



MOST DIRE CLIMATE EMERGENCY FOR HUMANITY

From **Dr. Peter Carter**, IPCC Expert Reviewer and Director of the Climate Emergency Institute
To All World Government Leaders (re: September 2019 UN Climate Summit and the UN COP 25)

Why governments must agree to co-operate and put **global emissions into rapid decline from 2020, for the survival of humanity and most life.**

WE ARE LOSING WORLD FOOD SECURITY (IPCC, August 2019, Climate Change and Land)
“Climate change ... has adversely impacted food security (high confidence).”

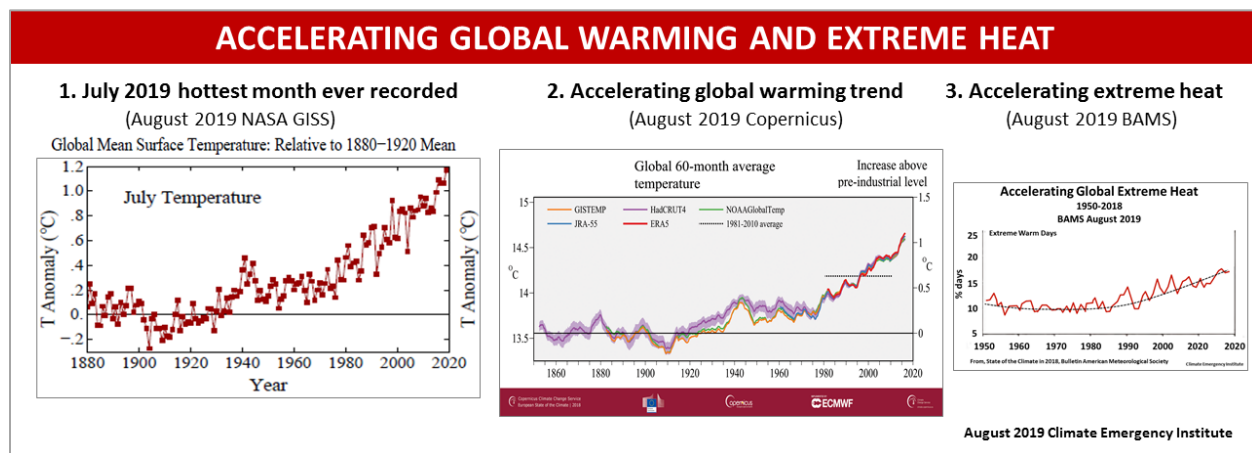
“Food security will be increasingly affected by projected future climate change (high confidence).”

GLOBAL WARMING IS BEING ACCELERATED BY INCREASING EMISSIONS

July 2019: Highest global average temperature ever recorded on Earth.

2019: The global warming trend continues to accelerate rapidly.

2018: GLOBAL EXTREME HEAT EVENTS ARE ACCELERATING



ATMOSPHERIC CO₂ IS BEING INCREASED FASTER THAN IT EVER HAS, BY FOSSIL FUEL EMISSIONS

July 2019: For all of 2019 to date, the increase rate of atmospheric CO₂ is 3.097 ppm/year, the highest on record (2000–2010 was 2 ppm/year, 1990–2000 1.5 ppm/year).

Over recent decades, atmospheric CO₂ has been increasing at a rate without past precedent (WMO Greenhouse Gas Bulletin, 2017).

GLOBAL CO₂ EMISSIONS ARE STILL INCREASING (Global Carbon Project, 2018; International Energy Agency, 2018).

FOR A LIVABLE PLANET AND THE FUTURE SURVIVAL OF THE HUMAN RACE, GLOBAL CO₂ EMISSIONS HAVE TO DECLINE FROM 2020 (IPCC, 2018, 1.5°C Report).

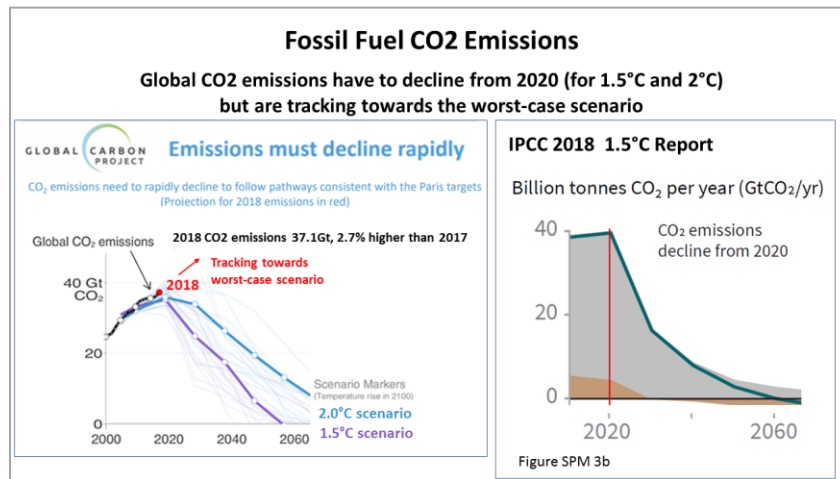
As of July 2019, all adverse indicators of global climate change are accelerating or on an extreme, rapid increase trend.

THE BIOSPHERE IS TRENDING TO COLLAPSE (P. Carter, 2017 & 2019, American Geophysical Union).

Governments must terminate fossil fuel subsidies from 2020.

Governments must charge fossil fuel corporations the full cost of their pollution.

OR THEY CONDEMN THE HUMAN RACE AND MOST LIFE TO DEATH.



Full Letter (linked to email message)

19 August 2019

To all world government leaders, from Dr. Peter Carter (IPCC expert reviewer, director of the Climate Emergency Institute)

LOSING FOOD SECURITY

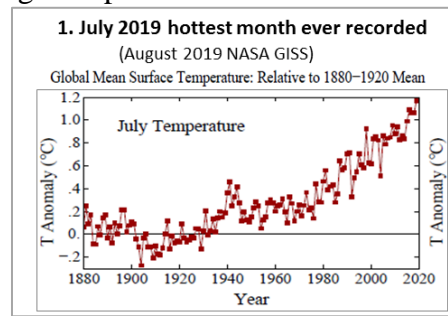
(e.g., through climate variability, extreme heat waves)

From IPCC 2019 Climate Change and Land Report:

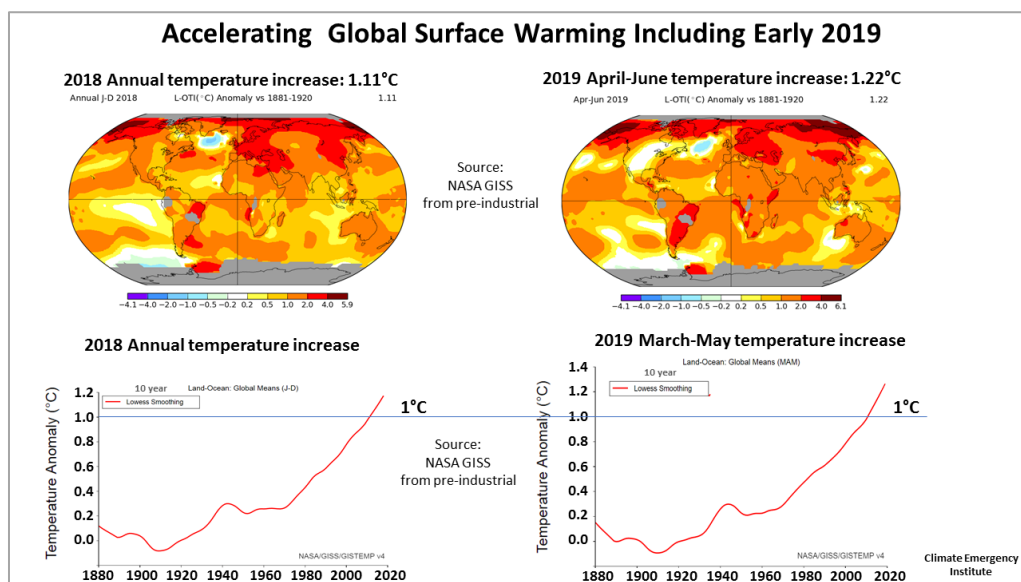
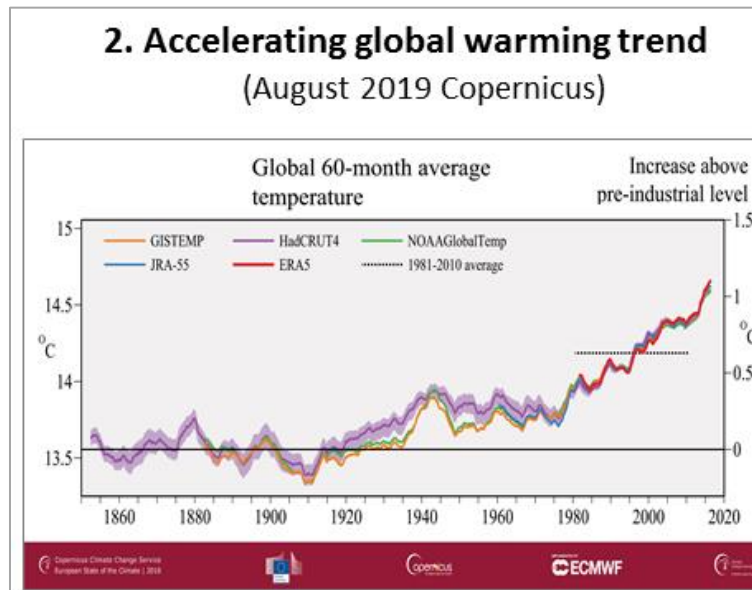
- “Climate change, including increases in frequency and intensity of extremes, **has adversely impacted food security** as well as contributed to desertification and land degradation in many regions (high confidence)” (SPM A2).
- “**The stability of food supply is projected to decrease as the magnitude and frequency of extreme weather events that disrupt food chains increases** (high confidence)” (SPM A5.4). This includes **extreme heat waves** certain to keep increasing with global surface warming.
- “Food security will be increasingly affected by projected future climate change (high confidence)” (5-5).
- Increased atmospheric CO₂ levels can also lower the nutritional quality of crops (high confidence) (SPM A5.4).
- Rapid reductions in anthropogenic GHG emissions across all sectors following ambitious mitigation pathways reduce negative impacts of climate change on land ecosystems and food systems (medium confidence).
- Delaying climate mitigation and adaptation responses across sectors would lead to increasingly negative impacts on land (SPM D3).

RECORD 2019 TEMPERATURE INCREASE

July 2019 was the highest global average temperature ever recorded on Earth, and June 2019 was also a record.



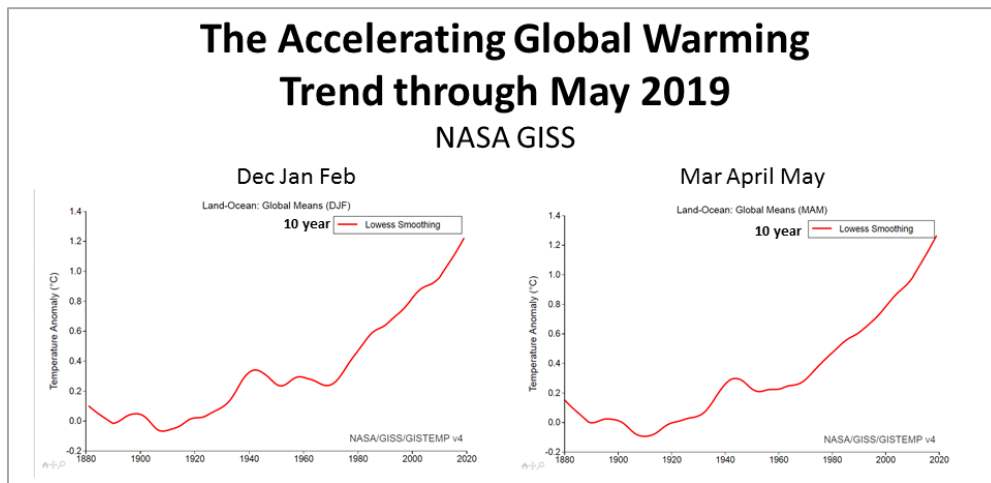
The 2019 global surface warming trend continues to accelerate rapidly (Copernicus, the EU global temperature monitoring service). A paper <https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1002/2017GL076500>



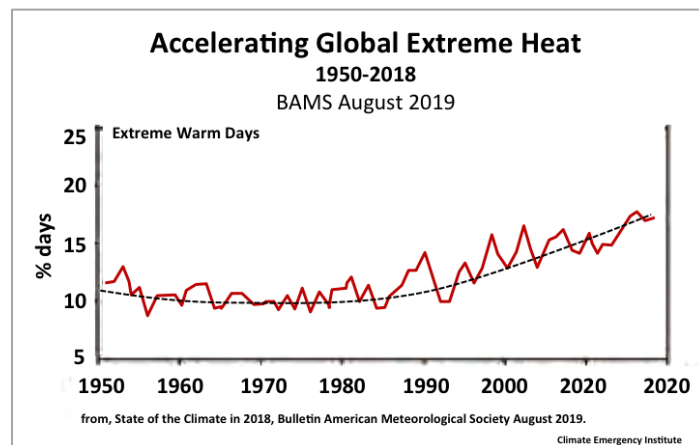
The trend for global temperature increase, from NASA GISS with a 10-year smoothing, is acceleration.

The NOAA puts the first seven months of 2019 tied with 2017 as the second highest global temperature increase on record.

Only January–July 2016 with the strong El Niño was warmer.

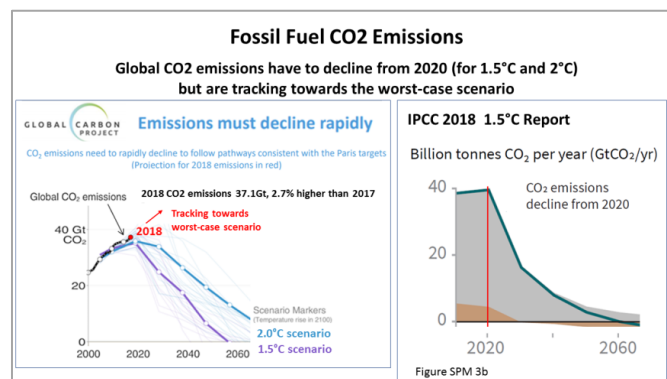


2019: RECORD HEAT WAVES



Record-high temperatures were present across parts of North America, southern Asia, the southern half of Africa, the northern Indian Ocean and India, and the Atlantic Ocean, as well as across the western and northern parts of the Pacific Ocean. Record temperatures affected western Europe in June (France, Belgium, Germany, Luxembourg, and the Netherlands). Another intense heatwave affected Europe at the end of July, less than four weeks apart from the June heat wave (from NOAA).

The trend of EXTREME HEAT EVENTS is ACCELERATING and it is certain this will continue.



NOT TO PUT GLOBAL EMISSIONS INTO DECLINE FROM 2020 IS A GLOBAL DEATH SENTENCE

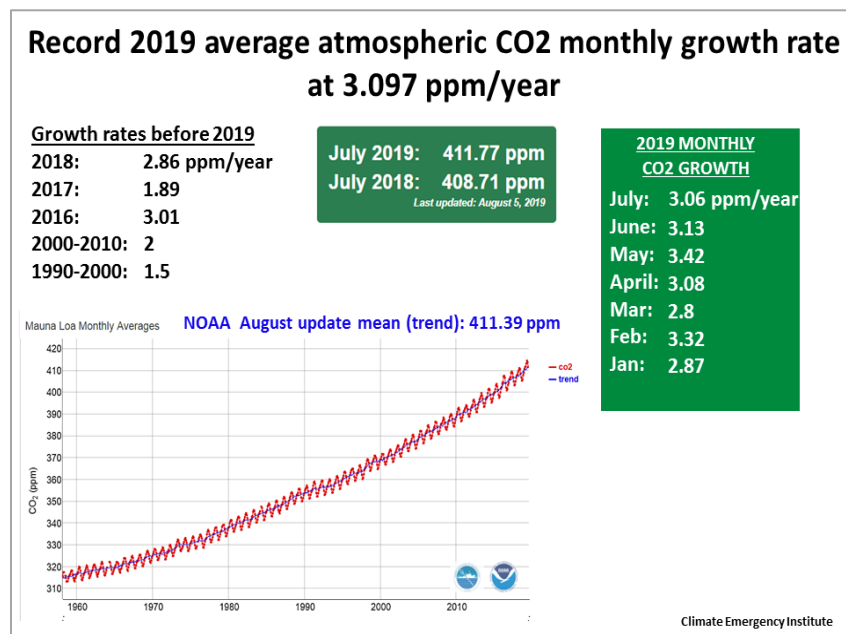
**FOR A LIVABLE PLANET AND THE FUTURE SURVIVAL OF THE HUMAN RACE,
GLOBAL CO₂ EMISSIONS DECLINE FROM 2020 (IPCC 2018 1.5°C Report)**

GOVERNMENTS MUST

- 1. STOP FOSSIL FUEL SUBSIDIES** - Governments must terminate subsidies to fossil fuel corporations from 2020 (IISD 2019)
- 2. CHARGE POLLUTERS** - Governments must apply a pollution charge to fossil fuel corporations
OR THEY CONDEMN THE FUTURE TO DEATH

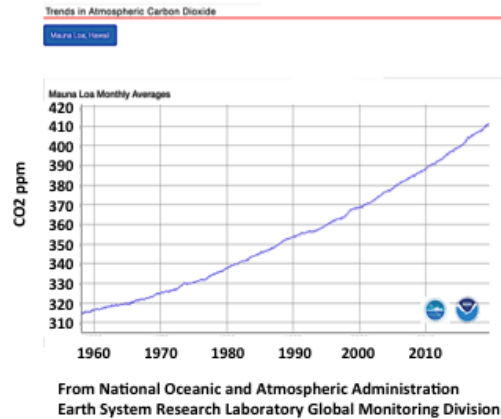
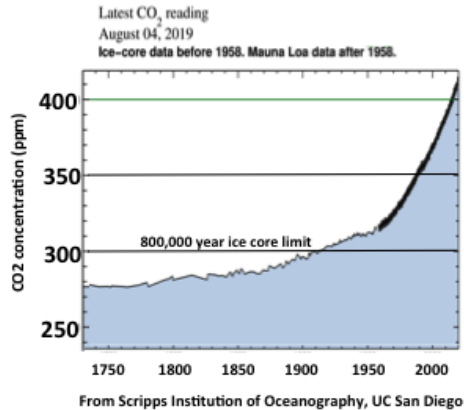
RECORD HIGHEST LEVEL OF ATMOSPHERIC CO₂ CONCENTRATION — EVER RECORDED and RECORD HIGHEST RATE OF ATMOSPHERIC CO₂ INCREASE — EVER

- Atmospheric CO₂ for July 2019 is over 411 ppm. This is the highest in 3-5 million years (WMO Greenhouse Gas Bulletin, 2017). CO₂ was at 403.3 in 2017.
- Through July 2019, atmospheric CO₂ is accelerating, faster than it ever has, and over recent decades has already been increasing at an extreme rate with no known precedent in the past 40 million years (WMO, 2017).
- The 2019 atmospheric increase (growth) rate average through July 2019, at 3 ppm/year, is a huge record rate of increase, double that of 1990-2000.
- May 2019 was a record monthly growth of 3.42 ppm/year.
- The increase rate for 2000-2010 was 2 ppm/year and for 1990-2000 it was 1.5 ppm/year (NOAA).
- The CO₂ acceleration and 2019 rate increase are driven by fossil fuel CO₂ emissions.



Mean Atmospheric CO₂ Concentration (Trend): 411.39

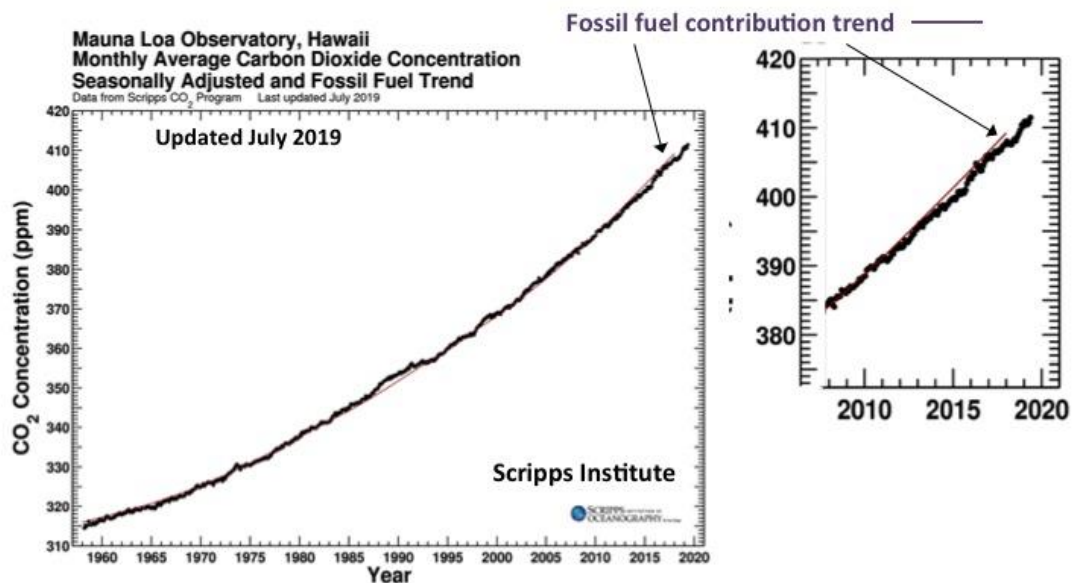
3 to 5 Million Year High Accelerating Faster than Ever



The rate of increase of atmospheric carbon dioxide (CO₂) ...is nearly 100 times larger than that at the end of the last ice age. ...such abrupt changes atmospheric levels of CO₂ have never before been seen.

... current levels of CO₂ correspond to an "equilibrium" climate last observed in the mid-Pliocene (3–5 million years ago), a climate that was 2–3 °C warmer (WMO Greenhouse Gas Bulletin 2017)

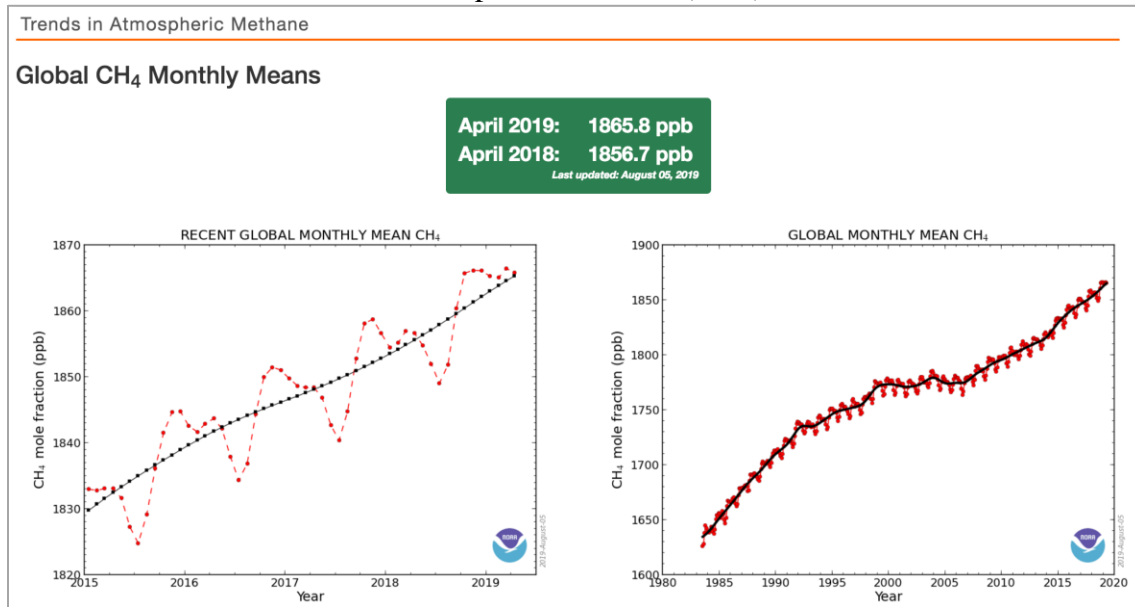
Accelerating Atmospheric CO₂ 2019 rate increase Driven by fossil fuel CO₂ emissions



METHANE

- Global atmospheric methane in April 2019 was 1865.8 parts per billion (ppb), accelerating since 2000.
- The atmospheric methane 800,000-year ice core limit is 800 ppb.

Atmospheric Methane (CH₄)



RECORD ARCTIC TEMPERATURES

July 2019: The Arctic reached a **record high temperature**.

July 2019: Greenland massive melt puts the ice sheet on track for a record high annual melt.

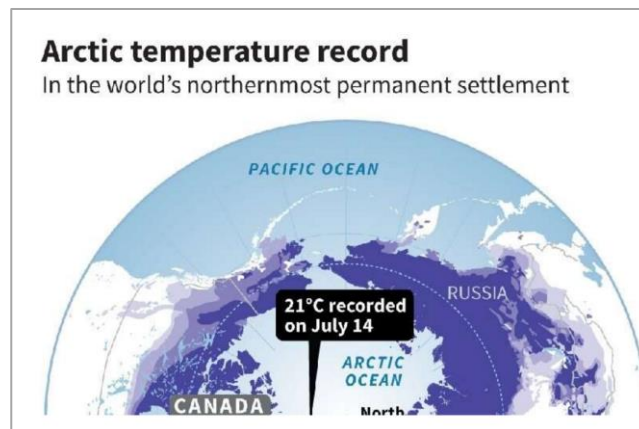
15 July 2019: Arctic sea ice reached a **record low** of Arctic sea ice thickness.

16 August 2019: Arctic sea ice is tracking the record low extent of 2012.

Alert, Canada

July 14, 2019

Permafrost (shown in purple) is an enormous source of CO₂ and methane feedback emissions



With rapidly increasing Arctic temperatures, permafrost warming is accelerating, causing feedback emissions of CO₂ and methane to increase — the precursor to totally uncontrollable runaway carbon dynamic global heating.

2019: ALL ADVERSE DATA TRENDS AND DIRECT EFFECTS ARE ACCELERATING OR ON AN EXTREME RAPID INCREASING TREND

(P. Carter, presentation, American Geophysical Union 2019)

“THE STATE OF THE CLIMATE IN 2018 SHOWS ACCELERATING CLIMATE CHANGE IMPACTS” (WMO December 2018)

This includes:

- Atmospheric CO₂
- Atmospheric methane
- Global surface temperature
- Extreme heat (global average)
- Loss of Greenland ice mass
- Loss of Antarctic ice mass
- Sea level rise
- Ocean heating
- Ocean acidification
- Ocean de-oxygenation

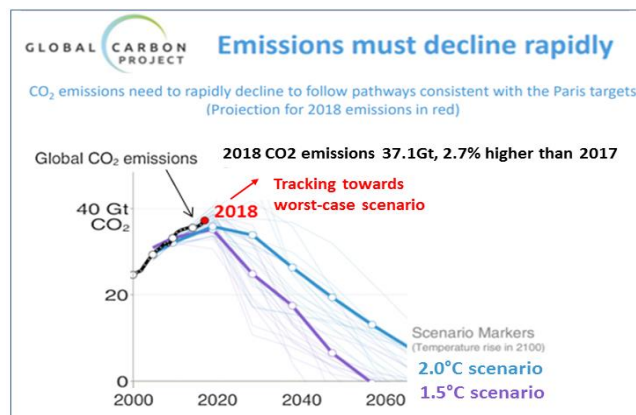
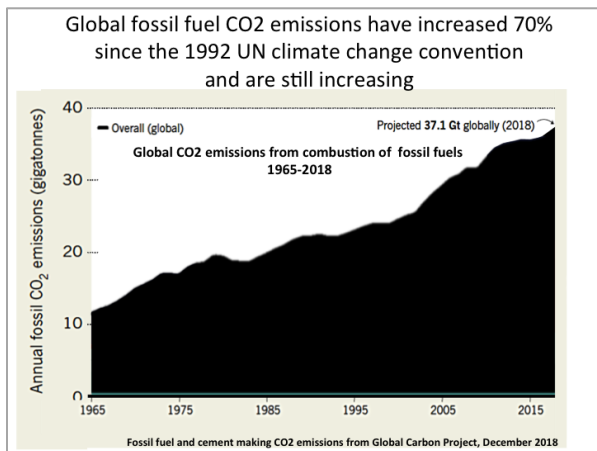
RECORD GLOBAL CO₂ EMISSIONS

- 2018 global emissions are at a record high and tracking close to the worst-case scenario.
- All plans are to keep increasing emissions.
- National emissions targets lead to a substantial increase in emissions by 2030.

According to Climate Action Tracker (December 2018), no country has emissions targets in line with 1.5°C except for Morocco and the Gambia.

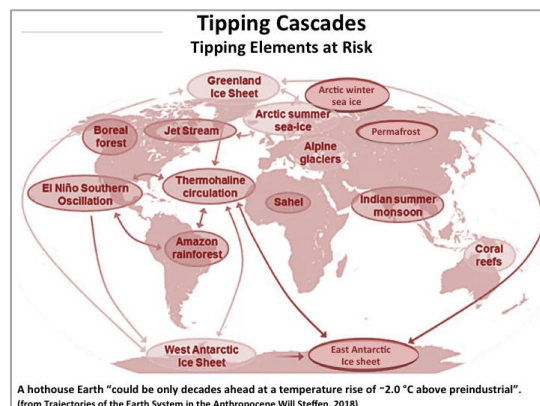
Emissions targets of all countries are insufficient for a 2°C limit (by 2100) except for Morocco, the Gambia, Bhutan, Costa Rica, Ethiopia, India, and the Philippines.

This is a Global Suicide Emissions Trend



RUNAWAY HOTHOUSE EARTH

A 2°C global warming triggers runaway hothouse Earth heating (Trajectories of the Earth System in the Anthropocene, Will Steffen, 2018).



Runaway Triggered at Less than 2°C

However, the lower possible range for a summer ice free Arctic is 1°C, and the Arctic ice albedo feedback will then greatly boost the rate of permafrost thawing- with feedback emissions.

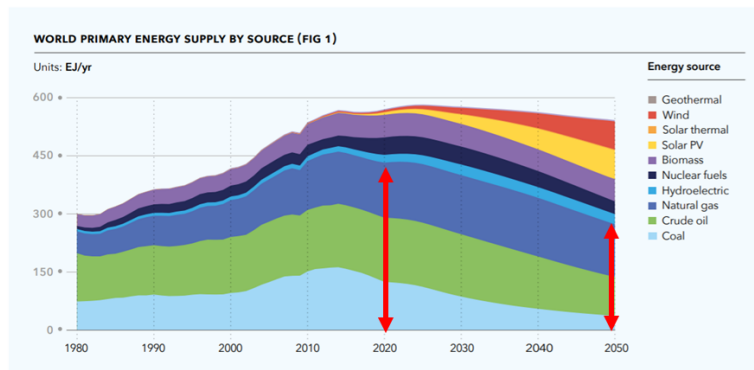
Also, an Arctic field research paper in 2013 found that “summer global climates only slightly warmer than today are sufficient to thaw significant regions of permafrost” (Speleothems Reveal 500,000-Year History of Siberian Permafrost, A. Vaks).

THIS IS A GLOBAL EXTINCTION SCENARIO AND PLAN FOR THE HUMAN RACE AND MOST LIFE

WORLD ENERGY PLANS AND PROJECTIONS ARE WORLD ENDING

World energy projections would be the end of the world

Even assuming an energy transition to clean renewable sources, world fossil fuel energy by 2050 is enormous, at the 1985 level, when it needs to be “near zero (IPCC 2014 5th assessment).



DNV GL, Energy Transition Outlook, 2017

DNV GL (Norway) is a quality assurance and risk management company, technical advisor to the oil and gas industry.

All governments must support UN Secretary-General António Guterres's September 2019 Climate Summit

The Secretary-General has said:

“We must set radical change in motion.... This means ending subsidies for fossil fuels and high-emitting agriculture and shifting towards renewable energy, electric vehicles and climate-smart practices. It means carbon pricing that reflects the true cost of emissions, from climate risk to the health hazards of air pollution. And it means accelerating the closure of coal plants and halting the construction of new ones and replacing jobs with healthier alternatives so that the transformation is just, inclusive and profitable.”

“I want to hear about how we are going to stop the increase in emissions by 2020, and dramatically reduce emissions to reach net-zero emissions by mid-century.”

— António Guterres