

Is drought becoming more frequent and severe? It's too soon to tell.

For farmers, drought means poor crops, more damage from insect pests, a greater risk of soil erosion by the wind, and possibly the need to sell off herds of cattle that can't be watered and fed. But drought can have many other impacts as well – water usage restrictions in cities, poorer water quality, higher food prices, lower power outputs from hydro dams, more forest fires, shrinking wetlands, and more stress on fish and waterfowl.

Although a warmer world is likely to be wetter overall, droughts could happen more often or be worse as a result of climate change. Why? In some areas it is because higher temperatures and a longer warm season could cause more moisture to be lost through evaporation than is gained from any increase in precipitation. Changes in weather patterns could also cause some places to get less rain than they used to while others get more. Or less rain might fall during the growing season (when it's needed) and more during the harvest season (when it's not).

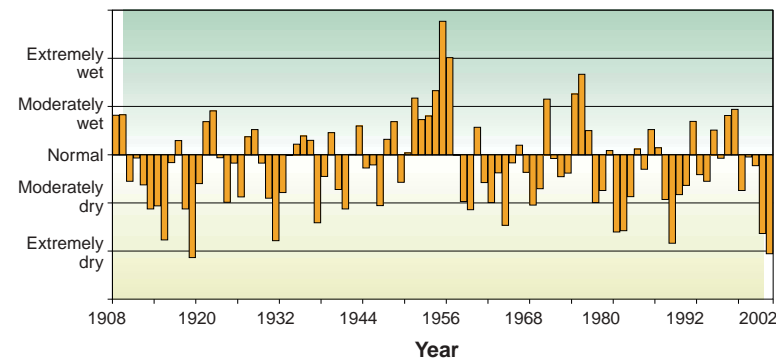
FOCUS: The Prairies

The Prairies are one of Canada's most drought-prone regions. Their climate has also changed more over the past century than that of most other parts of the country, so it is here that we might expect an early indication of more frequent or more severe drought.

Climate records for the Prairies, however, do not show droughts happening more often than they did in the past. Nor is there any evidence yet that Prairie droughts are becoming more severe. Droughts that occurred 3–4 thousand years ago, for example, appear to have been worse than any in modern times.

Still, the most recent droughts on the Prairies have been quite severe. In fact, for some areas, 2001 and 2002 were drier than the driest years of the 1930s, when the region was devastated by the most destructive drought in Canadian history.

Drought Index for Southern Saskatchewan



Source: Adapted from R. Hopkinson, Environment Canada

The index estimates the severity of drought on the basis of precipitation, the amount of moisture in the soil, evaporation, and other factors. It shows a number of droughts in the region over the past 100 years but no clear tendency towards either more severe or more frequent drought.



THE BIGGER PICTURE

Next to the Prairies, southern Ontario and the B.C. interior are the regions of Canada most affected by drought. Droughts also affect eastern Canada, but do not occur as often or last as long.

Although precipitation has generally increased in Canada during the twentieth century, there are some

signs that severe dryness is occurring more often. The country as a whole, for example, has seen more extreme summer dryness – though not necessarily full-blown drought – in the second half of the century than in the first. Since the 1960s more of the country has also experienced unusually warm and dry spring weather. Two of the most severe and widespread droughts in

Canadian history have occurred in the past 15 years. The drought of 1988 affected Ontario, Quebec, and the B.C. interior as well as the Prairies, while the drought of 2001 affected almost all of southern Canada and continued across the central and northern Prairies in 2002.

Could these recent events mark the beginning of a shift towards a more drought-prone climate? Perhaps. But more time will be needed to see if drought patterns in Canada are actually changing.

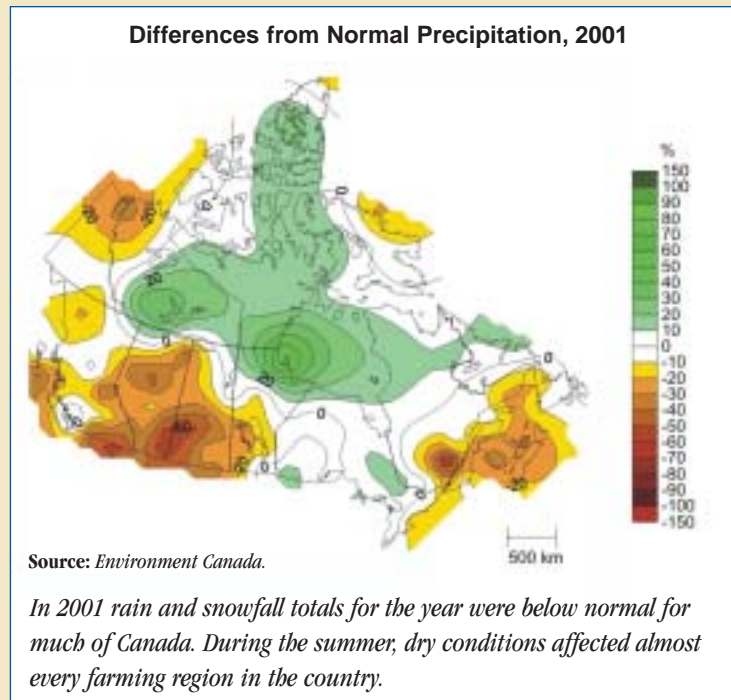
DROUGHT 2001

The drought of 2001 was one of the most intensive and widespread in Canadian history, affecting almost every farming region in the country. As so often before, it was worst on the Prairies, where wheat and canola yields fell by 43% from the previous year.

In the Great Lakes–St. Lawrence region, it was the driest summer in 54 years. Montreal's Dorval weather station recorded its driest April ever as well as a record 35-day rainless spell in the summer. Atlantic Canada had its fourth dry summer in five years, and both Charlottetown and Moncton reported their driest July and August ever. Most parts of B.C., in contrast, had a wetter than normal summer, but the preceding winter saw only about half the average levels of precipitation along the coast and in the southern interior.

While 2002 brought a return of normal conditions to the rest of the country, the drought lingered in many parts of central and northern Alberta and Saskatchewan. Failure of the hay crop forced many farmers to sell off their herds. Others more fortunate were able to keep going with surplus hay donated by eastern farmers. The soft wheat harvest was the smallest in 28 years, while barley yields hit a 34-year low. Canola fared poorly too, as output fell 35% below the already weak yields of the previous year.

Farmers felt the effects most directly, but the impacts rippled through every level of the economy – from small-town merchants serving cash-strapped farming communities to consumers across the country facing higher prices at the supermarket.



The St. Mary reservoir channel near Spring Coulee, Alberta, after 66 days with no rainfall, summer 2001.