.oma.org/Media/News/pr050614b.asp](http://www.oma.org/Media/News/pr050614b.asp)

<sup>14</sup> Health Canada. "Air pollution kills estimated 5,900 Canadians every year." April 29, 2005 press release. [www.hc-sc.gc.ca/ahc-asc/media/nr-cp/2005/2005\\_32\\_e.html](http://www.hc-sc.gc.ca/ahc-asc/media/nr-cp/2005/2005_32_e.html)



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