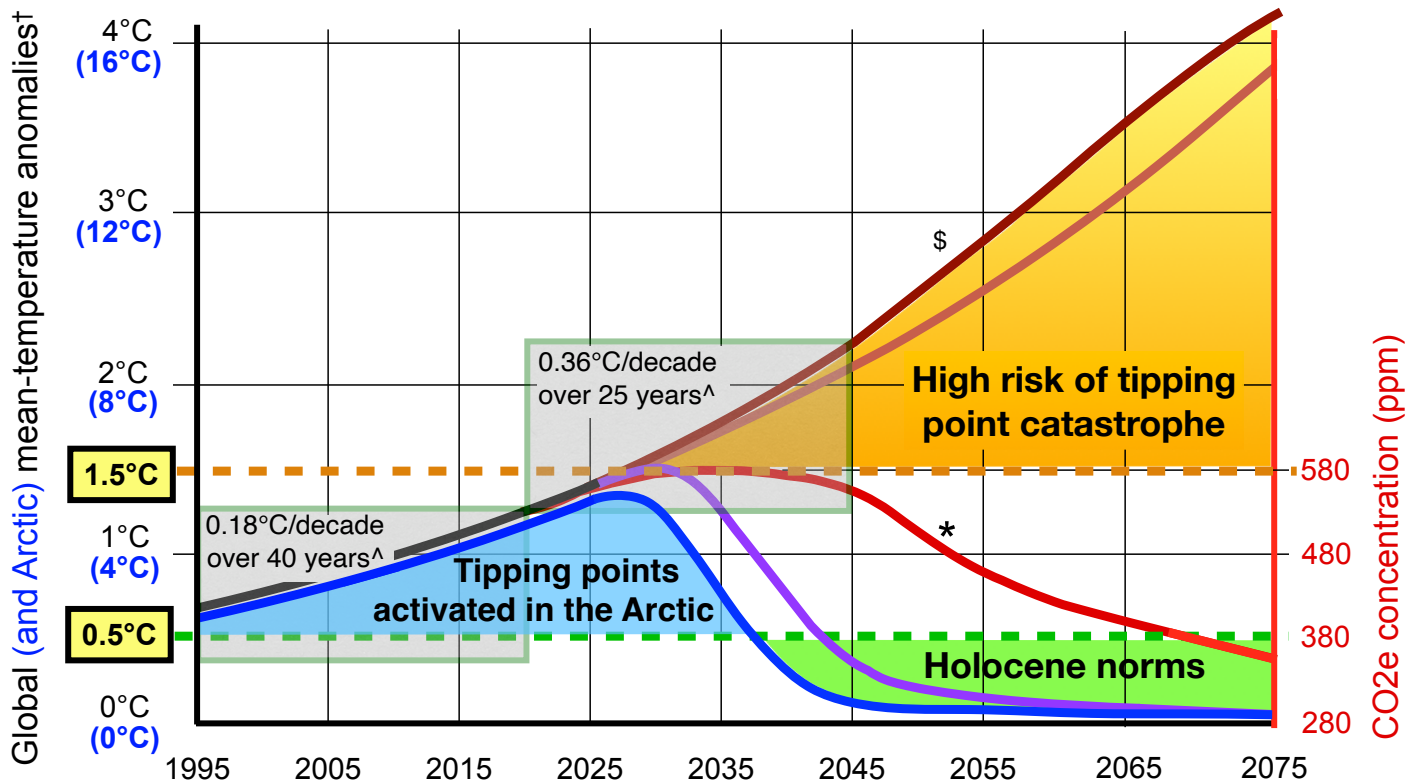


# Trends and Targets for Temperatures and CO2e



† Global temperatures (Arctic temperatures in blue) are relative to pre-industrial norms.

§ The brown curves assume no climate intervention. Human and financial costs from climate change and sea level rise will inevitably escalate. Furthermore there is a high risk of tipping point processes aggravating global and Arctic warming to steepen the curves. For example, as temperatures continue to rise the methane emitted from both land and undersea permafrost as it thaws could significantly boost both global and Arctic warming in a vicious and unstoppable cycle of heating and thawing. The dangers are stark; see Steffen et al. *Trajectories of the Earth System in the Anthropocene*, PNAS August 6<sup>th</sup> 2018.

\* Reduction in CO2e by reducing greenhouse gas emissions and/or by removing them from the atmosphere. In particular, methane emissions may need to be halved and as much as two trillion tonnes of CO2 removed from the atmosphere within the next 45 years to achieve the proposed target of 380 ppm CO2e by 2070.

^ Rapid decarbonization would remove SO2 cooling and could cause a doubling of the rate of global warming over the next 25 years as compared to the last 50, see Hansen et al. *July Temperature Update: Faustian Payment Comes Due*, published 13 August 2021.

