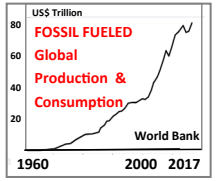
Earth Emergency Data Trends: March 2019

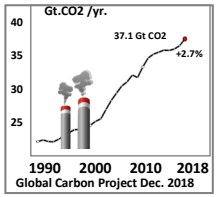
ALL GETTING WORSE FASTER
Trending To Biosphere Collapse

Greenhouse Gases

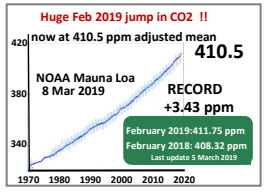
World GDP 2017



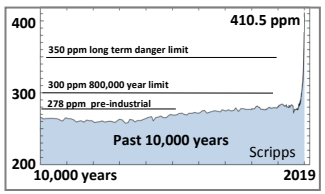
Fossil CO2 Emissions



Accelerating Atmospheric CO2

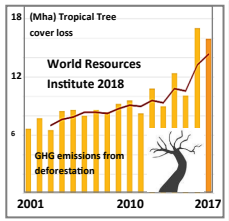


10,000 yrs. Atmospheric CO2

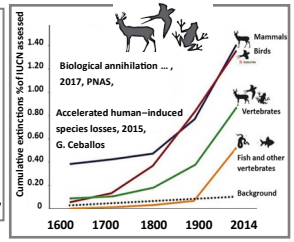


Atmospheric CO2 is at an abrupt 3-5 million year high, accelerating at a rate with no past precedent. (WMO2017)

Accelerating Tropical Tree Cover Loss



6th Mass Extinction

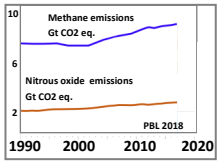


Mass Insect Die-off
Massive global insect decline -40% F. Sanchez-Bayo, Jan 2019

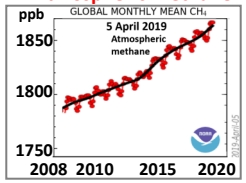
Climatic forest die-back
'Increased tree mortality & forest die-back on all continents - temperature & drought stress' IPCC, 2014

Feed Back

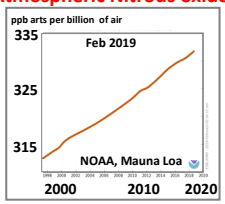
Methane & Nitrous Oxide Emissions 2018



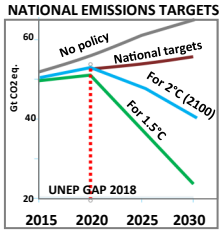
Accelerating Global Atmospheric Methane



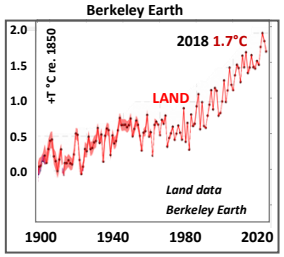
Atmospheric Nitrous oxide



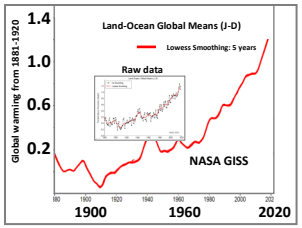
Future GHG Emissions



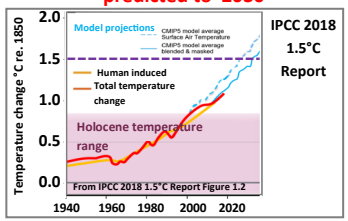
Accelerating Land Warming

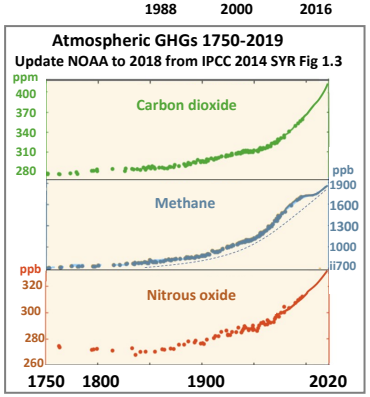


2018 Global Warming: 1.1°C Accelerating Trend

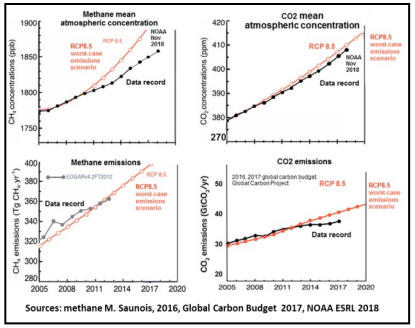


Climate change boosts extinctions more Accelerating Global warming predicted to 2030

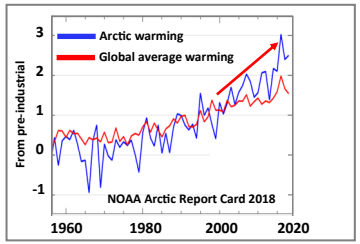




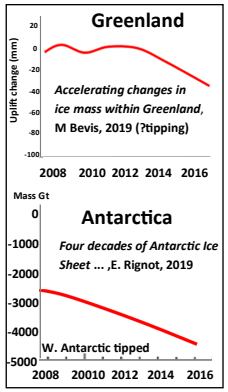
CO2 & methane Emissions & Concentrations Close to Worst-Case Scenario



Accelerating Amplified Arctic Warming to 2018

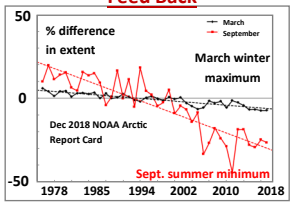


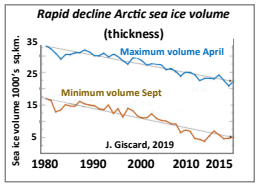
Accelerating Ice Sheet Melt Greenland & Antarctica



Rapid Reduction Extent &Thinning of Arctic Sea Ice

Feed Back





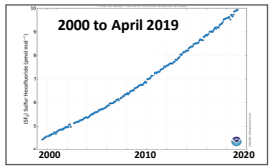
Arctic Permafrost

Feed Back

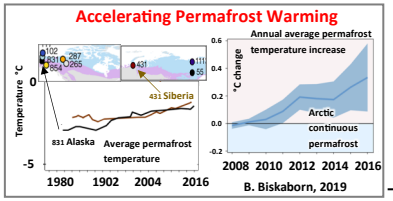
Arctic carbon sink switched to source
Thawing permafrost releases carbon into the atmosphere, ... Overall tundra is presently releasing net carbon into the atmosphere.'

NOAA Arctic Report Card 2016

Accelerating Super-potent GHG Chemical SF6



Accelerating Permafrost Warming



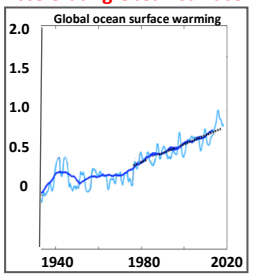
Conclusion

TRENDING AT ACCELERATING RATE TO BIOSPHERE COLLAPSE.

The adverse indicators continue to accelerate, including atmospheric CO2 (huge record jump Jan –March 2019), recent methane, ocean heat, global surface warming, sea level rise, and ocean acidification (ocean health is essential to land species survival). CO2 and methane are near the worst-case scenario. The national emissions targets are a global death sentence of 3.2°C by 2100, which is over 4°C by 2300 (excluding feedback warming). The state of the Arctic presents an enormous risk of multi-feedback runaway (hothouse

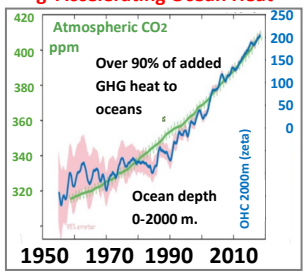
OCEANS

Accelerating Ocean surface warming



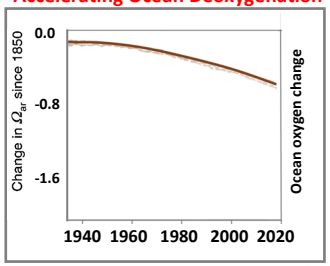
J. Hansen, Columbia Earth Inst Feb 2019

Accelerating Ocean Heat

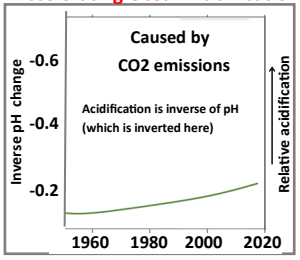


Lijing Cheng, 2019

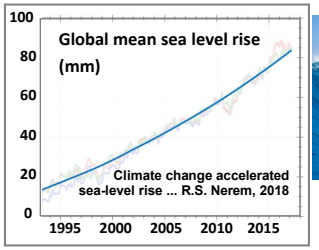
Accelerating Ocean Deoxygenation



Accelerating Ocean Acidification



Accelerating sea level rise



Current understanding and challenges for oceans in a higher-CO2 world. C.L. Hurd, 2018

Peter Carter, Climate Emergency Institute presentation AGU & EGU 2016 2017, Update April 2019