Climate CRISIS Update
By Pauline Seales
Sept 2019

Pictures show 2018 fires and floods
2019 Climate Chaos

Early in the year there were serious floods in Nebraska and also Mozambique.

Summer brought devastating hurricane Dorian to the Bahamas and fires in the Amazon.
Climate Change
Climate Change

Global Warming
Climate Change

Global Warming

Climate Disruption
Climate Change

Global Warming

Emergency Climate Crisis

Climate Disruption

Global Weirding
It’s getting **Hotter**! And there’s more CO2
Greenhouse Effect

Solar radiation in the form of lightwaves passes through the atmosphere.

Some energy is radiated back into space by the earth in the form of infrared waves.

Some of this outgoing infrared radiation is trapped by the earth's atmosphere and warms it.

Most of this radiation is absorbed by the Earth and warms it.
What's really warming the world?
Annual-Mean Surface Temperature (°C) Relative to 1951-1980

2013 0.66  2014 0.74

2015 0.87  2016 0.99
Latest CO₂ reading
May 14, 2019
415.26 ppm

Carbon dioxide concentration at Mauna Loa Observatory

Full Record ending May 14, 2019
Latest CO\textsubscript{2} reading
May 14, 2019
415.26 ppm

Climate Change has many effects

- Changing Rain and Snow Patterns
- Migration and Life Cycles
- Higher Temperatures and More Heat Waves
- More Droughts and Wildfires
- Less Snow and Ice
- Thawing Permafrost
- Stronger Storms
- Damaged Corals
- Rising Sea Level
- Warmer Oceans
- Changes in Plant Life Cycles
Do a few degrees matter?

Absolutely!
- we already see drastic effects with only
  1 deg C = 1.8 deg F change

New IPCC Report says even 1.5 deg C is a problem but 2 deg C is MUCH WORSE
IPCC 2018 Summary
Intergovernmental Panel on Climate Change (U.N.)

Key to impacts and risks
- Undetectable
- Moderate
- High
- Very high

Global mean surface temperature change relative to pre-industrial levels, °C

- 0°C
- 0.5°C
- 1.0°C
- 1.5°C
- 2.0°C

Threatened ecosystems
Extreme weather events
Large-scale singular events (e.g. ice sheet collapse)
Coral die-off
Arctic region
Coastal flooding
River flooding
Crop yields
Heat-related morbidity and mortality
Impact on tourism
BY 2100
AVERAGE ANNUAL MAXIMUM DAILY TEMPERATURE IS PROJECTED TO INCREASE BY 5.6°–8.8°

Depending on greenhouse gas emissions reductions. The greatest increase is seen with business-as-usual emissions levels.
• But it’s NOT GAME OVER

• It’s GAME ON
Ice is melting everywhere and sea level is rising.

Saskatchewan Glacier, Alberta
Greenland and Antarctica

Ice loss **doubled** in Greenland and **tripled** in the West Antarctic between 2009 to 2014.
Surging Seas MAPPING CHOICES

Which sea level will we lock in?

Santa Cruz, California, United States

4°C Warming (7.2°F)

2°C Warming (3.6°F)
Human made carbon dioxide is being absorbed by the oceans making them approx. 30% more acidic so far.
Methane levels for the past 2000 yrs

Etheridge et al., JGR, 1996; 1998
MacFarling Meure et al., GRL, 2006

Updated to 2012
Changing your diet a little will help the planet a lot. Cows produce loads of methane - a super powerful greenhouse gas. Beef production also uses more water and needs more land. Changing to smaller amounts of meat (preferably chicken) and lots of veg is also better for your health.
Climate Change Summary so Far

It’s Real

It’s US

Scientists Agree

It’s BAD

There’s HOPE!!!
Detailed Carbon Reduction program by Paul Hawken.
Includes detailed analysis of 80 different solutions
EAT LESS MEAT

What to reduce or avoid

Buy less new stuff

Drive MUCH less
Enjoy

Public Transport
Personal choices to reduce your contribution to climate change

*Cumulative emissions from descendents: decreases substantially if national emissions decrease

Average values for developed countries, based on current emissions.

- Upgrade light bulbs
- Hang dry clothes
- Recycle
- Wash clothes in cold water
- Replace typical car with hybrid
- Eat a plant based diet
- Switch electric car to car free
- Buy green energy
- Avoid one roundtrip transatlantic flight
- Live car free
- Have one fewer child

**Low Impact**

- $< 0.2 \text{ tCO}_2\text{e}$

**Moderate Impact**

- $0.8-0.2 \text{ tCO}_2\text{e}$

**High Impact**

- $> 0.8 \text{ tCO}_2\text{e}$

Seth Wynes & Kimberly Nicholas, 2017, Environmental Research Letters
We need **URGENT** action by

**Good News:**
Santa Cruz City Council passed an Emergency Resolution
Oct 27, 2018
Santa Cruz County Resolution passed Jan 29, 2019.
Local action on Transportation

Campaign for Sustainable Transportation works tirelessly to change the
Business as Usual” auto centric culture.

- Opposing new parking garage – not needed
- Opposing highway widening
- Working for real solutions – bus passes, bus on shoulder etc.
- Supporting safer biking, walking etc.
<table>
<thead>
<tr>
<th>Normal political mode</th>
<th>Emergency mode</th>
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<tbody>
<tr>
<td>Crisis constrained by business as usual</td>
<td>Crisis embraced with urgency by all</td>
</tr>
<tr>
<td>No urgent threat perceived, time of response not important</td>
<td>Known escalation beyond control if immediate action not taken</td>
</tr>
<tr>
<td>The crisis is one of many issues</td>
<td>The crisis is of highest priority</td>
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<tr>
<td>Budgetary restraints</td>
<td>All available resources devoted to the emergency</td>
</tr>
<tr>
<td>Slow rate of change, systemic inertia</td>
<td>Rapid transition &amp; scaling up</td>
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Based on material by The Climate Mobilization (TCM)
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<td>Targets &amp; goals determined by political tradeoffs</td>
<td>Critical targets and goals not compromised</td>
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<tr>
<td>Politics is adversarial &amp; divisive</td>
<td>Collaborative and effective leadership</td>
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Based on material by The Climate Mobilization (TCM)
Green New Deal
WE NEED A GREEN NEW DEAL
WE NEED A GREEN NEW DEAL
GREEN JOBS GUARANTEE
We need a green new deal.

No fossil fuels.

100% renewable energy.

Guaranteed.
JUST
TRANSITION
JUST TR TR

FOSSIL FREE AGRICULTURE

FOSSIL FREE TRANSPORTATION
JUST

FOSSIL FREE

Uphold Indigenous Rights

Reconnection
Good News

Feb 11 Congressman Jimmy Panetta agreed to back the Green New Deal Thanks Jimmy!

To Finance it we need PUBLIC BANKING. CA AB 857 will authorize Public Banking - co-authored by Mark Stone
Let him know we appreciate his support.
California Green New Deal

We cannot afford to wait for the federal government.
We are the most populous state in the USA and the 2nd highest GHG emitter
We need to act now. Write or call your representatives or visit their offices.

PLEASE CALL DIANE FEINSTEIN!
Young people worldwide are protesting. Their future is in serious jeopardy!

Climate Strike
Sep 20-27
Big Kid action Sep 27
Join and bring your parents
4pm Farmers Market Lot
There really is HOPE!
Together we CAN do it.

For more details see  https://scruzclimate.org/