

IPCC Conceptual Model

The Inertia Of The Coupled Atmosphere – Ocean – Land System

from: "Defining and Identifying Environmental Limits for Sustainable Development" Fig 10

IPCC 2001 climate model, republished w/ comment in 2006 by DEFRA/CEM

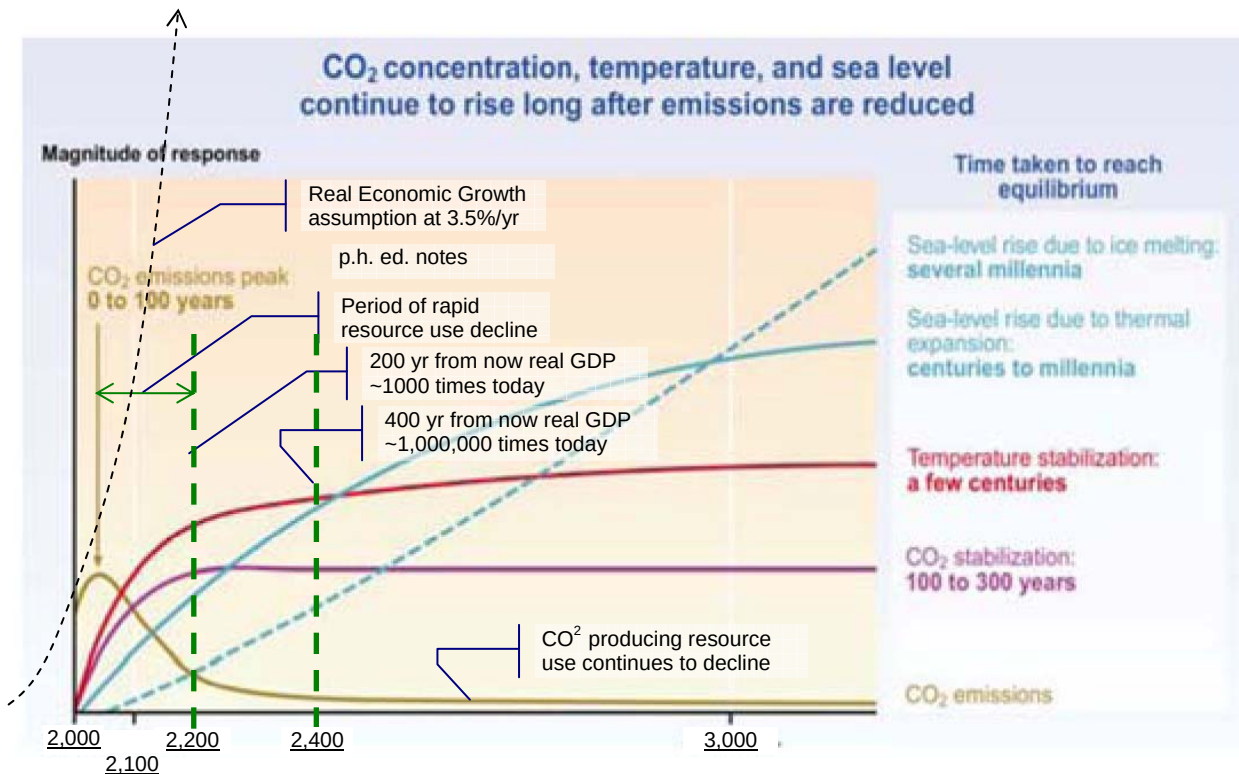
http://www.defra.gov.uk/science/project_data/DocumentLibrary/NR0102/NR0102_4079_FRP.pdf

p.h. ed. note: 12/24/07

The report's conservative way of stating the dilemma is quoted below the figure...mine is:

Normal real growth at a 3.5% rate over the 1000 year term shown in the chart ($=1.035^{1000}$), would expand the economies by **a Million Billion times** (one w/15 0's). According to this chart, the effect on climate will be negligible, with the use of the available CO² producing fuels quickly declining to and staying near zero.

In predicting the end of growth impacts, the true hidden assumption behind the world model is an end of growth. Even so there are steadily rising sea levels for millennia. The real problem today is finding the correct assumptions so we don't waste our opportunity to adapt to a world we misjudged.



Quoting from the report:

"The difficulties of framing both research and policy agendas can be highlighted by reference to the conceptual model suggested by the IPCC for the coupled climate - ocean - land system (Figure 10). The key point this model illustrates is the fact that the time lags between mitigation actions and a system response in the biophysical systems are likely to be very long and varied. Even if the stabilization of CO₂ concentrations in the atmosphere is achieved, this will only result in a gradual leveling off of the temperature increase (red curve), with a stabilization after an additional time lag of 50 – 100 years. The temperature increase before this leveling off will cause a rise of sea levels by thermal expansion of water that will continue for many centuries after the stabilization of GHG and temperature (blue solid curve). If we also consider the effect on the polar ice caps of the temperature increase, the sea level rise is likely to continue over millennia (blue dashed curve)".



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