

Radiative Forcing for Double CO₂ Derived From Modtran

1:

Lecture for Spring 2009, v0.2
Prof. Brian H. Fiedler

School of Meteorology, University of Oklahoma

Modtran calculations from:
understandingtheforecast.org
February 2009

Modtran3 Version 1.3

1976 U.S. Standard Atmosphere

2:

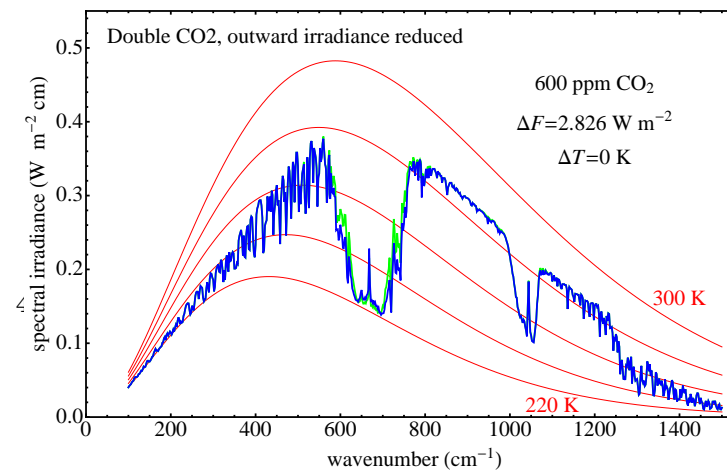
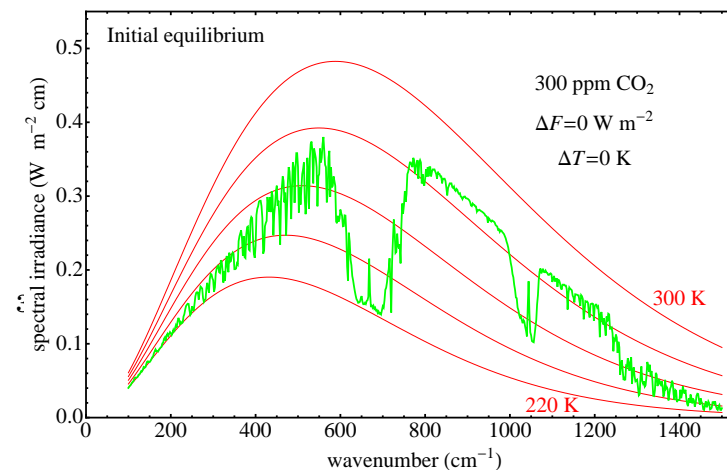
No Clouds or Rain

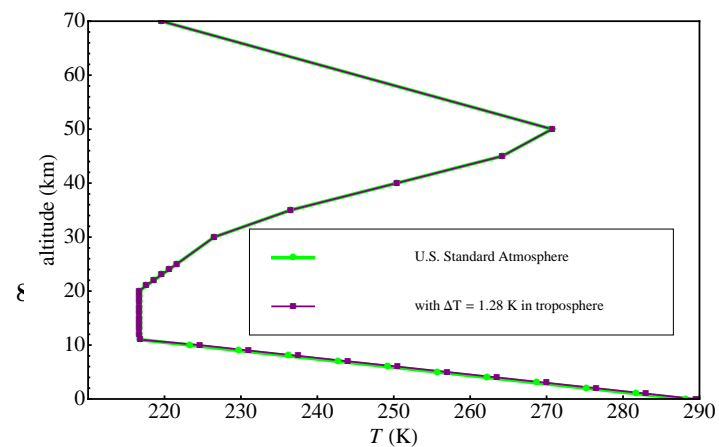
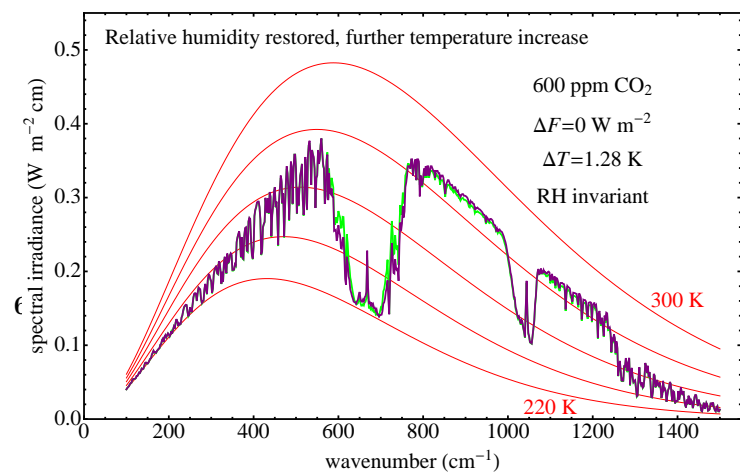
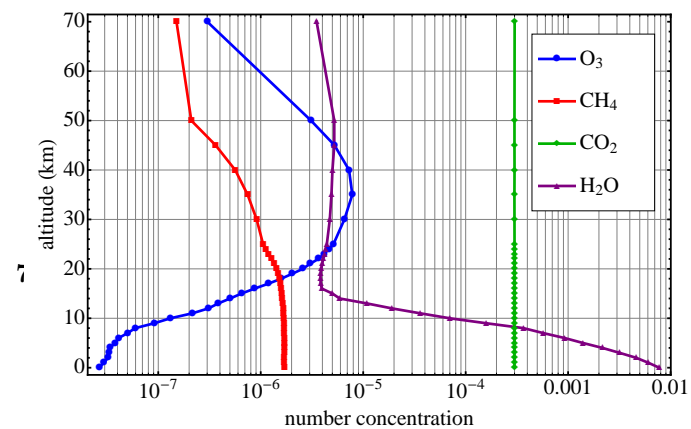
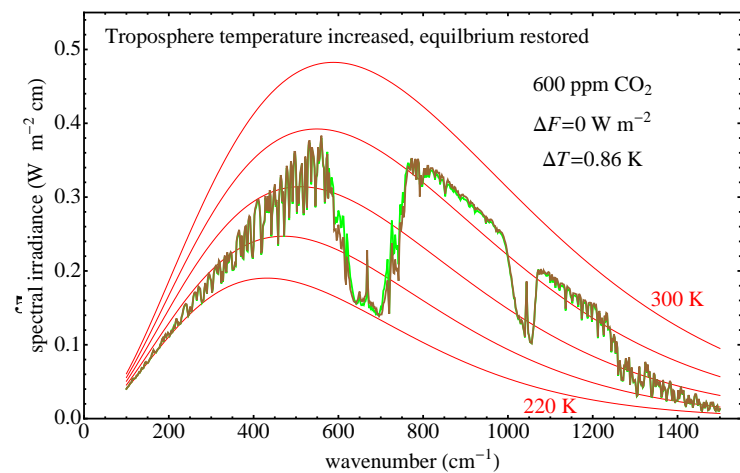
Sensor altitude 70 km, looking down

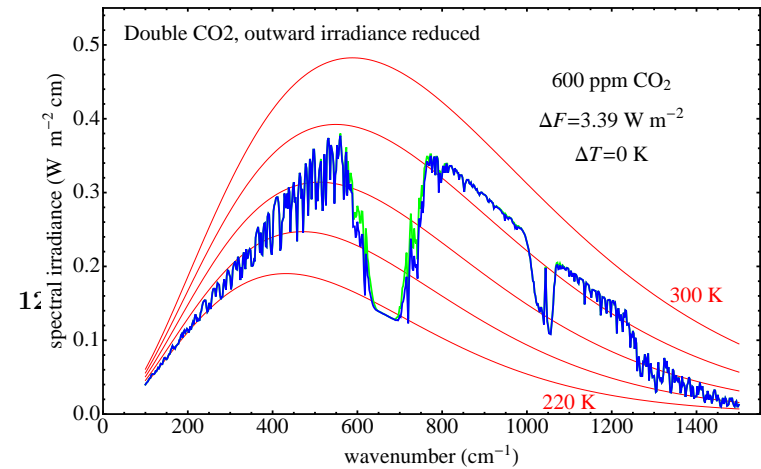
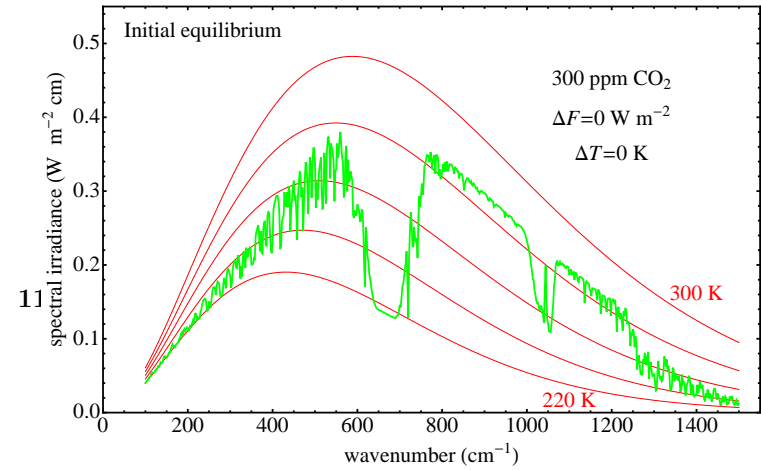
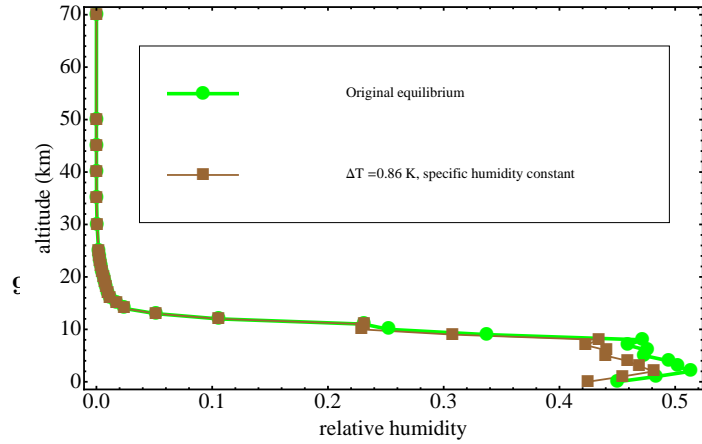
CH₄ 1.7 ppm

Trop. Ozone 28 ppb

Strat. Ozone scale 1







Repeat the analysis with: sensor altitude 20 km, looking down.

This sensor altitude is a surrogate for allowing the stratosphere to *cool* to a new equilibrium temperature in balance with solar absorption, and leave the upward flux contribution from the stratosphere invariant. Thus, analyzing radiative forcing at 20 km for double CO_2 calculations is more accurate, if the desire is to include the above feedback process in the radiative forcing.

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