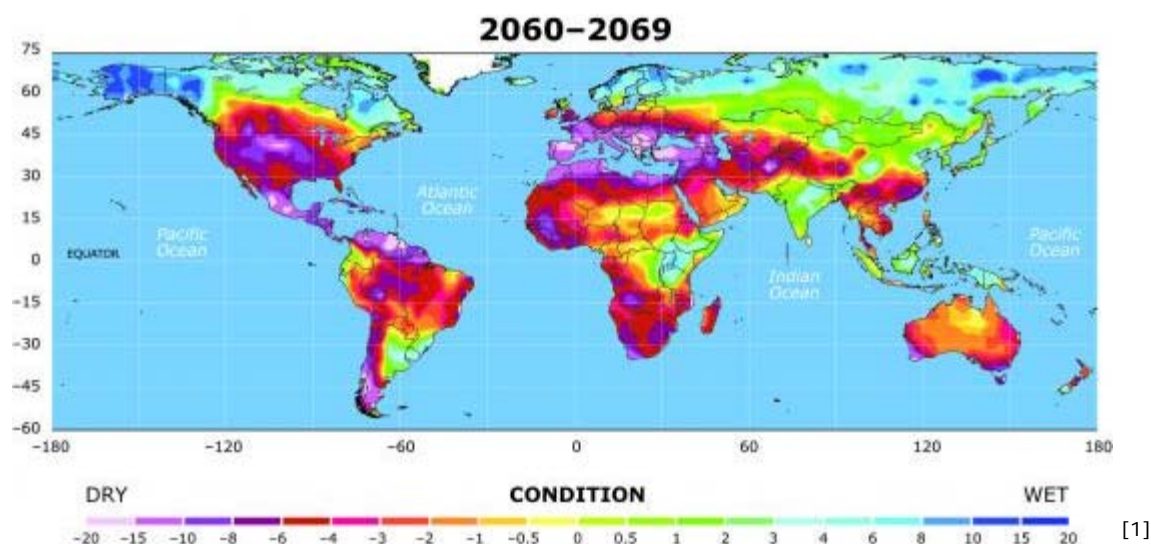


## New study puts the 'hell' in Hell and High Water

Posted By [Joe](#) On October 20, 2010 @ 7:05 pm In [Science](#) | [Comments Disabled](#)



Extended drought and Dust-Bowlification over large swaths of the habited Earth may be the most dangerous impact of unrestricted greenhouse gas emissions, as I've discussed many times (see [Intro to global warming impacts: Hell and High Water](#) [2]).

That's especially true since such impacts could well last centuries, whereas the actual Dust Bowl itself only lasted seven to ten years — see [NOAA stunner: Climate change "largely irreversible for 1000 years," with permanent Dust Bowls in Southwest and around the globe](#) [3].

A must-read new study from the National Center for Atmospheric Research, "[Drought under global warming: a review](#)" [4], is the best review and analysis on the subject I've seen. It spells out for the lukewarmers and the delayers just what we risk if we continue to listen to the Siren song of "more energy R&D plus adaptation."

The NCAR study is the source of the top figure (click to enlarge), which shows that in a half century, much of the United States (and large parts of the rest of the world) could experience devastating levels of drought — far worse than the 1930s Dust Bowl, especially since the conditions would only get worse and worse and worse and worse, while potentially affecting 10 to 100 times as many people. And this study merely models the IPCC's "moderate" A1B scenario — atmospheric concentrations of CO<sub>2</sub> around 520 ppm in 2050 and 700 in 2100. We're currently on the A1F1 pathway, which would take us to 1000 ppm by century's end, but I'm sure with an aggressive program of energy R&D we could keep that to, say 900 ppm.

Indeed, the study itself notes that it has ignored well understood climate impacts that could worsen the situation:

As alarming as Figure 11 [5] shows, there may still be other processes that could cause additional drying over land under global warming that are not included in the PDSI calculation. For example, both thermodynamic arguments [124] [6] and climate model simulations [125] [7] suggest that precipitation may become more intense but less frequent (i.e., longer dry spells) under GHG-induced global warming. This may increase flash floods and runoff, but diminish soil moisture and increase the risk of agricultural drought.

That is, even when it does rain in dry areas, it may come down so intensely as to be counterproductive.

The study notes that "Recent studies revealed that persistent dry periods lasting for multiple years to several decades have occurred many times during the last 500–1000 years over North America, West Africa, and East Asia." Of course, those periods inevitably caused havoc on local inhabitants. Further, this study warns that by century's end, even in this moderate scenario, many parts of the world could see extended drought beyond the range of human experience: