

Changing Drought Risks: What is Expected for Saskatchewan?

A Fact Sheet

Knowledge of the risk of drought is needed for planning and operations, especially in areas already prone to such climate extremes. Nothing is certain in the future, but some trends have greater certainty than others. Drought risk is a part of the nature of climate in the Canadian Prairies and is certain to play a role in the future.

Prairie people have much experience with climate extremes such as droughts and with floods. Those extremes are also dealt with fairly well, but longer, larger area, and intense events can cause considerable damage and disruption and are costly in economic, environmental and societal measures. Therefore, it is prudent and necessary to find out more about future climate extremes in order to decrease these massive costs and take advantage of any opportunities.

Strategic planning requires that we understand, plan and prepare for hazardous events such as droughts and floods. These activities require estimation of the range of possible future trends, including those of extremes.

The current risk of drought is changing. If the past were the only guide to the future, the past statistics would be sufficient for understanding future droughts. However, the rapid pace of development, along with current warming and other aspects of climate change coupled with future expectations mean that drought and flood characteristics must be expected to change from the past.

What is future drought expected to be like? Some questions to ask include: Will droughts be more intense, cover larger area, occur more often, will they affect different areas than before? Will causes change? Will times of occurrence change? Will droughts originate from different places? Which characteristics do we have more confidence in projecting? What surprises will future drought bring? New climate combinations are expected.

Probable future droughts in southern Saskatchewan may have the power to slowly erode adaptive capacity of human and natural capital with each occurrence. They would occur much more frequently than the big events and perhaps occur in local pockets, rather than across Canada.

Worst-case scenarios for droughts in southern Saskatchewan include:

Note that these are the low probability, but very high impact and cost extremes.

- Mega-droughts that more than triple in number

- Have more evaporative power and be more intense because of higher temperatures and much longer warm seasons
- Cover much more area than even the across Canada drought of 2001-2002
- Interspersed with more powerful super storms that increase the risk of floods
- Intensified by decreasing snow-melt recharge to precious water reserves
- Current droughts are very mild compared with future super droughts
- Come with surprises as new combination of climate characteristics emerge.

What can be done to better challenge and deal with future droughts? What will you do?

Examples include:

- Learn to do a better job of decreasing negative impacts and increasing positive impacts of current droughts
- Learn how to better conserve and store water
- Improve understanding of extreme climate events such as droughts and floods
- Enhance monitoring and early warning of droughts, their impacts, and various adaptation strategies.
- Use the enhanced understanding of drought for operations and planning in risk management
- Involve more people, institutions and communities in planning and preparing for droughts.

For Further Reading

Wheaton, E, B. Bonsal, V. Wittrock. 2013 November. *Future Possible Dry and Wet Extremes in Saskatchewan, Canada*. Prepared for the Water Security Agency of Saskatchewan. Saskatchewan Research Council, Saskatoon, SK. SRC #13462-1E13 35 p.

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