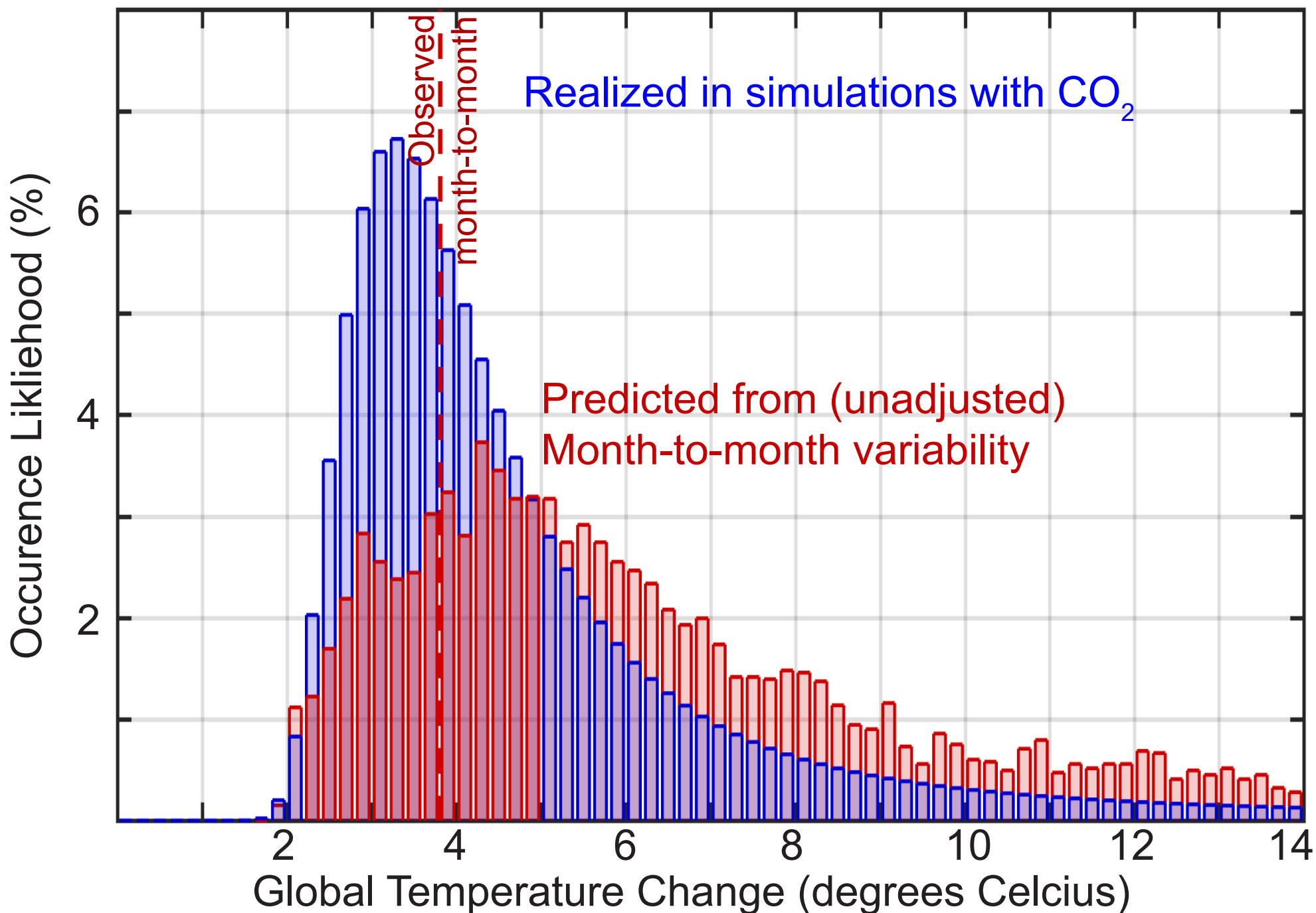


Distribution of temperature response to CO₂ doubling in climate models



The blue bars show the distribution of global warming simulated in climate models when CO₂ is doubled. The red bars show the warming expected based on considerations of how much additional energy is radiated to space as the planet warms in the month-to-month variability within the same set of climate models. The goal of the proposed work is to make adjustments to the month-to-month variability so that the distribution of predicted warming (red bars) matches that realized in the simulations with CO₂ (blue bars). This method would allow the month-to-month variability in the observed satellite record (dashed red line) to be used to predict a precise estimate of how much Earth will warm due to increasing CO₂.