

Are criticisms of Dr Clauser's DDP and EIKE 2024 lectures correct?

Note by Christopher Monckton of Brechley

As part of the usual campaign of *Rufmord* (Goebbels' word for reputational assassination of opponents whom one cannot face in debate) directed by the climatological establishment against all who dare to question the official climate-change narrative, a YouTube *Influenzerin* who fancies herself as an all-knowing physicist but admits she knows little about climate change has recently directed an intemperately-worded and malevolently-expressed YouTube diatribe at Dr John Clauser, a recent Nobel laureate, for his addresses to Doctors for Disaster Preparedness in the USA and to the *Europäisches Institut für Klima und Energie* in Vienna.

Clintel members have expressed interest in learning whether and to what extent the criticisms of Dr Clauser – insofar as they were recognizably scientific criticisms – had any merit. This note enumerates the criticisms (stripped of the *Influenzerin's* infantile climate-Communist yah-boo) and answers them. Criticisms are in **bold face**, answers in Roman face. Following this analysis, a fullish lecture note summarizing Dr Clauser's presentation is attached.

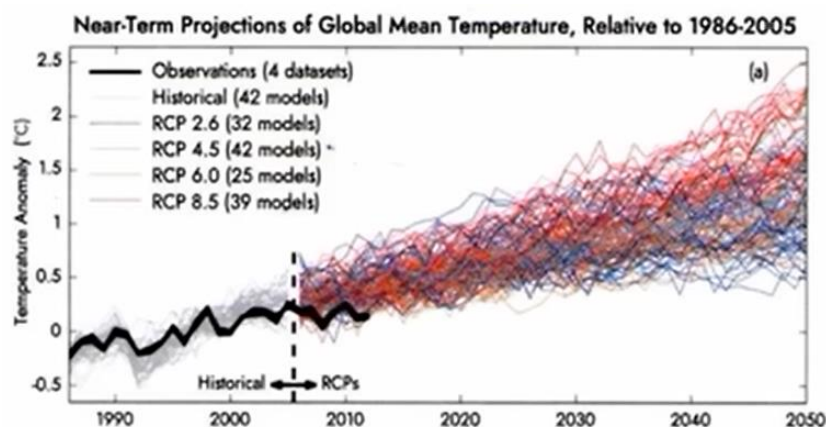
- 1. Clauser says IPCC defines global warming by reference to the Earth's net energy imbalance (the 0.6 W m^{-2} excess of inbound over outbound radiative flux density), when IPCC says "Global warming refers to the change of global surface temperature relative to a baseline ...".**

This is a childish quibble. Clauser's contention, made clear in his talk and still clearer in the equations in the appendices, is that it is the radiative imbalance that governs the change in global temperature.

- 2. There is no simple relation between radiative imbalance and warming.**

The relation is simple, but derivation of the relevant quantities is hard. Dr Clauser set out with some care the equations on which he relied. The *Influenzerin* did not mention them.

- 3. Clauser said that climatologists usually fail to state the reference value of the baseline temperature from which they calculate the temperature *anomalies* [departures over time compared with a baseline] that they plot on their graphs.**



Another childish quibble. Dr Clauser made it explicit that he was looking for a quantity: specifically, a global mean surface temperature from which the anomalies graphed by climatologists are departures. The *Influenzerin* said that the IPCC graph of the predicted temperature anomalies that Dr Clauser was discussing plainly showed the observations in grey and the anomalies in colour. However, exactly as Dr Clauser said, no explicit value (i.e. a numerical quantity) for the baseline global mean surface temperature from which the predictions are departures is stated on the graph. He is right about this. Without that quantity, the amplitude of the anomalies cannot be discerned.

4. Dr Clauser said that the arithmetic for the Earth's energy imbalance is simple, but it is not.

Another childish quibble. Dr Clauser rightly identifies the three principal components in the energy-balance calculation and points out that the calculation itself is indeed simple: about 340 Watts per square metre of inbound solar radiation, less 100 Watts per square metre radiation reflected by cloud and (to a lesser extent) by surface albedo, less about 240 Watts per square metre outgoing longwave radiation.

However, he then goes on, at considerable length, to cite numerous learned papers attempting to calculate the Earth's energy imbalance, together with the strengths and weaknesses of each. And he makes it clear that the uncertainties in the measurements, whether by satellites or by ocean bathythermograph buoys, are large: indeed, so large that they are of the same order as the radiative imbalance that the measurements are said to demonstrate. Accordingly, it is not statistically determinable from the measurements whether such a radiative imbalance exists at all. Even IPCC admits this.

5. Dr Clauser said that the root-mean-square sum of the uncertainties in each of the three variables yields their combined uncertainty, but that method only applies if the variables concerned are independent of one another.

Changes in the three relevant variables – incoming solar irradiance, outgoing reflected short-wave radiation and outgoing long-wave radiation – are substantially independent of one another, even though the absolute value of total solar irradiance is approximately equal to the absolute value of outgoing radiation.

6. Dr Clauser's calling the uncertainties in the three variables "errors" is misleading, because most of the uncertainties in these variables arise from natural variability.

Here, the *Influenzerin* has insufficient knowledge of English scientific terminology, in which the uncertainties in measurements are routinely referred to as "errors" without any pejorative connotation.

7. Dr Clauser said that the error-bar or uncertainty interval must be greater than any one of the component measurements, and that if the imbalance is less than the error then there's no global warming: but measurements of ocean heat content show that the temperature of the oceans is rising, so that there must be an imbalance that causes the increase.

Dr Clauser is again correct. Though the *Influenzerin* imagines that the measurements of ocean heat content are subject to very little error, they are in fact chiefly taken from the ARGO bathythermograph buoys, which are notorious for their wide error-bars (not that the *Influenzerin*, as a pop-up scientist, would know that). Indeed, the NOAA graph that the *Influenzerin* uses to demonstrate the supposed small error is defective in that it does not display any error-bars at all.

8. Dr Clauser did not realize that the ocean heat content measurements, with their very small uncertainty, constrain the three variables that determine the Earth's energy imbalance.

Given the known and substantial uncertainties in the measurements by the ARGO buoys, and given that climatologists do not dare to express ocean warming as temperature but rather as zettajoules of energy (for the temperature change in the oceans is minuscule and would not terrify anyone), and given that not one of the 3,500,000 subsea volcanoes that are known confounders of ocean temperature measurement is routinely measured by Man, and given that Dr Clauser, in his presentation, showed that the estimates of Earth energy imbalance, whether or not they were correlated with the ocean heat content measurements, were the same, the *Influenzerin* has missed the point entirely.

9. Dr Clauser said that the energy that climatologists say went missing in 2008-2009 may have contributed to changing the rate of the Earth's rotation. "He really wants to have an original take on everything, doesn't he? You need angular momentum, and where's that supposed to come from?" was the *Influenzerin*'s characteristically snide comment.

In reality, as the late Professor Nils-Axel Mörner pointed out in several of his 600 papers on sea-level rise, one consequence of warming the oceans and causing sea-level rise (which, he estimated, would be about 10 cm over the 21st century) is alteration of the Earth's rate of rotation by a small amount due to the redistribution of the ocean mass.

10. Dr Clauser is advancing a novel hypothesis that clouds stabilize the global temperature so that greenhouse gases have very little effect because higher temperatures evaporate more water vapour, forming more clouds, reflecting more sunlight and lowering global temperature. "Hooray, the Nobel prizewinner has saved us."

Here, the *Influenzerin* tries to present a scientific argument by saying that there are 80 different types of clouds, all of which have different reflectivities. This is classic misdirection. For Dr Clauser, in his talk, had carefully calculated the cloud albedo implicit in various papers on the Earth's energy imbalance, and he had also shown that the cloud albedo is – of course – greater than the albedo when clouds are absent.

Though cloud cover is subject to considerable natural variability, in the long run the effect of warming the planet is to increase cloud cover, and consequently cloud albedo, by a small but significant amount. Aside from the long-run macrometeorological influence even of a very

small change in cloud albedo and hence in planetary albedo, there are also observable micrometeorological effects, not all of which are accounted for in climate models. For instance, warmer weather in the Tropics, the engine-room of the climate, causes earlier afternoon convection. In other words, the thunderstorms that gather in the tropics on most afternoons occur earlier and last longer, exercising a surprisingly powerful local cooling effect. Once again, it is Dr Clauser who is right. The largest uncertainty to which IPCC admits in calculating how much warming we may cause comes from trying to determine the effect of clouds. For instance, from 1984 to 2004 there was a natural reduction in cloud cover which accounted for well over half the radiative forcing, and hence the warming, over that period of two decades. Since IPCC is itself uncertain about the influence of clouds, the *Influenzerin* should have been considerably more cautious, and very considerably more polite, in her attack on Dr. Clauser.

11. Dr Clauser’s estimate that clouds will reflect 145 Watts per square metre of radiation is incorrect, because the measured total reflected short-wave radiation is only 100 Watts per square metre. The standard albedo is roughly half of what Dr Clauser suggests.

Here, the *Influenzerin* has taken Dr Clauser out of context. When he mentioned an albedo of order 80%, he was talking of a specific type of cloud formation during the day. He did not apply that value to any calculation of how much global warming we may cause. Instead, as will become evident below, he adhered very closely to the mainstream numbers dependent upon the mainstream value for albedo. Therefore, his questioning the value of albedo for a specific situation – rather than for the globe as a whole - does not in any way invalidate the main point of his argument. The question is not so much how large the the albedo is, but rather what change would arise in global temperature if the albedo were to change. That question is not specifically addressed in Dr Clauser’s presentation, so I shall summarize some of the points I made when addressing the technical panel at last year’s Heartland conference in Orlando, Florida. I shall set out some calculations, based on the standard 0.29 albedo. These are heavy going, but they are mainstream and authoritative.

Here are the initial conditions informing all models of the climate, showing in detail how each is derived. We shall even rely on the square of lightspeed in our derivation of the Stefan-Boltzmann constant. You will see how well most of these values agree with the values adopted by Dr Clauser in his presentation:

Net inbound radiative flux density Q_0 at the top of the atmosphere is derived in Eq. (A1) from the 1363.5 W m^{-2} present-day total solar irradiance S_0 (DeWitte 2016) and today’s mean planetary albedo α , equal to 0.29 (Stephens 2015).

$$Q_0 := S_0(1 - \alpha)/4 = \mathbf{242 \text{ W m}^{-2}}. \quad (\text{A1})$$

The Stefan-Boltzmann constant σ (Rybicki 1979), originally derived empirically in 1879 by the Slovene physicist Jožef Štefan, was proven theoretically in 1884 by his Austrian pupil Ludwig Boltzmann by reference to Planck’s radiation law. Equation (A2) yields the Stefan-Boltzmann constant σ , the constant of proportionality between Q_0 and emission temperature

R_0 , for π the circumference-diameter ratio, k the Boltzmann constant, h Planck's constant and c lightspeed *in vacuo*.

$$\sigma := \frac{2\pi^5 k^4}{15h^3 c^2} = \mathbf{5.6704 \times 10^{-8} \text{ W m}^{-2} \text{ K}^{-4}}. \quad (\text{A2})$$

Emission temperature R_0 is derived from Q_0 by the Stefan-Boltzmann equation (A3) for mean surface emissivity 0.936 (today's value: the mean of 6530 equiareal regions in ISCCP 2022). The 255 K usually given neglects the emissivity ε , necessary where the emitting surface is not a blackbody. Since $R_0 \gg \Delta R_0 + \Delta R_1$, the present result is scarcely affected even if R_0 varies by as much as 10% either side of the 260 K derived here.

$$R_0 := \left[\frac{Q_0}{\varepsilon\sigma} \right]^{1/4} = \mathbf{260 \text{ K}}. \quad (\text{A3})$$

The Planck response P is the first derivative of Eq. (A3), replacing R_0 with the 289 K mean industrial-era global mean surface temperature T_S . P is the coefficient of proportionality – near-invariant since 1850 – between net inbound flux density and surface temperature.

$$P := 4Q_0 / T_S = \mathbf{3.4 \text{ W m}^{-2} \text{ K}^{-1}}. \quad (\text{A4})$$

Doubled-CO₂ forcing ΔQ_1 is variously given as 2.26, 3.00, 3.45 or 3.93 W m⁻² (Chen 2023; van Wijngaarden 2023; Andrews 2012; IPCC 2021)..

Reference doubled-CO₂ sensitivity (RCS), the, the ratio of ΔQ_1 to the 3.2 W m⁻² K⁻¹ Planck response P , is thus of order 1 K (*cf.* 1.045 K in CMIP6; Zelinka 2020).

With that background, let us increase the Earth's albedo from 0.29 to 0.3, a value often cited in climate-sensitivity studies. Then net incoming radiative flux density at the top of the atmosphere falls from 242 to 238.6 Watts per square metre. Plugging the new value of the net incoming radiative flux density into the Stefan-Boltzmann equation (A3) reduces the 260 K emission temperature (the temperature that would prevail at the surface if, at the outset, there were no greenhouse gases in the air and no feedbacks were operating) to 258.9 K.

The Planck response (Eq. A4), which we calculate as 3.4 Watts per square metre per Kelvin of direct temperature, becomes 3.3 Watts per square meter per Kelvin – exactly the value cited by Dr Clauser in his presentation.

For the central point made by Dr Clauser is that the uncertainties in the three measured quantities from which the Earth's energy balance is derived are so large that we have no idea what that imbalance is, or even whether there is one. For a third of a century since IPCC (1990) the world has been warming at half the originally-projected (and still-projected) rate. There is indeed something else fundamentally wrong with climatologists' calculations: but that giant error is beyond the scope of the present work.

12. "It doesn't take much to realize that 70% cloud cover at 0.8 albedo alone pushes the planetary albedo above 0.56."

Here, the *Influenzerin* cites Dr Stephens, one of the world's experts on albedo, who wrote the standard paper of 2015 on which most climate researchers (including my team) rely. But she has misrepresented to him the conclusions reached by Dr Clauser, and she has insufficient knowledge of climatology to realize that, notwithstanding his consideration of albedo, the numbers he uses in his calculation of the Earth's radiative imbalance are the official, mainstream values, derived as explained in my response to her 11th erroneous point above.

13. Dr Clauser is accusing 1000 scientists with PhDs of “making arithmetic errors”

Dr Clauser mentioned in passing some errors in published derivations of the Earth's energy imbalance, at least one of which went beyond a mere rounding error. These things happen: but the *Influenzerin*'s hate-filled criticism of Dr Clauser, in this as in all other respects, was ill founded.

Finally, it is worth noting that Dr Clauser's consideration of albedo does not have a significant adverse effect on the main point he makes, which is that increased cloud cover with global warming probably acts globally over the long term and regionally over the short term as a balancing net-negative feedback to direct temperature, helping to maintain the formidable thermostatic stability of the climate.

On this central point, many commentators – Dr Roy Spencer among them – have pointed out that the umbrella effect of greater cloud cover in shielding more of the Earth's dayside surface from the Sun's rays is near-certainly predominant over the blanket effect of the additional cloud cover in retaining warmth on the nightside.

I hope that these notes will be widely circulated among the skeptical community. We have perhaps been too lazy when we ought to have sprung to the aid of those of our distinguished colleagues who are subjected to the reputational assassination that is the default technique of the climate Communists. As Benjamin Franklin used to say, “We must all hang together, or assuredly we shall all hang separately.”

An extended note of Dr Clauser's lecture follows.

A cloud thermostat controls the Earth's climate

John Clauser, EIKE Vienna 2024 [lecture notes by Christopher Monckton of Brenchley]

CLIMATE CHANGE is a total myth put forward by the IPCC and its collaborators. They were tasked with important tasks which they botched. Their first task was to identify dominant processes in the atmosphere; to use computer modelling; and to use observational data to measure three important numbers:

- Energy imbalance;
- Feedback intensity; and
- Albedo.

I say all these data were botched. The data were dishonestly, intentionally, erroneously fudged. The whole argument is totally bogus.

To derive the Earth's energy imbalance, take the difference between incoming and outgoing radiative flux density [denominated in Watts per square meter]. Incoming flux density is sunlight. Outgoing flux density is reflected sunlight and radiation in the far infrared.

If the inbound flux density exceeds the outbound flux density, a buildup of energy arises. That is IPCC's definition of global warming: if you have a build-up of energy you have a temperature rise. IPCC claims that there is a proven net energy imbalance: more energy inbound than outbound.

Based on this energy imbalance, climatologists built a house of cards, which has collapsed into apocalyptic prediction. They drew their conclusions before they looked at the data.

They concluded that, if you can prove global warming, it stirs up the atmosphere and leads to climate change. If you have climate change, it's all bad, usually: extreme weather events leading to global apocalypse.

NOAA says it has observed this increased frequency of extreme weather. IPCC say they know the energy imbalance is due to buildup of atmospheric greenhouse gases. Conclusion: give us trillions to limit greenhouse gases.

I say the Earth energy imbalance is not proven. All the observational data related to the energy imbalance are fully consistent with no warming. Climatologists' further claims of the energy imbalance are based on dishonestly fudged data and computer modelling, using very seriously flawed physics.

NOAA says it has observed increased energy imbalance, but NOAA's own data disprove that conclusion. Without global warming, there is no climate change; therefore, there is no collapse; therefore, the requested trillions are wasted.

Originally, modelling was done mostly by GISS. However, modelling is totally incapable of simulating the past history for which the data are available. Since models cannot predict the

past accurately, even with all the data (and they cannot even hindcast the history of global temperature change correctly), *a fortiori* they cannot predict the future.

More importantly – and this fact has not been pointed out recently – their attempts to model albedo are way off. Their own data, once proper allowance is made for conservation of energy, shows shows that their estimate of cloud albedo is incorrect by a factor 2.

Therefore, modelling by the several dozen models of the Coupled Model Intercomparison Project is unable to predict temperature.

In the graph of past and projected temperature change (IPCC AR5, fig. 11.25), grey lines are attempts to simulate the past. The black solid line is what the actual measurements are claimed to show. Since the models cannot correctly simulate the past, their predictions of the future are not to be trusted. Not one of their more than 45 models can simulate the Earth's past, let alone predict the future.

Another instance of bad science by climatologists: they pull out only a temperature anomaly. They do not reveal what the reference value of global temperature is, so that it is not possible to apply the Stefan-Boltzmann equation to calculate the energy output.

Theory and observation so markedly disagree that there is something very wrong with the physics in the models. Temperature anomaly measurements are in any event a very poor indicator of global warming. For the energy imbalance is the cause, temperature the effect.

Climatologists have also made inadequate allowance for the urban heat-island effect and other confounders. Almost all measurements are made over land, which is only 30% of the Earth. The oceans are the remainder. IPCC agrees with this. They agree that the proper definition of global warming is more radiative flux density coming in than going out.

The Earth's supposed net energy imbalance

Albedo is reflectivity of sunlight. It is the ratio of reflected to incident sunlight [Actually, it is not the ratio: it is the fraction of total inbound solar radiation that is reflected outward, causing no warming].

Errors in measuring albedo will cause an error in calculated energy imbalance.

The models are nowhere near simulating the Earth's albedo. Their error is about 14 times bigger than the claimed imbalance range. That is a serious disagreement.

In 2015 Stephens et al. published the annual variation of mean Earth albedo, from data gathered by the Terra and Aqua satellites (IPCC 2021 no longer cites Stephens' paper). The coloured curves are predictions. The black curve is from Terra and Aqua. They're off by 10-15 Watts per square metre.

Multiply albedo by the 240 Watts per square metre solar irradiance. IPCC says 100 Watts per square metre is going out. Modelling is clearly incapable of simulating the experimental data. They can't even get the phase of the annual oscillation right.

The bottom curve in a four-panel figure from Stephens shows annual variance in solar radiation reaching Earth, varying by 22 Watts per square metre over the annual cycle.

Measuring energy imbalance, one measures energy IN and energy OUT, and one subtracts.

Yet the energy imbalance varies by 11 Watts per square metre. These are very big numbers. Even a minor error will have a large effect on the reliability of the calculations. The difference between them is about 0.2% of the incident radiative flux density.

The satellite radiometry and ocean buoy data are incapable of measuring correctly.

Climatologists use ERBE, CERES (Terra & Aqua), ocean heat content (ARGO) and XBT water sampling by ships, and ground sunlight observations using the baseline surface radiation network (BSRN). The various measured values are all in wild disagreement with one another.

Fabricating data to fill in the gaps in the datasets is a no-no. Adjusting data is what I call fudging. Reported data are totally fudged in a manner that dishonestly changes the warming.

The reports all produce an energy-flow line. You can pull the numbers from the various energy-flow numbers.

The calculation shows 340 Watts per square metre in, 100 Watts per square metre reflected, and thus 240 W/m² net inbound longwave radiation. Yet the final error bar must exceed any one component in the calculation. The two earliest reports were by Stephens (1981) and Ramanathan (1987).

Table 1: Published net inbound radiative flux densities compiled from Dr Clauser's talk

	W m ⁻²	Inbound	- Reflected	- Outbound	= Net inbound
Stephens (1981)		344.0	103.2	234 ± 7	9.0 ± 10
Ramanathan (1987)		343.0	106.0	237.0	0 (actually -3)
Loeb (ERBE)		340.0	107.0	234.6	-1.6
Loeb (OHC 2009)		340.0	99.5	139.6	0.0
Loeb (OHC 2012)		Method of calculation not disclosed			+0.64 ± 0.11
L'Ecuyer		340.0	102.0	238.0	0.0
Stephens & L'Ecuyer (CERES 2015)		340.0	100.0	240.0	+0.6 ± 0.4
Stephens & L'Ecuyer (OHC 2015)		340.0	102.0	238.0	+0.6 ± 0.4
Wild et al. (2019)		340.5	98.0	239.0	+0.6
IPCC AR6 (2021)		340.5	98.5	239.5	+0.7

The US National Academy of Sciences cites Ramanathan and says the observations upon which he relied do not meet quality standards. Ramanathan used clear-sky and cloudy-sky but nothing in between. That is now the standard method.

Loeb et al. say satellites cannot provide radiative imbalance to a sufficient accuracy. Loeb's new values show warming where Ramanathan's showed no warming. Loeb did not believe

the satellites and instead calculated from the ocean heat content data measured by ARGO buoys.

This was forced upon them by speculation by Hansen et al. about Earth energy imbalance.

Stephens and Loeb admit they adjusted the numbers. Stephens used visibly incorrect arithmetic. The papers do not say how the error bars were calculated.

The energy-balance diagram in Stephens (2012) was the origin of the “bad penny”: he takes Loeb’s error bars and increases them a little bit to make them agree with the CMIP5 results.

The arithmetic doesn’t add up. [Probably rounding]

Stephens and Loeb, followed by L’Ecuyer, one of their co-authors, who reanalysed the ocean heat content and revised Loeb’s revision.

Trenberth and Fasullo (2010) are highly critical of Stephens, Loeb and l’Ecuyer.

Satellites are all measuring at the top of the atmosphere. Other measurements are at the surface. But you can’t mix and match, as Trenberth et al. point out. They point out the mismatch between satellite and ocean data. I think the energy goes to increasing the Earth’s rotation.

Stephens and L’Ecuyer (2015) get together, saying they had made an unjustified *ad hoc* choice between ocean heat content (OHC) and satellite data. They say that both their values are correct. They admit that their adjustments are at least 10 Watts per square metre and they say that the imbalance is 0.6 +/- 0.4.

Wild et al. 2019: also study space and satellite clear-sky albedo. They produce their own new energy-flow map, adopted by IPCC (2021) with further fudges. There, the error bounds rounded off to 0.5 Watts per square metre, which is the same order as their energy imbalance.

Albedo and its significance

Worse, as I shall now show, the cloudy-sky albedo from the diagram in Wild et al. is off by a factor 2.

What does sunlight do? It is said to warm the Earth over land. Land is only 30% of the Earth. 70% is ocean. Almost all the Earth’s exposed water is in the oceans.

73% of the sunlight energy incident on the ocean (clearly the dominant process) is used simply to evaporate water and not to warm the planet. To calculate the albedo error, there’s a simple energy-conservation law: there are cloudy sky and clear sky,, but the mean albedo for the whole sky is the area-weighted mean of the two areas.

So using the diagram in AR6, you get albedo 0.3 for cloudy sky and 0.33 for clear sky. Therefore, cloud albedo is 0.36. Flying over the Pacific Ocean stratus clouds, the albedo is twice that. Something is clearly wrong.

IPCC shows 160 Watts per square metre absorbed by the Earth, of which 112 Watts per square metre is absorbed by the ocean, while 82 Watts per square metre was consumed by evaporation. Over the ocean alone, 73% of energy is used for evaporating water.

Conclusions so far:

1. Climatologists say their models can simulate with accuracy the observational data, but they cannot.
2. Though climatologists say there is an energy imbalance, there is little or no imbalance [and the imbalance is so small that it falls within the error-bars of the observations from which it is derived, so that it is of no statistical significance]
3. Since there is no statistically-significant energy imbalance, no conclusions to the effect that there is any “climate emergency” may legitimately be drawn from it].
4. Not one of the various modalities of ocean heat content shows any net global warming. These observations have occurred over and over and over again. This is clearly dishonest fudging of the data. Just redo the arithmetic yourself.
5. 73% of the sunlight incident upon the 71% of the Earth that is ocean is used for making clouds, not for causing global warming. [Evaporation actually cools the surface, and the net effect of clouds is to cool the Earth as well.
6. There is clearly a very serious factor-of-two error in the cloudy-sky albedo.

Extreme-weather events

NOAA had claimed to observe an increased frequency of extreme-weather events (2012). The authors, Jane Lubchenco and Tom Karl, were not scientists. They were both political bureaucrats.

They say there has been a huge increase in extreme-weather events. They create an index of extreme-weather events, such as the number of hot spells, cold spells and droughts. They leave out tornadoes, which are decreasing. They say it is obvious that there is an increase in the last three decades.

I do not detect in the data what they are telling us. I replotted it as a point-graph. One of the two side-by-side point-graphs is reversed left to right. I say you cannot tell which way time is going by looking at the data. Therefore, there is no observable increase in extreme-weather events.

What I have, I believe, is great news. There is no climate crisis. The climate is not in peril. Their claims are a dishonest hoax.

Cloud cover as the Earth’s thermostat

The second task of the clueless IPCC was to identify the dominant atmospheric process, and they incorrectly scapegoat greenhouse gases, using fudged data.

I say the cloud thermostat mechanism provides a dominant natural feedback. The feedbacks that are associated with greenhouse gases are negligible. The Earth is very robustly stable

against variability in the concentrations of the greenhouse gases, just as it is against variability in volcanism.

Where does the stability come from? It comes from the huge variation in cloud cover. It is like a thermostat. The power imbalance is never zero. The furnace is either on or off. The thermostat modulates the on/off duty cycle.

The furnace is the reflectivity of the sunlight hitting the surface of the ocean or not hitting it. Clouds provide dark shadows and once they shadow the ocean there is no light there, turning the furnace off. Cloud fluctuations modulate their own cloud production rate by that mechanism.

There are huge variations in the reflected light from 18-55 to 40-77 Watts per square metre. These variations control the Earth's energy imbalance. The modulation strength is 26 times this wimpy 0.7 Watts per square metre imbalance [see Table 1], and 45 times the claimed uncertainty interval.

It is thus clear that the seemingly random fluctuations in climate are not random at all. They constitute a crucial, quasi-periodic part of the feedback mechanism.

Under-appreciated properties of clouds

Look at pictures of the Earth when viewed in sunlight, from pictures of a nearly cloudless Earth to higher and higher cloud fractions. The area of cloud coverage area is highly variable. Clouds are all bright white. They have a very high reflectivity. They reflect very much more light than the ground or the ocean next to them. White paper has 99% reflectivity, so clouds are at least 80% reflective.

AR6 and Wild claim the reflectivity of clouds is only 0.36. Yet the clouds are obviously a lot whiter than the average.

Flying over el Paso, the clouds cast very dark shadows. They are blacker than they look. There are very defined shadows.

If you have solar panels, just watch the current output. Just a single cloud passing over will reduce the output from the panels to 50% or less. On an overcast day, try reading a book without turning on the light. Where did the light go? It got reflected back into space.

King et al. (2013) analysed 12 years of CERES Terra & Aqua satellite data and separated out what happens over land and over ocean. There are annual oscillations in radiative flux density. Power scales are added. There are two different scales, depending on the cloudy-sky albedo. The cloud fraction is what is used. On the left scale, I use cloud fraction, albedo and solar constant. Fluctuations as between land and ocean are at least 18 Watts per square meter. On the right-hand scale, I use cloud albedo of 0.8. Then reflected solar short-wave radiative flux density varies by as much as 55 Watts per square metre. After including another 22 Watts per square metre from the [Croll/Milankovic] variation in the eccentricity of the terrestrial orbit, the total [dayside] variability is 77 Watts per square metre.

This is not a slow process. Each of these curves has a dotted line and solid line (Terra and Aqua satellite data, in sun-synchronous orbits, one at 10.30 am, the other at 1.30 pm, so that the difference between the two curves is only 3 hours.

Compare this to the earlier Stephens paper, the graph shows that variability in albedo is chiefly attributable to variability in cloud cover.

The energy-balance diagram in IPCC (2021) asserts that 73% of the input energy absorbed by the oceans is used not for warming the Earth but instead simply for evaporating seawater and making clouds, rather than for raising the Earth's surface temperature.

CO₂ is asserted to have a direct warming effect of 2 Watts per square metre [per doubling of CO₂, it is actually 2.5 to 4 Watts per square metre]. But when clouds are present the furnace is turned off, so cloudy days are cooler in general than sunny days. If you add too much cloud it turns the furnace off. You need that sunlight to evaporate seawater. The evaporation rate drops very rapidly with cloud cover. Clouds then disappear by precipitation.

When cloud cover is too low, exactly the opposite happens. This happens no matter what the greenhouse gas concentrations are. It will really correct any losses due to greenhouse gases.

Feedback intensity

The third of IPCC's sacred tasks is to derive the intensity of temperature-feedback mechanisms. It is obvious that something is controlling the Earth's climate. Greenhouse gases have very little effect. Climate has remained incredibly stable. The NOAA data show this.

So they had to calculate the strength of the feedback intensity. The fact that they did not correctly identify the mechanism led them to the conclusion that the stability is marginal, and there is a tipping-point leading to thermal runaway. That is clearly wrong. The thermostat you get from clouds provides an extremely strong stabilizing feedback mechanism. Feedback response to variability in greenhouse-gas concentrations is totally negligible.

Where has this been studied before? National Academy 2003; Sherwood et al. (2020), and most of chapter 7.4 in AR6.

Sherwood make an unnecessary assumption that the cloud fraction is independent of surface temperature and is not affected by it. One should remove that restrictive assumption.

I had to choose two values for cloud albedo: IPCC's choice or measured with a DZ3. They say the total is 1.16 Watts per square metre per Kelvin natural feedback strength. I calculate it as -5.7 Watts per square metre per Kelvin using their cloud albedo and -12.7 Watts per square metre per Kelvin if you use the more reasonable cloud albedo.

Straight out of AR6, fig. 7.10, p. 979: Cloud feedback strength is assumed as neutral. Yet they claim that the effect of cloud feedback is net-positive. I expect the value is a tiny fraction of theirs.

Conclusions from this part of the presentation are as follows –

1. The cloud thermostat is the overwhelmingly dominant climate feedback process: it prevents global warming and climate change. Climatologists claim the stabilizing effect (i.e., the net-negative feedback intensity) is -1.16 Watts per square metre per Kelvin, when it is really -5.7 to -12.7 Watts per square metre per Kelvin.²
2. By contrast, the Earth's energy imbalance varies by 18-55 Watts per square metre per Kelvin (or 40-77 Watts per square metre per Kelvin if you include the annual variation in the solar constant).
3. Ramanathan divided the sky into two parts, but King et al. say at least four: clear v. cloudy over land v. ocean. IPCC totally ignores the importance of cloud-cover variability, and does not reference King et al.

My recommendations:

- There is no climate crisis.
- There is an energy crisis, because we have a huge population that wants energy.
- If you try to limit energy production you exacerbate the energy crisis.
- Government and businesses are spending trillions in efforts to limit greenhouse gases.
- Though EPA used the Clean Air act to call CO₂ a pollutant, remove CO₂ and methane from the list of pollutions and save trillions immediately.
- All efforts to control CO₂ should be ended immediately.
- If wind and solar are not economically viable on their own, don't use them.
- Geoengineering should stop. As Senator Dirksen said about spending on Apollo and Vietnam, "A trillion here, a trillion there, and pretty soon you're talking real money".

Questions

Question: What caused the variability of temperatures in the mediaeval warm period and the little ice age?

Clauser: I don't know. [The lack of sunspots during the Maunder minimum is the most likely explanation for the Little Ice Age. The Earth's temperature has been recovering ever since. During the 40 years 1694-1733, the Central England Temperature Record showed warming at a rate equivalent to 4.33 K/century. No such warming rate has been observed since in that record.

Question: Can one support or falsify the existence of the self-correcting mechanism by which cloud variability keeps temperature stable?

Clauser: The satellites only pass once a day, but all the changes are occurring within the day.

Question: What do you think of Bill Gates' ide of seeding clouds?

Clauser: That will bankrupt us.

Question: Eike is headquartered in Leipzig, but has moved to Vienna because its staff were scared for their lives.

Clauser: In Germany things are getting really rough.

Question: Ed Berry is a physicist from Montana who says that 22% of the increase in CO₂ is caused by humans and the rest is natural.

Clauser: I don't care. It doesn't matter whether it's manmade or natural, because either way it's negligible.

Question: If 80% of CO₂ is natural, then CO₂ is surely not relevant?

Clauser: I don't think CO₂ is dangerous. The cheapest way to sequester CO₂ is to go to any bar. Liquefy it at low pressure and put it in a tank and dump it in the deep ocean as liquid CO₂ at deep-ocean pressure. So some of the deep-ocean fish will be drinking soda-water rather than salt-water, but it will stay there, which is where Nature is going to put it anyway.

Question: How is it that these climate scientists make these glaringly obvious errors that are not retracted?

Clauser: Dishonesty. They're being pressured to do so by political entities. I don't know. Fortunately, I'm not one of them.

Question: How do you feel about scientists who say you shouldn't be talking about this because you're a physicist?

Clauser: If they give you a Nobel Prize they give you a licence to be a referee. Years ago I started looking at how we know what we know. No one taught the scientific method well. It wasn't till I read Feynman that it came together: Nature is the final arbiter of science.

Question: Can quantitative scientists cut through nonsense?

Clauser: I've been an experimentalist and a theorist. Both have a part to play.

Some equations from Dr Clauser's appendices

Definitions: f = fraction; α = albedo; OSR = outgoing shortwave radiation; Q is gross TOA radiative influx density; all is all-sky; clr is clear-sky; cld is cloudy-sky.

Conservations	$f_{\text{cld}} + f_{\text{clr}} = 1; \text{OSR}_{\text{all}} = \text{OSR}_{\text{clr}} + \text{OSR}_{\text{cld}}$	(1)
	$\alpha_{\text{all}} = \text{OSR}_{\text{all}}/Q_{\text{TOA}} = f_{\text{cld}} \cdot \alpha_{\text{cld}} + f_{\text{clr}} \cdot \alpha_{\text{clr}}$	(2)
AR6	$\alpha_{\text{cld}} = 0.36$	(3)
cf. Griggs 68, Chylek 84	$\alpha_{\text{cld}} \approx 0.8 \text{ to } 0.9$	(4)
King 2013, Schmidt 2014	$f_{\text{clr}} = 0.33; f_{\text{cld}} = 0.67$	(5)
AR6 all-sky diagram	$\alpha_{\text{all}} = 100/340 = 0.3$	(6)
AR6 clear-sky diagram	$\alpha_{\text{clr}} = 53/340 = 0.16$	(7)
Corollary	$\alpha_{\text{cld}} = \alpha_{\text{all}}/f_{\text{cld}} - \alpha_{\text{clr}} \cdot [(1/f_{\text{cld}}) - 1]$	(8)

Feedback analysis of climate systems

In Sherwood et al. (2020), ΔN is the net inbound energy imbalance at the top of the atmosphere, the quantity used by IPCC to define global warming. If ΔN is positive, the Earth warms (the feedback destabilizes the system); if negative, it cools (the feedback stabilizes the system). [Actually, positive feedback does not destabilize the system: see the attached paper for an understanding of temperature feedback and an account of how climatologists misuse it.]

For any given feedback mechanism, Sherwood et al. calculate the overall feedback intensity as the derivative of ΔN with respect to the Earth's surface warming: that is, the change in ΔN per unit change in surface temperature:

$$\text{Feedback intensity } \lambda \equiv \partial \Delta N / \partial T_{\text{surface}}. \quad (10)$$

[This is a central error in climatology: indeed, arguably *the* central error: feedback processes respond not to a *change* in *surface* temperature but to the *whole* of the *reference* temperature, which is the 269 K sum of the 260 K emission temperature, the 8 K direct warming by natural greenhouse gases and the 1 K subsequent anthropogenic perturbation equivalent to doubling CO₂ in the air].

If the system possesses many independent feedback processes, and each mechanism (labelled with the subscript j) relies on an associated intermediate variable x_j , the total feedback intensity of the system is given via the chain-rule for taking derivatives in calculus:

$$\text{Feedback intensity } \lambda \equiv \sum_j \lambda_j = \sum_j (\partial \Delta N / \partial x_j) \cdot (\partial x_j / \partial T_{\text{surface}}) \quad (10)$$

For example, the primary temperature-stabilizing [i.e., negative] feedback mechanism is via the Stefan-Boltzmann law's σT^4 dependence of far-infrared (i.e., long-wave) energy re-emission by the Earth. Here, σ is the Stefan-Boltzmann constant [$5.6704 \times 10^{-8} \text{ W m}^{-2} \text{ K}^{-4}$]. Sherwood (p. 19) calculate the (misnamed) feedback parameter λ_{Planck} , for Stefan-Boltzmann negative feedback, as $-3.3 \text{ W m}^{-2} \text{ K}^{-1}$. The Stefan-Boltzmann law was discovered in 1879, but Planck's law was not discovered until 1900: therefore, the Planck response should be called the Stefan-Boltzmann response.