

# OBSERVED EFFECTS OF CLIMATE CHANGE IN THE GLOBAL COMMUNITY

- **Greenhouse gas concentrations in the atmosphere are steadily rising.** Three heat trapping gases are of special concern. Carbon dioxide is now 146% above its concentration in the pre-industrial era; methane is 257% above pre-industrial levels; nitrous oxide is 122% above pre-industrial levels. These increases have largely taken place due to human activity, particularly fossil fuel burning. They are the driving force behind climate change.
- The **four hottest years** since worldwide temperature records were first kept are **2014, 2015, 2016 and 2017**. 2018 is on a similar trajectory.
- **Temperatures above 50 degrees Celsius are becoming increasingly common** in nations such as India, Pakistan, Iraq and Kuwait. At 50 degrees Celsius heat becomes toxic. Outdoor work is extremely dangerous.
- Rising greenhouse gas levels in the atmosphere are resulting in a sharp increase in extreme weather events. The medical journal, the Lancet, reports a **46% increase in the frequency of extreme weather events** worldwide between 2000 and 2016.
- In western North America the **forest fire season is becoming longer and more dangerous**. California and British Columbia had record wild fire seasons in both 2017 and 2018. California suffered unprecedented loss of life in its 2018 wild fires.
- As greenhouse gas levels in the atmosphere rise and trap more heat, the vast majority of that heat is taken up by the oceans. This results in thermal expansion of seawater – causing sea levels to rise. The warmer atmosphere is also melting mountain glaciers and the great ice sheets on Greenland and Antarctica. That meltwater is moving into the oceans, compounding the rise in sea levels. **Rising sea levels are now a threat to the future viability of many coastal communities around the world.**
- **Hurricanes are becoming more powerful and dangerous** due to elevated ocean temperatures, record-high sea levels, and elevated water vapour content (causing heavier rainfall). These are each a product of climate change. The United States has been hit by 5 extremely powerful hurricanes in the last 2 years (2017-18), with devastating consequences.
- **Climate change is having extremely serious ecological costs.** For instance, the geographical **range of bumblebees in North America has shrunk** by 300km, while in Australia, exceptionally warm ocean water temperatures have caused an unprecedented **loss of coral on the Great Barrier Reef**.

**Source:** “*Prairie Resilience*” is Not Enough, Peter Prebble, Margret Asmuss, Ann Coxworth and Bob Halliday, Saskatchewan Environmental Society, December 2018.

For further information, refer to the **Saskatchewan Environmental Society's** website at: **[www.environmentalsociety.ca](http://www.environmentalsociety.ca)**

