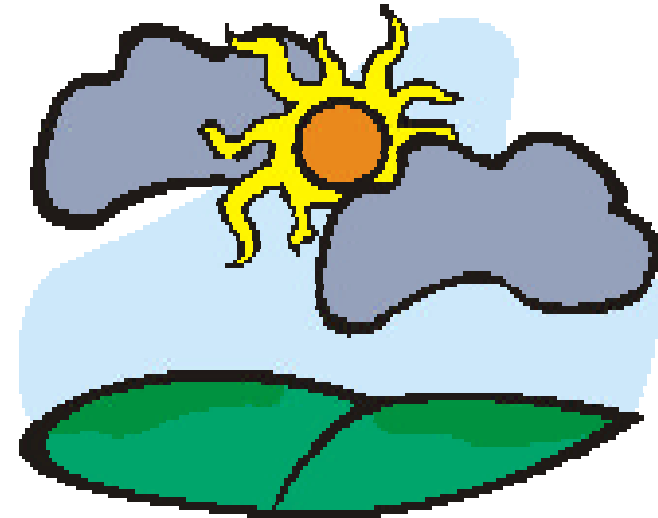


# ***Environment***

## **Summary**

Climate change is seriously affecting the world – ice caps are melting at alarming rates and droughts are devastating crops and livestock. Kyoto is still up in the air as the US retreats and Canada and Australia debate ratification.

Strides are being made in mitigating effects, but some of the world's most serious environmental issues continue to be human induced.



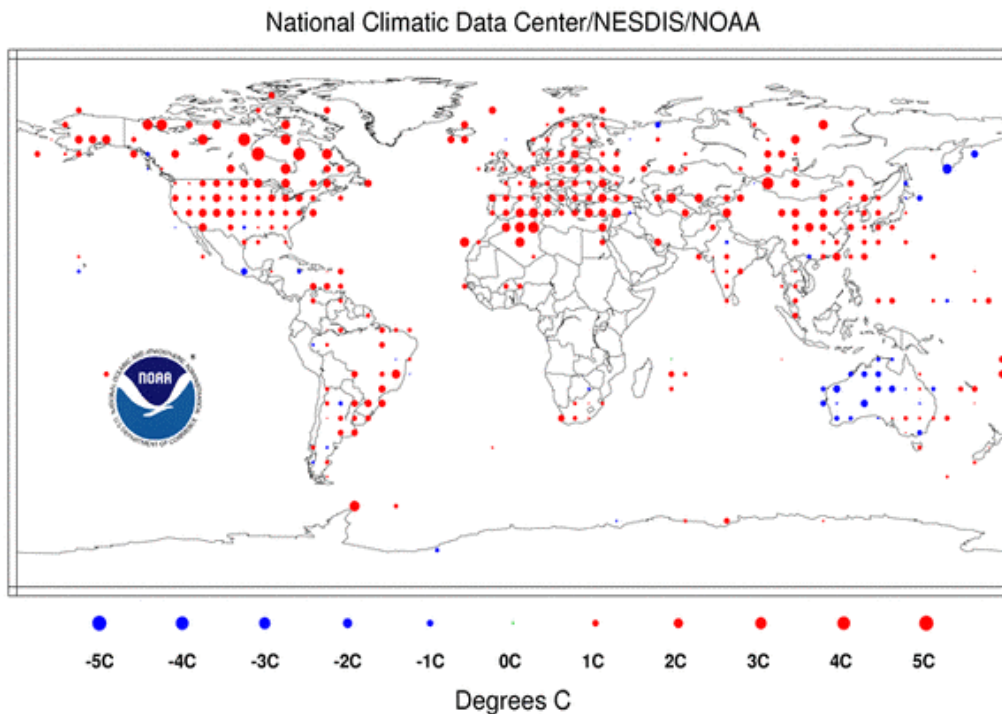
## **In this section**

- climate change and its effects on the Canadian and global environments
- increased occupational asbestos related illnesses expected
- Canada takes precautions to protect Kananaskis environment from the G8 Summit
- Great Lakes appear to be cleansing themselves of chemicals
- significant numbers of Canadian communities continue to dump raw waste into waterways

# Environment - Global



- evidence that global temperatures have been warming at a significantly increased pace in recent years
  - **global surface temperatures have increased** at rate near  $0.6^{\circ}\text{C}/\text{century}$  - during past 25 years this trend has increased to nearly  $2.0^{\circ}\text{C}/\text{century}$
  - **global temperatures in 2001 were  $0.51^{\circ}\text{C}$  above long-term (1880-2000) average** - 2<sup>nd</sup> warmest year on record

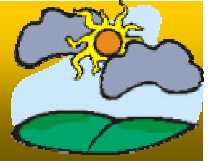


*Temperatures in regions indicated in red were 1-3°C (1.8-5.4°F) above the 1961-1990 average.*

## – regional examples

- Northern Hemisphere continued to average near record levels in 2001 at  $0.60^{\circ}\text{C}$  above long-term average
- Southern Hemisphere also reflected globally warmer conditions - positive anomaly of  $0.43^{\circ}\text{C}$
- land temperatures were  $0.75^{\circ}\text{C}$  above average – 2<sup>nd</sup> warmest on record
- ocean temperatures  $0.40^{\circ}\text{C}$  above 1880-2000 mean – 3<sup>rd</sup> warmest on record

# Environment – Global ...



- legal force of Kyoto Protocol continues hinge on ratification by key industrialized nations
  - **Accord must be ratified by 55 countries to take legal force** - including industrialized countries who represent at least 55% of carbon dioxide emissions
    - US has withdrawn support – plans to develop its own environmental reforms
    - Australia's "climate change partnership" with US raises doubt over their ratification
    - Canada continues to debate ratification – urging need for broad consultations
  - **May 2002 - G8 Energy Ministers' Meeting to focus on “energy security” – not Kyoto?**
    - co-host Canada promoting focus on access to affordable and reliable supplies of energy
    - Greenpeace suggests secure energy, in a world where billions are without access to modern energy resources and where many natural disasters are human induced, is an oxymoron
- environmentalists say that if Protocol is not ratified could have devastating effects on environment – economists say ratification could lead to millions in lost GDP and thousands of lost jobs
- “micropower” – global trend in power generation
  - **decentralized, efficient units** operating primarily on natural gas emerging in two niches
    - industrial nations – aging grid equipment causes costly flickers and outages
    - developing nations – centralized supply more brittle and has yet to reach 1.8 billion people living in power poverty
  - **delivered by carriers such as fuel cells and micro-turbines**
  - **global mix of fuels is projected to remain relatively constant,** renewables – 18%, nuclear - 4%, fossil fuels – 78%

**World energy consumption expected to increase 40 to 50 percent by the year 2010**

# Environment – Global ...



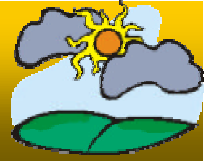
- links between environmental toxins and population health continue to emerge – even years later
  - **rise in frequency of asbestos-linked cancers** expected
    - Russia, China, Canada – biggest producers of asbestos
    - France and Chile – banned importation of asbestos products – EU considering similar ban
    - asbestos inhalation linked to asbestosis, lung cancer, and pleural diseases, among others
    - study in Brussels found concentrations of asbestos in 13% of bodies autopsied between 1998 and 2000
    - more cases expected to emerge with lag time between exposure and disease
- ice melts - world's glaciers now shrinking faster than they are growing
  - world's **non-polar glaciers lost nearly half their ice** during 20th century
  - **Antarctic ice shelves are melting** and **Arctic Sea Ice has shrunk** by 6% since 1978
  - **Columbia Glacier in Alaska, U.S.A. has retreated** nearly 13 km since 1982
  - **Alps glacial area has shrunk 35-40%** - volume has declined by over 50% since 1850

*We know that occupational asbestos exposure in Western Europe, North America, Japan and Australia was at its peak in the 1970s ... Now, recent estimates indicate that 30,000 new asbestos-related cancers continue to be diagnosed there every year.*

~Antii Tossavainen of the Finnish Institute of Occupational Health

- large regions that rely on glacial runoff for water supply could experience severe shortages as mountain glaciers shrink
- large-scale ice melt would also raise sea levels and flood coastal areas, currently home to about half the world's people

# *Environment – Global ...*



- access to clean water
  - “**poor management of water resources a primary cause of disease** and environmental degradation in both developing and developed countries” (Nitin Desai, Secretary-General of the Johannesburg Summit)
  - **1.1 billion people lack access to safe drinking water**
  - **2.5 billion people lack proper sanitation**
  - **over 5 million people die each year from preventable diseases** – those caused by unsafe drinking water and lack of sanitation
  - **over 2 million people die each year from water-related diarrhoea**
  - **freshwater supplies are enough for world’s population** - poor management and distribution restricts access
  - **world leaders agreed in 2000** to reduce by half the number of people without access to safe water and sanitation by 2015
  - **Canada set to host Fourth World Water Forum** in 2006

# Environment - Canada



- climate change trends in Canada consistent with global picture

- preliminary 2001/02 data points to **specific climate variations**

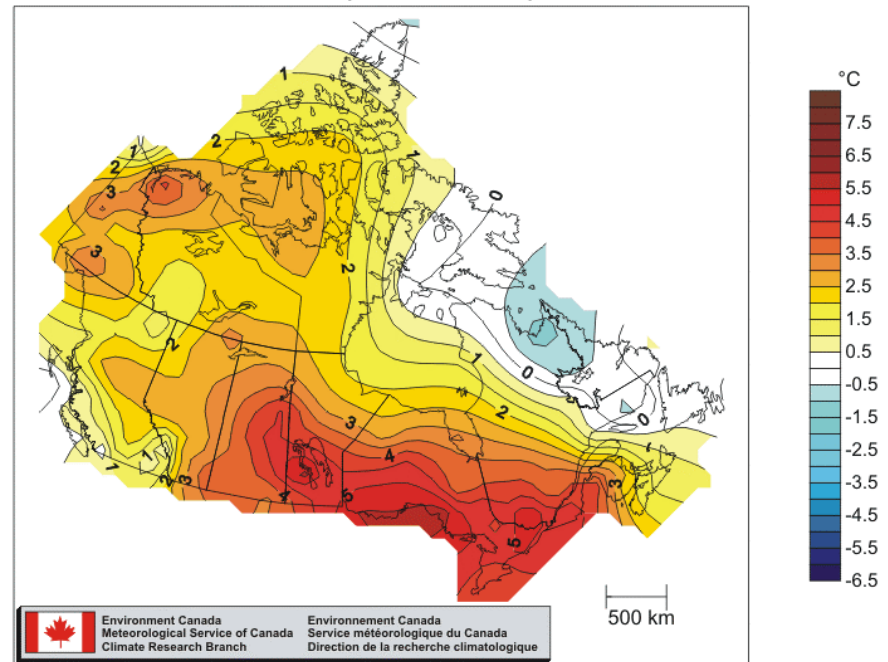
- Winter temperatures 2.3°C above normal – 8th warmest on record since 1948
- western and eastern Canada experienced 6.8% drier winter than normal – 18th driest since 1948
- southern Manitoba and Ontario experienced mean temperatures of 4.5°C above normal

- **climate shifts - far reaching effects**

- Mountain Pine Beetle epidemic in west central BC nearly doubled in size in 2001 from 2000
- winter 2002 did not see cold snap required to reduce population – epidemic likely to infest 130 million cubic metres of timber by fall 2002

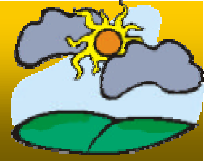
➤ climate change effects like drought or mild winters have significant downstream economic impacts – particularly on natural resource industries and agriculture

TEMPERATURE DEPARTURES FROM NORMAL  
ANOMALIES DE LA TEMPÉRATURE PAR RAPPORT À LA NORMALE  
Winter/Hiver (Dec, Jan, Feb) 2001/2002



- **sparse 2001 rainfall caused Prairie drought - \$5B in crop failures**
- **Southern Alberta's 2001 drought cycle reduced cattle herds by close to 5%**
- **Mountain Pine Beetle epidemic now accounts for 98% of the allowable annual cut in BC**

# Environment – Canada ...



- *Water for Life* strategy seeks to respond to Alberta's taxed water supply
  - rapid industrial, agricultural and municipal growth, and fluctuating environmental conditions exerting **pressure on water supply**
    - growing demand and dwindling supply – particularly in southern Alberta
    - knowledge gap about tapping into groundwater resources
    - existing water flow commitments to Saskatchewan and Montana to be revisited
- unpredictable weather conditions - flooding and drought - threaten human safety, crop development and economic growth

- Canadian sewage treatment approaches - best and worst practices

## **Good**

- Whitehorse no longer discharges into Yukon River – all sewage gets secondary treatment and UV disinfection
- Calgary – waste system receives advanced tertiary treatment – highest level available
- Bear River, NS – first community in Canada to implement Solar Aquatics waste-water treatment

## **Bad**

- over 90 municipalities still dump raw sewage into waterways
- Victoria, BC discharges its sewage – 45B litres/year untreated into Pacific
- Dawson, Yukon dumps about 1B litres of raw sewage per year into Yukon River
- more than 30B litres of raw sewage are discharged annually into St. John's Harbour

*Source: Canadian Geographic, May /June 2002*

- water pollution can have wide-ranging impacts on human health – causes disease and harms human reproductive and immune systems
- greatest related health risks are posed to small children, elderly and Aboriginals in the North who rely on local wildlife as a source of food

# Environment – Canada ...



- environment among concerns in advance of G8
  - **Ottawa appoints full-time environmental coordinator** to look at Summit operations, including security, to minimize damage to local flora and fauna
    - environmental reports being developed to identify potentially adverse effects of the Summit on environment
    - officers on extended back-country duty taking measures to ensure presence does not overly disrupt natural surroundings
    - species such as grizzly bears and moose will receive special attention to minimize disturbances to habitats/living patterns

*[The Prime Minister] is going to attract the eyes of the world to a place that doesn't need that kind of attention ... We're afraid that in two days [he] could very well undo all the hard work by Albertans over the last 15 years to protect this area.*

*~Stephen Legault  
Executive Director and Co-founder,  
Wildcanada.net, April 2002*

➤ broad impact assessments, including environmental likely to become regular procedure prior to major events

- Great Lakes getting cleaner?
  - between 1991-1996, **10 tonnes of PCBs evaporated from Lakes**
    - bans on some chemicals mean fewer toxics are getting into Lakes – chemicals now leaving waters faster than they are replaced
    - other chemicals leaving Lakes even faster – waters lost 11 times as much of pesticide dieldrin as they gained, a loss of 4 tonnes
    - chemicals are carried about 200 kilometres at a time, a process known as the “grasshopper effect”, before they fall out of atmosphere – long-lasting chemicals exhaled by Great Lakes will continue north until Arctic cold weather traps them
  - estimated it will take **30 to 50 years for the lakes to cleanse themselves** if atmosphere deposition of air pollutants is ended