Future Climate in Mount Robson Provincial Park

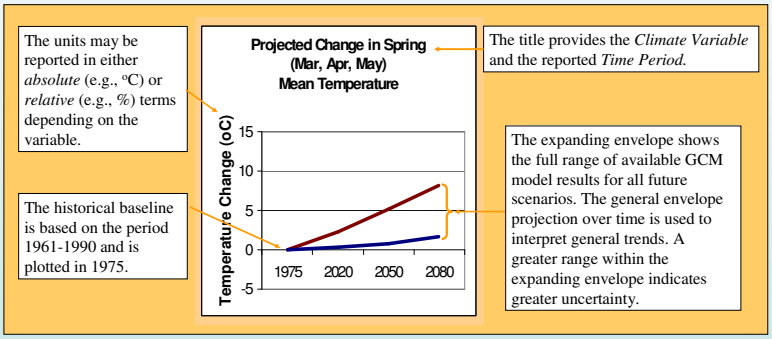
Modelling Future Climate

This poster presents scenarios of future climate for Mount Robson Provincial Park. The scenarios represent the full range of possible future climates rather than specific predictions. Every result within the range is considered equally possible.

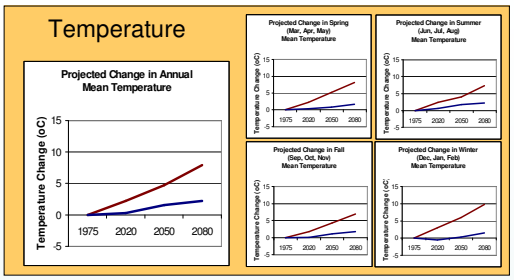
There are two main reasons for this lack of certainty. First, climate change scenarios start with a set of global climate models (GCMs) – simplified representations of the climate system that take into account relevant physical, geophysical, and chemical processes. Although the models are tested to ensure that they can reasonably simulate past and current climates, scientists are still refining these models as they learn more about the climate system.

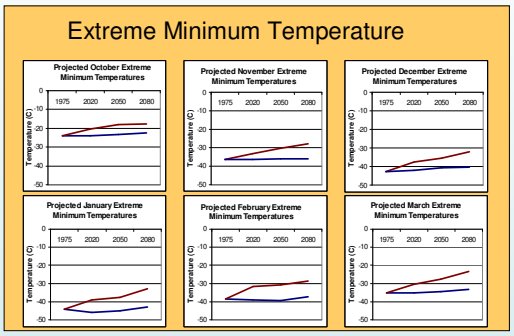
Second, climate change scenarios also incorporate a set of greenhouse gas emission scenarios. Each emission scenario involves different assumptions about changes in global population, energy use, technology development, gross domestic product, and other socio-economic variables during the 21st century. These variables will affect total greenhouse gas emissions from human activity, and thus the magnitude and timing of climate change.

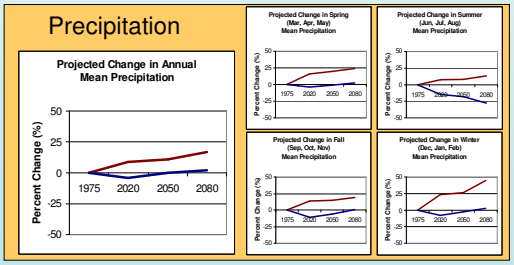
The climate change scenarios for Mount Robson Provincial Park are based on data from several different GCMs using a selection of emission scenarios. The graphs on the right illustrate possible future trends for four climate variables: temperature, extreme minimum temperature, precipitation, and soil moisture, on an annual,seasonal or monthly basis. The graphic below provides guidance on how to interpret the four sets of graphs.

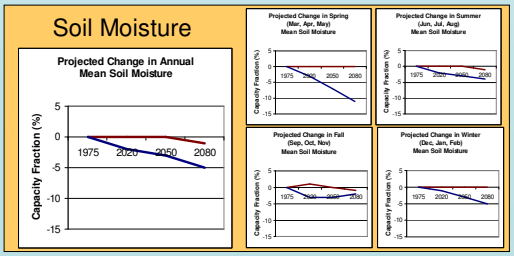


Mount Robson









Summary of Results

The table below summarizes the results from the climate change scenarios. For some climate variables, the general trend is clear, even though there may be uncertainty about the magnitude of change. For example, it is very likely that temperatures will rise in the park area, although the amount may be anywhere from 2ºC to 8ºC. For other climate variables there is uncertainty about the general trend. For example summer season precipitation may either rise or fall in future.

The general trend toward a "warmer-wetter" climate from an annual perspective must be balanced with important seasonal considerations. For instance there is a general trend toward reduced soil moisture in the future, particularly in spring and summer. Such drought-like conditions could have important implications for tree and vegetation growth and the incidence of wildfires.

Climate Variable	Focus Period	Range of Magnitude & Direction of change
Mean Temperature	Annual	+2.2ºC to +7.9ºC
	Summer season	+2.2ºC to +7.4ºC
Mean Extreme Minimum Temp	Cold season months (Dec, Jan, Feb)	+1ºC to +11ºC
Mean Precipitation	Annual	+2% to +17 %
	Summer season	–28% to +13%
Mean Soil Moisture	Annual	– 1% to – 5%
	Spring season	0% to –11%
	Summer season	–1% to –4%

Note: Long-term trends (i.e., the 2080 results) are used as the basis of this summary and the specific focus periods selected for each variable are those hypothesized to have a significant influence on forest ecosystems and disturbance regimes.

Climate Change and Park Planning

Climate change challenges some of the basic assumptions on which park management is based. The management goals for Mount Robson Provincial Park include human use and enjoyment, and protection of natural values historically present in the park. Management to date has ensured that human use and enjoyment of the park does not harm natural values. This approach, effective under the relatively stable climate conditions of the past century, may not be as suited to the changing climate conditions projected for the 21st century. Managing Mount Robson and other parks in the face of rapid change – and a level of uncertainty about the future – is a challenge that BC is just starting to explore. The work presented here is a first step in what will almost certainly be an ongoing dialogue between park planners, scientists, community groups, park users, and others passionate about the long term future of Mount Robson Provincial Park.

Berg Lake and Berg Glacier

Lucern campground