Mayer Hillmans asked James Hansen 5 Questions about his 'PLOS' paper & giving contradictory messages in the USA and in China

1. Why does the PLOS climate-model assert an emissions output value of only 8.5 Gt C in 2010, (unstated) which is below all other published sources (RCP, CDIAC, UKCA) without mention?
2. Can he explain why the PLOS climate-model has such a strong *'sink-function'* (e.g. sinks reabsorbing 3 times sources in 2040 for the 6%/year scenario)?
3. Why does the PLOS paper exclude calculated representation of the '*carbon-budgets'* mentioned in text & why is there no mention at all of the *sink-function'*?

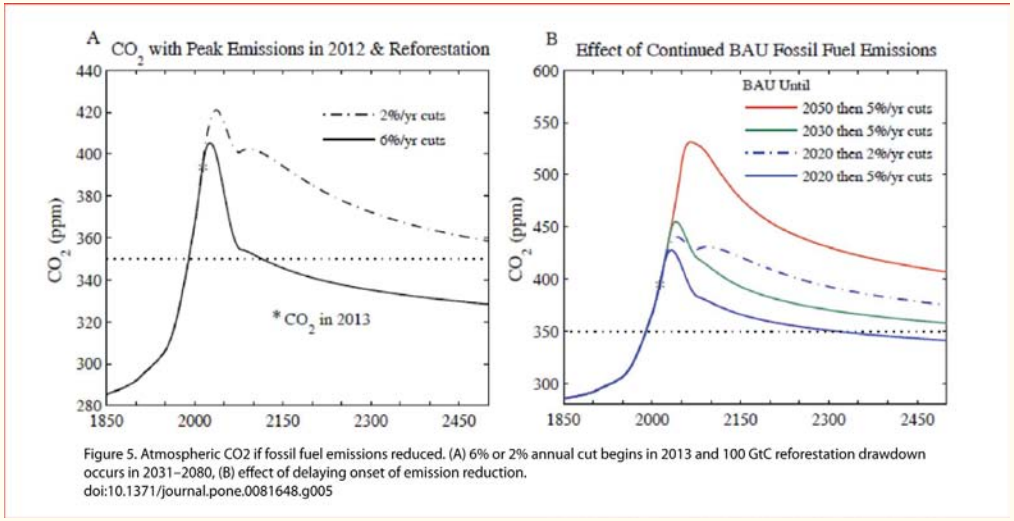


Figure 5. Atmospheric CO2 if fossil fuel emissions reduced. (A) 6% or 2% annual cut begins in 2013 and 100 GtC reforestation drawdown occurs in 2031–2080, (B) effect of delaying onset of emission reduction.
doi:10.1371/journal.pone.0081648.g005

4. Why does the PLOS climate-model exclude any representation of positive-feedback effects (e.g. potentially vast CO_2 & CH_4 emissions from melting Arctic Permafrost)?

   As it is ethically questionable to do this, why does he advocate global emissions cuts of 6% a year from 2020 in the USA, but of only 2% a year from 2020 when in China?

   2% a year in China: - http://www.gci.org.uk/Documents/20140224_Beijing35.pdf [slide 32];
   6% a year in PLOS: - http://www.gci.org.uk/Documents/Hansen_PLOS.pdf [page 8].

James Hansen responded by saying *"I am very surprised by your questions"* then [for the umpteenth time] avoiding answers to all of them [pp 4 & 5].

Mayer Hillman wrote to Jim Hansen with the 5 questions posed at the beginning of this document.
Hansen's reply to Hillman's questions is avoidance, obfuscation and highly inappropriate. My comments on Hansen's reply are below.

To be clear, the issues are not about do you 'climate-model' and how much you emotionally care/not-care about global-climate, 'equity & survival' etc.
The issues are policy: - [a] 'can you count?', [b] 'do you count?', [c] 'is your counting competent'? [d] 'do you regard transparency about this as important'?

In other words, what is proposed as the structural basis upon which to organize the international carbon shrink/share effort to achieve UNFCCC-compliance: - [e] a clear strategically ordered programme to collectively do enough soon enough, or [f] yet another round of scientistic/economistic abracadabra?

I've spent the last 25 years listening to variants of all the abracadabra of 'climate-policy' as 50 shades of opacity, avoidance and the chaos of too little too late. However, the debate is no longer about Carbon-Cycle-Modelling. UNFCCC-Compliance means its about rates, dates and weights of Carbon-Budget Accounting.

Hansen' 'reply' to Mayer Hillman's letter takes avoidance to a new level. He may be held in high esteem, however his deceitful comment to the Chinese Government. From [a] to [f] above, his answers and his actions have avoidance and abracadabra, but most of all deceit written all over them.

Moreover, his operations are clearly aimed at not just by-passing the UN, but substituting Bi-Lateralism and wrecking the UNFCCC process altogether.
They also belie the fact that 'renewably nuclearising the planet', whilst simultaneously we fail to restrain emissions fast enough and temperature and oceans rise, will put much of this development under water. I am saying that Hansen's emissions-agenda to China [-2%/yr globally from 2020] promotes doing too-little too-late: - https://www.youtube.com/watch?v=kpWPcVw4Vf4 (Preview)

I will be writing next to contacts in the Chinese Government pointing all this out, especially reply point seven below - in other words that Hansen lied to them on the 24th of February 2014. I will also be writing to the appellees in Hansen's Appeal Case: - http://www.columbia.edu/~jeh1/Amicus/20131112.AmicusScientists.pdf drawing attention to all this.

> [Hansen . . . replied to Mayer Hillman's letter two days later, as follows . . . in bold] . . . .
>
> ***"Hi, I am very surprised at your questions."***
> Surprised - why that is? Were they too specific and too much to the point?
> Its obvious that Hansen has deliberately and carefully avoided answering all [but 6 see below] of the questions put to him.
>
> ***"A main point in our paper was to make the scenarios as simple and clear as possible."***
> Words are cheap. The PLOS paper & it's 'scenarios' were opaque & quantified emissions scenarios were entirely absent [see below].
>
> ***"Fossil fuel carbon should be carefully distinguished from bio-spheric carbon."***
> Fossil carbon is 80% of the emissions-output and 100% of the emissions scenarios he implied in his paper .
> Oh good, so let's talk about bio-spheric carbon, gardening and tree-planting instead.

"The fossil carbon will stay in the system for millennia before it can be put back out of the system on the ocean floor as carbonates."
So what . . . we have to deal with it no matter what . . . [and *'put it back'* (?) not exactly rich in humility - a touch of NASA hubris maybe?].

"With good agricultural and forestry practices we should be able to put most biospheric carbon back in the biosphere and soil."
So with this we can put maximum 20% back in the ground - so again, so what - gardening and tree-planting?
Hansen knows its the other 80% [the fossil fuel] that counts, so shall we get accurate about that . . . ?
[Perhaps not - rather avoid that like the plague. Bill DON'T DO THE MATHS! and where did you get that 154 Gt Carbon-Budget figure from?].

"The fossil fuel carbon emissions are well known and we give the sources for that data."
Yes the CDIAC source was quoted - their output value 2010 was 9.6 Gt C [not Hansen's 8.5] in other words the source was ignored.

"We have not changed our recommended scenario, the one that gets back to 350 ppm by ~2100." [Note this is the 171 Gt C Budget].
What? Really! Is Hansen now claiming that he's sticking to the LOW scenario [171 Gt C] here: - http://www.gci.org.uk/cbat-domains_Hansen_PLOS_2/Domains.swf [-6%/yr from 2013!]. If so, why then does he advocate the HIGH scenario [529 Gt C] when he's in China - see here: - http://www.gci.org.uk/Documents/20140224_Beijing35.pdf [slide 32; so his words are cheap]. These comparisons are easy to make in a quantified way, and shown very clearly here: - http://www.gci.org.uk/cbat-domains_Hansen_PLOS_2/Domains.swf

Even more to the point, why on earth is he actually denying that he did this very high profile thing in China, so obviously on the record?
Lying has negative consequences.

"Of course there are other scenarios in the paper for illustrative purposes."
Really - *'illustrative'* - what might these be? The scenarios he drew in the PLOS paper (such as they were) are in the image on page 1 of this document and calculated out by me on page 4 of this document. Also see specifically image page 9 here for the minus 2%/year from 2020 [593 Gt C] i.e. the budget he advocated in China. This and the 795 Gt C Budget which he also presented (see image page 1) apparently return the atmosphere to 350 PPMV by about 2400 to 2500 - i.e. and not the 2100 he stated above for the 171 Gt C budget. The plain fact is that the feedback effects [entirely omitted from his model] will ensure that never happens and nobody knows that better than James Hansen.

"Maybe our paper is too technical in which case better if you read the Amicus brief that I wrote for the hearing this week, which I attach."
This is a trifle patronizing - unless he meant it was too technical for him. The 'Amicus Brief' to the Appeal Court this week says the US ought to reduce by 6% a year [period]. I can hear their brief saying, *"Really, and China, what are they supposed to do? I see you have a completely different scenario for them,"* and while Hansen says some more abracadabra, the bench puts its hands over its ears and mutters several Hail Mary's.

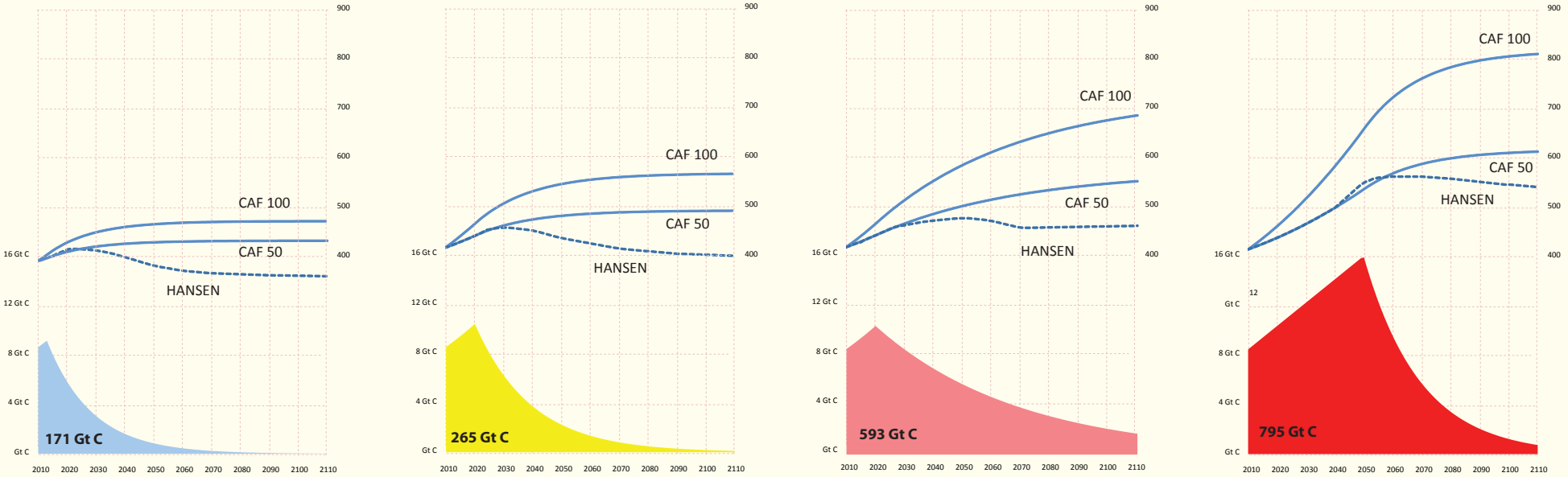
"I am at an NAS meeting this week and dealing with the court case, so will not be on e-mail. Jim Hansen."
Maybe somebody will tell the US EPA/NAM brief that Hansen is asking them to endorse huge, but most of all irrational and arbitrary political decisions. Even not considering the above [misleading the court & wasting court time] they will obviously never [they never could] do that.

Ouput from James Hansen's feedback-omitting climate-model is tantamount to fraud.

Can you see why this shows that feedback effects have been left out? What he has shown is pro rata, formulaic and classic misdirection.
Its almost as bad as just waving your arms about and saying abracadabra. Its certainly worse than what IPCC AR5 did with the RCP scenarios.

The concentrations curvature, whether rising to a maximum of 410 ppmv, 430 ppmv, 450 ppmv or 540 ppmv is all pro rata the same curvature.
The carbon budgets [not drawn in his paper but just referred to in words] are also pro rata and have the same curvature [peak & reduce @ x%/yr].

[Note: - CAF = the 'Constant Airborne Fraction' of emissions retained in the atmopshere. Historically CAF has averaged just below 50%.
CAF 100% & CAF 50% are drawn as reference values showing 100% and 50% respectively so model-assumptions about 'sink-strength' can be seen].



So whether his emissions budget is 171 Gt C [Pale Blue] or 265 GtC [Yellow] or 529 Gt [Pink] or up to ~ 800 Gt [Red], the sink function remains pro-rata and simplistically the same. Concentrations fall immediately in response to these emissions cuts - i.e. positive feedback effects are omitted.

This underlies why Hansen denies he advocated the Pink Budget [593 Gt C] in China and why he still adovates the Pale Blue Budget [171 Gt C] with global cuts of 6%/year from 2013; he actually knows how serious the situation is. When challenged about the 'model' he says it's just 'illustrative'.

The problem here is that James Hansen's 'just illustrative climate model' just doesn't *show* how serious the situation really is.
On the contrary, it models future climate change politically by projecting the ludicrous proposition we can back to 350 ppmv with the RED budget [795 Gt C], *'it'll just be 400 years later'.* In other words, interim positive feedback effects won't be a problem, because we'll just ignore them, just like they did with the 'RCP scenarios' in IPCC AR5. This is tantamount to fraud.

The versions of CBAT laid out below, has been set up to quantify & visually demonstrate the potential extent of positive feedback effects that have been omitted from Hansen's model

http://www.gci.org.uk/cbat-domains_Hansen_PLOS_2/Domains.swf

See CBAT animation of Hansen 171 Gt C [LOW]; Hansen 265 Gt C [MEDIUM]; Hansen 529 Gt C [HIGH] here: -
http://www.gci.org.uk/cbat-domains_Hansen_PLOS_2/Domains.swf now represents what is drawn there.
It needs to be viewed carefully in CBAT to see the enormity of this omission.

CBAT shows all three of his concentrations curves when the UKCA switch is 'on' [one for LOW, one for MEDIUM & one for HIGH].
They are exactly the curves shown in his now disputed 'PLOS' paper.

To 'see' these, switch the UKCA switch to 'ON' [ignore the indicator lines and labels; they will be removed] & choose 'Segregated Feedback' for LOW MEDIUM & HIGH. Then compare his atmospheric CO2 concentration curves with in-built CBAT reference curves for concentrations [graduated above & below CAF 50]. Using the vertical slider note the potential weight differences between the sets.

Hansen's concentration line in: -

- RED corresponds to his 529 Gt C Budget [Choose CBAT HIGH Budget Option].
- YELLOW corresponds to his 265 Gt C [Choose CBAT MEDIUM Budget Option].
- GREEN corresponds to his 171 Gt C Budget [Choose CBAT LOW Budget Option].

The key thing is that when each of his Budget Curves is compared with each of his concentration curves, it show a sink-function of truly massive *deceleration* by anybody's standards and certainly compared to CBAT CAF reference values [close detail of this on page 9].

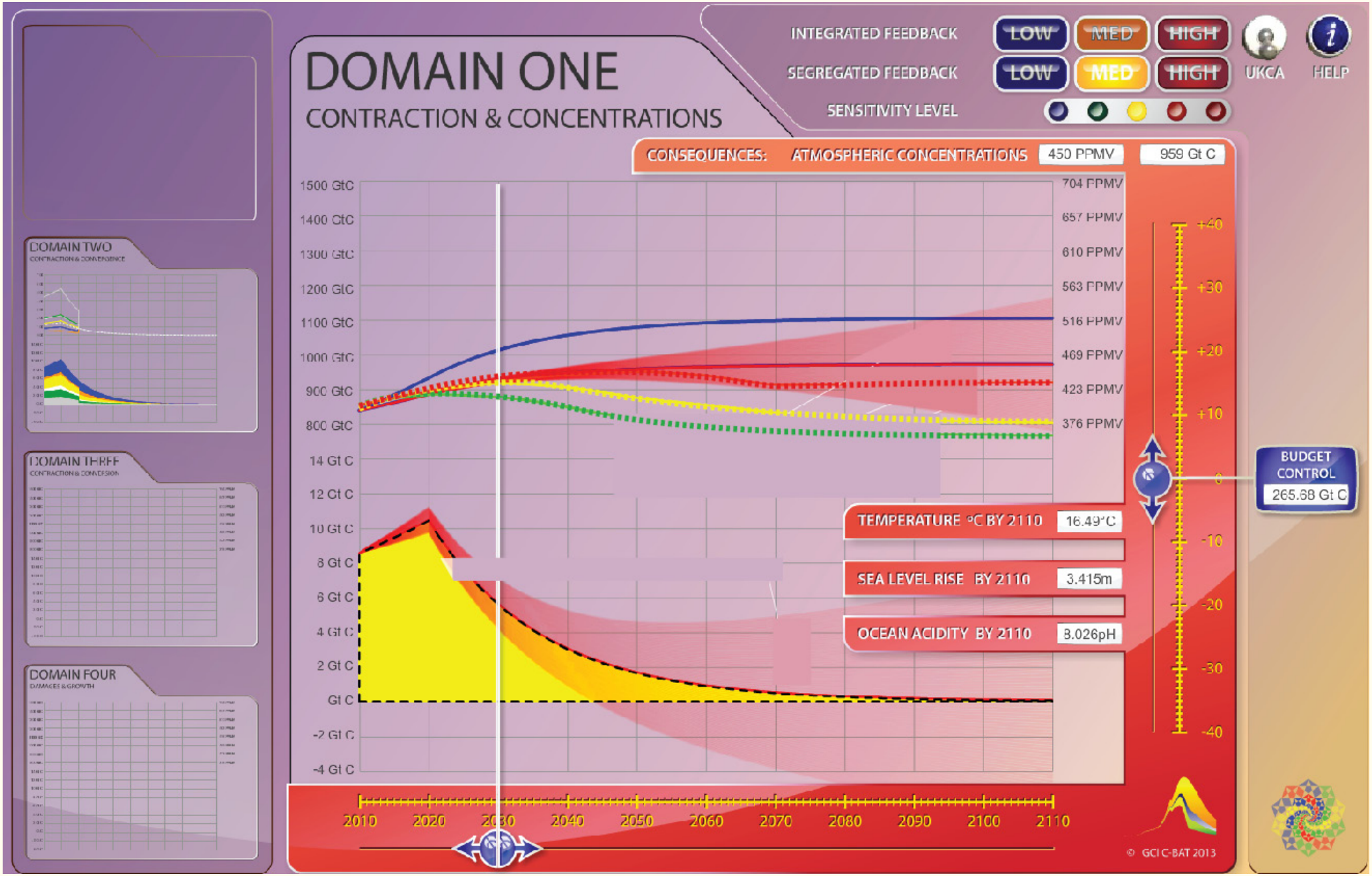
This means Hansen assumes an unrealistically aggressive sink-function in his model as concentrations fall as soon as emissions are theoretically cut.

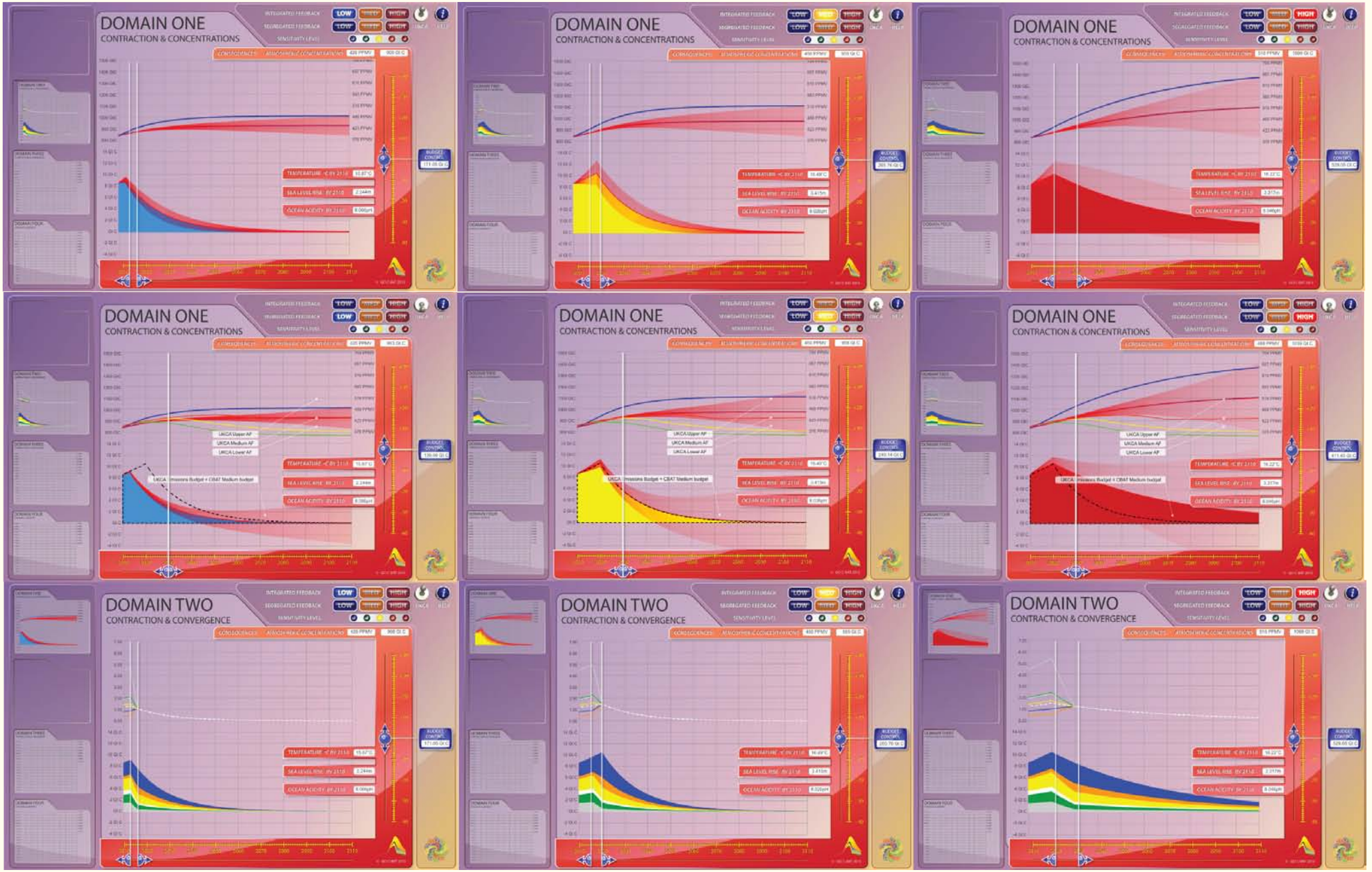
This means 'negative accumulation in the atmosphere' where the biosphere is literally sucking CO2 out of the air even as we continue to emit. Compare that with the potentially huge acceleration of these curves with CBAT LOW, MEDIUM & HIGH [set at 'Segregated Feedback'] as warming increases, the seas acidify weaking the ocean sinks, negative albedo increases as the ice melts releasing feedback emissions at an accelerating and uncontrollable rate.

The difference is strikingly obvious and shows Hansen's model obviously ignores and omits all consideration of such positive feedback effects.
This is particularly regarding the melt-rate of Arctic Permafrost, [about which he is so vocal]. It is extraordinary that he should ignore all this in his model.

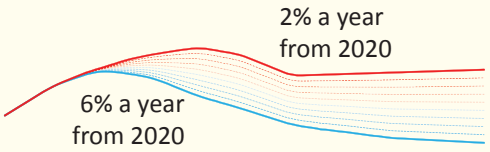
Moreover, bear in mind, Hansen was advocating the HIGH Budget [529 GtC] to the Chinese Government in February this year and not the LOW Budget he claims he did. He can deny all this till he's blue in the face, but that's exactly what was stated in his slides to Chinese Government on February 24th 2014, [telling just them how much he cares about 'equity' in slide 32; quote]: -

"Global Fossil Fuel Emissions must peak by 2020, then decline 2%/year to keep global warming < 1.5°C & avoid dangerous climate change. Developing Countries (China included) have a "right" to emit much more than that and developing countries need abundant affordable energy to eliminate poverty."


DOMAIN ONE
CONTRACTION & CONCENTRATIONS
INTEGRATED FEEDBACK
LOW
MED
HIGH
SEGREGATED FEEDBACK
LOW
MED
HIGH
SENSITIVITY LEVEL
UKCA
HELP
CONSEQUENCES: ATMOSPHERIC CONCENTRATIONS
450 PPMV
959 Gt C
1500 GtC
1400 GtC
1300 GtC
1200 GtC
1100 GtC
1000 GtC
900 GtC
800 GtC
14 Gt C
12 Gt C
10 Gt C
8 Gt C
6 Gt C
4 Gt C
2 Gt C
Gt C
-2 Gt C
-4 Gt C
704 PPMV
657 PPMV
610 PPMV
563 PPMV
516 PPMV
469 PPMV
423 PPMV
376 PPMV
+40
+30
+20
+10
0
-10
-20
-30
-40
TEMPERATURE °C BY 2110
16.49°C
SEA LEVEL RISE BY 2110
3.415m
OCEAN ACIDITY BY 2110
8.026pH
BUDGET CONTROL
265.68 Gt C
2010
2020
2030
2040
2050
2060
2070
2080
2090
2100
2110
DOMAIN TWO
CONTRACTION & CONVERGENCE
DOMAIN THREE
CONTRACTION & CONVERGENCE
DOMAIN FOUR
DAMAGES & GROWTH
© GCI C-BAT 2013


DOMAIN ONE
CONTRACTION & CONCENTRATIONS
DOMAIN TWO
CONTRACTION & CONVERGENCE

The images below separate and explain the elements combined in the image on the opposite page of this document.



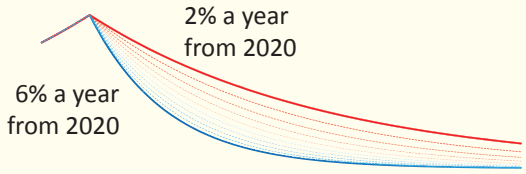
Atmosphere CO_2 Concentrations

Atmosphere CO_2 Concentrations (in PPMV) from the 'PLOS' paper Hansen cited as source of his Carbon Budgets.

Subject to smoothing, the solid RED line faithfully reproduces Atmosphere CO_2 Concentrations consequent on Hansen's assertion of CO_2 emissions peaking in 2020 and then falling at 2% a year. This is what he advocated to the Chinese Government in Beijing in February 2014: - http://www.gci.org.uk/Documents/20140224_Beijing35.pdf

Subject to smoothing, the solid BLUE line faithfully reproduces Atmosphere CO_2 Concentrations consequent on his assertion of CO_2 emissions peaking in 2020 and then falling at 6% a year, the position he advocated in his 'Galileo' paper in the US in February 2014 http://www.gci.org.uk/Documents/Galileo_Hansen_DraftOpinion.pdf

There are 8 equally spaced interim positions that I have added. This is to help elucidate the assumption behind the *'sink-function'* [the relationship of emissions:concentrations] in the climate-model he has used.



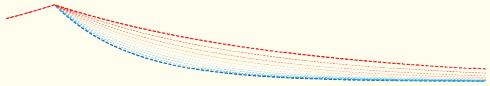
'Budgets' - CO_2 Emissions (Sources)

CO_2 Emissions - Carbon Budgets - extrapolated from the 'PLOS' paper in which calculated Atmosphere CO_2 Concentrations were shown but Carbon Budgets were merely mentioned in the text.

The solid RED line faithfully reproduces Hansen's assertion of CO_2 emissions peaking in 2020 and then falling at 2% a year, the position he advocated to the Chinese Government in Beijing in February 2014. This budget 2010 to 2110 weighs 526 Gt C, a figure confirmed as 'correct' by Hansen's modeller Pushker Kharecha.

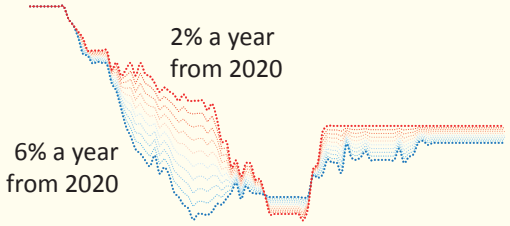
The solid BLUE line faithfully reproduces his assertion of CO_2 emissions peaking in 2020 and then falling at 6% a year, the position he advocated in his 'Galileo' paper in the US of the same month. This budget 2010 to 2110 weighs 265 Gt C, a figure that follows from the above 2% rate being 'correct' (Pushker Kharecha).

There are 8 equally spaced interim positions that I have added to help elucidate the quantitative assumptions behind the *'sink-function'* [the result of emissions:concentrations] in the climate-model he has used.



50% of each Carbon Budget

Each of these emissions profiles is shown again halved to 50% of the values emitted, providing a reference for a constant airborne fraction of 50% retained against the other 50% being returned to the sinks.



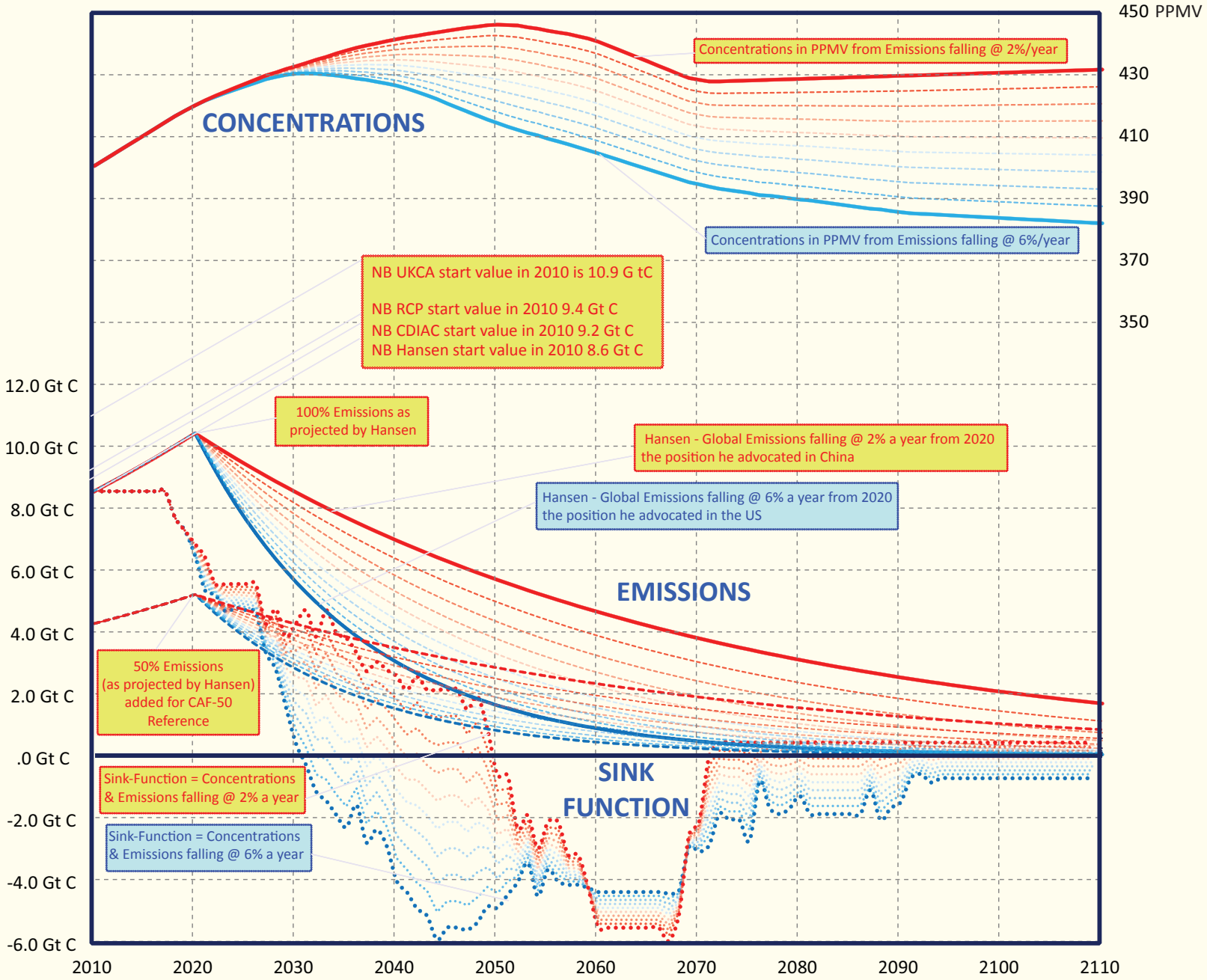
Sink Function (Souces:Sinks)

Sink Function - this is Atmosphere CO_2 Concentrations relative to the Carbon Budgets showing the strength of the sink-function or uptake by natural sinks for CO2. This was not mentioned in the text.

The solid RED line follows CO_2 emissions peaking in 2020 and then falling at 2% a year.
As can be seen in the composite, by 2060 sinks are <3 times stronger than sources (stronger than CAF 50% ref).

The solid BLUE line follows CO_2 emissions peaking in 2020 and then falling at 6% a year.
This time, by 2040, sinks are <2 times stronger than sources (much stronger than CAF 50% ref - not believable).

Again there are 8 equally spaced interim positions that I have added to help demonstrate the quantitiative assumptions behind the sink-function in the climate-model Hansen & his modeller Pushker Kharecha have used.



The image above composites the elements presented & explained separately on the opposite page of this document.

All just another round in the contest about the *"Loss of Control Curvature"* [+/ve feedback] versus *"Keeping Control Curvature"* [substitute -/ve feedback] Acceleration versus Deceleration.

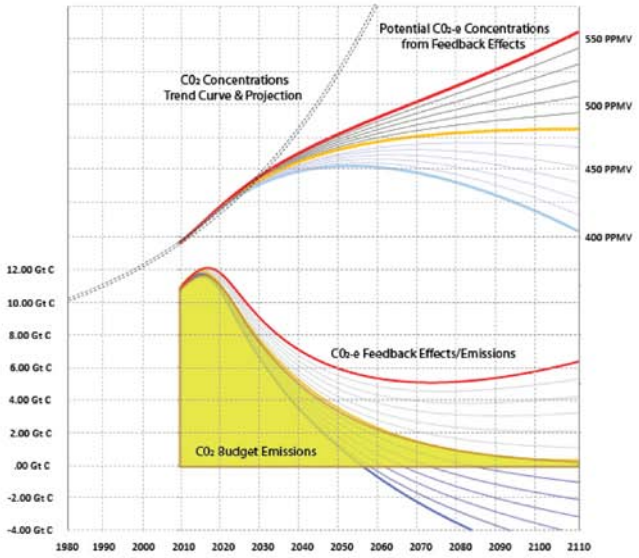
This was fought out over the omission of feedback emissions in the climate model used by the UK Met Office to generate the UK Climate-Act.

http://www.gci.org.uk/Documents/EAC_Real_.pdf

http://www.publications.parliament.uk/pa/cm201314/cmselect/cmenvaud/writev/1088/pcb18.pdf

"Loss of Control Curves?"
POTENTIAL RUNAWAY BEHAVIOUR

By *admitting* CLIMATE FEEDBACK EFFECTS to the Climate Act
Trend-Logic augurs the potential for *'Loss of Control Curves'*



"The UKMO/CCC scenarios mimic a conceptual shortcoming in models over the last 17 years. Tipping points and the most important feedback effects leading to these, are still not in the climate-models being used."

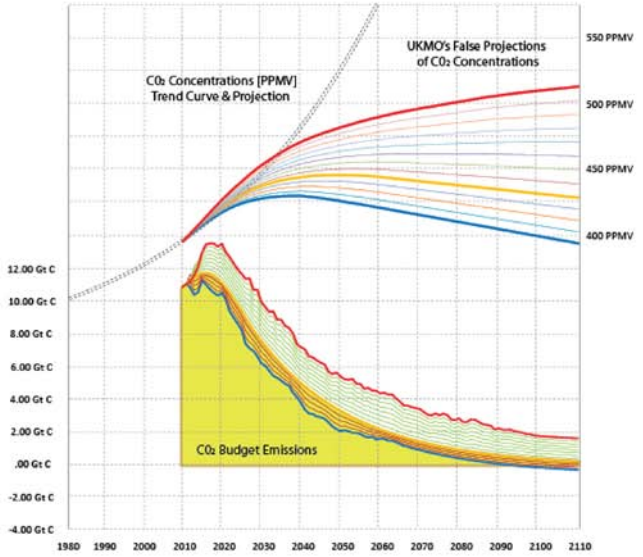
GCI to EAC Enquiry, June 2009

"We must be precautionary and not run risks we cannot afford to run. The rates of CO2-emissions & concentrations considered in this study recocognize that a steady rate of feedback acceleration in the years ahead, makes it possible to contemplate a scenario where positive feedback, for example from Permafrost melt, is driving the system as a whole from a point after which 'human-budget emission-control' becomes irrelevant."

GCI to EAC Enquiry, May 2013

"Keeping Control Curves?"
FALSE EQUILIBRIUM BEHAVIOUR

By *omitting* CLIMATE FEEDBACK EFFECTS from the Climate Act
UKMO falsely project only *'Keeping Control Curves'*



"The scientific models mostly leave out dangerous feedbacks/tipping points. At 6°, 5°, 4° or below, the probability of passing some tipping points, such as Permafrost melt may be high. If modellers cannot capture of model effects 'sufficiently clearly', they are omitted, but best guess is surely not zero."

Nicholas Stern to IMF, May 2013

"All climate projections in the IPCC 5th Assessment, sue for release in 2013-14, are likely to be biased on the low side relative to global temperature because the models did not include permafrost carbon feedback. So target based onthese climate projections would be biased high."

Policy Implications of Warming Permafrost, UNEP 2012