



HIDE • THE • DECLINE

“I’ve just completed Mike’s Nature trick of adding in the real temps to each series for the last 20 years (ie from 1981 onwards) and from 1961 for Keith’s to hide the decline.” Phil Jones

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9,25 - a factor that could close the global warming debate

Posted by Frank Lansner (frank) on 7th September, 2010

The CO2-sensitivity describes the warming effect induced by a doubling of the CO2 concentration in the atmosphere, and is thus the epicentre of the global warming discussion. Estimates of the CO2 sensitivity are very different, and the value range used by IPCC appears unlikely to be physically impossible. To show this, I will focus on the factor "Fw" between the total CO2 warming and then the warming from a single doubling of CO2 concentration.

The total CO2 warming effect is obviously many times bigger than the warming from a single CO2 doubling. Example: When changing CO2 concentration from 5 ppm to 320 ppm we have 6 doublings. But on top of these 6 doublings, how much warming effect is introduced when CO2 concentrations are changed from 0 to 5 ppm etc? In the following I use the online model MODTRAN:

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Kevin Trenberth to Michael Mann, Oct 12, 2009:

The fact is that we can't account for the lack of warming at the moment and it is a travesty that

Forcing for different CO2 concentrations and scenarios

source: <http://geoflop.uchicago.edu/forecast/docs/Projects/modtran.orig.html>

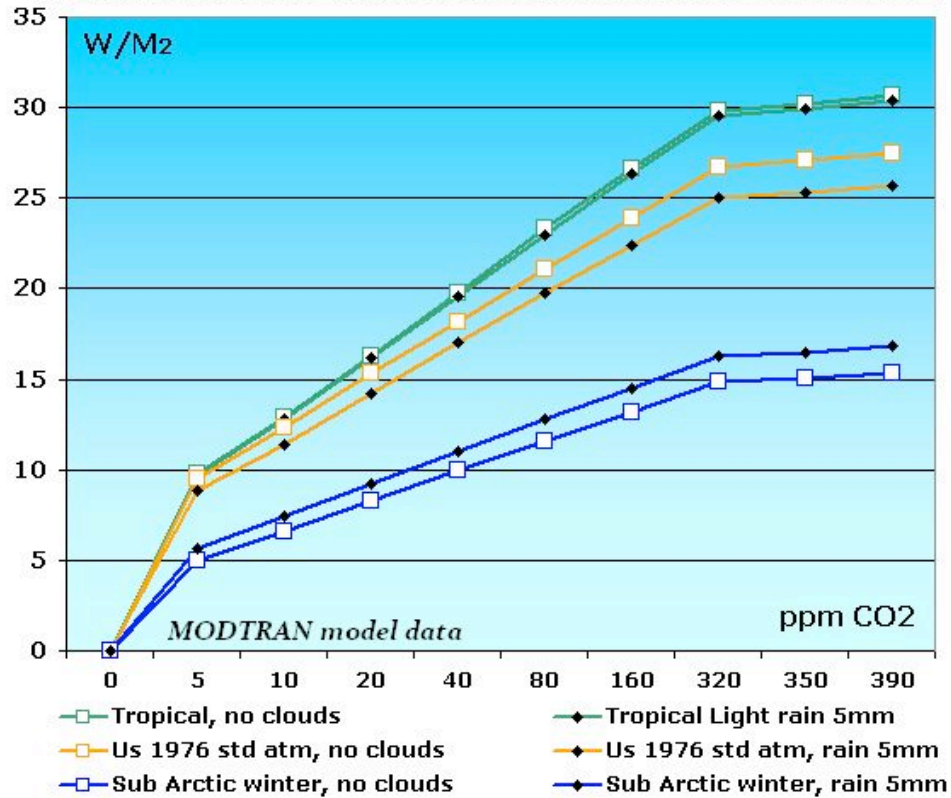


Fig. 1. Above is illustrated the warming effect of CO2 for 3 different climatic areas. Zero W/M2 represents the net forcing of the atmosphere for a given scenario with CO2 concentration set to 0 ppm. For each area is shown a clear sky scenario as well as a light rain scenario. All other variables in MODTRAN are left as the default values. The results from MODTRAN are total atmosphere outgoing radiation, and thus when changing concentrations of CO2 we get total atmosphere responses incl feedbacks if present.

Fig 1 Shows 6 doublings of CO2 concentration: 5-10-20-40-80-160-320 ppm where every doubling shows warming effect of similar size (-as could be expected due to the logarithmic declining effect of adding more CO2 to the atmosphere). From the graph above we can see that the total CO2 warming effect today equals around 9 times the warming effect of one doubling of CO2 concentration.

we can't. The CERES data published in the August BAMS 09 supplement on 2008 shows there should be even more warming: but the data are surely wrong. Our observing system is inadequate.

Kevin Trenberth to Tom Wigley, Oct 14, 2009

Hi Tom How come you do not agree with a statement that says we are no where close to knowing where energy is going or whether clouds are changing to make the planet brighter. We are not close to balancing the energy budget. The fact that we can not account for what is happening in the climate system makes any consideration of geoengineering quite hopeless as we will never be able to tell if it is successful or not! It is a travesty! Kevin

Leo Tolstoy

"I know that most men, including those at ease with problems of the greatest complexity, can seldom accept even the simplest and most obvious truth if it be such as would oblige them to admit the falsity of conclusions which they have delighted in explaining to colleagues, which they have proudly taught to others, and which they have woven, thread by thread, into the fabric of their lives."

Phil Jones

"We have 25 or so years invested in the work. Why should I make the data available to you, when your aim is to try and find something wrong with it?"

Forcing for different CO2 concentrations and scenarios
source: <http://geoflop.uchicago.edu/forecast/docs/Projects/modtran.orig.html>

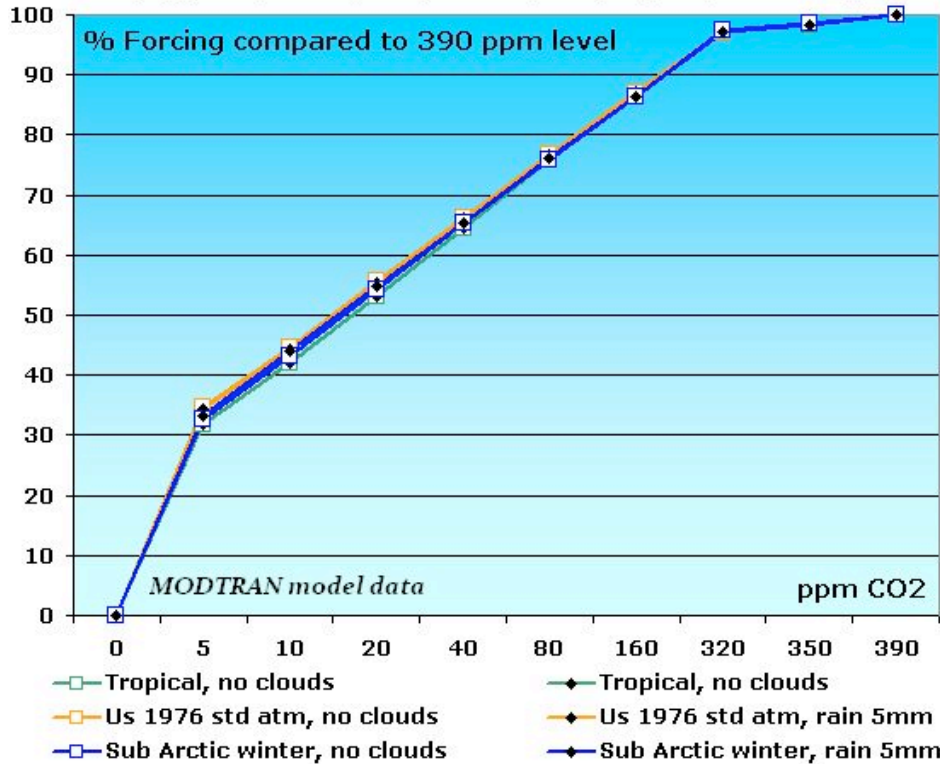
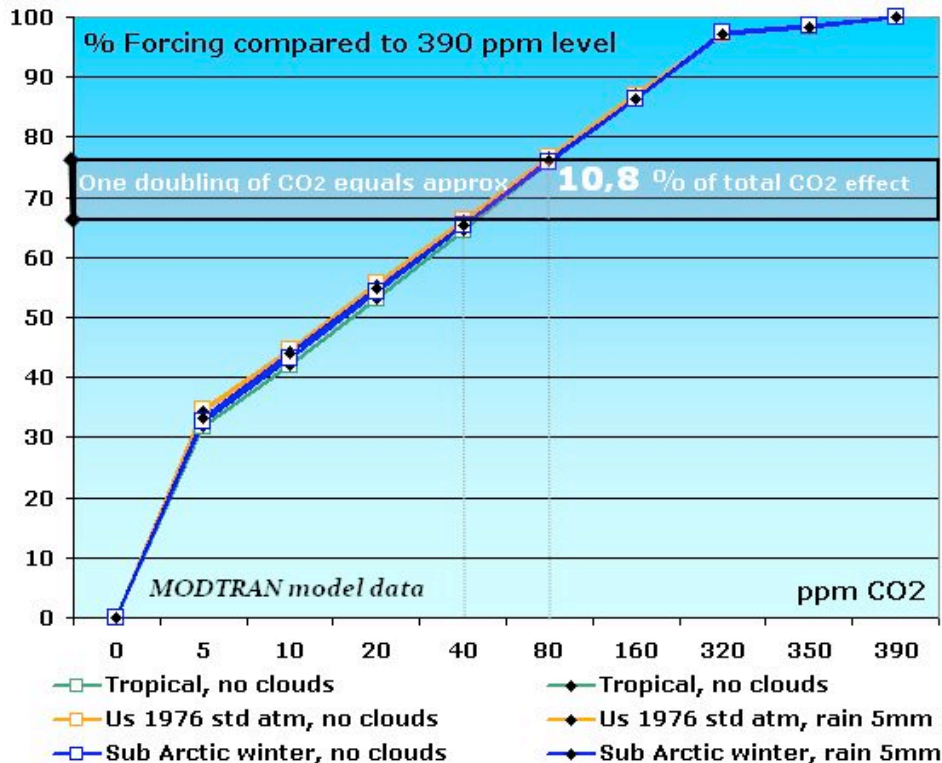


Fig 2. For a better compare between the scenarios on fig1, these are now shown as %-values of the total CO2 warming effect for (Forcing) with today's concentration of 390 ppm CO2, equals 100%. It appears that clear sky, rainy sky, Arctic area, tropics, subtropics scenarios has a very similar profile indeed and I find that this result shows that we can consider these %-trends to be rather global.

Forcing for different CO2 concentrations and scenarios
source: <http://geoflop.uchicago.edu/forecast/docs/Projects/modtran.orig.html>



something wrong with it.

Phil Jones to Michael Mann Feb 21, 2005:

The IPCC comes in for a lot of stick. Leave it to you to delete as appropriate ! Cheers Phil PS I'm getting hassled by a couple of people to release the CRU station temperature data. Don't any of you three tell anybody that the UK has a Freedom of Information Act !

Tom Wigley to Phil Jones Sep 27, 2009:

If you look at the attached plot you will see that the land also shows the 1940s blip (as I'm sure you know). So, if we could reduce the ocean blip by, say, 0.15 degC, then this would be significant for the global mean — but we'd still have to explain the land blip. I've chosen 0.15 here deliberately. This still leaves an ocean blip, and I think one needs to have some form of ocean blip to explain the land blip (via either some common forcing, or ocean forcing land, or vice versa, or all of these). When you look at other blips, the land blips are 1.5 to 2 times (roughly) the ocean blips — higher sensitivity plus thermal inertia effects. My 0.15 adjustment leaves things consistent with this, so you can see where I am coming from. Removing ENSO does not affect this. It would be good to remove at least part of the 1940s blip, but we are still left with "why the blip". Let me go further. If you look at NH vs SH and the aerosol effect (qualitatively or with MAGICC) then with a reduced ocean blip we get continuous warming in the SH, and a cooling in the NH — just as one would expect with mainly NH aerosols. The other interesting thing is (as

Fig 3. The average global CO2-doubling can now be calculated more accurate to be near 10,8% of the full CO2 warming effect at 390 ppm. (Or, the "CO2-sensitivity" warming effect is around 10,8% of the total CO2 warming effect, globally.)

Thus, the "best estimate" of the factor between total CO2 warming effect and the warming effect from one CO2 doubling - Fw - can be calculated. Best estimate (so far) Fw = 9,25.

$$\text{CO2-warming-total (K)} = 9,25 * \text{CO2-warming-from-one-doubling (K)} = 9,25 * \text{CO2 sensitivity (K)}$$

I have used MODTRAN for this result, but it is universal that the doublings must have near same warming effect and thus the individual doubling will have just some fraction of the total value. For now, the factor 9,25 is best estimate.

The warming effect of the total CO2 content in the atmosphere is around 9,25 times the CO2 sensitivity in Kelvin

Hansen - CO2 sensitivity.

Now how does the factor 9,25 between total CO2 warming effect and CO2 warming effect from a single doubling support the viewpoints of James Hansen on CO2 sensitivity?

James Hansen often refers to a CO2-sensitivity of 6 K... 6 K warming effect for each single CO2 doubling:

Forcing for different CO2 concentrations and scenarios

source: <http://geoflop.uchicago.edu/forecast/docs/Projects/modtran.orig.html>

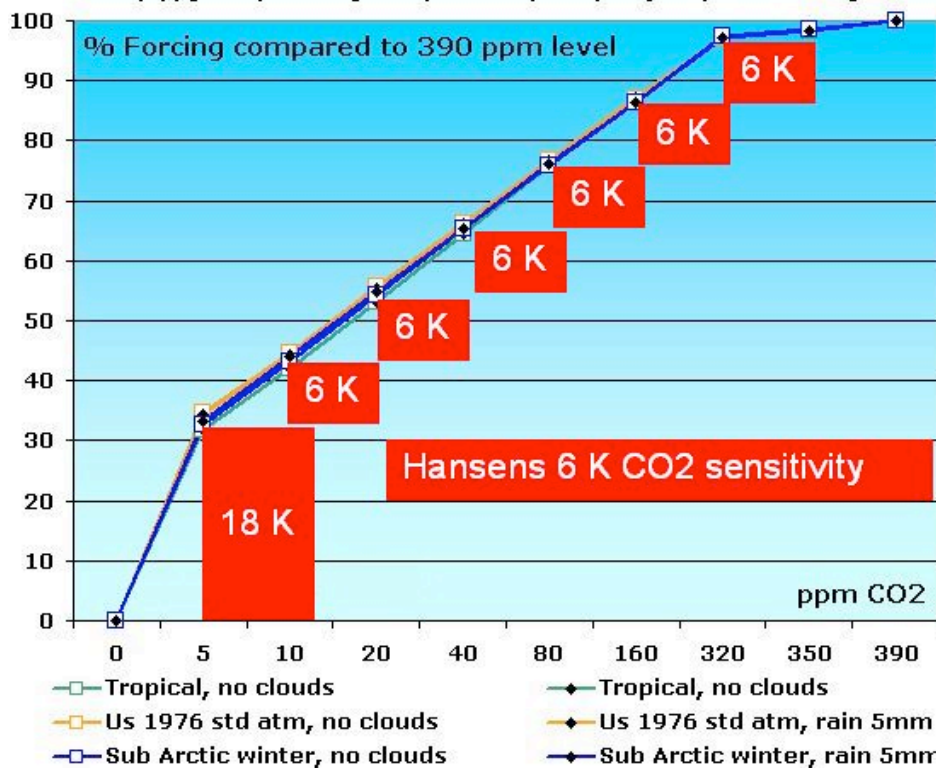


Fig 4 James Hansens CO2 sensitivity of 6 K gives around 55,5 K of total CO2 effect using the factor Fw = 9,25. As the total warming effect of all greenhouse gasses is assumed to have a warming effect of approx 33 K, the Hansen CO2-sensitivity demands that the total CO2 related warming effect is bigger than all the greenhouse gasses effect combined.

The overall CO2 warming effect is supposed to be around 10-15-2% of the total warming effect of the atmosphere, here we use 15%. Since CO2 is assumed to account for 15% of the total 33K greenhouse effect on Earth, the CO2 total warming effect is around 5 K. So just ONE CO2 doubling of Hansen's CO2 sensitivity of 6 K has a bigger warming effect than the total warming effect supposed to be possible.

It is therefore highly odd that Hansen's claim of 6 K CO2 sensitivity has been taken seriously anywhere at any

Foukal et al. note — from MAGICC) that the 1910-40 warming cannot be solar. The Sun can get at most 10% of this with Wang et al solar, less with Foukal solar. So this may well be NADW, as Sarah and I noted in 1987 (and also Schlesinger later). A reduced SST blip in the 1940s makes the 1910-40 warming larger than the SH (which it currently is not) — but not really enough. So ... why was the SH so cold around 1910? Another SST problem? (SH/NH data also attached.) This stuff is in a report I am writing for EPRI, so I'd appreciate any comments you (and Ben) might have. Tom.

Tim Osborn to Michael Mann and Ian Macadam , Oct 5, 1999:

Dear Mike and Ian Keith has asked me to send you a timeseries for the IPCC multi-proxy reconstruction figure, to replace the one you currently have. The data are attached to this e-mail. They go from 1402 to 1995, although we usually stop the series in 1960 because of the recent non-temperature signal that is superimposed on the tree-ring data that we use. I haven't put a 40-yr smoothing through them - I thought it best if you were to do this to ensure the same filter was used for all curves.

Keith Briffa:

Briffa: For the record, I do believe that the proxy data do show unusually >warm conditions in recent decades. I am not sure that this unusual warming >is so clear in the summer responsive data. I believe that the recent warmth >was probably matched about 1000 years ago. I do not believe that global >mean annual temperatures have simply cooled progressively over

time.

Here the "greenhouse wheel" where supposedly scientists imagine that we by year 2100 can have warming of over 7 K in fact with less than one CO2 doubling to cause this:

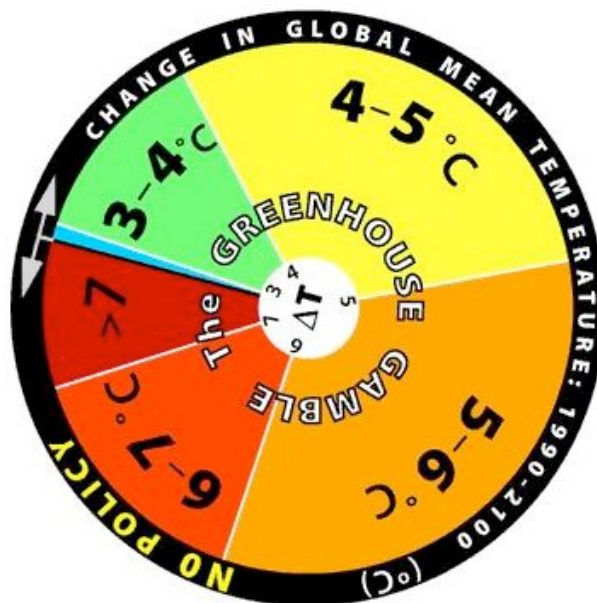


Fig 5. To account for their 7 K temperature increase, they must have played with a CO2-sensitivity of perhaps 10 K? So these honourable "scientists" believes that one CO2-doubling might resemble a third of the combined earth greenhouse effect?

IPCC – CO2 sensitivity

Then, how does the factor 9,25 between total CO2 warming effect and CO2 warming effect from a single doubling support the viewpoints of IPCC on CO2 sensitivity?

IPCC AR4 viewpoints for the CO2 sensitivity :

“..is likely to be in the range 2 to 4.5°C with a best estimate of about 3°C, and is very unlikely to be less than 1.5°C. Values substantially higher than 4.5°C cannot be excluded..”

http://en.wikipedia.org/wiki/Climate_sensitivity

IPCC "best estimate" of warming from one CO2 doubling is 3 K.

Using the Fw = 9,25 we learn, that if one doubling warms 3 Km then the total CO2 warming should be around 28 K (= 9,25 * 3)

We must then remember again that the total warming effect of the atmosphere is generally accepted to be near 33 K. The warming effect related to CO2 should then be around 85% of the total Earth atmosphere greenhouse gas effect. And without CO2, the atmospheres warming effect should be reduced to 15% of today's atmosphere.... On a globe with mostly water-ocean surface..

The IPCC numbers where each doubling of CO2 represents 3 K it simply does not fit at all with the total warming effect of the atmosphere.

IPCC then claimed:

“Values substantially higher than 4.5°C cannot be excluded..”

Well, 4,5 K for CO2 sensitivity gives a total CO2 effect of 41,6 K. This is 126% of the total earth greenhouse effect, so we could rephrase:

IPCC:

“Values of CO2 related warming substantially higher than 126% of the total greenhouse gas warming cannot be excluded..” ...

thousands of >years as Mike appears to and I contend that that there is strong evidence >for major changes in climate over the Holocene (not Milankovich) that >require explanation and that could represent part of the current or future >background variability of our climate. I think the Venice meeting will be >a good place to air these issues.

Idso's and Lindzen's estimates for CO2 sensitivity.

What if we assume that CO2 is responsible for the 15% of the 33K greenhouse warming effect on Earth? This corresponds to 5 K. If true, the CO2 warming from one doubling should be

$$\text{CO2 sensitivity} = \text{CO2warming-total} / \text{Fw}$$

$$\text{CO2 sensitivity} = 5\text{K} / 9,25 = 0,54\text{K}$$

So just using the generally accepted knowledge that CO2 should account for around 15% of the total Earth greenhouse effect, and using the also generally accepted knowledge that total Earth greenhouse effect is 33K, then the CO2 sensitivity should be near 0,54K

Idso 1998 suggests 0,4 K, and Lindzen suggests 0,5 K these results appear sound and realistic in strong contrast to values from IPCC and Hansen.

Hansen's 350 ppm "safe level"



Fig 6. When working with CO2 - effect, one can't help wondering what Hansen's "safe level" of 350 ppm CO2 is all about.

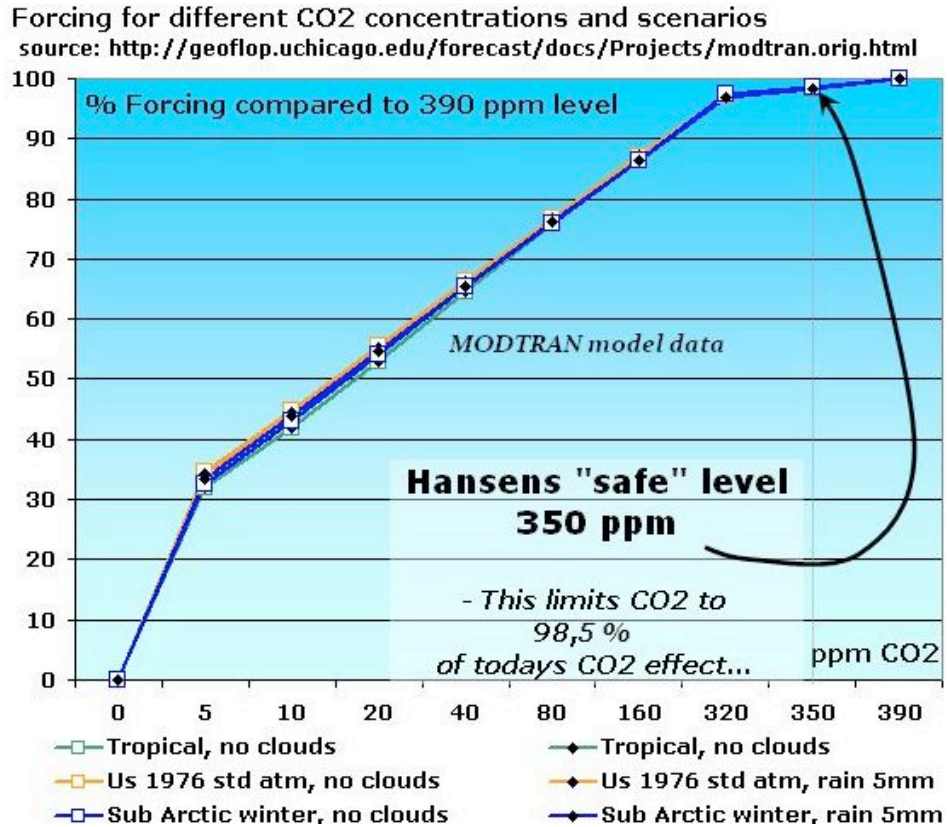


Fig 7. NASA's, James Hansen has claimed 350 ppm to be a safe level of CO2:
 - Just 1,5 % less Warming effect from CO2 and we are "safe".. ?

If CO2 has a total warming effect of 5 K - as previously calculated - the difference between the Hansen "safe level" CO2 warming and today's level is around 0,075 K.

I wonder if the people creating the 350 ppm demonstrations knows this?
 I wonder how they will react when they find out.

Idso 1998:
<http://www.int-res.com/articles/cr/10/c010p069.pdf>

MODTRAN:
<http://geoflop.uchicago.edu/forecast/docs/Projects/modtran.orig.html>

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