

# Climate Change Your Mind.

Responding to the Canadian government's "Canada's Changing Climate Report" CCCR2019

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Cover Image: By NASA Goddard Space Flight Center - Flickr: Magnificent CME Erupts on the Sun - August 31, CC BY 2.0, <u>https://commons.wikimedia.org/w/index.php?curid=21422679</u>

This is a plain language document, intended for the public and policy-makers. It includes references to peer-reviewed and non-peer reviewed academic material.

### Executive Summary

Environment and Climate Change Canada issued a report entitled "Canada's Changing Climate Report 2019" (CCCR2019) on April 2, 2019 which sparked headlines world-wide claiming that Canada was warming 'twice as fast as the global average temperature.'<sup>1</sup> The report made predictions of increased weather extremes such as flooding, wildfires and heatwaves, unless drastic cuts to greenhouse gas emissions and the use of fossil fuels were implemented.

The report was issued a day after the very unpopular federal carbon tax policy was implemented and as a constitutional court case began over the validity of a federally imposed carbon tax on the provinces.

Friends of Science Society disputes the claims of the CCCR2019 as summarized here:

- 1. NASA GISS Dec. 2019 temperature dataset shows that global temperatures have dropped by 0.5°Celsius in the past three years. The sun is presently entering a solar minimum, exhibiting very few sunspots. Historically, observations correlate this low solar activity to a time of cooling, such as that of the Little Ice Age (1250-1860AD).
- 2. The risk of cooling to Canadians and to Canadian agriculture presents a far more serious challenge than the risk of warming.
- 3. **Despite a significant rise in carbon dioxide concentration, temperatures have flatlined for the past 20 years.** The growing scientific consensus is that carbon dioxide is not the 'knob' that can fine tun climate, meaning carbon taxes and reduction measures will not fight climate change. Natural climate factors appear to be more influential.
- 4. CCR2019 used a reference frame that began in a cooler solar minimum and ended in a higher temperature El Nino period this would give a distorted appearance of much higher warming. Page 6 of the Executive Summary refers to "*Changes are relative to the 1986–2005 period.*"
- 5. **Computer models (simulations) are useful for understanding how climate works, but inadequate for accurately predicting future climate.** There are too many variables and unknowns. Physicist Freeman Dyson calls it 'science fiction' to use computer models for climate predictions. Climate models do not reflect the observations of satellite and weather balloon data and did not project the near 20-year hiatus in warming, with no statistically significant warming since 1997.
- 6. Canada is a vast country of many regional climatic conditions; predicting climate change patterns 80 years from now is an exercise in magical thinking. Climate change is measured in periods of 30, 50, 100 and millennial timescales. Climate and weather patterns are subject to changes in humidity, winds, precipitation, cloud cover, cosmic ray influx and more. Changing human influences like increased population density, land use (agriculture, paving/building up cities), large-scale water diversion (James Bay dam, Site C dam) and other emissions from daily human and industrial activity also affect regional climates. On a wider scale, there are natural factors like black carbon/ash/soot (which affect Arctic warming/albedo) and other aerosols from wildfires, ash, gases and aerosols from volcanic eruptions, decomposition of biomass, and atmospheric oscillations such as El Nino, La Nina, Pacific Decadal (PDO), geothermal activity (below sea level), and changes in ocean currents. These can have amplifying or modifying effects on large regions of Canada.

<sup>&</sup>lt;sup>1</sup> <u>https://www.theguardian.com/world/2019/apr/02/canada-climate-change-warming-twice-as-fast-report</u>

Though some oscillations appear to have a regular cycle (PDO 60 years), others like El Nino, which can have global effects, are impossible to predict with any accuracy, nor can the length or scope of the impact be determined years in advance. A series of solar and cosmic cycles and planetary conjunctions also affect climate. How can carbon dioxide/greenhouse gas emissions be more influential than any one, or all of these?

- 7. The Intergovernmental Panel on Climate Change (IPCC) Special Report on Extreme Weather in 2012 stated that there is little evidence to support the claim that human influence on climate will lead to more extremes. It is curious that CCCR2019 comes to the opposite conclusion.
- 8. Most expert scientists in the field of climate reject the use of the Representative Concentration Pathway 8.5 (RCP8.5) high end model assessment as being completely unrealistic in terms of energy use. However, RCP 8.5 it is used throughout the report, frequently with bright 'red-hot' visuals.
- 9. Undue influence and content from contributors outside the field of physical sciences brings into question the quality of assessment. Reliance on the IPCC AR5 report does not reflect the reality of Canada's unique geological and climatic conditions. Further, the AR5 report noted a then 15-year hiatus in global warming, which today reaches nearly 20 years. The AR5 report weakened the case for human causation of warming, as Dr. Judith Curry testified to the US Senate on Jan. 16, 2014, also stating that the rapid rise in carbon dioxide (CO2) while temperatures flatlined indicated that:
  - a) Carbon dioxide is not a control knob that can fine tune climate
  - b) Reducing carbon dioxide emissions to stop global warming may prove to be futile in the face of natural variability (solar and ocean cycles and other natural factors being more influential).
- 10. **Solar influence on Canada's climate** offers more robust evidence of the driver of climate change. Importantly, the CCCR2019 report failed to inform its Canadian readers that the IPCC climate models failed to correctly simulate the Northern Hemisphere snow cover extent for the past 50 to 100 years.
- 11. Since 2005, green billionaires have been funding ENGOs worldwide for millions of dollars a year to push the 'climate catastrophe,' 'climate crisis,' for their own vested interests in renewables, global cap and trade and carbon pricings. They have co-opted union pension funds and institutional investors to their 'cause,' thus skewing markets and policies.
- 12. Can so many scientists and government agencies be wrong? Yes, history shows us that science, especially when politicized, can go wrong based on faulty premises that cannot be questioned. A crucial example is that of Lysenkoism in the Soviet Union where faulty agricultural science became government policy. This *diktat* did not allow for scientific dissent on pain of excommunication, incarceration in a mental institute, or execution.<sup>2</sup> Following on his theories, in Maoist China, those 'deniers' and 'right-leaning conservatives' who argued against the Great Leap Forward were 'struggled' into submission by their peers lack of freedom of speech and scientific inquiry led to the deaths of ~36 million.

<sup>&</sup>lt;sup>2</sup> <u>https://www.forbes.com/sites/peterferrara/2013/04/28/the-disgraceful-episode-of-lysenkoism-brings-us-global-warming-theory/#69a698e67ac8</u>

## Climate Change Your Mind.

## You're Feeling Warmer. Aren't you?

## Responding to the Canadian government's "Canada's Changing Climate Report" CCCR2019 – in Plain Language

The government of Canada issued a comprehensive report with future projections of Canada's changing climate on April 2, 2019. The report caused great consternation in the media and frightened many people. The report provided a collection of headline statements, offered to the media, including this one, repeated ad nauseum in the press:

"Both past and future warming in Canada is, on average, about double the magnitude of global warming."<sup>3</sup>

A quick search of the internet



reveals that headlines around the world, since 2010 make the same claim, but how can every place in the world be warming faster than the average?<sup>4</sup>

Consequently, we find the report to be a compendium of a lot of work, but based on questionable scientific premises and unsupported projections, which we will discuss in this rebuttal.

<sup>&</sup>lt;sup>3</sup> <u>https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/energy/Climate-change/pdf/CCCR\_HeadlineStatements-EN-033119-FINAL.pdf</u>

<sup>&</sup>lt;sup>4</sup> <u>http://tomnelson.blogspot.com/2010/07/settled-science-can-everyplace-really.html</u>

Temperatures and Precipitation Might Change Somewhere Sometime.

Köppen Climate Types Exhibit Common Long-term Characteristics.

## Köppen climate types of Canada



Source: By Adam Peterson - Own work, CC BY-SA 4.0, <u>https://commons.wikimedia.org/w/index.php?curid=51168581</u>

Canada is a vast country with distinctive regional climate patterns. The map above uses the **Köppen Climate Classification System**. "It is the most widely used system for classifying the world's climates. Its categories are based on the annual and monthly averages of temperature and precipitation. The Köppen system recognizes five major climatic types; each type is designated by a capital letter." <sup>5</sup>

<sup>&</sup>lt;sup>5</sup> <u>http://www.physicalgeography.net/fundamentals/7v.html</u>

Within regions, there are other weather/climate phenomenon such as Chinook winds over the Rockies into southern Alberta, amplifying or modifying effects of the Great Lakes on regional conditions. Beyond natural seasonal phenomenon, certain longer-term atmospheric oscillations, which occur in cyclical patterns – such as El Nino (ENSO), La Nina, Pacific Decadal Oscillation (PDO), can strongly influence the propensity for natural events like wildfire risk, drought patterns, precipitation, and coastal tidal events. However, none of these outcomes or the oscillations are related to human-caused influence on climate.<sup>6</sup>



Image shows various locations of various atmospheric oscillations.<sup>7</sup>

## UN Climate Panel Rejects Extreme Weather-Human Attribution

It is curious that the Canadian federal government authors and contributors attribute weather extremes to human causation because in 2012, the UN Intergovernmental Panel on Climate Change issued a Special Report on Extreme Weather Risk (IPCC SREX). They determined that there was little evidence to support the claim of human causation driving extreme weather. Dr. Judith Curry summarised these findings in her testimony to the US Senate in 2014, commenting on catastrophic climate claims made by then President Obama in his Second Inaugural Address:

#### Obama:

Some may still deny the overwhelming judgment of science, but none can avoid the devastating impact of raging fires and crippling drought and more powerful storms.

#### **Curry**:

This premise is not strongly supported by the scientific evidence:

<sup>&</sup>lt;sup>6</sup> <u>https://www.whoi.edu/know-your-ocean/ocean-topics/ocean-circulation/el-nio-other-oscillations/</u>

<sup>&</sup>lt;sup>7</sup> <u>https://opensnow.com/news/post/how-el-nino-la-nina-and-the-pacific-decadal-oscillation-influence-snowfall-in-the-united-states-unfortunately-it-s-complicated</u>

• the science of climate change is not settled, and evidence reported by the IPCC AR5 weakens the case for human factors dominating climate change in the 20th and early 21st centuries

• with the 15+ year hiatus in global warming, there is growing appreciation for the importance of natural climate variability

• the IPCC AR5 and SREX find little evidence that supports an increase in most extreme weather events that can be attributed to humans, and weather extremes in the U.S. were generally worse in the 1930's and 1950's than in recent decades.

Not only is more research needed to clarify the sensitivity of climate to carbon dioxide and understand the limitations of climate models, but more research is needed on solar variability, sun-climate connections, natural internal climate variability and the climate dynamics of extreme weather events.

It is extraordinary that a publication of the Canadian federal government should recite a long list of possible shifts in weather patterns, claiming these predictions are 'very likely' when it is presently impossible to predict the weather for more than a few days hence, and the world body on climate science rejects the notion of human causation of weather extremes.

### Climate Models – Not a Crystal Ball

"The climate model is a very good tool for understanding climate, but a very bad tool for predicting climate"

"...the world is much more complicated then the computer models. I have a good friend in Princeton who is a computer expert, Suki Manabe is his name. He is Japanese but he lives here in Princeton.<sup>8</sup> He did some of the first climate models on carbon dioxide. And he always said from the beginning "The climate model is a very good tool for understanding climate, but a very bad tool for predicting climate". <sup>9</sup>



#### -physicist Freeman Dyson, Interview in "The Uncertainty Has Settled" documentary by Marijn Poels

<sup>&</sup>lt;sup>8</sup> <u>https://scholar.princeton.edu/manabe/home</u>

<sup>&</sup>lt;sup>9</sup> <u>https://www.marijnpoels.com/single-post/2019/03/05/We-don%E2%80%99t-understand-climate-its-very-complicated-and-were-only-at-the-beginning-to-understand-what-the-effects-may-be</u>

Climate 'models' are computer simulations. They are extremely complex mathematical formulas that are run on supercomputers. The American Physical Society workshop of Jan. 8, 2014 <sup>10</sup> discusses some of the aspects of who commissions these models, how they are structured, what parameters they are based upon and what success or failure issues are inherent.

Models are 'run' with different parameters to see what different outcomes look like. In CCCR2019, the authors refer to Representative Concentrated Pathways 2.6 and 8.5 (RCP 2.6 and RCP 8.5). You can see on the graph below, there are two other intermediary representations – RCP 6.0 and RCP 4.5. The green dot in the middle of this image shows where the world sits at present (2017).

The RCP's are based on different concentrations of fossil fuel use and emissions. RCP 8.5 is the most extreme and least likely because it is based on a world operating on unmitigated expansion of coal use. As Roger Pielke, Jr. points out in his article "Opening Up the Policy Envelope"<sup>11</sup> it is the least likely of scenarios, but the most frequently used in policy papers. Why?



"Yet RCP 8.5 remains a scenario favored in most climate impacts studies published in the academic literature. One reason for this is obvious: **because the scenario** generates very high carbon dioxide emissions, the associated climate impacts projected in climate models can also be very large, and thus <u>lend continued</u> <u>urgency to calls for emissions reductions</u>, and supporting economic models that show very high costs of future climate change impacts." [bold and underline added]

In other words, RCP 8.5 scenarios are used because they justify calls for rapid decarbonization or high carbon taxes, even though <u>RCP 8.5 is not representative of how the world operates</u>

<sup>&</sup>lt;sup>10</sup> <u>https://www.aps.org/policy/statements/upload/climate-seminar-transcript.pdf</u>

<sup>&</sup>lt;sup>11</sup> <u>https://issues.org/opening-up-the-climate-policy-envelope/</u>

today or the type of fossil fuel use/emissions and is not representative of how the world will operate tomorrow.

In other words, this report misleads the innocent public and the non-scientist policymaker. Though coal continues to be used world-wide as an affordable, reliable, abundant source of energy, new Ultra critical, Supercritical, High Efficiency/Low Emissions (HELE) plants reduce noxious pollutants to a minimum. Near-market-ready technology exists that will extract graphene directly from carbon emissions in the stack. Carbon Capture and Storage (CCS) technology is advancing and Canada is a leader in sequestration technology.

### **Climate Models do not Reflect Observations**

If we are to rely on climate models for setting policy, we should expect that the models closely match observations. As you can see below, based on 102 model runs for the IPCC, the models project significant warming; the reality is that both satellite data and thousands of weather balloon records show that global warming has flatlined despite a significant rise in carbon dioxide emissions from human industry. The models did not predict this 'hiatus. The theory of Anthropogenic Global Warming says carbon dioxide from human emissions drives warming – that is the impetus for the efforts to implement carbon taxes or invent ways to restrict or mitigate carbon dioxide emissions. The theory is flawed, as you can see below.



Simplified version of chart from the US Senate testimony of Dr. John Christy, reproduced here (pg. 23) https://www.theqwpf.org/content/uploads/2017/03/Climate-Science-March20171.pdf

## Rapid Decarbonization – Reality or Fantasy?



On page 139 of the CCCR2019, the authors write *"Under a low emission scenario (RCP2.6), annual mean warming in Canada stabilizes at about 1.8°C above the 1986–2005 reference period after about 2050"* implicitly suggesting that if Canada engages in a low emissions scenario, warming would be only slightly over the much talked-about 1.5°Celsius scenario.

This suggestion fails to acknowledge the reality presented in the graph above, by US climate policy analyst Roger Pielke, Jr. Nor does it acknowledge the reality of ever-growing emissions from the developing world, primarily China and India.

- China is by far the largest emitter; in 2017, it constituted almost 28% of the world's emissions.
- Contrary to many public perceptions, the United States has reduced its emissions considerably (i.e. by 793 Mt) over the decade.
- India surpassed Russia as an emitter during this period. Based on current trends, India may surpass the United States by the middle of the next decade.
- Canada's emissions from energy combustion in 2017 were listed by BP at 560 Mt, which ranks tenth in the world according to BP's data.

China's emissions growth from 2007 to 2016 was 2,200 Mt, or 166 Mt per month. In effect, the increases in China's emissions every three and a half months exceeded Canada's total annual emissions in 2017.<sup>12</sup> (*ibid table below*)

Country	2007 Mt	2016 Mt	2017 Mt	Increase 2006-2016 (Mt)
China	7213	9114	9233	2020
India	1366	2251	2344	978
Saudi Arabia	393	591	595	202
Iran	491	599	634	143
South Korea	545	665	680	135
Indonesia	387	486	512	125
Vietnam	79	195	196	117
Brazil	351	462	467	116
UAE	186	272	267	81
Qatar	54	104	115	61

Points to note:

- The emissions growth in China and India alone from 2007 to 2016, at 2,998 Mt, exceeded the net growth in global emissions increases during that period. In other words, the emissions growth in two countries offset the emissions reductions in the rest of the world.
- The emissions growth in the ten fastest-growing emitters combined totaled 3,978 Mt.

Consequently, even if Canada was to drastically cut emissions, *if* carbon dioxide was causing global warming, such warming would continue unabated due to global emissions. <u>Canada's reductions</u> would be meaningless. They would certainly have no effect on our domestic climate.

Worse, extreme reductions in emissions in Canada would mean the destruction of our economy, as explained by Robert Lyman, Ottawa energy policy consultant.

<sup>&</sup>lt;sup>12</sup> <u>https://blog.friendsofscience.org/wp-content/uploads/2018/11/THE-WORLD-OF-CARBON-DIOXIDE-EMISSIONS-brief.pdf</u>

"How can we even begin to understand the magnitude of the changes being proposed? One way is to look at the sources of energy consumption and related emissions today. In 2005, Canadian emissions were 738 megatonnes of carbon dioxide equivalent. In 2014, after six years of the worst recession since the Great Depression, Canadians emitted less, 722 megatonnes. Twenty-six per cent of those emissions were from oil and gas production, 23 per cent were from transportation, and roughly equal portions of around 10 per cent were from electricity generation, buildings, industry and agriculture, with waste and other sources making up a residual 7 per cent. Assuming that emissions do not grow one bit over the next 32 years as a result of increased economic activity or increased population, achieving a 50 per cent emissions reduction from 2005 levels would mean reducing emissions to 369 megatonnes CO2 equivalent. That is comparable to completely eliminating the current emissions from oil and gas production, electricity generation, and all emissions-intensive industries like mining, petrochemicals, auto and parts manufacturing, iron, steel and cement. Gone. Achieving the aspirational goal of 80 per cent reduction recommended by the IPCC would mean reducing emissions to 147 megatonnes CO2 equivalent. **That would be comparable to reducing Canada's per capita emissions and our energy economy to the current levels of Bolivia, Sudan or Iraq."** 13



Bolivia



Iraq

These countries feature much milder conditions than Canada, where winter storms make fossil fuels use a necessity.



Sudan

<sup>&</sup>lt;sup>13</sup> <u>http://blog.friendsofscience.org/2017/05/10/can-canada-survive-climate-change-policy/</u>

## What Causes Climate Change?



NASA Goddard Space Flight Center - Flickr: Magnificent CME Erupts on the Sun - August 3114

On August 31, 2012 a long filament of solar material that had been hovering in the sun's atmosphere, the corona, erupted out into space at 4:36 p.m. EDT. The coronal mass ejection, or CME, traveled at over 900 miles per second. The CME did not travel directly toward Earth, but did connect with Earth's magnetic environment, or magnetosphere, causing aurora to appear on the night of Monday, September 3. Pictured here is a lighten blended version of the 304 and 171 angstrom wavelengths taken from the <u>Solar Dynamics Observatory</u>. Cropped

The Sun is responsible for earth's climate. Though we are far from the Sun, its influence is great.



<sup>&</sup>lt;sup>14</sup> By NASA Goddard Space Flight Center - Flickr: Magnificent CME Erupts on the Sun - August 31, CC BY 2.0, <u>https://commons.wikimedia.org/w/index.php?curid=21422679</u>

#### CLIMATE CHANGE YOUR MIND.



Source: http://www.nap.edu/catalog/18974/solar-and-space-physics-a-science-for-a-technological-society

The Sun drives earth's climate system, affecting all the factors above, directly and indirectly. Earth also has its own internal variabilities such as tectonic plate movements, volcanos, cyclical patterns of ocean currents and changing geomagnetism. Of the factors above, human industrial emissions only affect atmospheric composition. **Humans do have an influence on climate,** but this image should set the perspective on where our influence lies.

Likewise, humans **do** affect climate, mostly regionally, through land use, water diversion, agriculture, deforestation and urban centres (Urban Heat Island-UHI). Humans certainly affect the environment as well, through waste water release, industrial activity, groundwater withdrawals. We know how to address most environmental matters to mitigate human impact. We can treat waste water and sewage, we have excellent forest management and reclamation skills, especially in Canada. We have emissions reductions technology to reduce noxious emissions. Focussing on mitigating human impact and solving real world problems world-wide would be a far better use of limited tax dollars, than chasing the carbon dioxide molecule.



## 100% Confident that $CO_2$ Influence is not Seen in Canadian Temperature Records



Excerpt of Dr. Willie Soon's presentation at Friends of Science Society's "Polar Bears and Solar Flares" event April 10, 2019.

Canada has a seasonal range from cold to warm temperatures of 50°Celsius in the near land surface air temperature record. Using the recorded daily temperature minimums (TMIN) and maximums (TMAX) from 1900 to 2013 results in the red and blue colored graph above. A black line in the middle range shows the global temperature anomaly, indicating a tiny rise. At the bottom of the scale in the blue, it is clear there is a reduction in minimum temperatures (meaning overall it is *less cold* during coldest periods) of about 5°Celsius, but this is at the coldest end of the scale. There is no corresponding rise in the temperature maximum (which would mean hotter during the hottest times), which one is led to believe from the CCCR2019 report.

If carbon dioxide ( $CO_2$ ) was causing warming, it should have been visible in an increasing daytime maximum high, but there is no evidence of it.

Dr. Soon's presentation on April 10, 2019, *"The Sun Also Warms"* referenced this peer-reviewed paper: <u>https://www.mdpi.com/2076-3263/9/3/135</u>

The IPCC dismisses solar variation as the driver of climate, but the IPCC's mandate is to focus on human causation. The IPCC cadre of scientists includes no geologists<sup>15</sup> and at one point, included only one solar physicist, citing her own co-authored paper.<sup>16</sup> The following graphs use temperature data from the Berkeley Earth Surface Temperature (BEST) dataset.



In science, it is true that correlation does not prove causation, but there is certainly a closer parallel between solar irradiance and temperature change in Canada, than there is between carbon dioxide emissions.

<sup>&</sup>lt;sup>15</sup> <u>https://blog.friendsofscience.org/2019/04/27/intergovernmental-panel-on-climate-change-ipcc-next-report-ar6-due-2022-</u> %E2%88%92-again-no-geologists/

<sup>&</sup>lt;sup>16</sup> <u>https://motls.blogspot.com/2010/06/judithgate-ipcc-relied-on-one-solar.html</u>



The black brackets [] frame a reference period used in the CCCR2019 report. This period begins in 1986 in cool solar minimum and ends in 2005 during a hot El Nino period. Solar minimums are natural solar cycle periods; El Nino is a natural atmospheric oscillation. Using this period as a reference would give unfairly skewed results, leading to a conclusion that Canada is warming 'twice as fast as the global average'.

As is shown on this graph, the CCCR2019 report uses 1948 as a reference point, a time when temperatures dropped significantly. This means that referring to this low period as a starting point, would give a skewed comparison. Even more dramatic is another referenced period from 1986 to 2005 (shown in black brackets []) 2005 was an El Nino year, where naturally-caused high temperatures were recorded. This would give a false impression that Canada is 'warming faster than the rest of the world.'



Source data from main datasets, via Prof. Ole Humlum's site "Climate4You."

As seen in the graph (previous page) of all five major datasets, since 2002, temperatures have flatlined, despite a significant rise in carbon dioxide (CO2), shown by the upper squiggly line in the graph on the previous page. The squiggles represent the seasonal rise in carbon dioxide during winter, when the great plains and forests are covered by snow, and the uptake of carbon dioxide by plants through spring and summer.



Source: Screenshot from NASA CO2 modelling, red representing CO2 concentration in April 2006.



NASA | A Year in the Life of Earth's CO2

Source: Screenshot from NASA CO2 modelling, red turns to flat gray as CO2 concentration is all taken up by August by the massive boreal forests and large agricultural lands across the plains and the steppes of the Ukraine and Russia.

Euan Mearns on carbon cycle: <u>http://euanmearns.com/the-carbon-cycle-a-geologists-view/</u>

## Heat Waves, Drought and Other Extremes Unrelated to CO<sub>2</sub>



Source: http://spacing.ca/toronto/2016/07/09/80th-anniversary-torontos-worst-heatwave/

The hottest temperatures recorded in Canada were in the 1930's. In 1936, Toronto's temperatures reached 40°C in the shade. Desperately hot, people flocked to the beach and slept on the grass in public parks at night. The IPCC dates human-caused global warming from 1950.

In his 2018 presentation to Friends of Science Society's "Extreme Climate Uncertainty" event,<sup>17</sup> Dr. Madhav Khandekar showed the audience that extreme weather events are integral to climate and unrelated to carbon dioxide concentration.

In a video interview, Dr. Khandekar discusses the heat wave of 1936, and also explains that people live in very hot climates around the world, and they adjust their daily activities accordingly.<sup>18</sup>

Most people prefer to spend their vacations in warm climates. Much of the world's population lives in hot climates.

Dr. John Harper, FGSA, FGAC, PGeol., former director of the Geological Survey of Canada, explained in his 2016 presentation *"From Ice Age to Nice Age to Dry Age and Back: 600 million years of Climate Change"* that earth's temperatures have naturally fluctuated from minus 70°C to plus 70°C for reasons beyond our control. <sup>19</sup>

The Okotoks "Big Rock", sacred to the Blackfoot Nation, was once under 2 miles of glacial ice.



By Coaxial at English Wikipedia, CC BY 3.0, https://commons.wikimedia.org/w/index.php?curid= 7753012

<sup>&</sup>lt;sup>17</sup> <u>https://friendsofscience.org/index.php?id=2369</u>

<sup>&</sup>lt;sup>18</sup> <u>https://youtu.be/OhM5Qid6lh4</u>

<sup>&</sup>lt;sup>19</sup> https://youtu.be/O-mMpGBxPwI

## Fort McMurray Wildfires – Human Causation and Lack of Preparation



The Fire Weather Index is a component of the Canadian Forest Fire Weather Index (FWI) System. It is a numeric rating of fire intensity. It combines the Initial Spread Index and the Buildup Index. It is suitable as a general index of fire danger throughout the forested areas of Canada.

CCCR2019 makes the astonishing claim that the catastrophic Fort McMurray wildfire was due to Anthropogenic Global Warming, referencing a peer-reviewed study based on modelling. However, based on evidence, the fire weather index risk map of the 30-year mean shown above (May 2018) shows no increasing trends.

Compare this with the wildfire risk map on May 4<sup>th</sup>, 2016, when the Fort McMurray wildfire took off out of control (see below).

#### CLIMATE CHANGE YOUR MIND



The fire danger map of May 4, 2016 showed an extremely high risk across almost all of Alberta and Saskatchewan.

Following the 2011 Slave Lake fire, caused by arsonists, the Province of Alberta had conducted a thorough study and issued the "Flat Top Fire Complex Review."<sup>20</sup> Findings in the report noted that due to the forest life cycle, the Alberta boreal forest was at risk of major fires due to **aging conifers**. Old, dry, or dying conifers are ideal for 'laddering' – where fire can quickly climb up to the crown, consuming the dry kindling-quality branches, and from there sparks and flames easily spread, especially in windy conditions. Though most people think of wildfire as a summer and fall event when it is hot, there are many wildfires in the early spring between snow melt and spring rain when the ground is dry with little green vegetation. The 2012 Flat Top Review had recommended that all wildfire crews and contractors be staffed and in place by April 15<sup>th</sup>, to be prepared for that interim period.

<sup>&</sup>lt;sup>20</sup> https://wildfire.alberta.ca/resources/reviews/documents/FlatTopComplex-WildfireReviewCommittee-A-May18-2012.pdf

In 2015, the new Alberta NDP government had cut water bomber contracts<sup>21</sup> as a cost-saving measure. It is unclear whether wildfire crews were in place by April 15, 2016 in Alberta. The Canadian Interagency Forest Fire Centre, Inc. (CIFFC) situation report of May 4<sup>th</sup>, 2016, showed that there were 17 wildfires in Alberta, **all human caused**.<sup>22</sup> Two were out of control (OC); 29 under control (UC).



There were exacerbating weather conditions over the winter of 2016. "Despite the warming effects of El Nino that year, and confusingly, winter conditions were exacerbated by a cold and dry polar front and jet stream<sup>23</sup> which created perfect conditions for curing wood."<sup>24</sup>

<sup>22</sup> 'HUM" Human caused can also mean any form of human-wildland interface such as a power line sparking a branch, negligent campfire management, arson, or spark from ATV/off-road-bike exhaust, etc. <u>https://globalnews.ca/news/2762002/rcmp-say-fort-mcmurray-wildfire-likely-result-of-human-activity-investigate-if-blaze-was-criminal/</u>

<sup>&</sup>lt;sup>21</sup> https://edmontonjournal.com/news/local-news/alberta-cuts-nearly-15-million-from-wildfire-management-budget

<sup>&</sup>lt;sup>23</sup> <u>https://www.theweathernetwork.com/news/articles/polar-vortex-demystified-bitter-cold-next-week-in-canada/75743</u>

<sup>&</sup>lt;sup>24</sup> <u>https://papers.ssrn.com/sol3/papers.cfm?abstract\_id=2929576</u>

British Columbia experienced a rash of wildfires in the summer of 2017.



Under extremely high fire risk conditions in BC in the month of July 2017, as shown in the map below, we find that about half the fires were started by lightning and half by humans on July 16, 2017 according to the CIFFC situation report above.

#### **Canadian Wildland Fire Information System**



#### 1977 - 2017 BC Fire History



Average number of fires 1977 - 2017: 2,144







Average Ha infested 1977 - 2003: 398,515 Average Ha infested 2004 - 2017: 5,937,545



The CCCR2019 report claims that catastrophic wildfires due to human-caused global warming are on the rise in Canada and reference the British Columbia 2017 and 2018 wildfire season as examples. As shown above, the 2017 BC wildfire season was marked by unusually hot, dry weather, lightning strikes, several arsonists and negligent people. However, the ratio of area burned is more correlated to the vast amount of deadwood due to pine-beetle infestations.<sup>25</sup> In 2018, the press reported that humans were responsible for starting over 400 wildfires in BC.<sup>26</sup> The

fire danger map shown to the left for Aug. 27, 2018, shows BC at an elevated to extreme risk of wildfire, but in the rest of Canada, the risk was very low. Overall in Canada, the Canadian Interagency Forest Fire Centre shows there is a decline in hectares burned.<sup>27</sup> The largest wildfire in North America was the Chinchaga Firestorm of 1950, the smoke pall for which was seen around the world.<sup>28</sup> This contradicts the notion that human-caused climate change is driving wildfires in Canada. The only human causation seems to be criminal or negligent in nature.



<sup>&</sup>lt;sup>25</sup> <u>https://blog.friendsofscience.org/2017/09/21/bc-wildfires-human-caused-climate-change-or-pine-beetles-and-a-dry-year/</u>

<sup>&</sup>lt;sup>26</sup> https://nationalpost.com/news/canada/humans-responsible-for-more-than-400-b-c-wildfires-so-far-this-season

<sup>&</sup>lt;sup>27</sup> https://ciffc-uat.yellowdev.net/fire-information/wildfire-graphs

<sup>&</sup>lt;sup>28</sup> https://www.uap.ualberta.ca/titles/194-9781772120035-chinchaga-firestorm

## Sea Ice Variability and Polar Bear Survival



Gajewski, K (2015)- Illustration of Holocene Optimum and location of pollens

Fig. 1. Map of the Canadian Arctic showing location of pollen diagrams used in this study. For references, see Table 1. Boxes enclose sites used to compute regional averages. The areas used to compute regional averages in Boreal Canada (Viau and Gajewski, 2009) and Eastern Beringia (Viau et al., 2008) are indicated. The map of the Arctic vegetation is generalized from CAVM Project Members (2003) and Brandt (2009).

CCCR2019 focuses attention on arctic regions, sea ice variability, permafrost melt due to warmer northern temperatures, and implications for northern First Nations residents and regional wildlife.

Northern regions are experiencing slightly warmer temperatures, some of which can be attributed to the distribution of black soot from human industrial activity, wildfires<sup>29</sup> and volcanoes which 'blackens' the snow and increases the absorption of heat from the sun, rather than reflecting the heat.

It should be noted that arctic warming is a known, natural phenomenon, which occurs for various reasons. During the Holocene Optimum (Hypsithermal) <sup>30 31</sup> of some 6-8,000 years ago temperatures across the north ranged from 1°C to 7.8°C higher than today. Polar bears and most contemporary northern wildlife survived this balmy period. Scientific evidence indicates the arctic was ice-free. Polar bear researcher and writer, Dr. Susan Crockford, presented evidence at Friends of Science Society's "Polar Bears and Solar Flares" event of April 10, 2019, that polar bear populations have increased in recent years, despite low fluctuations in sea ice, and indeed, in some places, they now are so populous and bold that they threaten the lives local northern residents.<sup>32</sup> <sup>33</sup>

<sup>&</sup>lt;sup>29</sup> http://pcl.physics.uwo.ca/publications/files/Bulletin%20of%20the%20American%20Meteorological%20Society%202010%20Fromm.pdf <sup>30</sup> https://www.sciencedirect.com/science/article/pii/S0921818115000417 Gajewski, K (2015)

https://doi.org/10.1016/j.gloplacha.2015.02.003

<sup>&</sup>lt;sup>31</sup> https://tambonthongchai.com/2018/08/20/the-holocene-optimum-period-a-bibliography/ (list of Holocene Optimum peer-reviewed references)

<sup>&</sup>lt;sup>32</sup> https://friendsofscience.org/index.php?id=2446

<sup>&</sup>lt;sup>33</sup> <u>https://www.macleans.ca/to-kill-polar-bear/</u>

Sea ice is quite variable because the Arctic is an ocean, (unlike Antarctica, which is a snow/ice covered land mass). The Arctic is an ice pack floating on top of ever shifting warm and cold currents. In 1906, Roald Amundsen sailed the North West Passage in a wooden boat; in 1942 the RCMP did the same in the St. Roche. These were cyclical ice-free/reduced ice periods that occurred long before human emissions were deemed to be affecting climate change or arctic sea ice melt.



In the image above, The Norwegian Polar Institute illustrates warm and cold currents flowing in and out of the Arctic sea.<sup>34</sup> "The paths of ocean currents in the Arctic. The Gulf Stream, carrying warm Atlantic water, moves northwards along the coast of Norway. It divides into two main branches and continues northwards with one branch on either side of Svalbard. In the Arctic Ocean, the Atlantic water is cooled, becomes heavier and sinks. After circulating in the North Polar Basin,

<sup>&</sup>lt;sup>34</sup> <u>http://www.arcticsystem.no/en/outsideworld/oceancurrents/</u> (country names added to map for clarity)

the now cold, Arctic water leaves the Arctic Ocean, mainly through the Fram Strait between Svalbard and Greenland."

**They go on to explain:** "The sunlight goes some way towards heating the Arctic but heat also comes from the south with ocean currents and airstreams. [underline added] One branch of the Gulf Stream, called the North Atlantic Current, flows along the coast of Norway and continues all the way to the Arctic Ocean. There it shifts its name to the West Spitsbergen Current, and almost 60 % of the water entering the Arctic Ocean comes with this. Even though the currents change their name as they move north, they are all part of the same system, which is an extension of the Gulf Stream.

However, some water also flows in through the Bering Strait and some fresh water enters from the big Russian and Canadian rivers, which explains why the topmost 45 metres of the Arctic Ocean are less saline than the water below."

This would appear to be a more viable explanation for changing sea ice and regional warming, than warming due to the alleged effect of carbon dioxide warming the atmosphere by perhaps a degree. Considering grade school science, one recalls that heat rises.



#### Geothermal Activity – A Forgotten Factor in Sea Ice Variability

NH – Northern Hemisphere MASIE – Multisensor Analyzed Sea Ice Extent SII – Sea Ice Index

Prof. Wyss Yim explains that below the ocean surface – 'submarine' – volcanic activity can have a significant effect on Arctic sea ice variability and can also exacerbate an El Nino.

"In the northern Atlantic Ocean from October 2011<sup>35</sup> to March 2012, an entirely submarine eruption occurred off El Hierro Island in the Canary archipelago. The eruption timing was between mid-autumn to early spring in the northern hemisphere generating warmer sea water than normal and causing the lowest Arctic sea ice on record in September 2012. In the northern Pacific Ocean from March 2013, an initially submarine eruption occurred of Nishino-shima Island 940 km south of Tokyo.<sup>36</sup> In November 2013, a new volcanic island was formed and both submarine and sub-aerial activities continued until August 2015. This 'long' lasting eruption provided an explanation for the northern **Pacific Blob**<sup>37</sup> which puzzled many scientists who were unaware of the connection with submarine volcanism. The appearance of warmer seawater than normal on the surface of the north Pacific Ocean led to the development of strong El Niño conditions during 2014 to 2015 providing an explanation for the continuous and gradual Arctic sea ice retreat observed during September 2014, September 2015 and September 2016. The natural release of geothermal heat into the northern hemisphere portions of the Atlantic Ocean and Pacific Ocean was therefore responsible for the two episodes of major Arctic sea ice retreat during the last decade. An improvement in the future monitoring of submarine volcanic activity is needed to provide a better understanding of polar sea ice variability."<sup>38</sup>

In his book, "Heaven and Earth," Dr. Ian Plimer points out that there are thousands of subliminal active geothermal regions and volcanic eruptions taking place deep in the ocean, that are poorly documented. These can affect sea temperatures as well as carbon dioxide emissions and ice melt. Geothermal activity is an important factor in Antarctic ice melt as well<sup>39</sup> and the existence of massive glacial lakes, like Lake Vostok, some 4,000 meters below the ice pack.<sup>40</sup>

A carbon tax will not reduce the power of Mother Nature.

#### Additional insights:

AGU Underwater volcano eruption observed off the coast of El Hierro: <u>https://youtu.be/UaWYfd-hUII</u>

We All Nearly Missed The Largest Underwater Volcano Eruption Ever Recorded <u>https://www.sciencealert.com/almost-nobody-noticed-largest-underwater-volcano-eruption-ever-recorded-havre-seamount</u>

<sup>&</sup>lt;sup>35</sup> https://earthobservatory.nasa.gov/images/76229/el-hierro-submarine-eruption

<sup>&</sup>lt;sup>36</sup> <u>https://volcano.si.edu/volcano.cfm?vn=284096</u>

<sup>&</sup>lt;sup>37</sup> https://news.nationalgeographic.com/2017/02/space-map-pacific-blob/

<sup>&</sup>lt;sup>38</sup> https://blog.friendsofscience.org/wp-content/uploads/2018/12/ImpEng2018S-geothermal-ocean-heat.pdf

<sup>&</sup>lt;sup>39</sup> https://www.bbc.com/news/science-environment-41972297

<sup>&</sup>lt;sup>40</sup> http://earthsci.org/education/lake\_vostok/vostok.html Plain language resources on Lake Vostok

## Floods





On July 2, 1902, the Bow River overflowed its banks near the Langevin Bridge. Two families were evacuated and the police were on standby to evacuate the rest of the area.

CCCR2019 highlights the catastrophic southern Alberta/City of Calgary flood of 2013 as 'probably' caused by Anthropogenic Global Warming. This claim ignores the evidence that Calgary had eight of its worst floods prior to 1933. Had the CCCR2019 panel looked at the Calgary Public Library website or visited the Glenbow Museum, they could have seen the evidence for themselves.

In 1879 and 1897, the peak flows were much greater than that of the 2013 flood.<sup>41</sup> According to Chris Scott, Chief Meteorologist for The Weather Network, computer models accurately predicted the rainfall, but cannot predict the hydrological effect or run-off patterns. Anomalous, but not unknown, meteorological phenomenon exacerbated the outcome of the massive rainfall.

The key factors that led to the tremendous rainfall in Alberta can be summarized as follows:

- 1. An upside-down or 'blocked' jet stream pattern across western North America
- 2. A strong area of low pressure that developed and got stuck near southern Alberta because of the jet stream pattern.
- 3. A moist channel of air from the Gulf of Mexico that was pulled up by the lowpressure system and slammed up against the foothills and Rocky Mountains.<sup>42</sup>





<sup>&</sup>lt;sup>41</sup> <u>https://www.theweathernetwork.com/news/articles/calgary-floods-it-could-happen-again/8295</u>

<sup>&</sup>lt;sup>42</sup> <u>https://www.theweathernetwork.com/news/articles/alberta-floods-why-is-there-so-much-rain/8124/</u>



City of Calgary police photo of downtown Calgary during 2013 flood, sourced from twitter.

#### The 100-Year Flood Deception

Pundits and ordinary citizens often hear the term "100-year flood" or "500-year flood" and naturally assume this means such an event is deemed to only happen every 100 or 500 years. Thus, false conclusions are drawn, and very poor public policy is made, based on the assumption that there's no need to plan mitigation because nothing will happen for a century.

In fact, a 100-year flood could happen every year in succession. The USGS has a very good explanation of how this technical term used by hydrologists has become misinterpreted by the general public and media pundits.<sup>43</sup>

"In the 1960's, the United States government decided to use the 1-percent annual exceedance probability (AEP) flood as the basis for the National Flood Insurance Program. The 1-percent AEP flood was thought to be a fair balance between protecting the public and overly stringent regulation. Because the 1-percent AEP flood has a 1 in 100 chance of being equaled or exceeded in any 1 year, and it has an average recurrence interval of 100 years, it often is referred to as the "100-year flood"."

"...The 1-percent AEP flood has a 1-percent chance of occurring in any given year; however, during the span of a 30-year mortgage, a home in the 1-percent AEP (100-year) floodplain has a 26-percent

<sup>&</sup>lt;sup>43</sup> <u>https://www.usgs.gov/special-topic/water-science-school/science/floods-and-recurrence-intervals</u>

chance of being flooded at least once during those 30 years! The value of 26-percent is based on probability theory that accounts for each of the 30 years having a 1-percent chance of flooding."

In addition to the reality that anything built on a known flood plain is likely to be flooded at some point, Robert Muir, P. Eng. has done excellent work showing how the changes in land use in urban setting, especially paving over previously open land (where flood water flows would be absorbed, held or redirected, thus mitigating some flood impacts), most cities have paved or cemented all available surfaces, exacerbating urban flooding dramatically.<sup>44</sup> Storm intensity is not increasing, according to Muir's work.<sup>45</sup> He challenged the Insurance Bureau of Canada and forced CBC to retract catastrophic claims about flooding and climate change.<sup>46</sup>

In general, the paving of surfaces increases overland flooding risk in urban areas, particularly where there are old storm sewers that were designed for low population density, in a time when other wetlands, streams or natural ponds would uptake a lot of the typical rainfall or run-off.

Most cities are built on paved over wetlands and people have preferred to settle near water bodies – in the past for access to water for daily needs and easy transportation of goods; in the present, because of the peaceful, natural views 'on the riverside.' This means people are either building on known flood plains or exacerbating flood risk by building on wetlands.





McKernan Lake was a popular, shallow lake in Edmonton until 1948 when it was drained and infilled to allow for a new suburb. The ghost of the lake still appears on flood risk maps for the City of Edmonton.<sup>47</sup>

#### Seasonal Flooding

At the time of writing this report, Eastern Canada is facing serious flooding and politicians are falling over themselves to claim, *"this is the new normal, this is climate change."* <sup>48</sup>

In Gatineau, Quebec, April 24, 2019, Prime Minister Trudeau, "...accompanied by Gatineau Mayor Maxime Pedneaud-Jobin, said Canadians must face a "new reality" that the effects of climate change mean that events such as spring flooding "will be happening more and more frequently."

<sup>&</sup>lt;sup>44</sup> <u>https://www.slideshare.net/RobertMuir3/infrastructure-resiliency-and-adaptation-for-climate-change-and-todays-</u> <u>extremes?next\_slideshow=1</u>

<sup>&</sup>lt;sup>45</sup> https://www.slideshare.net/RobertMuir3/storm-intensity-not-increasing-factual-review-of-engineering-datasets

<sup>&</sup>lt;sup>46</sup> <u>https://business.financialpost.com/opinion/hyped-up-misleading-insurance-myths-about-severe-weather-flooding-distract-us-from-real-problems</u>

<sup>&</sup>lt;sup>47</sup> https://edmontonjournal.com/news/local-news/understanding-flash-floods-in-five-edmonton-neighbourhoods

<sup>&</sup>lt;sup>48</sup> <u>https://ottawacitizen.com/news/local-news/rainfall-overnight-causes-more-street-closures-throughout-gatineau-as-water-levels-continue-to-swell</u>

In fact, no evidence supports such a claim.

As Dr. Madhav Khandekar, former WMO regional expert, past Environment Canada research scientist of 40 years, past IPCC expert reviewer, peer-reviewer and author of more than 150 peer-reviewed papers says in this video,<sup>49</sup> seasonal flooding in Canada is typically a combination of early warm temperatures over heavy snowpack and ice jams on rivers. If there are warm temperatures while the snowpack is still firm, the water rapidly pools and there is no open land to absorb the run-off. The flood waters often back-up, exacerbated by ice jams on rivers. This is a common occurrence throughout history, and little seems to be done by residents or municipalities to prepare for this reality. Since so many homes are on potential flood plains in Canada, shouldn't building standards reflect this fact and municipalities require that new homes be elevated to mitigate potential damage?

Serious flooding and mudslides occur in BC in some places during spring run-off, as Dr. Khandekar explains, often because some areas have suffered wildfires that have stripped the land of vegetation or barriers that would normally slow or reduce the flow or accumulation of spring meltwater. As we have previously shown, the wildfires are unrelated to human-caused climate change and neither are these floods and mudslides.



<sup>49</sup> https://youtu.be/lztpZdu4Nns

## Subsidence and Sea Level Rise



https://earthsciencesociety.com/2014/12/10/four-billion-years-and-counting-canada-is-as-old-as-the-earth-and-this-book-tells-all/

We live on an active planet; tectonic plate movement affects many more fragile regions of the world, such as the 'ring of fire' of the Pacific Ocean. The red lines in the above image show where tectonic plates meet; these are regions of geothermal activity.

However much of Canada is quite stable. In fact, due to the melting of the ice age glaciers, much of Canada's land is in the process of isostatic rebound – a subtle, slow rise as the earth rebounds from the tremendous pressure of the kilometers of ice that once overlay our country.

CCCR2019 presumes that sea level rise from melting Greenland or Antarctic ice sheets will cause sea level rise issues to certain coastal areas in Canada, but this is not a foregone conclusion.



Natural Resources Canada map shows regional uplift or subsidence.

Even if large masses of Greenland were to melt, the interior of Greenland is shaped as a bowl that would retain much of the meltwater.<sup>50</sup>

According to astrophysicist Dr. Nir Shaviv, the sun raises the seas through its constant warming.<sup>51</sup> As the oceans warm, the water expands. It's not carbon dioxide that drives this warming and expansion. It's the sun.

<sup>&</sup>lt;sup>50</sup> Maria Assunção Araújo - Porto Basic Climate Science Conference 2018 Day 2, presentation #12. <u>https://www.portoconference2018.org/presentations.html</u>

<sup>&</sup>lt;sup>51</sup> <u>https://business.financialpost.com/opinion/carbon-week-the-sun-raises-the-seas</u>



Permafrost occurs when the ground remains at or below a temperature of 0°C for a minimum period of two years. Permafrost occurs not only at high latitudes but also at high altitudes. Almost all the soil moisture in permafrost occurs in the form of ground ice. Permafrost underlies about half of Canada's landmass, as well as areas of the seabed in the western Arctic and is also believed to exist beneath the channels of the Arctic Islands. Source: https://www.nrcan.gc.ca/earth-sciences/geography/atlas-canada/selected-thematic-maps/16876

As CCCR2019 notes, many northern regions of Canada are facing challenges due to permafrost melt and some communities face eroding coastlines. This may be seen as sea level rise, but it is due to subsidence or erosion, neither of which are related to human-caused global warming. In previous generations, northern residents were nomads, their ancestors simply moved camp to the most advantageous place for fishing, hunting or seasonal camping. Rather than proposing greenhouse gas emission targets, perhaps a more practical thing would be to design housing for northern communities that can be relocated. As more and more permafrost melts, more carbon dioxide and more methane will be released, however, a carbon tax will not stop that from happening. These are natural cycles. We must adapt.



Dr. Matthew Nisbet<sup>52</sup> reports that since 2005, a group of 'green' billionaires have been funding environmental non-governmental organizations (ENGOs) world-wide for millions of dollars every year. They have a plan to push global cap and trade, carbon pricing and their vested interests in renewables. The ClimateWorks Foundation partners have jointly and individually funded ENGOs to agitate for policies that will further their goals, making it appear as if these 'climate change policies' are a grassroots demand of 'the people.' Nisbet notes that these philanthropists are also the largest funders of academic research and non-profit journalism. Many Canadian ENGOs have been funded by ClimateWorks partners, as reported by Vivian Krause, with her focus being the "Tar Sands Campaign." That is just one sliver of the larger plan: "Design to Win."<sup>53</sup>

Since the funding streams are not constant, any ENGO that receives money and expands operations, must find a way to support its new staff and campaigns. The easiest way is to create a frightening cause, and climate change is always an easy one, because any weather event can be tied to the campaign; another easy one is wildlife. Save the planet. Save the spotted owl. Save the billionaires.

The most grotesque form of such funding is reportedly that backing young climate activist Greta Thunberg.  $^{\rm 54}$ 

Dutch filmmaker, Marijn Poels, worked for 9 years in 50 different conflict and poverty countries. He notes that Bjorn Lomborg's study reveals that climate change is not a global priority, and that all the world's main issues could be addressed in 10 years if we used climate money for real problems.<sup>55</sup>

<sup>&</sup>lt;sup>52</sup> Paywalled <u>https://onlinelibrary.wiley.com/doi/abs/10.1002/wcc.524</u> Free summary: <u>https://web.northeastern.edu/matthewnisbet/2018/05/21/summary-of-strategic-philanthropy-in-the-post-cap-and-trade-years-reviewing-u-s-foundation-climate-and-energy-funding-at-wires-climate-change/</u>

<sup>&</sup>lt;sup>53</sup> <u>ClimateWorks Foundation - WikiLeakshttps://wikileaks.org/podesta-emails/fileid/57594/16165</u>

<sup>&</sup>lt;sup>54</sup> https://quillette.com/2019/04/23/self-harm-versus-the-greater-good-greta-thunberg-and-child-activism/

<sup>&</sup>lt;sup>55</sup> <u>https://youtu.be/pBscGBatcyU</u>

## Canada's CCCR2019 Advisory Team

One would expect a scientific report with such serious economic implications for Canada would have been written by and reviewed by scientists, preferably experts in their discipline and removed from politics. What are Canadians to make of the collection of people on the assessment advisory committee to the CCCR2019 report?<sup>56</sup> Of the 20 people listed, very few have any Ph.Ds. in the physical sciences; some have worked with foreign-funded ENGOs driving the green trade war known as the Tar Sands Campaign.

Some have deep roots in the highly politicized UNFCCC and IPCC organizations. There seems to be a paucity of Professional Geologists, Geophysicists or Geochemists who could properly comment on the 4.5-billion-year history of climate change on earth and in Canada. What kind of advice can these non-scientists give to a scientific panel?

## How did the scientific panel that compiled the report, fail to discover and report on the evidence we have presented herein?

Though the general public generally believe there is a 'consensus' on climate change and that groups like the IPCC are dedicated to science, this is not the case.<sup>57</sup>

There is no consensus on the causes of climate change, though most scientists would agree there has been warming since the end of the Little Ice Age (around 1860). Most agree that humans have some impact on climate change, but the ratio of human versus natural is not clear.

The public is likely unaware that many contributing IPCC scientists themselves have serious questions about the quality of work and the conclusions drawn by the IPCC. The late Prof. Phillip Lloyd wrote the following, in which he clearly defines areas of concern about the IPCC: <a href="https://friendsofscience.org/assets/documents/Impacts\_of\_climate\_change\_Lloyd.pdf">https://friendsofscience.org/assets/documents/Impacts\_of\_climate\_change\_Lloyd.pdf</a>

Dr. Donald Morton, one of Canada's internationally renown astrophysicists contributed this plain language report to Friends of Science Society, in which he questions various aspects of climate science evaluation and reporting.

https://blog.friendsofscience.org/wp-content/uploads/2018/09/ClimateEssay.pdf

Professor Christopher Essex and Professor Ross McKitrick have co-authored an award-winning book on climate change entitled "Taken by Storm." They have also deconstructed the notion that there is such a thing as a 'global average temperature' in this paper. https://pdfs.semanticscholar.org/ffb0/72fc01d2f2ae906e4bb31c3b3a5361ca3e18.pdf

The Porto Basic Climate Science Conference of 2018 featured dozens of scientists holding dissenting views on climate change. <u>https://www.portoconference2018.org/</u>

Emeritus Professor of Physics at the University of Tours (France), François Gervais, shows that the climate sensitivity (warming effect) of carbon dioxide is now considered by most scientists to be nominal or negligible – meaning more CO<sub>2</sub> will not cause warming of any significance. https://blog.friendsofscience.org/2019/01/26/french-english-transcript-cooling-of-climate-sensitivity-anthropogenic-co2-global-warming-challenged-by-60-year-cycle-by-emeritus-prof-francois-gervais/

<sup>&</sup>lt;sup>56</sup> <u>https://www.nrcan.gc.ca/environment/impacts-adaptation/19937#AAC</u>

<sup>&</sup>lt;sup>57</sup> https://friendsofscience.org/assets/documents/97\_Consensus\_Myth.pdf



The land temperature record of the world is very short and spotty as noted above. Though ships have gathered ocean temperatures haphazardly for decades, the precision ocean temperatures now captured by the Argos drone network<sup>58</sup> only dates back to the year 2000. At that time only 800 drones were launched to cover the 71% of the earth that is ocean. Some now measure to 2000 meters depth, but the ocean average depth is 3,600 meters. Satellite observations of the earth's temperature date back to 1979. NASA's Solar Dynamic Observatory has only been operational in space since 2010.<sup>59</sup>

In terms of earth's history, as earth science experts know it, 100, 1,000, even a few thousand years, is but a blip of knowledge and not enough for making firm pronouncements about what the future holds.

While many people refer to our present time period as the Anthropocene – a term that suggests humans are driving climate change instead of nature, in fact the International Union of Geological Sciences (IUGS), affirmed in July 2018 that we are in the Meghalayan period, one which dates back 4,250 years to a time of cold and drought when many civilizations collapsed. We are not in the Anthropocene. No one has even submitted the term for consideration, likely because human influence on climate is small. The evidence does not support the claim.

#### **IUGS** @theIUGS

Yes. We are now officially living in the <u>#Meghalayan</u> Stage of the Holocene following ratification of the <u>#Holocene</u> subdivisions.

#### **IUGS** @theIUGS

No stratigraphic sections have been presented so far by the "Anthrop." working group to the IUGS Commission on stratigraphy. The term "Anthropocene" has more meaning sociologically rather than stratigraphically.

<sup>&</sup>lt;sup>58</sup> <u>http://www.argo.ucsd.edu/</u>

<sup>&</sup>lt;sup>59</sup> https://sdo.gsfc.nasa.gov/

In fact, as reported in the APS Workshop,<sup>60</sup> the evidence of human influence is only found in modelled simulations.

0	weir, the only way to terr now
9	much global warming is due to human
10	or natural is basically through model
11	simulations because we found out that
12	we can't put a thermometer out
13	there that will say this much
14	was due to Mother Nature and this
15	much was due to Mankind.

"...what the computer models can do is vary one thing at a time, which of course is wonderful for science. You vary one thing at a time — carbon dioxide or whatever you like. Then you can see directly what the effect of that is. So that's an understanding what is going on. It's very helpful. **But if you look at the real world there are hundreds of different things going on all the time. The computer model can't possibly give you a complete picture**. It's actually just fluid dynamics. A computer model gives a good model for the motion of the air in the atmosphere, or the motion of the water in the oceans, — that's all it can do. But all the other things like trees, clouds and snow and all the fine details the models cannot do. - Freeman Dyson (bold added)

## Can Science Go Wrong? Does Science Change?

**Svante Arrhenius** changed his mind. Swedish scientist Arrhenius is cited as the grandfather of the 'hothouse' theory of carbon dioxide-induced warming. But few people know that Arrhenius amended his catastrophic view of warming in 1906, in a paper he published in German. In that paper, he reviewed recent findings and decided that he was wrong; warming would be nominal, despite a rise in human emitted carbon dioxide. Arrhenius thought warming would top out around 1.5°Celsius, and that warming would be beneficial.<sup>61</sup>

**Trofim Lysenko**'s political power in the Soviet Union led to famines that killed millions as his faulty premises about crop propagation became Soviet *diktat*. Lysenko's authority was threatened by the true science of his former mentor, Nikolai Vavilov, a man who learned 15 languages so as to travel the world and collect plant specimens. "On August 6, 1940, Vavilov was on expedition in Ukraine, collecting specimens when he was snatched up and driven away in a black sedan, his staff helpless to intervene. Vavilov was sentenced to death in 1941 with sentence later commuted to twenty years. It didn't matter. In January 1943, this man whose scientific work was at least as important as that of Norman Borlaug, starved to death in a Soviet Gulag."<sup>62</sup> Contemporary efforts to demonize

<sup>&</sup>lt;sup>60</sup> https://aps.org/policy/statements/upload/climate-seminar-transcript.pdf

<sup>&</sup>lt;sup>61</sup> https://www.friendsofscience.org/assets/documents/Arrhenius%201906,%20final.pdf

<sup>&</sup>lt;sup>62</sup> <u>https://todayinhistory.blog/tag/lysenkoism/</u>

rational, dissenting voices on climate change causes and related energy policies; efforts to silence dissenting voices, even calling for charges in the International Criminal Court of Justice or by the UNEP, as a means of forcing compliance on the 'voluntary, non-binding' Paris agreement,<sup>63</sup> show that a climate <u>science</u> debate has been hopelessly politicized.

**Polywater** was discovered in the Soviet Union in the 1960's. It was said to be a 'new form of water' that didn't freeze. Soon there was an international contest between the Soviet Union and scientists in the west to create and understand this new form of water, which some said could escape the lab, propagate in the oceans and destroy the planet. In the end, it turned out to be faulty science and fizzled away.<sup>64</sup>

Mao's Great Leap Forward was premised on the work of a single scientist who was not an expert in agriculture. The Great Leap proposed decentralization of everything, including that people would have small smelting operations in their backyards, rather than having large manufacturing facilities. This was a failure as proper smelting temperatures could not be reached; the work and materials were wasted. Inspired to some degree by Lysenkoism, Chinese peasant farmers were directed to plant seeds close together in painstaking geometric patterns, almost guaranteeing crop failure; farmers who knew that crops flourished in certain seasons were forced to plant them according to government plans instead. Some ~36 million Chinese died of famine; millions more were tortured and beaten into submission. Those who dared to question state ideology were called 'deniers' and 'right-leaning conservatives' - and 'struggled' into compliance or death. Freedom of thought, speech, the press, and scientific inquiry became a crime.65



**Extraordinary Public Delusions and the Madness of Crowds** is a book that provides a number of examples of magical thinking in human history that drove a mad rush for investments in unseen futures.<sup>66</sup> Likewise, throughout time, doomsday prophets have flourished, capitalizing on peoples' innate fears of strange natural phenomenon. People are highly suggestible but is the daily news really a 'nightly walk through the Book of Revelations' or...just weather.<sup>67</sup>

## Climate Warms and Cools – We should Prepare for Either Reality

CCCR2019 focuses exclusively on global warming, but solar physicists and many earth scientists warn that global cooling is a greater likelihood based on current solar activity and historic patterns.

<sup>&</sup>lt;sup>63</sup> <u>https://web.unep.org/ourplanet/march-2017/articles/prosecute-climate-crimes</u>

<sup>&</sup>lt;sup>64</sup> <u>https://slate.com/technology/2013/11/polywater-history-and-science-mistakes-the-u-s-and-ussr-raced-to-create-a-new-form-of-water.html</u>

<sup>&</sup>lt;sup>65</sup> https://www.amazon.com/Tombstone-Great-Chinese-Famine-1958-1962/dp/0374533997

<sup>&</sup>lt;sup>66</sup> http://www.cmi-gold-silver.com/pdf/mackaych2451824518-8.pdf

<sup>&</sup>lt;sup>67</sup> <u>http://blog.friendsofscience.org/wp-content/uploads/2018/08/Countering-the-climate-tome-V-3A-Aug-7-2018.pdf</u>

Answer: The average

temperature of Canada is

 $T_{mean} = -4.92 \pm 0.18^{\circ}C$ 

 $T_{max} = 0.21 \pm 0.15^{\circ}C$ 

 $T_{min} = -9.85 \pm 0.34^{\circ}C$ 

Dr. Madhav Khandekar, in his 2018 presentation,<sup>68</sup> showed that globally, there is an increase in cold snaps in former tropical places and an increase in extreme snowfall and cold snaps in the developed world.

Cooling would be seriously damaging to Canada, which already has one of the coldest average temperatures of any country in the world.

What is the average temperature of Canada?

Canada's agricultural industry has a very small window of temperature change. Agro-Climate consultant Ray Garnett notes that the 1992 & 1993 summers (June-August) over the Canadian prairies were 2 <sup>0</sup>C colder than normal. Three quarters of the spring wheat crop of prairies fell into the bottom two grades in 1992 and 1993. Garnett's thesis describes how the aerosol from the June 15, 1991 Pinatubo Volcano circled the earth in 21 days, covered 42% of the earths surface after two months. Net radiation at the top of the atmosphere was reduced by 2.5 Wm<sup>2</sup> and was thought to have cooled the earth by at least 0.5°C once the aerosol was distributed globally over the next 2-4 years.



Dr. Khandekar and Ray Garnett have published a paper on the concerning global cooling trends that is being ignored in the climate debate.<sup>69</sup> Are we prepared for cooling or only warming?

(1951-1980 climatological average) Yes Canada is a very cold country

<sup>&</sup>lt;sup>68</sup> https://friendsofscience.org/index.php?id=2369

<sup>&</sup>lt;sup>69</sup> https://blog.friendsofscience.org/wp-content/uploads/2018/09/A-Garnett-MLK-2018-Cold-extremes.pdf

## In Conclusion – Present Choices Matter

We have shown evidence in this report that refutes the findings of CCR2019. Much of this evidence is available in the public domain from reliable, authoritative bodies on these scientific topics. It is deeply concerning that the process of reporting on climate change appears to have been politicized and that the CCCR2019 report is based more on computer simulations than on observed evidence.

Climate change policies, taxpayers' dollars and taxpayers' lives are being put at stake in the CCCR2019 highly politicized, non-evidence-based report.

While undoubtedly many of the parties involved have offered their best efforts and perhaps, due to previous associations with organizations like the UNFCCC or IPCC they sincerely agree with or have felt it their duty to communicate views that reflect those organizations, we do not see this as offering Canadians a factual, balanced or independent review of climate change science.

We call for the government of Canada to retract the report: "Canada's Changing Climate – CCCR2019".

Carbon dioxide is not a control knob that can fine tune climate.



As for the October 2018 IPCC SR15 report's urging that we limit global average temperature rise by 2100 to 1.5 degrees centigrade, Earth has already cooled by one-third of that amount, i.e. by 0.5 degrees, in the last 3 years alone.



#### About

Friends of Science Society is an independent group of earth, atmospheric and solar scientists, engineers, and citizens who are celebrating its 16th year of offering climate science insights. After a thorough review of a broad spectrum of literature on climate change, Friends of Science Society has concluded that the sun is the main driver of climate change, not carbon dioxide (CO2). Friends of Science Society P.O. Box 23167, Mission P.O. Calgary, Alberta Canada T2S 3B1 Toll-free Telephone: 1-888-789-9597 Web: friendsofscience.org E-mail: contact(at)friendsofscience(dot)org Web: climatechange101.ca

