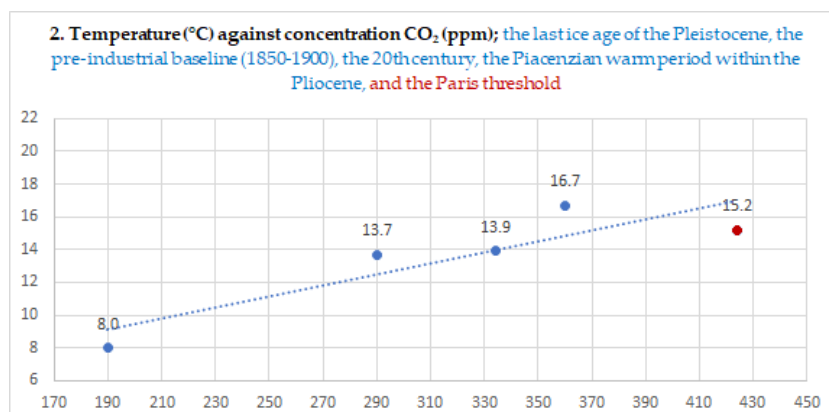
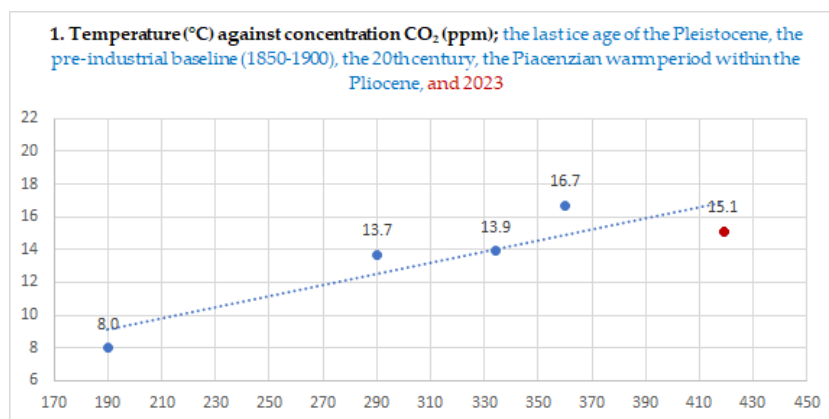


Back-of-the-envelope estimation of global average temperatures against CO₂ concentrations

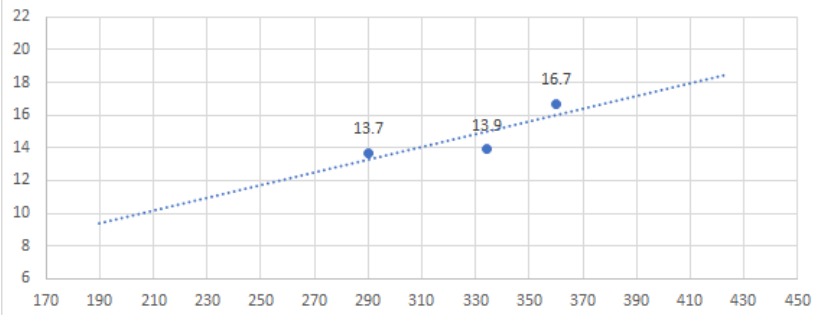
April 2024, Anne van Weerden,
going with my [blog post](#) of March 2024

1. Plotted are the last ice age of the Pleistocene (190 ppm, 8.0 °C), the pre-industrial baseline (1850-1900) (290 ppm, 13.7 °C), the 20th century (334 ppm, 13.9 °C), the Piacenzian warm period within the Pliocene (362 ppm, 16.7 °C) and 2023 (419 ppm, 15.1 °C). The trendline represents, roughly, the equilibrium temperatures going with the CO₂ concentration
2. 2023 is replaced with the Paris threshold temperature against the March 2024 CO₂ concentration (424 ppm, 15.2 °C)
3. A trendline for the previous values without 2023 or the Paris threshold, because they influenced the trendline, and without the Pleistocene because it may be argued that that was an extreme situation
4. Adding to 3 the most fitting temperature for the current value of 424 ppm yields a value of 18.6 °C for the equilibrium temperature
5. Reintroducing the Pleistocene for the trendline because it can also be argued that that just is a temperature going with a CO₂ concentration
6. The values in 5 now lead to an even higher equilibrium temperature, 19.2 °C

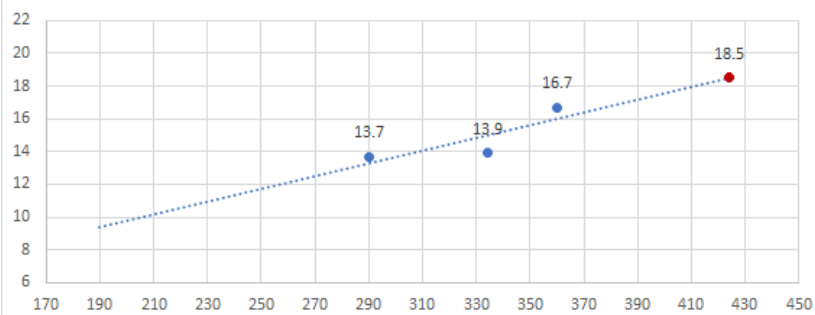
Conclusion: even though this is a crude estimation, it nevertheless shows that the equilibrium temperature we are now heading towards is way too high. Just cutting emissions will not save us any more, we have to clean up the atmosphere and extract the CO₂ surplus.



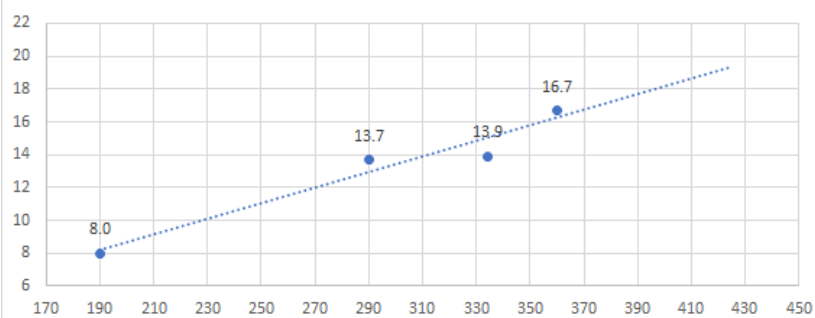
3. Temperature (°C) against concentration CO₂ (ppm); the pre-industrial baseline (1850-1900), the 20th century, the Piacenzian warm period within the Pliocene



4. Temperature (°C) against concentration CO₂ (ppm); the pre-industrial baseline (1850-1900), the 20th century, the Piacenzian warm period within the Pliocene, and an extrapolation for Spring 2024



5. Temperature (°C) against concentration CO₂ (ppm); the last ice age of the Pleistocene, the pre-industrial baseline (1850-1900), the 20th century, the Piacenzian warm period within the Pliocene



6. Temperature (°C) against concentration CO₂ (ppm); the last ice age of the Pleistocene, the pre-industrial baseline (1850-1900), the 20th century, the Piacenzian warm period within the Pliocene, and an extrapolation for Spring 2024

