EDITORIAL

CO_2 and Sea Level

The last several years have witnessed a major effort by a dedicated group of highly visible and influential scientists to convince the governments of the world that mankind faces a serious threat of significant sea level rise as a result of the steadily increasing carbon dioxide (CO_2) concentration of Earth's atmosphere. Even the prestigious U.S. National Academy of Sciences has lent its stature to the undertaking by publishing three official reports on the subject (N.A.S., 1979, 1982, 1983), wherein it is suggested that a 300- to 600-part-per-million doubling of the atmospheric CO_2 content—which is predicted by them to occur sometime in the latter half of the next century—will raise the mean surface air temperature of the globe by approximately 3° C, with a several-fold amplification of that figure in the ice-bound regions of the poles.

This warming, together with an equivalent warming which is predicted to result from concurrent increases in other radiatively-active trace gases (RAMANATHAN *et al.*, 1985), could create severe problems for coastal areas, if sea level rises in response to the melting of large volumes of polar ice. But just how reliable are the computerized climate models which predict such dire consequences? As FAIRBRIDGE (1985) asked in an earlier editorial in these pages, "do we have the necessary data, and have we carried out the appropriate experiments, for testing these worrisome deductions? And, if not, why not?"

Recently, I conducted just such a test of the CO_2/trace gas "greenhouse effect" theory (IDSO, 1987 a), using the Real Earth as the experimental subject and the best available records of surface air temperature and atmospheric CO_2 content for the 100-year time span stretching from 1880 to 1980. For this period of elapsed time, the consensus prediction of the most advanced general circulation models of the atmosphere was a mean surface air temperature increase of 1.9° C for the Earth as a whole and an increase of 5.7° C for the northern third of the planet. Yet the observed warming of the Earth over this period was only about 0.4° C for the planet as a whole and only about 0.5° C for its northern third, which is fully an order of magnitude less than what the climate models predict for that crucial region of the globe. What is more, in another recent study (IDSO, 1987 b), I have pointed out that even this slight warming is but the natural recovery of the Earth from the global chill of the Little Ice Age, which was clearly initiated by some mechanism other than CO_2 variability and which consequently does not require CO_2 variability as the cause of its demise.

There would seem to be little doubt, then, that something is seriously wrong with our current understanding of the Earth's climate system, particularly as expressed by state-of-the-art general circulation models of the atmosphere. This deficiency could be something major, such as a totally inaccurate representation of real-world cloud feedback effects—which most climate modellers are careful to acknowledge as a very real possibility—or, it could be the result of a number of more minor errors or omissions. Indeed, I have previously pointed out that several recent improvements of this nature do in fact reduce the sensitivity of the climate models by the order of magnitude required to successfully mesh their predictions with reality (IDSO, 1986 b).

In spite of these developments, however, there has been no reduction in the frequency or severity of warnings of impending climate catastrophy from the climate modelling community, as evidenced in testimony given this past year before committees of the U.S. Senate; and one must puzzle over the question asked by FAIRBRIDGE (1985): "why not?" Indeed, I too have posed this same question (IDSO, 1986 b) and received the same lack of response. As the empirical evidence continues to mount, however, it is my belief that the untenable position of the climate modelling community with respect to the CO_2/trace gas "greenhouse effect" will have to be relaxed. There is just no evidence that it operates as they suggest in the real world. In fact, when FAIRBRIDGE (1985) asks "are we certain that an atmospheric warming is its direct consequence," I would have to answer "no," for it is just as easy to develop a scenario where CO_2 acts as an *inverse*

"greenhouse gas" (IDSO, 1983a, b; 1984.)

Although we should always be wary of potential threats to the global environment, there would seem to be little reason to worry about the rising CO_2 content of Earth's atmosphere. In fact, there is overwhelming direct experimental evidence that this phenomenon will greatly increase the biological productivity of the globe (KIMBALL, 1983a, b; STRAIN and CURE, 1985; ENOCH and KIMBALL, 1986a, b); and there is almost irrefutable evidence that the biosphere is already responding globally to the CO_2 increase of the past century (IDSO, 1985, 1986a; ENTING, 1987; WOODWARD, 1987). Consequently, in response to the title-question of my book of a few years ago (IDSO, 1982)—*Carbon Dioxide: Friend or Foe?*—I would have to conclude that, not only is the current upswing in atmospheric CO_2 not a problem, it is probably a blessing in disguise.

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