Current CO2 Is Dangerous

The following excerpts are from Target Atmospheric CO2: Where Should Humanity Aim?, published in the Open Atmosphere Science Journal by James Hansen et al in 2008.

Excerpts respecting 'dangerous CO2 concentrations':

Civilization is adapted to climate zones of the Holocene. Theory and models indicate that subtropical regions expand poleward with global warming. Data reveal a 4-degree latitudinal shift already, larger than model predictions, yielding increased aridity in southern United States, the Mediterranean region, Australia and parts of Africa. Impacts of this climate shift support the conclusion that 385 ppm CO2 is already deleterious.

Alpine glaciers are in near-global retreat. After a one-time added flush of fresh water, glacier demise will yield summers and autumns of frequently dry rivers, including rivers originating in the Himalayas, Andes and Rocky Mountains that now supply water to hundreds of millions of people. Present glacier retreat, and warming in the pipeline, indicate that 385 ppm CO2 is already a threat.
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Human-made global climate forcings now prevail over natural forcings. Earth may have entered the Anthropocene era 6-8 (thousand years) ago, but the net human-made forcing was small, perhaps slightly negative [7], prior to the industrial era. GHG forcing overwhelmed natural and negative human-made forcings only in the past quarter century. Human-made climate change is delayed by ocean and ice sheet response times. Warming ‘in the pipeline’, mostly attributable to slow feedbacks, is now about 2°C. No additional forcing is required to raise global temperature to at least the level of the Pliocene, 2-3 million years ago, a degree of warming that would surely yield ‘dangerous’ climate impacts.

Excerpts on making a shift from 'danger' to 'safety':

Paleoclimate evidence and ongoing global changes imply that today’s CO2, about 385 ppm, is already too high to maintain the climate to which humanity, wildlife, and the rest of the biosphere are adapted. Realization that we must reduce the current CO2 amount has a bright side: effects that had begun to seem inevitable, including impacts of ocean acidification, loss of fresh water supplies, and shifting of climatic zones, may be averted by the necessity of finding an energy course beyond fossil fuels sooner than would otherwise have occurred.

We suggest an initial objective of reducing atmospheric CO2 to 350 ppm, with the target to be adjusted as scientific understanding and empirical evidence of climate effects accumulate. Although a case already could be made that the eventual target probably needs to be lower, the 350 ppm target is sufficient to qualitatively change the discussion and drive fundamental changes in energy policy. Limited opportunities for reduction of non-CO2 human-caused forcings are important to pursue but do not alter the initial 350 ppm CO2 target.