

The Facts/The Context

5 October 2020

Climate Change: We're Screwed, It's Our Fault, It's Going to Get Worse, and There's Nothing We Can Do About It

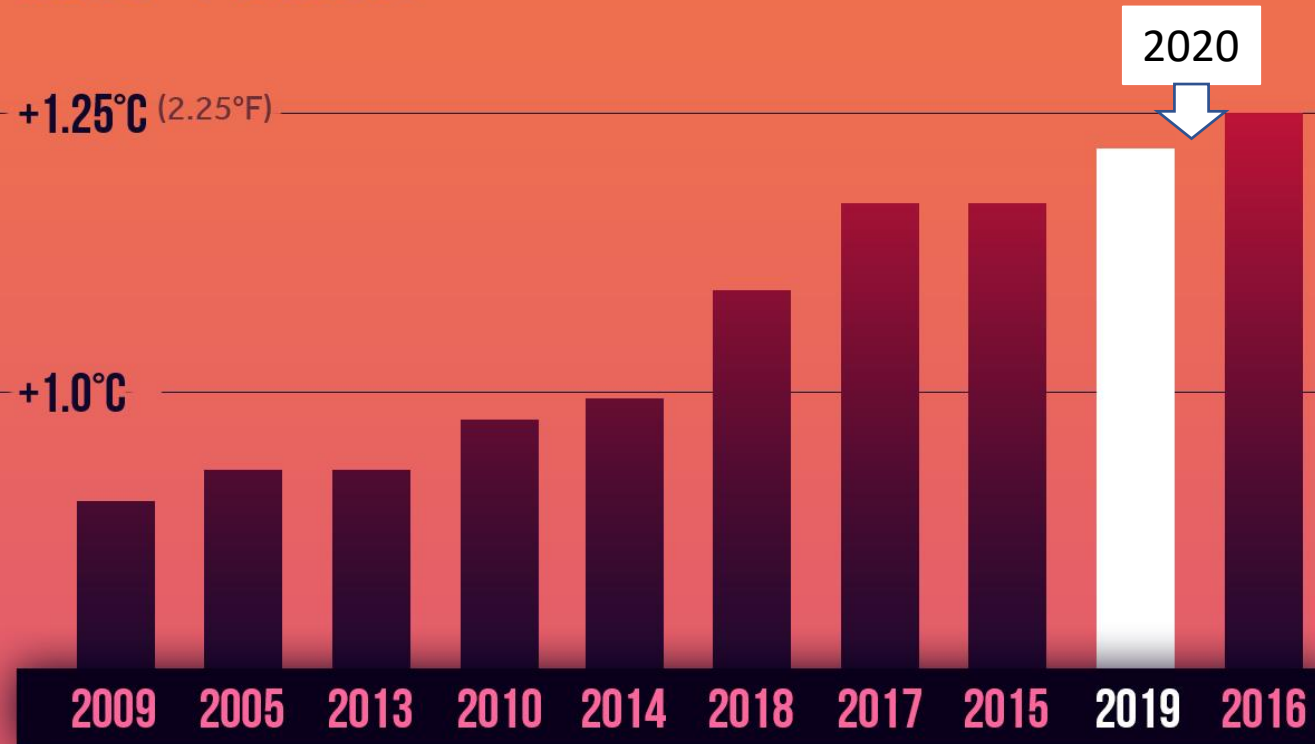
Adam Fenech, PhD

School of Climate Change and Adaptation, University of Prince Edward Island



10 HOTTEST YEARS ON RECORD GLOBALLY

Last 5 = Hottest 5



Source: NASA GISS & NOAA NCEI global temperature anomalies (°C) averaged and adjusted to early industrial baseline (1881-1910). Data as of 1/15/2020.

CLIMATE  CENTRAL

Global warming 'pause' about to end, raise Earth's temperatures further



Natural variabilities will make an already warming planet even hotter through 2022



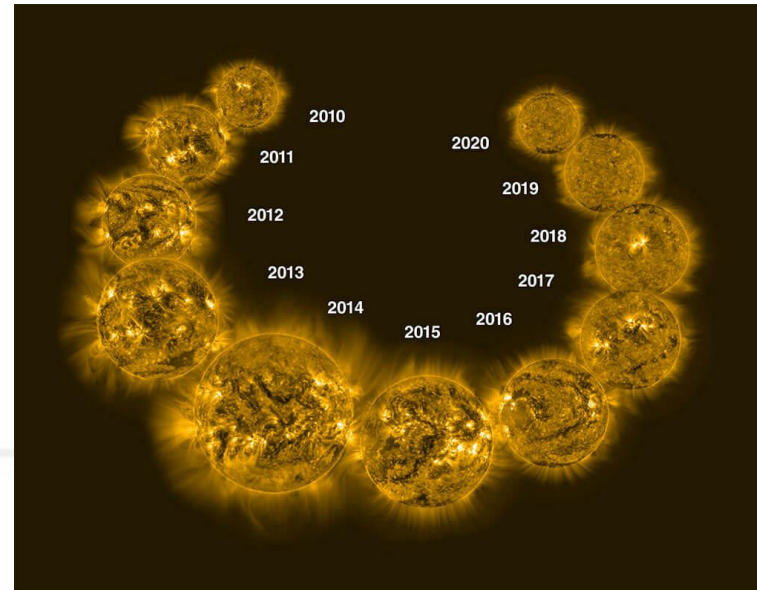
Nicole Mortillaro - CBC News - Posted: Aug 15, 2018 4:00 AM ET | Last Updated: August 15



The past four years have been the hottest on record, but new research shows the Earth was actually in a global warming "hiatus" that is about to end.

And when it does, natural factors are likely to help an already warming planet get even hotter over the next four years.

Florian Sevellec, University of Southampton
Nature Communications

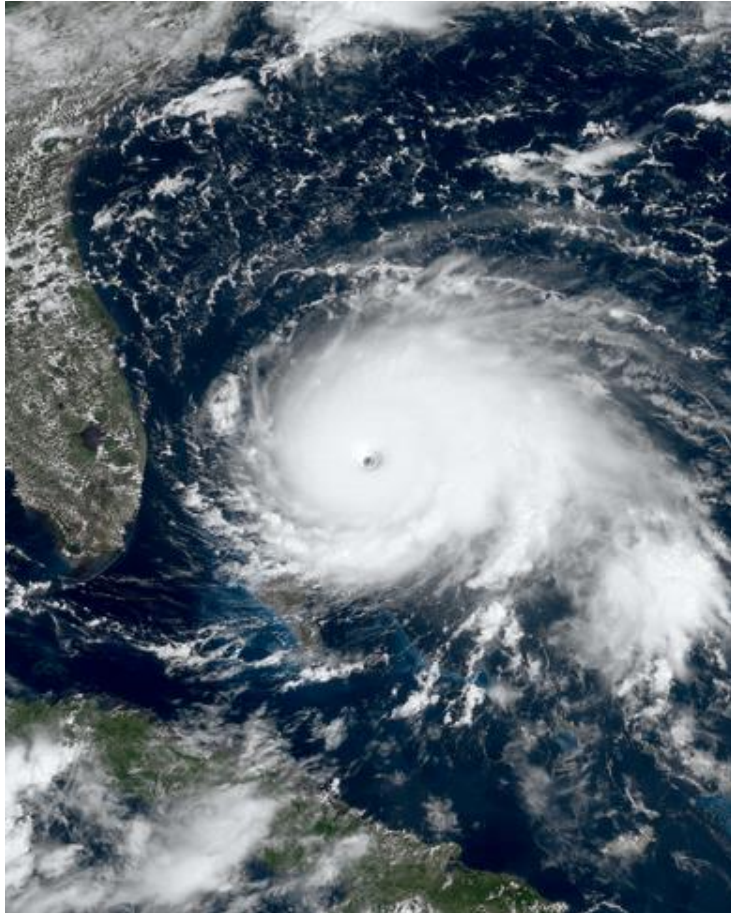


TAKING ACTION:
A CONVERSATION
ON CLIMATE ACTION
AND ARCHITECTURE
IN CANADA

PRENDRE ACTION:
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Hurricanes

The most consecutive years to feature at least one Category 5 hurricane each is four, from 2016 to 2019. Six storms have reached that category in these years - Matthew, Irma, Maria, Michael, Dorian, and Lorenzo.



September 1-2, 2019, Hurricane Dorian
Winds 295 km/h

Category 5 hurricanes are tropical cyclones that have 1-minute sustained wind speeds of over 137 knots (254 km/h; 70 m/s)

Forest Fires



As of September 14, 2020, a total of 3.7 million acres (1.5 million hectares) have been burned by forest fires, more than 3.7% of the state's 100 million acres of land, making 2020 the largest wildfire season recorded in California history, according to the California Department of Forestry and Fire Protection.

“The intensity of the fires has been increased by drying and heating from human-induced climate change.”

GLOBAL AND REGIONAL SEA LEVEL RISE SCENARIOS FOR THE UNITED STATES



Photo: Ocean City, Maryland

Silver Spring, Maryland
January 2017



noaa

National Oceanic and Atmospheric Administration

U.S. DEPARTMENT OF COMMERCE
National Ocean Service

Center for Operational Oceanographic Products and Services

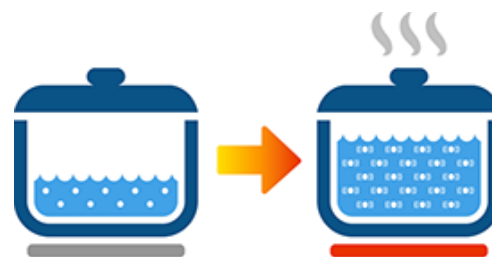
Technology & Science

A big chunk of Greenland's ice cap breaks off as Arctic shifts to new climate regime



New regime marked by increasing ice melt, temperature rise, rainfall days, study finds

The Associated Press · Posted: Sep 14, 2020 10:17 AM ET | Last Updated: September 14



“The projections and results presented in several peer-reviewed publications provide evidence to support a physically plausible GMSL rise in the range of 2.0 meters (m) to 2.7 m”

TAKING ACTION:

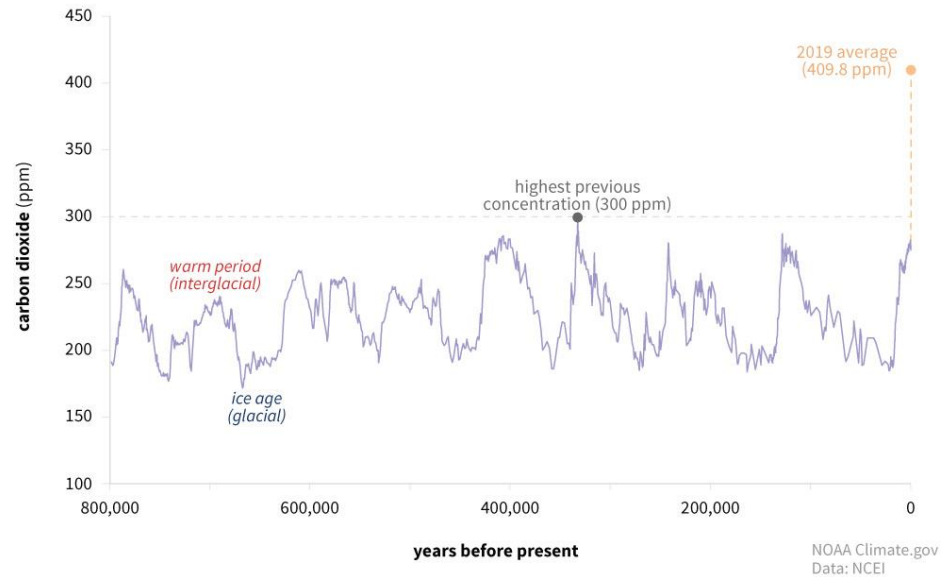
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Global Atmospheric Carbon Dioxide

CARBON DIOXIDE OVER 800,000 YEARS



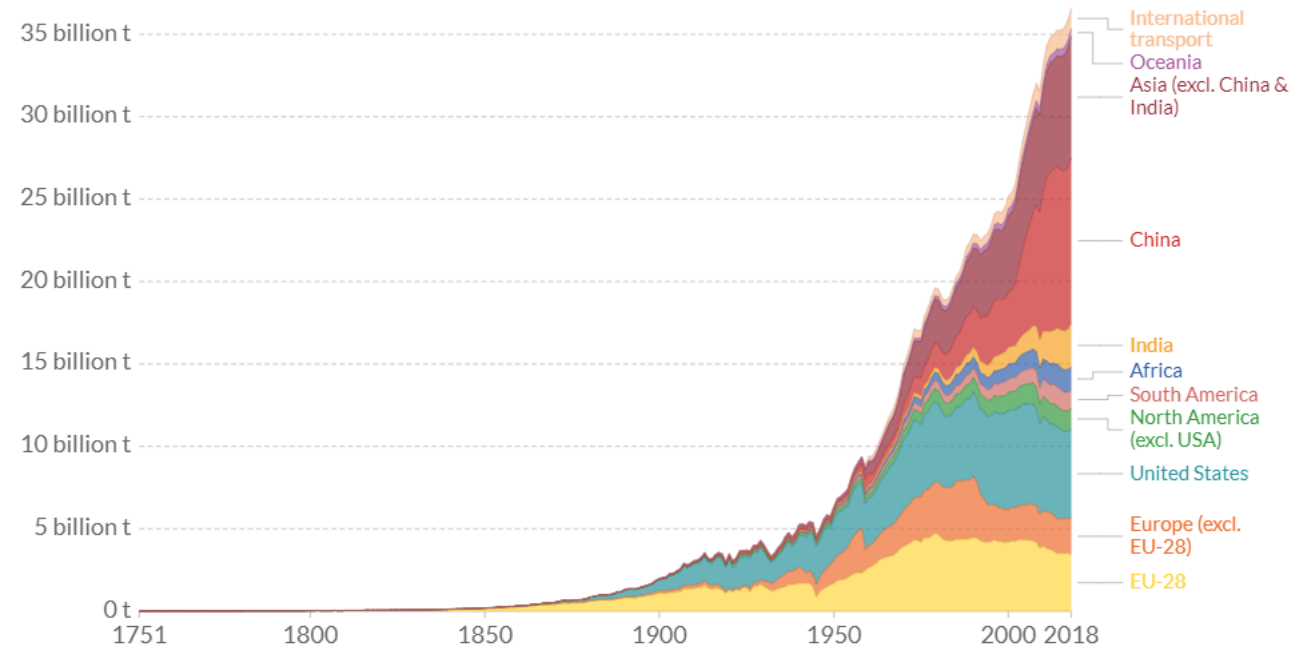
28 September 2020 = 410.88 ppm

The last time atmospheric CO₂ amounts were this high was more than 3 million years ago, when temperature was 2°–3°C higher than during the pre-industrial era, and sea level was 15–25 meters higher than today.

Annual total CO₂ emissions, by world region

This measures CO₂ emissions from fossil fuels and cement production only – land use change is not included.

Relative



Source: Carbon Dioxide Information Analysis Center (CDIAC); Global Carbon Project (GCP)
Note: 'Statistical differences' included in the GCP dataset is not included here.

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Three Numbers You Need to Know

(Bill McGibben, 2012)

1. Limit human increase in global average temperature to **2°C** (= dangerous climate change?)
2. **565 more gigatons (billion metric tons) of CO₂eq** can be released into the atmosphere by 2050 to stay below 2°C (4in5 chance)
3. **2,795 gigatons (billion metric tons) of CO₂eq** already contained in the **proven coal and oil and gas reserves**, i.e. the fossil fuel humans are currently planning to burn.



The 3 Numbers Argument

Think of 2°C as the legal drinking limit – equivalent to the 0.08 blood-alcohol level below which you might get away with driving home.

The 565 gigatons is how many drinks you could have and still stay below that limit – the six beers, say, you might consume in an evening.

And the 2,795 gigatons? That's the three 12-packs the fossil-fuel industry has on the table, already opened and ready to pour.



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