Politicians want to save the world and spend the money of their countrymen. We ask: Is the "global climate" in any real danger?

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Rescue from the Climate Saviors

Is the "Global Climate" really in Danger?

By Klaus Ermecke

Introduction

If one believes politicians and the media, the world is in danger: the earth is heating up – catastrophe will result – and civilization is the cause! Even school children are frightened[1)] and taught that mankind can and must save the climate[2)].

But this message is linked to a hidden agenda. Its purpose is to prepare the citizens for sacrifice: Rescue is possible – maybe - though unfortunately it is awfully expensive![3)]

- In fulfilment of the "Kyoto Protocol", energy providers and industry in the participating countries are requested to pay for "emission credits". These are to be kept in short supply – with the intended result of skyrocketing prices![4)].
- Since wind and sun are claimed to be "friendly to the environment", utilities are mandated by law to buy "renewable energy" from outside parties: at random times, in unforeseeable quantities and at excessive prices. Their costs are driven up – and so are energy prices for corporations and households (Fig. 32)[5) 6)].
- Car owners are stigmatized, auto manufacturers castigated and home owners misled to inefficient choices by officially sponsored campaigns and a stream of new regulations and taxes[7)].
- Rising costs and prices damage the competitive position of an economy and result in impoverishment, especially of the poor.
- However, some are rewarded: "climate scientists"[8)], "energy advisers", manufacturers and operators of wind generators[9)], and all enterprises to which governments present CO_2 certificates for free, as long as they make others bear the cost.[10)]

In spite of the rising burdens imposed on almost all businesses and citizens, few politicians have questioned the "fight against climate change". Over years, hardly a newspaper challenged the scientific basis of the "greenhouse" dogma. If asked, its proponents referred to a "scientific consensus" regarding "human made climate change". Accordingly, dissenting opinions had to be unfounded and were not worth consideration.

Is the world in danger – or just our freedom and wealth?

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However, thorough review of the pertinent scientific literature and questioning of experts reveals that there is in fact no consensus at all regarding the so-called "greenhouse effect":

- Almost all scientific papers related to "greenhouse effect", "climate change" and the supposed human influence do not critically examine these statements, and instead simply assume them to be true.[11)]
- There are tens of thousands of publications in which the authors either find no relation to "climate change"[12)], or even explicitly reject the concepts on which "climatologists" have based their assumptions.[13)].
- There are in fact several different "greenhouse gas theories" based upon very different physical assumptions[14)].

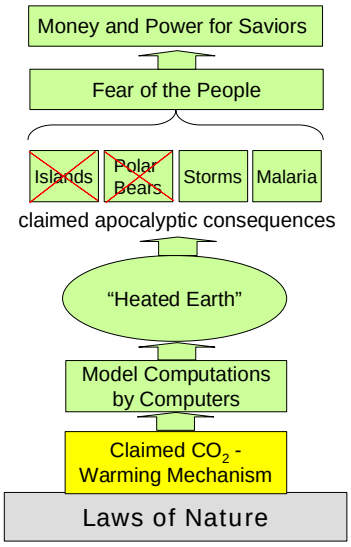

Fig. 2: The "Green Tower of Climate Dogma"

Many people are terrified of the alarmist climate scenarios portrayed by media, environmentalist groups, and politicians. Disappearing islands and terrible storms are some of the inevitable consequences of the warming, which is predicted by computer models.

This study concentrates upon the scientific basis of this dogma: the supposed CO_2 warming mechanism. If this premise can be scientifically disproven, all of the claimed consequences were unfounded and the whole "global warming edifice" collapses like a house of cards.

Picture: © KE Research, 2010

The commonly believed notion that increased CO_2 will catastrophically warm the planet does not hold up to scientific scrutiny and the laws of physics. Here is why:

The initial point: the CO_2 warming hypothesis

The common belief is that there is a "natural greenhouse effect". On top of that there would emerge an additional manmade effect:

- The real earth's average temperature is assumed to be 15°C [16)].
- A fictitious earth without "greenhouse gases" would have an average temperature of –18°C. The supposed difference of 33°C is due to "natural greenhouse effect". [17)] [18)].

This "natural greenhouse effect" is said to occur as follows (most commonly used version):

- The sun heats the earth by visible light.
- The ground emits energy as infrared light ("IR").
- "Greenhouse gases" catch the radiation and send a part of the energy as "back radiation" back to the earth's surface (Fig. 21). Thus, the ground is additionally heated.
- In a fictitious atmosphere without "greenhouse gases" all radiation would escape into space – this atmosphere would be colder.

It is claimed that more CO_2 – produced by mankind - leads to more back radiation and thus to more warming: to a "man-made effect" on top of the "natural 33°C" [19)]. This is the foundation of the imaginary world we call the "Green Tower of Climate Dogma" (Fig. 2).

The focus of this Report

This study only deals with one basic fact: Does an increase of CO_2 concentration raise the earth's temperatures – or not? This is simply a question of physics and not of political or environmental beliefs. If there was not such an influence, then

- all climate-model calculations would be wrong,
- the consequences predicted would consequently be false,
- and all costly "rescue plans" would be completely unnecessary.

It is this critical point upon which this report will focus. This approach differs from most other critiques of the greenhouse dogma and purposely sets aside peripheral issues that distract from the core issue noted above:

- We do not look at historical temperature time series. Whether it was warmer or colder than today 2, 20, 200 or 2000 years ago, is not relevant to the physical effects of CO_2.

- The same is true for CO_2 levels in the atmosphere. Are CO_2 levels actually higher today than in the past? Contrary to the popular belief, hundreds of old and new studies show that CO_2 levels have been higher than the present in the recent and distant past[20]. If, however, CO_2 did *not* affect global temperature, the atmospheric levels would not be of importance[21].

- Does the sun control the temperatures on earth? There is evidence that it does, but we will not examine this question any further. This paper is only about the fact that CO_2 does not control global temperature.

- Is "climate" predictable – with computers? Many experts disagree. However, in this study, it is not of interest, whether climate computer models can be improved if proper assumptions are made. It is sufficient for us to show that they must be wrong, if they are programmed based on incorrect assumptions.

- Finally, we avoid the heated debates on claimed consequences of "climate change". Will the polar bear become extinct in fifty years? Our answer today: "We don't know!" [22]

Fig. 3: The Atmosphere

When we want to understand the "climate" of the Earth, it is essential that we determine the physics of the atmosphere.

This picture visualizes the Rayleigh scattering, which turns the black sky into blue and the white sun into yellow. Scattering causes 6% of incoming solar energy to change direction back to space – without warming of the Earth.

Photo:
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Summary of our most important results:

- The Earth has a natural "cooling system". It continuously radiates energy into space.

- Any increase in temperatures automatically boosts this radiation. The cooling power jumps up.

- "Global warming" (i.e. a general increase of temperatures) requires this incremental cooling to be compensated by an increase in heating power.

- Accordingly, in order to achieve "global warming", CO_2 had to increase the flow of energy from outside the system to the Earth's surface. But this is beyond even the claimed capabilities of this gas. Therefore CO_2 cannot cause any warming.

- IR gases ("greenhouse gases") cool the Earth. The "natural greenhouse effect" (i.e. the warming) is a myth.

- Climate variability did and does exist. However, the CO_2 level in the atmosphere is not the cause. Aside from the sun itself, changing cloud coverage is the main factor.

Our Methods

Our Report is based on:

- Desk research
- Expert interviews
- Own computations

Fig. 4: Glassblower at work

Anybody who has ever been working in front of an oven knows that an increase in temperature causes a significant rise of radiation.

For our planet Earth the same rule also applies.

Photo:
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Analysis

"Greenhouse warming" fails from "lack of energy"

There are three ways to check a scientific hypothesis and disprove it if necessary:

- check the basic assumptions
- check each step of the scientific derivation
- check the results for compatibility with established physical laws.

We choose the third option and review the results: The claimed "greenhouse effect" would lead to a surge of the temperatures on the ground as well as in the air immediately above when the atmospheric CO_2 concentration goes up[23]. However, is this possible at all?

Let us perform a thought experiment. We assume "global warming" has occurred for initially unknown reasons. Now the question is: under which conditions could the earth remain warm?

To answer the question, one must know that matter constantly radiates energy; in colder surroundings it attempts to cool down. If we want to keep a hot plate or a BBQ grill hotter than its environment, we must supply a steady flow of energy: by means of "electricity" or charcoal burning. If there is no more electricity, our stove cools down very soon.

This also goes for the earth. Earth's surface, clouds and atmosphere constantly radiate energy into space - and the resulting loss of energy causes cooling. However, in spite of variations in the lengths of days and weather, the earth remains "warm" because the sun constantly supplies new energy. As a simplification we can draw the earth's energy dynamics as a "stock flow model": with an "influx" (heating: the sun), to an energy stock and a "drain" (cooling: radiation into the universe). The temperatures depend on the energy stock – if it decreases, it gets cold. [24]

$$P = \sigma A T^4$$

Fig. 5: In radiation physics the Stefan-Boltzmann-Law is used to study the behaviour of idealized "black bodies".

If in case of a real body temperature T and radiation power P are known, the formula can be used to approximate the change in radiation which would result from a given change in temperature.

Example: If we assume the radiation power P of a piece of matter at T=288K (15°C) to be e.g. 1000 Watt, then an increase of temperature by 2°C would increase P to 1028 Watt, i.e. by 2.8%.

Radiation of IR gases is computed using a much more complex equation, which results in an even stronger impact of temperature change on power P.

The radiation of matter is determined by its temperature. If temperature goes up, radiation goes up as well (fig. 5). This is the reason why a hot plate simply does not melt and evaporate on stepping up the electrical power[25]. If the power supply is boosted by e.g. 500 Watt, then the temperature rises, but only as far as the plate's additional energy delivery to its environment (i.e. the self cooling) has also escalated by 500 Watt. Then balance is re-established, and the temperature ascent stops entirely.

Let us assume the earth warmed up, for instance, to the claimed hazardous level of additional 2°C [26]. As in the hot plate example, the earth's cooling power would now rise[27], according to our very simple evaluation, by approximately 3% [28].

Such an increase of cooling radiation as a result of warming is confirmed by satellite measurements[29]. In the warm year of 2002 the average outbound radiation was approximately 7 W/m² above the minima of the colder period in 1984 to '93 (fig. 6).

Assuming a mean outbound radiation of 235 W/m^2 (fig. 21) this marks an increase of approximately 3%.

But at this point an insoluble problem arises for the advocates of the greenhouse dogma: When planet Earth radiates more energy into space, this "more" must be compensated: by a commensurate increase of the energy supply. However, CO_2 cannot create this additional energy on earth. Hence, fictitious global warming from CO_2 would lead unavoidably to imbalance (fig. 7).

Given the increased cooling power as a result of "global warming", only two possibilities remain to re-establish balance:

- Either heating on the ground rises for another reason, like cloud decline (p. 10-11). This cause is physically conceivable, only it would have nothing to do with the claimed "CO_2 greenhouse effect".
- Or the missing difference is taken from earth's available energy stock (fig. 7). This would cause this stock to constantly decline. "Losing energy" is equivalent to "cooling" and thus, temperatures would have to decrease.

The consequences disprove the greenhouse doctrine:

- If the earth warms, the cause of this warming must be due to an increase of energy input on the ground: it must compensate for the expected increase of cooling power (cf. fig. 7).
- Changes in the concentration of IR-active gases cannot be the cause. They cannot cause "global warming" or a "climate disaster".
- All former climate changes must have had causes other than the claimed CO_2 greenhouse effect.

This result may surprise many of those who - under the influence of the media and politicians – have thought that the greenhouse dogma was "settled science". However, that dogma is set up on basic assumptions which are physically wrong: they were disproved already in 1909! This will be shown in the following chapter.

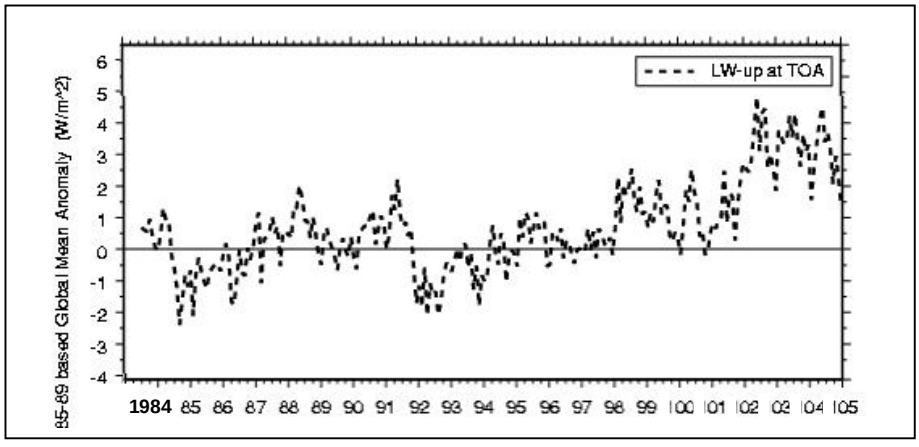


Fig. 6: The cooling power of the Earth, observed from satellites at "TOA" (Top of Atmosphere). When in the 1990s the temperatures slightly increased, the infrared radiation of the planet increased too - as explained by Thieme in 2005[30)].

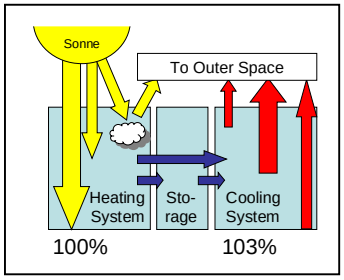


Fig. 7: Earth in the imbalance (schematic)

If the temperatures on the Earth climb, the Earth's own radiation into space will also climb (in this example from 100 to 103%).

To avoid a permanent imbalance, the energy supply must also increase. However, CO_2 cannot cause this. Real "global warming" can only start the other way around: The thermal input rises, earth heats up as long as it takes until the additional cooling compensates for the additional heating – as in the "hot plate" example.

Picture: © KE Research, 2010

Fig. 8: Heinz Thieme is Diplomingenieur (equivalent to M.S. in engineering) and was involved in complex physical tasks as a consultative expert in the energy sector over many years. Starting in 1997 he published a number of papers on the Internet in which he analyzed the true role of the "greenhouse gases" for the cooling of the atmosphere. Some important aspects of our report are derived from his work.

Photo: Heinz Thieme

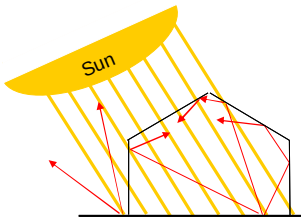


Fig 9: False Greenhouse

A greenhouse warms up – but why? It is correct that the glass "locks in" infrared radiation emitted by the ground (drawn in red), i.e. it partly absorbs and partly reflects. Yet that is not the reason of the temperature increase!

Picture: © KE Research, 2010

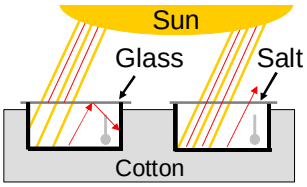


Fig 10: First Experiment by Wood 1909 (schematic): two identical model greenhouses, one covered with glass, one with a plate of salt (NaCl).

IR radiation (red) easily passes through the salt in both directions.

Cotton is used for heat isolation.

Picture: © KE Research, 2010

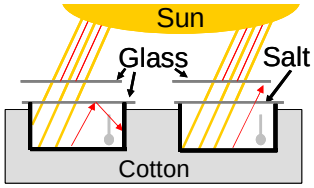


Fig. 11: Second experiment. The sunlight is now filtered by another pair of glass plates before it is allowed to enter the original boxes. The glass removes the solar infrared from the incoming rays.

Picture: © KE Research, 2010

Greenhouse Fallacies and Wood's Experiment [32)]

The claimed "greenhouse effect" in the atmosphere is named after the known heating that occurs in a gardener's greenhouse: supposedly due to "locking up" of infrared radiation. The following assumptions form the basis (fig. 9):

- The sun radiates visible light to earth.
- This light warms the ground: in- and outside the greenhouse.
- The ground transfers heat by radiating infrared light (IR).
- The glass walls do not let the IR light pass, but instead hold it within the greenhouse.
- Because the ground radiation cannot escape, the energy remains within the greenhouse and heats the air inside.
- The same thing would happen in the atmosphere: here the "greenhouse gases" took over the part of the glass frames, "locked the radiation in" and warmed up the ground (fig. 13).

One who doubted this interpretation was Robert W. Wood, professor of experimental physics at the Johns Hopkins University in Baltimore, Maryland (fig. 12). In 1909 he conducted experiments which disproved this (glass-) greenhouse hypothesis. Wood probably never guessed that about 70 years later the greenhouse doctrine emerged as a politically sponsored dogma based exactly on those assumptions which he had already refuted in 1909!

Wood made two boxes out of black cardboard and included thermometers (fig. 10)[33)]. He covered one box airtight with a glass top, the other with an equally thick slab of rock salt (NaCl). The background:

- Glass lets visible light pass, however, filters out IR light (depending on what sort of glass!) almost completely[34)].
- Salt, on the other hand, is nearly completely permeable in the visible as well as in the IR spectrum.

Then he put both boxes out in the sun. Based on the "radiation confinement hypothesis" the following would have had to occur:

- Intense heating of the glass box (comparably to a car parked in the sun).
- Only very low warming of the salt box (IR radiation generated on the ground can leave the container unimpeded).

The result, however, was much different! Both model greenhouses heated up intensely instead of just the glass box. The salt greenhouse even remained warmer than the glass covered model all the time. It finally reached a temperature of 65°C.

Obviously the "confinement hypothesis" was wrong. But why? The first mistake was the assumption that sunlight would contain no IR. In fact it does, and even after filtering by the atmosphere the IR portion is still very significant. The glass pane locked it out while the salt slab let it pass and heat the box (fig 10).

To neutralize this effect and to remove the IR irradiation before it reached the test arrangement, Wood attached another glass pane above both model greenhouses (fig. 11). Then he repeated the experiment. The result:

- The glass box only reached a temperature of 55°C, nearly 10°C less than before. [36)]
- The salt box remained a bit cooler than the glass model. Yet this difference was hardly 1°C [37)], compared to 25-30° with which the model greenhouses became warmer than their environment. [38)]

These observations reveal the real physics of a glass greenhouse. And they provide insight into the interaction between earth's surface and the atmosphere:

- As "radiation confinement" (by glass pane) caused nearly no change in temperature, the energy transport close to the ground can be based on radiation only to a very small extent.
- The air in the greenhouse warms up on contact with the ground (heat conduction). The warmer air rises and colder air sinks to the ground (convection).[39)]
- So radiation is only of very limited importance for the cooling of the ground.
- A greenhouse works by confining warm air - not by trapping radiation. Air which is already warm is kept and heated up even more. The convective exchange with the air higher up is suppressed, as is the flooding of the box with colder and denser outside air.
- The use of the word "greenhouse" in connection with asserted effects of IR-active gases is highly misleading.

Fig 12: Robert Williams Wood (1868-1955) was a leading US-American experimental physicist. He was a distinguished pioneer of Infrared- and UV-Photography and was speculated at the time to be a possible candidate for a Nobel Prize.

What Wood's Results Mean Today

The modern greenhouse hypothesis is based on assumptions, of which Wood had already experimentally disproved three.

Error 1: *The sunlight penetrates the atmosphere unimpeded, because it is "visible" or "short-wave" light.* Wood shows that sunlight still contains a significant portion of IR, even after a part of it is already filtered out by the atmosphere (cf. p. 10 - 11).

Error 2: *The ground is mainly cooled by radiating infrared light. This radiation is obstructed by the "greenhouse gases".* Wood proved that radiation does not matter much for the cooling of the ground. The heat of the ground is transferred into the colder atmosphere by other, much stronger mechanisms.

Error 3: *If enough ground radiation was confined, "climate disaster" would be unavoidable*. But when Wood locked even the entire ground radiation with a pane of glass, a warming of less than 1°C arose. A change in the CO_2 portion of the atmosphere could cause at most a fraction of the effect. The threat from climate disaster from increased "greenhouse gases" is false.[40)]

A hypothesis is disproved if it is based on incorrect assumptions. This is the case for the "greenhouse gas theory".

"It doesn't matter how beautiful your theory is. It doesn't matter how smart you are. If it doesn't agree with experiment, it's wrong."

Richard Feynman, Nobel laureate in Physics, 1965

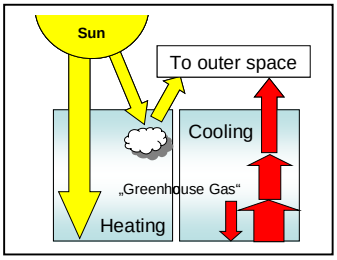


Fig. 13: Wrong role perception (schematic)

“Greenhouse gas” supposedly let the solar radiation pass to the ground unimpeded. The radiation cooling of the ground is obstructed as the energy is caught and ominously sent back to the surface. The “greenhouse gases” – as children are taught – act like a “winter coat” or a “wool blanket”.

The resemblance to the “false greenhouse” (fig. 9) is no coincidence! The falsification shown by Wood hereby gains a whole new meaning.

Picture: © KE Research, 2010

Energy Balance and Earth’s Climate: an Analytical Model

At this point we want to recap what we have already determined: By analyzing the energy balance of the earth we were able to show that increased levels of CO_2 can by no means result in warming of our planet. The “greenhouse gas theory” and associated “climate disaster” are pure science fiction.

That means that either basic assumptions or scientific derivations of the conventional greenhouse theory must be wrong. Since Wood had already disproved several of its basic assumptions, the physical processes between “ground” (earth's surface and the ocean) and atmosphere as well as the interactions with the sun and outer space must be different than the supporters of the IPCC usually assume (cf. fig. 13).

So how do these processes really work? We want to clear this up in this 3rd part of the analysis. The most important aspect is energy: its transport, storage and conversion.

To simplify explanation of these complicated interactions, we assign them to three fictitious “systems” (fig. 14) including the involved matter in each case: [41)]

- The “heating system” obtains “gross” energy from the sun[42)] and regulates the energy flux to the ground. It reflects a part of the energy or disperses a part back into space unused. The “net” amount of energy that reaches the ground and heats it up depends on this system.
- The “energy storage and transport system” (ESTS) stores energy and transports it within the system of earth plus atmosphere.
- The “cooling system” constantly radiates energy into space.

We will analyze these “systems” step by step below. In preparation we take a look at the structure of the atmosphere. Our interest lies with the change in pressure with altitude as well as the remarkable and extremely significant temperature stratification.

“Greenhouse Gas”?

“Greenhouse gas” is a politically defined and - as we will demonstrate – physically misleading concept for such gases which absorb and also radiate infrared radiation (IR). H_2O (water vapor), CO_2 (carbon dioxide), CH_4 (methane) N_2O (nitrous oxide) and O_3 (ozone) belong in this category. Here we will use the neutral concept “IR-active gases” and explain their actual function.

The main gases of the air (nitrogen, oxygen and argon) are not IR active. They can neither absorb nor emit IR radiation.

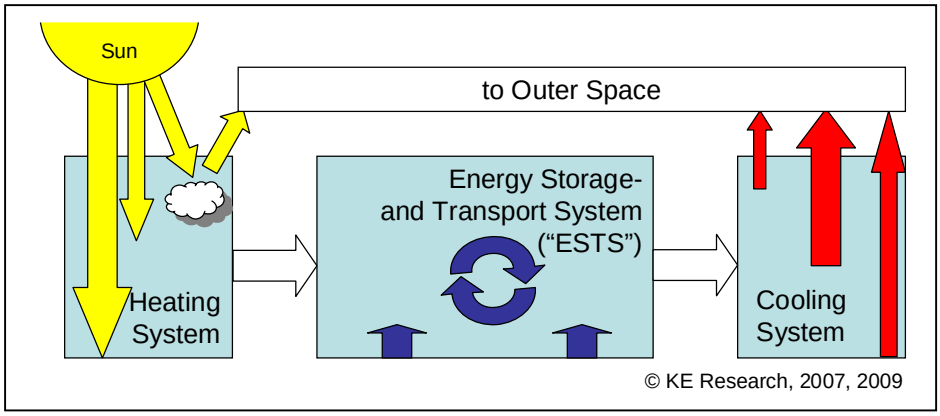


Fig. 14: Earth’s energy balance (schematic role model). The heating system regulates the energy supply of the sun to the earth’s surface. The cooling system causes the radiation into space. We regard all “internal” energy transport processes as a part of the “ESTS”.

The Earth Atmosphere

The atmosphere consists of a mix of gases collectively called "air". Up to an elevation of approx. 100 km it is homogeneous [42a].

Atmospheric pressure decreases with altitude, as the air becomes "thinner". A very remarkable temperature stratification (fig. 15) also occurs:

- The temperature continuously decreases with the pressure beginning from the earth's surface. The layer closest to the surface is called the troposphere, and is where all our weather events take place. Warmed up aerial masses rise into the troposphere (convection), expanding more and more. However, an expansion of gas causes cooling. Humidity condenses, forms clouds and finally becomes rain (fig. 15, 16).
- However, at a certain height the drop in temperature suddenly stops. Instead of cooling even further due to the steadily decreesing atmospheric pressure, the temperature remains steady over a stretch of several kilometres. This layer is called the tropopause. Because it is warmer and lighter than it would have to be on account of the pressure ratios, it acts like a lid on the troposphere and "seals in" the weather events. Rising convection currents cannot penetrate into the tropopause (fig 16).
- The stratosphere lies above the tropopause, and is conspicuously warm. In this layer, the "hard" ultraviolet rays of the sun ("UV C") are absorbed by oxygen (O_2). Ozone (O_3) is formed, which is immediately broken up by other "less hard" ultraviolet rays ("UV B"). With both processes in this "ozone layer", radiation energy of the sun is absorbed and transformed into thermal energy which is transmitted to the surrounding air.

The upper atmosphere (mesosphere and thermosphere) has no relevance for the subject of this report.

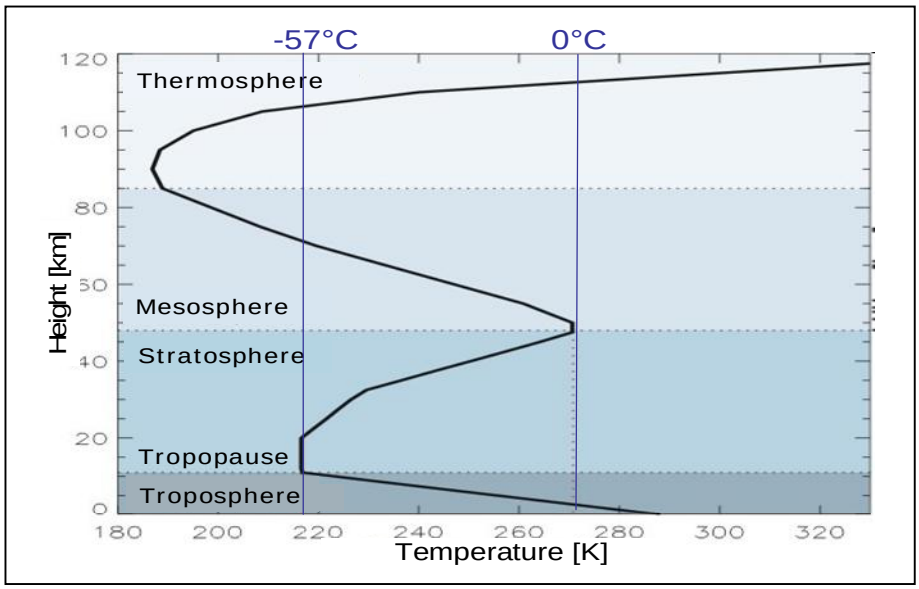


Fig. 15: Temperature stratification of the atmosphere, schematic. The troposphere, in which all weather events take place, is up to 17 km thick in the tropics, however, only 6-7 km at the north and south poles in winter.

Fig 16: The troposphere - the "weather layer". A storm cloud (Cumulonimbus, "Cb") is one of the most impressive phenomena in this layer.

The storm cloud originates from rising warm humid air (convection). As water vapor condensates, large amounts of latent heat are released, so that the air inside the Cb warms. It expands, becomes lighter and, therefore, rapidly raises further (cf. box on p.10). Fresh humid air from outside is sucked into the Cb.

The upper limitation surface of big Cb marks the border to the tropopause. Beneath it, the risen air flows apart in all directions and forms the typical "anvil". Fine ice clouds (Cirrus) are the result. Sometimes tornados originate in the lower edge of the Cb – short-lived point-shaped storms with immense destructiveness. And otherwise? Rain or hail, lightning and thunder.

Photo: ©iStockphoto.com/skyhobo

A word about temperatures

Physicists express temperatures mostly in Kelvin (K). 1K equals 1°C, but the reference point is absolute zero (0 K = -273.15°C). The freezing point of water (0°C) is accordingly observed at 273.15 K.

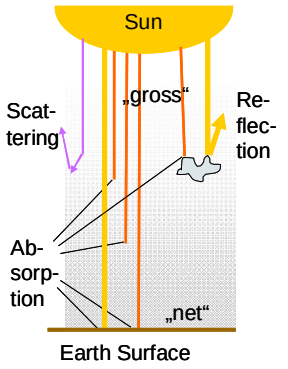


Fig. 17: The “Heating System” of the Earth.

Scattering, reflection and absorption reduce the insolation on the ground.

Picture: © KE Research, 2010

The “Heating System” of the Earth

The driver of our weather events is the sun. During daytime it warms the ground which then transfers this warm energy to the colder atmosphere (additional details cf. p.12).

Here, two questions are important for us:

- How much of the originally available “gross” solar energy reaches the ground "net", and what happens with the rest?
- What do possible variations or changes of the “net” irradiation depend on? Is there a steering element?

About half of the solar energy arriving at the edge of the atmosphere is intercepted on the way to the earth’s surface. There are four mechanisms responsible:

- The ozone processes in the stratosphere (p. 9).
- The Raleigh scattering: it deflects short-wave light (UV, blue) from the original direction of the beam. Because of this we see the sky as blue instead of black, the sun as yellow instead of white, and on the beach we can tan in the shade. 6% of the energy is thus transported unused into space.
- Clouds: They are made of very fine droplets or, in case of high altitude clouds (Cirrus) - of ice-crystals. They reflect UV and visible light back into space and absorb nearly the whole IR!
- IR-active gases absorb IR in certain frequency ranges.

Stratosphere and Raleigh scattering are of no relevance in the climate debate. The clouds however, are important. Every child experiences that an increasing cloudiness on a summer’s day immediately leads to cooling.

This leads to the question of the effects of clouds on the global scale[44)]. Is the proportion of global cloud cover really stable and perpetual and thus unimportant, as most publications on the subjects “Global Warming” or “Climate Change” assume?

The answer is remarkable. In the time from 1987 to 2000, when the earth temperatures were actually rising, the blue sky proportion rose by about 19 percent (fig. 5 - blue curve)! However, since cloudiness increased again starting about 2000, we see a slight decline in the averaged temperatures.[45)]

Clouds are real and measurable objects, which

- directly influence the energy supply to the earth’s surface, with significant effects on the temperatures,
- are not stationary in their coverage, but fluctuate strongly,
- and are in no way related to CO_2.

Oddly enough, cloudiness as the apparently most important and immediate regulator of the ground temperatures has not been noticed yet in the public discussion. The influence of clouds is ignored - and only CO_2 is claimed to drive “climate change”.

Clouds or sun?

Many critics of the CO2 dogma point out the sun as the climate regulator - we point out the clouds.

A contradiction? No. Clouds immediately influence the thermal influx to the ground.

But what controls cloud coverage? According to a good hypothesis, cloud formation is related to high-energy cosmic radiation. However, strong solar wind weakens the cosmic rays. Hence, an “active sun” results in “few clouds” [43)].

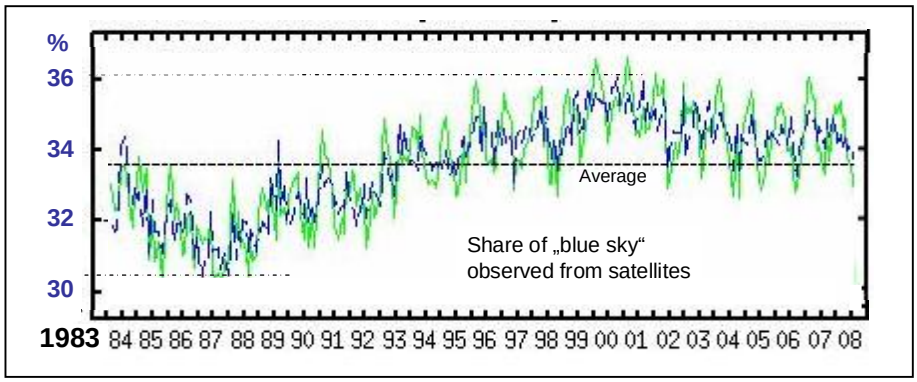


Fig. 18: Warmed up earth - thanks to the blue sky!

In the 1980s and 90s the cloud coverage decreased, rising the “blue sky" portion by nearly 19 percent! However, since 2002 the cloudiness is increasing again. And the result? “Climate change is taking a break”! [46)]

Picture: derived from http://isccp.giss.nasa.gov/zD2BASICS/B8glbp.anomdevs.jpg
(The NASA graphics was mirrored by the author and the scale readjusted to show the share of “blue sky”)

Finally we look at the IR active gases: allegedly, the sun emits “short-wave” light, which is able to penetrate the atmosphere “almost unimpeded”. However, the latter part is wrong. As is pointed out by the following table, the IR portion of this short-wave sunlight is very high[48)]:

- Ultraviolet (UV, <0.38 µm wavelength): 10 %
- Visible light (0,38-0,76 µm): 45 %
- Infrared (IR>, 0.76 µm): 45 %

In fact this IR portion is already largely absorbed in the atmosphere at high altitudes and icy temperatures by the IR-active gases[49)]. The share of energy shown in blue in fig. 19 is thus kept away from the ground and later emitted back into space by the “cooling system”.

In the real world the so-called “greenhouse gases” act like a sunshade (fig. 20). Instead of raising temperatures by about 33°C, they prevent a stronger heating[50)] already in the “heating system”! So, the “natural greenhouse effect” has to be buried. [51)]

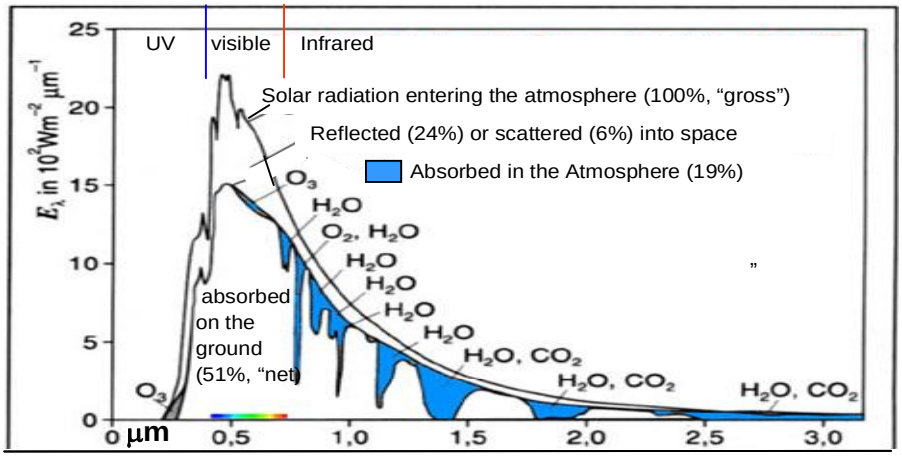


Fig 19: The radiation of the sun and its whereabouts. The graphic shows the energy portion of the different wavelengths and the parts filtered out.

Picture: Original with Kondratyev (1969) p. 247, modified by Beck (www.biokurs.de) and KE Research

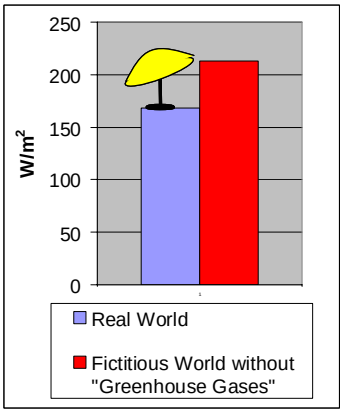


Fig. 20: “Greenhouse gas” as a sunshade!

The graphics shows the averaged “net” solar radiation on the ground in W/m^2. Water vapor and (to the far lower part) CO_2 absorb a significant portion of the IR irradiation. They act like a half-permeable sunshade[52)].

This shade would be absent in the fictitious world without “greenhouse gas”. The irradiation on the ground would rise - by about 27 %!

Picture: © KE Research, 2010

Mechanisms of Thermal Transport

Several kinds of thermal transport form the base of our weather system:

Heat Conduction

Heat conduction is the consequence of collisions between atoms and molecules. By conduction, the earth's surface, heated by the sun, transfers energy to the overlying air in a thin border layer.

Convection

If gases or liquids heat up, they expand. They become specifically lighter and rise. In the troposphere rising warm air takes "its" thermal energy up with it. Also the moisturizing of air lightens it (!) and initiates convection.

Latent Heat

So that water can evaporate, it must take up a considerable amount of energy. As no rise in temperature takes place, this energy is called „latent heat". If the water vapor condenses, this latent heat is released.

This release happens during the formation of clouds. Heap clouds (Cumulus) are floating power stations: they heat up the air and so generate an upward wind (convection) which holds its own droplets in the air and moves large amounts of heat upward (cf. fig. 16).

Ocean currents

Ocean currents move energy from the tropics to the polar regions.

In Europe the best known example is the Gulf Stream which transports heat from the Caribbean to the Northern coast of Europe and to the Arctic.

The "Energy Storage- and Transport System" (ESTS)

Matter does not immediately release supplied energy. The energy is stored - depending on different material qualities and its environment - for some time which leads to the fact that matter heats up when more energy is supplied.[53)]

Because of the unequal heating by the sun, the earth's energy stock is unequally distributed. Accordingly the temperatures differ: while in some deserts the sandy soil heats up to 80°C during daytime, temperatures of as low as -87°C occur inside of the Antarctic, which is, according to some contemporaries' opinion, currently melting.

ESTS' second part follows from above: the rearrangement of energy. Heat flows from every warmer system into the colder neighbourhood.

Two directions dominate in earth's thermal transport:

- from the tropics to the polar regions (horizontally).
- from the bottom (surface) upwards (vertically) into the much colder atmosphere (cf. fig. 15)

Sea currents and the big wind systems move energy from the tropics into the icy polar areas. This horizontal thermal transport is not disputed in the climate debate. The basic differences of opinion between greenhouse advocates and the remaining science concern the vertical thermal flux between ground and atmosphere as well as within it.

The following mechanisms are <u>not</u> controversial among the experts (cf. box to the left):

- Air warms up directly on the ground by conduction.
- Water molecules escape into the air (vaporization) and take up energy as latent heat.
- Warmer air rises, colder air sinks to the ground (convection). Water vapor is hereby transported upwards.
- An "air parcel" like this expands while rising and thereby cools. Nevertheless, it will continue to rise even more, as long as it is warmer and therefore less dense than its respective environment, often up to the edge of the tropopause (cf. p. 9).
- With decreasing temperature the vapor condenses and forms droplets; latent heat is hereby released. The air parcel temperature increases relative to its surroundings[54)]. This causes the air parcel to move upwards faster.
- This convection is also the driver of the big wind systems.
- The process as a whole is kept going because the air cools down in the upper troposphere by its own radiation, becomes heavier and consequently sinks to the ground once again. (cf. p. 14 f.).

One of the central issues in the climate debate is: To what extent does the ground's IR radiation play an additional or even leading role in cooling of the ground? This concept is demonstrated in the

famous 1997 diagram (cf. fig. 21) by Kiehl and Trenberth (K&T)[55]. The information framed blue by us argues that a thermal transport into the atmosphere occurs primarily by ground radiation, which should exceed the transport by all the other mechanisms several times over.

This representation lays the foundation for the assertion, the "greenhouse gases" would catch this ground radiation to send it back to the ground again as "back radiation" (brown frame). This should suggest that "more greenhouse gas" generates more back radiation - and thereby triggers "global warming".

But let us recall Wood's experiment. If ground radiation really had the paramount importance as claimed in the diagram, Wood's experiment would have had to obviously show it. Instead, the surface radiation had turned out to be almost meaningless.

Other physicists know this. For example, Chilingar, Khilyuk and Sorokhtin only find surface radiation to account for 8% of the earth's heat transfer[56], instead of 77% by K&T (fig. 22). This estimate is compatible with Wood's measurements.

CO_2 is supposed to impede the flow of heat into the atmosphere by absorbing radiation. On the real earth however, radiation from surface to atmosphere seems to play only a minor role. Instead, energy flows off unhampered from "greenhouse gases" by conduction, convection and vaporisation, from which the "cooling system" disposes it to outer space.

The debate about the "back radiation" argument is physically complex and shall not be further discussed at this point [57]. It is enough for our purpose that the reader is aware of the controversy about this. Disproof of the underlying dogma was already accomplished above (p. 4-7).

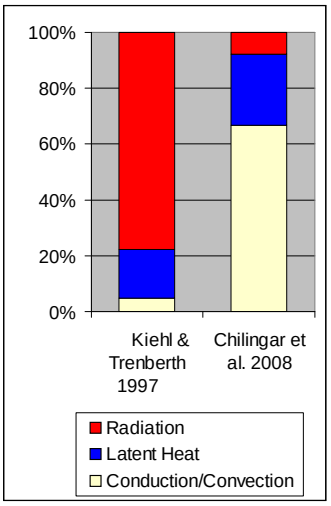


Abb. 22: One phenomenon – two perceptions!

Opinions are divided on the thermal transfer from the earth's surface into the atmosphere. The IPCC devotees, decisively influenced by Kiehl and Trenberth, fail experimental verification.

Picture: © KE Research, 2010

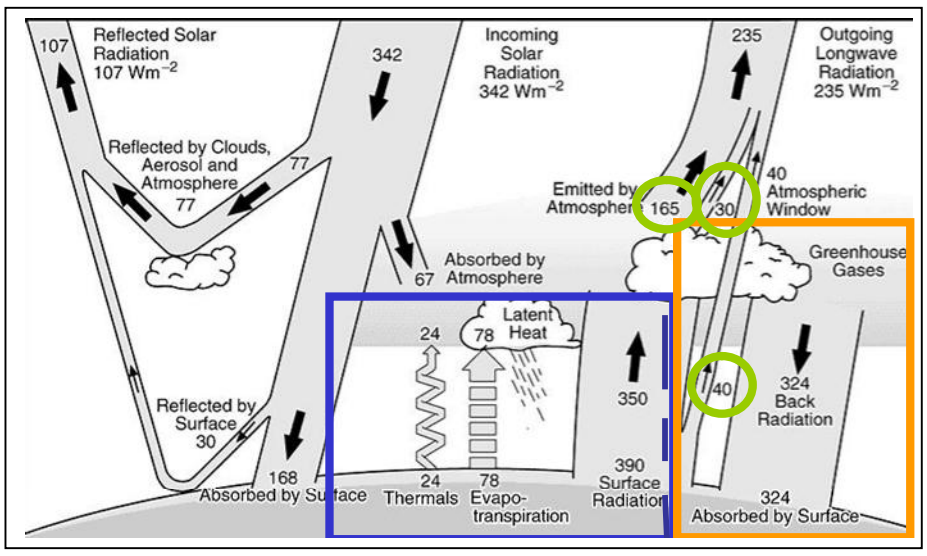


Fig. 21: This picture from a 1997 article by Kiehl and Trenberth[58] is an icon of the CO_2 greenhouse doctrine. It shows partly assumed, partly calculated thermal and radiation flows into the atmosphere. The blue frame added by us marks the claimed heat transfer between surface and atmosphere, the brown one the supposed "back radiation", and the green circles mark the radiation to space.

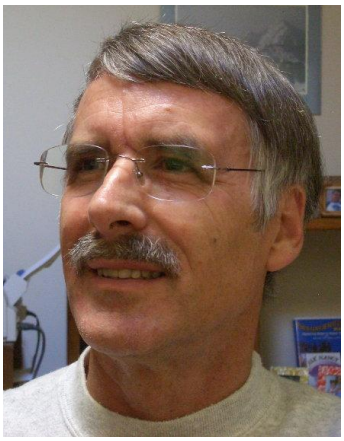


Fig. 23: Dr. Kevin Trenberth was Lead Author of the IPCC in 1995, 2001 and 2007. With their assessments of energy and radiation flows he and Jeffrey Kiehl strongly contributed to the firm establishment of the greenhouse doctrine.

Photo: University Corporation for Atmospheric Research, NCAR/CGD www.cgd.ucar.edu/cas/trenbert.html

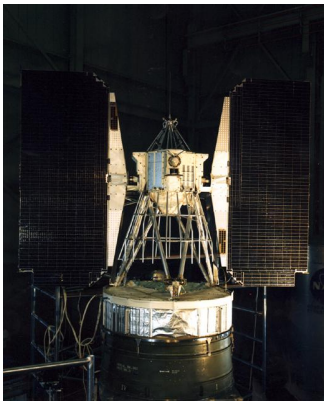


Abb. 24: Research satellite Nimbus-A, in 1964

The American NIMBUS program served to decipher the earths cooling system

Photo: NASA

The Earth's "Cooling System"

The least publicized aspect of earth science is the earth's cooling system. Although its basic function has been known for decades and is of utmost importance in the climate debate, its actual impact is rarely mentioned. It is misleadingly represented as:

- the ground radiates and thus cools the earth (cf. fig. 21).
- the "greenhouse gases" constrict this cooling.

The improper assertion is made that more greenhouse gases cause warming because they constrict the earth's cooling system even further.

But this perception is incorrect. The earth's cooling predominantly occurs from the atmosphere[59)]. Paradoxically it is the "greenhouse gases" which radiate most energy into outer space and thereby prevent the planet from overheating. Kiehl & Trenberth provided the following breakdown of cooling effects in 1997 (fig. 21, green marks) 60):

- "Atmosphere" (= "greenhouse gases"!): 165 W / m^2 (70%)
- Clouds: 30 W / m^2 (13%)
- Ground: 40 W / m^2 (17%)

If, however, the earth is cooled up to 70 percent by "greenhouse gases", it is hard to understand why more of these gases should lead to less cooling!

How do you read a NIMBUS Chart?

The purpose of the NIMBUS charts is to determine the temperatures (in K) at which energy is radiated into space depending on wave length. At the right edge this temperature equals 260K = -13°C. Using fig. 15 the elevation can be determined from which the radiation must have originated (in this case approx. 4 km).

The chart on the right side is cut off at 25 µm (micro meters). That part of the curve which was not displayed here (i.e. the extension to the right) is entirely defined by water vapor emission (i.e. it would have been marked by a blue line).

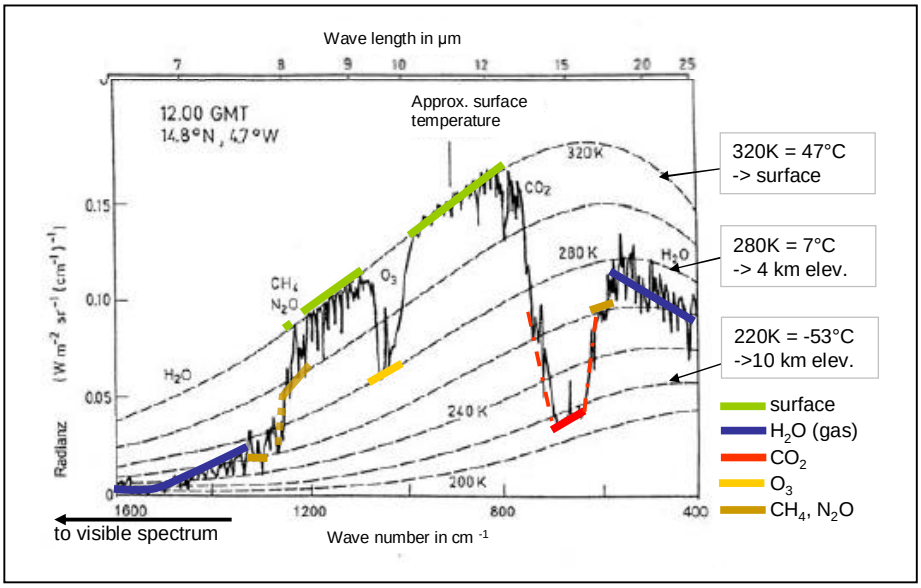


Fig. 25: Thanks to the American NIMBUS-satellites and its successors, the cooling of the earth has been measured exactly. These graphics show the radiation intensity (radiance) measured for every single wavelength (jagged line) at the selected spot (Sahara in Mali, West Africa) at noon. However, regarding O_3 (ozone) the graphics are deceptive: The O_3 radiation emanates from the stratosphere, at an altitude of nearly 50 km (cf. fig. 15)!

Picture: Detlev Hebert, to Bolle, replenished by KE Research.

The cooling system is well measured by satellites. In diagrams like fig. 25 one can see at which altitude that radiation originates which actually reaches outer space. According to lab measurements one additionally knows which radiation frequencies to assign to which gas. After combining this information, the result is the pattern of fig. 26.

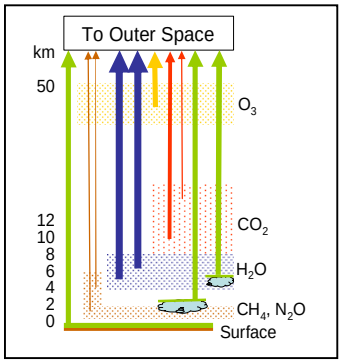


Fig. 26: The cooling of the earth, schematic and simplified:

The different IR-active gases radiate into space from different heights and thereby cool the atmosphere (cf. fig. 25). Water vapor (blue) is by far the most important single component. Because of the different concentration of those gases almost all altitudinal layers are involved in the cooling.

Picture: © KE Research, 2010

And these are the components of earth's "cooling system":

- O_3 (ozone) radiates out of the stratosphere and cools it (cf. p. 9)
- Water vapor is by far most important. It covers wide frequency ranges and emits into space from a height of 4-8 km.
- Clouds consist of droplets. They behave like "flying lakes" for IR radiation. They radiate over the whole IR spectrum and equally absorb any IR "from above" just as "from below". So inside a cloud thick enough, any IR radiation comes from within the cloud itself.
- CO_2 emits in its core band (both sides 15 µm) from an altitude of more than 10 km (upper troposphere or tropopause).
- The remaining IR-active gases (CH_4, N_2O) radiate from altitudes from 1-6 km. Their concentration is extremely low, because their molecules are constantly destroyed by natural processes.
- The ground only has a fair-weather place in earth's cooling system. Its radiation directly contributes to earth's cooling only in a restricted spectral range (the green marked "atmospheric window" in fig. 25 and 26), and only on a sunny day.

Now after this introduction to the cooling system's basic structure, it becomes clear why ESTS can function in the manner described above: The convection constantly carries air upward after it was warmed up and moistened on the ground[61)], while following cold dry air flows out to the surface. However, this implies the rising air can also radiate energy into space "up there" in the higher troposphere, so it becomes colder and denser and sinks back to the ground. If instead it kept its energy, it would remain high in the atmosphere and convection would likely shut down. Subsequently the air humidity near the ground would rise. The ability of oceans, soil, and plants to dispose of energy by vaporisation would mostly disappear.

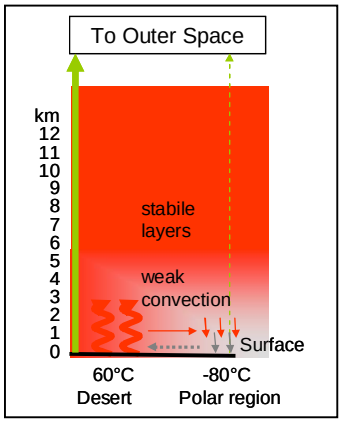


Fig. 27: A fictitious atmosphere without IR-active gases fills up from the top with the warmest air available – the air heated in the desert zones! But the atmosphere cannot radiate its energy into space – the air remains warm and does not sink back to the surface. The result: The vertical air movement shuts down. Ground cooling by convection and vaporisation hardly takes place.

Picture: © KE Research, 2010

This leads to our last consideration: If there were no IR-active gases in the atmosphere, it could not get rid any more of the heat once taken up[62)].

The results (fig. 7):

- Disposition of high-energy air up in the troposphere,
- Decline and end of convection and vaporisation cooling of the ground,
- Heating of the ground, until the thus rising radiation can make up for the failure of the other thermal transport mechanisms.

An earth without "greenhouse gas" (however, with atmosphere) would not be 33°C colder than the real earth. It would be clearly warmer![63)]

plus 7°C	11,1%
plus 6°C	9,4%
plus 5°C	7,8%
plus 4°C	6,2%
plus 3°C	4,6%
plus 2°C	3,1%
plus 1°C	1,5%
plus 0°C	0,0%

Fig. 28: Global warming price-list:

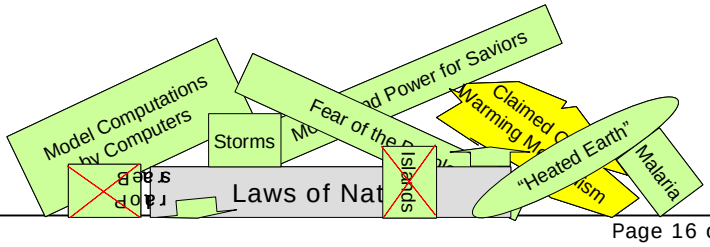
If the earth becomes warmer, it loses more energy into space by radiation. Hence, "global warming" is not free of charge. In order to heat up the earth, the table above demonstrates how much additional inbound energy would be required.[64)]

Since CO_2 can under no circumstances supply this additional energy it is blameless as a "climate villain".

Picture: © KE Research, 2010

Conclusion

- The terms "greenhouse effect" and "greenhouse gas" are deliberate misnomers and obstruct understanding of the real world.
- Earth has a "cooling system". If our planet gets warmer, it will automatically raise its cooling power (Fig. 28).
- An increase of earth temperatures is only achievable if the heating power is stepped up: first to "load" matter with more energy (i.e. to raise temperatures) and then (and that is our point) to compensate for the increasing cooling, which results from the increase of IR radiation into space.
- CO_2 and other IR-active gases cannot supply any <u>additional</u> heating power to the earth. Therefore, they cannot be a cause of "global warming". This fact alone disproves the greenhouse doctrine.
- The "natural greenhouse effect" (increase of earth temperatures by 33°C) is a myth:
  - IR-active gases do not act "like a blanket" but rather "like a sunshade". They keep a part of the solar energy away from the earth's surface.
  - IR-active gases cool the earth: 70% of the entire cooling power originates from these molecules. Without these gases in the air the surface and the air immediately above the ground would heat up more.
- The notion that a concentration increase of IR-active gases would impede earth's cooling is impossible given the true mechanisms explained above.
- As a consequence the very foundation of the "Green Tower of Climate Dogma" crumbles. Computer models alleging to forecast warming based on "greenhouse effects" are worthless, and any speculation about the "impact of climate change" accordingly dispensable.
- Since the greenhouse hypothesis has been disproven by the laws of physics, it is only a matter of time until the truth becomes public opinion.



Our recommendations

Politics in general, political parties

- "Global warming" by "greenhouse gases" simply does not exist. Don't damage your reputation by adhering to wrong physical perceptions. Bury any pretensions that you or anyone else can "protect the climate"!
- "De-climatize" the political discussion. There are many good (and bad!) reasons to build even more economical power plants, heaters and engines. Increasing CO_2 is none of them.
- Review memberships in your "expert groups" for energy and environment. Make sure that your policy is not remote-controlled by green lobby groups.

National/Federal Governments

- Stop funding of pseudo science and "climate projects".
- Halt and repeal any "Kyoto/Copenhagen" cap & trade schemes – and veto or resist climate regulation by the UN, EU or other international bodies.

States and local districts

- Ban CO_2 greenhouse propaganda from your schools!
- Review all publicly funded "Agenda-21" projects" regarding their objectives and their costs and benefits! Remove any positions of "climate rescuers" from your organizational charts.

Business

- Step up to the offensive against climate propaganda and defamation campaigns.
- Do not supply additional credibility to anti-industrial ideology by submissive PR messages – and never pay to green pressure groups.
- Consider legal challenges against any "cap & trade" regulation.

People

- See through the game! "Saving the climate" is a smoke screen – in fact it's all about moving money and power to the saviors, while you pay the bill.
- Fight climate alarmist propaganda being taught to children in schools, such as by speaking to teachers and filing complaints if necessary. Forward our paper!
- Use "Wikipedia" with uttermost caution! The specific set-up of Wikipedia allows organized activist groups to take control of themes of ideological interest - like "global warming"!
- Avoid "green investments"! When the greenhouse dogma collapses, the inefficiency of "renewables" will become apparent. CO_2-Certificates will become worthless, subsidies for "green energy" could be withdrawn. [65)]

Abb. 30: Supercomputer in a US research center.

Any effort of climate modelling is extremely expensive. And if it is deliberately based on false assumptions, it is in any case totally worthless from a scientific point of view.

Billions of Euros and Dollars and Pounds each have already been sunk in the abyss of pretended "climate research", and are in the pockets of proponents. In the meantime, people die from nosocomial infections, tuberculosis and cancer, since research funds are scarce and can never be spent twice.

Photo: IBM

Fig. 31: Proceed on the basis of false assumptions - or think first?

While government-employed "climatologists" preached alarm, the German Theoretical Physicists Gerhard Gerlich (l.) and Ralf D. Tscheuschner disproved that the claimed "greenhouse effect" had any scientific foundation.

Since they stayed outside the political arena, they did not receive a single cent of public funding.

Photo: Gerhard Gerlich

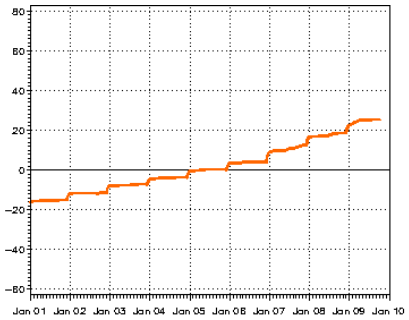


Fig. 32: Price increase of electrical energy in Germany, based on the numbers of 2005.

Chart: Statistisches Bundesamt:

www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Statistiken/Zeitreihen/WirtschaftAktuell/Preismonitor/Energie/Ueberschrift__Energie,templateId=renderPrint.psml

Notes and Comments

1) In Germany departments of education in all states have their schools spread the message that the country is threatened by "climate change". So a documentary of Report München (a political magazine in a public German TV channel) of 2007 showed an activist of a German campaign group telling young students in Bremen that their City (elev. 12m) would eventually be swallowed by "rising sea levels". In our next study we will have a closer look at such activities which are illegal under German law.

2) We found a perfect example of "green" climate indoctrination in the German state of Baden-Württemberg. Selected 8th-graders are taken away to a private training company and brainwashed for 8 days each to become "Student Mentors for Climate Protection", with the task to mobilize their co-students for participation in all kinds of greenish activity. Costs are shared between the Ministery of Education and Ministery of Environment. That the Code of Education in that state prohibits any kind of political indoctrination in its § 38 was apparently overlooked by those ministers who vied for environmental image.
www.seminare-bw.de/servlet/PB/-s/xh921e9vivxjb0e1x3pyacpxhco7r5/show/1230578/Flyer_Oekomentor_0809_Web%20%282%29.pdf.

3) In the UK the so-called Stern-Review-Report, funded by the Chancellor of the Exchequer (Department of the Treasury in the UK) tells people that "climate change" would give rise to additional costs of at least 5%, maybe even 20% of the British GDP. This deception shall convince the public to accept billions of additional duties for "climate protection" as a favorable choice.
www.hm-treasury.gov.uk/stern_review_report.htm

4) The basic idea of the "Kyoto Protocol" and the underlying UN Frame Convention of 1992 is the creation of an artificial resource called "CO_2 certificate". Rigorous and global legislation shall coerce every enterprise to pay for such certificates which governments may create and distribute. The openly disclosed intention is to shrink the supply of certificates more and more – allegedly to "save the climate", but in reality to drive prices up and to capture an ever larger share of the economic value creation, diverting it to the "climate industry". We expect a sharp increase of prices and costs, in clear correlation with more and more bankruptcies, a surge of unemployment and impoverishment of the population. At the same time the idea carries an unprecedented potential for corruption, since the authorities could grant or deny the allocation of certificates at will, and suppress or tolerate expected abuses of the system, as the politics of the day dictates.

5) According to a press release of Statistisches Bundesamt (German Federal Office of Statistics) the price increase for electricity between e.g. March 2007 and March 2008 amounted no less than 12.4%. Fig 31 shows a broader survey. A further price increase was just announced for 2010.

6) The energy debate in Germany, its wrong approach and the resulting misallocation of resources will be subject of another report of KE Research.

7) The EU Commission hat made the transformation of the industry into a green paradise their favourite passion. Their test case, to check the patience of the European public, has become the avowed extermination of light bulbs. Furthermore, restrictions

Fig. 33: left blank in the English version

and penalties on the CO_2 emissions of cars have been imposed, which harms especially – and this is intended - the German automotive industry that clearly dominates most high end segments of the global car markets. Subsequently, the Commission plans to take on housing construction:
www.faz.net/s/Rub0E9EEF84AC1E4A389A8DC6C23161FE44/Doc~E4498367FD3DE4D6488489E08B418689D~ATpl~Ecommon~Scontent.html.

8) Among the great winners of "climate protection policy" are some of those "climate scientists" who have good access to the media. Aside of their professorial salaries and appraiser fees assigned by the governments (i.e. by politics) there has been an astounding stream of "research awards" granted to them. We will look at the phenomenon in the context of our next report.

9) Bundesverband Windenergie e.V. estimates the investments in offshore wind farms along the German coast line to reach €45b by 2030. www.wind-energie.de/de/themen/offshore/. This number, given by a lobby organization, does not account for the full costs of the infrastructure, since the random and distributed nature of wind compels the utilities to develop new, expensive power line networks, and to construct back-up power plants, most of which use gas turbines to drive the generators.

10) www.spiegel.de/wissenschaft/mensch/0,1518,485947,00.html

11) For example, in 2009 Austrian newspapers reported on a study of Martin Dokulil of Vienna University, which stated that the lakes in the Austrian Alps would become markedly warmer by 2050. But in the contract documents which KE Research was allowed to review, Dokulil had already been advised on expected warming of the air by up to 3°C by reference to certain computer models, and so, he used that as an starting point for his forecast. Dokulil had dutifully mentioned that in his paper. The media however skipped this information and misleadingly indicated to their readers that Dokulil's was yet another independent warming prediction.

12) According to Gerhard Gerlich (fig. 31), Professor for Mathematical Physics at TU Braunschweig and one of the most prominent critics of the CO_2 dogma in Germany, there is no hint to anything like a "CO_2 greenhouse effect" in any of the classical textbooks on physics and thermodynamics respectively.

13) In particular, we have noticed that in many research areas the leading scientists forcefully reject the inclusion of their respective topics into the CO_2 greenhouse dogma. So Prof. William M. Gray, a meteorologist and the best known expert in the field of tropical storms and hurricanes, states: "Global warming is a hoax". The leading expert in sea level research, Stockholm geologist Nils-Axel Mörner, calls the claims about dramatically rising sea levels "The greatest lie ever told", and Polish environmental scientist and expert in analysis of glacial and polar ice, Prof. Dr. Zbigniew Jaworowski, titled one of his papers "CO_2: The Greatest Scientific Scandal of Our Time".

14) Gerlich/Tscheuschner (2007) p. 38 ff.

15) In this paper we talk about CO_2 as a prototype for all IR-active gases. The findings equally apply to CH_4 (methane), N_2O (nitrous oxide), O_3 (ozone), und H_2O (water vapor, i.e. not fog or clouds which are formed of droplets!)

16) e.g. S. Bakan, E. Raschke (2002); H. Kraus p. 112

17) H. Kraus, p. 112. Bakan/Raschke propose a value of -20°C.

18) The derivation of the "effective temperature of the earth"

being -18°C is based on the assumption of a rocky planet without atmosphere and oceans. But, as Gerlich and Tscheuschner demonstrated, the assumptions and the reasoning leading to this result contain several physical and mathematical errors. Consequently, the supposed "natural greenhouse effect" of 33°C is just a lore, not rooted in the laws of physics that apply to the real world around us.

19) e.g. S. Bakan, E. Raschke (2002)

20) cf. Segalstadt (1997), Beck (2007, 2008), Jaworowski (2004, 2007), Hebert (2005), Wagner et al. (1999). The assertion that atmospheric CO_2 levels were lower in the past is based primarily on the analysis of ice recovered from bore holes in the polar regions. This method has been increasingly questioned by several experts. The use of other methodologies has unveiled much higher former CO_2 values.

21) Gerlich /Tscheuschner (2007) p. 6 (foot note).

22) A survey of the polar bear debate and its background is given by the National Center for Policy Analysis, a think tank in the U.S.: www.ncpa.org/pub/ba551

23) In reality, "Temperatures of the Earth" referred to in the climate debate, are temperatures of the air, as measured by only partly standardized procedures, at an elevation of 2m above the ground.

24) The real earth consists of a nearly indefinite multitude of systems which not only exchange energy, but also move in space and react chemically with each other, too.

Geochemical processes may release or consume energy. Radioactive decay within the earth always releases energy. For the purpose of this study we will treat the total balance of these processes as a neglectable residual quantity, which is very small compared to solar irradiation, and under no circumstances can be affected by concentration changes in atmospheric CO_2.

25) Objects on earth also transfer heat by conduction (for example, into the air) and not only by radiation. To be correct, one would have to consult a "stove in a vacuum" as a comparison for the earth. However, the selected example may be enough.

26) In the last couple of years a concept of "threshold of danger" of 2°C "global warming" was popularized. The following document of the Christian Democrats faction in the German Bundestag (federal parliament) stuns its readers with an attached map which shows the nightmarish vision of a 100m (!) sea level increase drowning parts of Northern Germany.
www.cducsu.de/Titel__Klimaschutz_hat_mit_Angela_Merkel_ein_Gesicht_bekommen/TabID__1/SubTabID__5/InhaltTypID__4/InhaltID__8206/Inhalte.aspx.

27) cf. Thieme (2005). As far as we know, Heinz Thieme was the first who had clearly pointed to the negative feedback effect which in case of "global warming" would unavoidably result from the increase in radiation and cooling power. Although this fact clearly rendered any CO_2-driven temperature increase impossible, it was equally ignored by "climate scientists" and IPCC critics.

28) For a very simplistic assessment, we have followed Thieme (2005a) and K&T (1997) and assumed that 17% of the radiation originate from the ground at 288K, 78% from the cloud layer at 262K, and 5% at 215K from the CO_2 in an elevation of about 10 km. Using (incorrectly) a T^4 function also for the radiation of gases and a general temperature increase of 2K this results in a surge of the cooling power of 3.07%. A correct computation of

the radiation of the gas using the more complex Planck equation would have resulted in an even larger increase.
29) cf. Chen, Carlson, Del Genio (2002)
30) Thieme (2005a, 2005b)
31) This wrong interpretation is apparently eternal, cf. www.heinze.de/hbo/typID_528/obID_4449988/module_1000/modulePageID_3/context_1/treibhauseffekt.html
32) Readers should review the respective chapter of Gerlich/ Tscheuschner, in that paper there is also a complete reprint of the research note by Wood.
33) Gerlich/Tscheuschner: Wood had not illustrated his publication himself. The pictures displayed here have been drawn by KE Research and are based on Wood's brief written description.
34) Today there are many kinds of glass with different IR transmittances. Since Wood was the leading expert at the time in UV- and IR radiation, and he had explicitly pointed to the fact that IR was not able to "penetrate the glass", we assume that he had selected an appropriate kind of glass.
35) The well known case of the heated car is analyzed in detail by Gerlich and Tscheuschner.
36) The insertion of another glass sheet in the light path also causes a loss of some visible light by reflection. So of the total drop in temperature of 10°C only a part can be attributed to the filtering of solar IR.
37) Wood unfortunately has not published the outside temperature during his experiment. According to climate patterns in Baltimore we assume the outside temperature to have been 25-30°C.
38) Important for every further assessment: The thermal conductivity of salt is about six times higher than that of glass!
39) In a real greenhouse and in nature, a large part of cooling occurs by the water vaporisation ("latent heat", see p. 12). Wood did not examine this aspect, but worked with dry model greenhouses because otherwise, the condensation would have ruined the expensive rock salt slabs.
40) See Hug (2007). As the German chemist and book author Heinz Hug already proved in laboratory experiments in the late 1990s, the absorption of CO_2 in the atmosphere is - despite its very low share - already saturated. The share of ground radiation which could be additionally absorbed in a few very weak bands of CO_2, in case the CO_2 level increased, is tiny compared to the total absorption eventuated by the glass in Wood's experiment.
41) The setting up of these "systems" is done for didactic reasons. True systems in the context of physics would contain matter of their own, which is not the case here. E.g. a single H_2O-molecule 6 km above the ground could catch and absorb a photon of sunlight and thus play a role in the "heating system", only to emit another photon into space a millisecond later and thus act on behalf of the "cooling system".
42) The geothermal heating power, caused by the decay of radioactive elements in the interior of the earth, make up less than 0.03% of the solar irradiance and can accordingly been neglected: Chilingar, Khilyuk (2007).
42a) The assertion of homogeneity needs a modification: CO_2 is not mixed homogeneously, since it is involved in huge quantities in a couple of chemical, biological and physical processes, of which some extract CO_2 from the atmosphere, while others release it. (see Beck 2008). In this extremely dynamical system

Fig. 34: "Climategate"

A few days prior to the finalization of the original German version of this Report, a large amount of computer data of the CRU (Climate Research Unit) of the University of East Anglia in Norwich, UK, was leaked to the public. Among this data, there are numerous emails as well as programming source code of so-called "climate models".

First reviews of this materiel suggest that some well known "climate scientists" either fudge data or deliberately misinterpret it and than exercise influence in order to exclude their critics from participation in the scientific discourse. Looking deeper into the affair an abyss of scientific ethics seems apparent.

Furthermore, the leaked material feeds the suspicion of many experts that computer models are manipulated to fit political goals and produce engineered messages for the public. This renders needless any discussion about any potential scientific value which the expensive computer models were claimed to create.

While this scandal called "ClimateGate" (resembling "Watergate") was broadly discussed in the Anglo-Saxon world, it was mostly ignored or even actively covered up by the mainstream media in Germany and Austria.

Picture: www.youtube.com/watch?v=nEiLgbBGKVk

human activity has only a tiny share.
43) E.g. Svensmark/Friis-Christensen (1997), Shaviv/Veizer (2003), Borchert (2009)
44) Unfortunately, the global cloud coverage can neither be measured from the ground nor reconstructed for the past using proxies. Instead, satellite photography and computerized image processing were to be invented first to conduct the task. Despite the very short time series available it has already become clear that the share of the blue sky fluctuates very significantly. This had already been assumed by a number of scientists in opposition to the IPCC, including Thieme (2005a) and Hug (2007). The cover-up of these facts raises doubts about the credibility of a number of institutions doing "climate research".
45) We refer to "global mean temperatures", as published e.g. by "Met Office", the meteorological service of the British government. http://hadobs.metoffice.com/hadcrut3/diagnostics/global/nh+sh/
46) This was claimed by Mojib Latif in May 2008 in German media, e.g. www.spiegel.de/wissenschaft/natur/0,1518,551060,00.html
47) Ehrhard Raschke in www.weltderphysik.de/de/6815.php
48) Gerlich/Tscheuschner (2007) p. 22
49) cf. Leroux (2005) p. 88
50) Thieme (2005a)
51) cf. Gerlich/Tscheuschner and Thüne (1997 und 2002)
52) Using the data of Kiehl & Trenberth (1997) we estimate the incremental insolation as follows:

Absorption in the atmosphere (total):	67 W/m^2
Caused by O_2 und O_3 (Stratosphere)	-15 W/m^2
by clouds	- 7 W/m^2
Remaining (absorbed by IR gases)	45 W/m^2

In our thought experiment this means an increase of ground insolation of 27%.
53) Aside of the thermal energy (the movement of atoms and molecules which expresses itself in the temperature of a system), there are different other forms of energy, which however shall not be part of this presentation.
54) "relative to its surroundings" refers to the fact that because of the ongoing release of latent heat during the upward movement temperatures of wet air decline at a lower lapse rate. Meteorologists call this a "wet adiabatic" temperature schema.
55) Kiehl & Trenberth (1997). Their chart has become an icon of the greenhouse dogma. Since 2008 there is a rework of this study (Trenberth, Fasullo, Kiehl) with slightly modified data.
56) Chilingar et al. (2008)
57) Excellent analysis is provided by Gerlich/Tscheuschner, as well as Thüne and Thieme.
58) Kiehl & Trenberth (1997)
59) cf. Thieme (2005a)
60) Kiehl & Trenberth (1997)
61) Warm air is lighter than cold air, humid air lighter (!) than dry air.
62) cf. Thieme (2005a) and Leroux (2005) p. 92 ff.
63) cf. Thieme (2005a)
64) This is an approximation, assuming a T^4 function, cf. endnote #28.
65) KE Research does not perform investment advisory. We do not accept any liability for investment decisions which 3rd parties have based on our opinions.

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