Some Thoughts on Global Warming

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Abstract:

Global warming is caused by excessive carbon dioxide in the atmosphere because it absorbs (outward) infrared radiations of the earth.

The following questions will be addressed and discussed:

* The physics of green house effects, specifically for atmospheric carbon dioxide,
* How much global warming for how much atmospheric carbon dioxide increase?
* How much carbon dioxide annual emission are we allowed for a given ceiling of atmospheric carbon dioxide?
* The role of the Earth's thermal inertia,
* How long does it take to achieve stabilization using our best efforts?
* Since “All Men Are Created Equal," how much carbon dioxide can each good citizen of the Earth emit annually?
* How much of what we know about global warming have been validated by real data, and what are the uncertainties?
* How much does it cost to solve the problem? Some policy issues.

Bio sketch:

Sau-Hai (Harvey) Lam received his B.S.E. degree in aeronautical engineering from Rensselaer Polytechnic Institute in 1954, and did his graduate work at Princeton University as a Daniel and Florence Guggenheim Jet Propulsion Fellow. After his Ph.D. in 1958, he went to Cornell University as an assistant professor, and came back to Princeton in 1960. At Princeton, he rose through the ranks, and served for six years as the chair of the Department of Mechanical and Aerospace Engineering. He retired in 1999, and is now Edwin Wilsey ’04 professor emeritus. After his retirement, he taught graduate fluid mechanics at Stanford University as a visiting professor. He was elected fellow of the American Institute of Aeronautics and Astronautics in 1996, and member of the National Academy of Engineering in 2006.

Lam’s research interests include: unsteady boundary layers, weakly ionized plasmas, thermionic energy conversions, vibrational relaxations (CO lasers), RNG theory of turbulence, methodologies of singular perturbation and computational singular perturbations, Lagrangian dynamics, non-linear control theory, multi-component diffusions, and global warming modeling.