

While politicians “fight global warming”, students have to swot the “greenhouse effect”. But is this a real thing? ¹⁾

The “Greenhouse Effect”

Wicked Danger - or Merely a Hoax?

Klaus Ermecke and Heinz Thieme

Introduction

“The world is in danger. ‘Climate change’ reigns, temperatures are on the rise. Dry landscapes become dryer, wetlands even wetter. Good animals (polar bears) become extinct, evil ones (malaria mosquitos) conquer the world. Sea levels rise, islands drown. Mankind is to blame - and a gas: CO₂.” (fig. 1)

This is a story that politicians and the media love to tell people, and even hammer into their brains. Students shall learn it. However, it is hardly ever mentioned that this is a dogma - a doctrine that is proclaimed true without proof. And it is highly controversial: many scientists reject it as pure nonsense. Politicians however use it to impose duties and taxes upon citizens and corporations. ²⁾

The dogma has it wrong. CO₂ and the other pretended “greenhouse gases” cool the Earth. Consequently, they do not warm it.

Analysis in brief

First Questioning Look

The climate dogma is based on the proposition that out of the colder atmosphere “greenhouse gases” heat the warmer surface. ³⁾ This hypothesis is made of two components:

- “Greenhouse gases” make living conditions on Earth comfortable in the first place. If Earth had no atmosphere, temperatures would be 33 degrees (C) lower (“natural greenhouse effect”).
- If the concentration of these gases in the air increased, an even larger rise of temperatures would occur – the often conjured “global warming”. This is the alleged “manmade greenhouse effect”.

Is there really such a “greenhouse effect” warming the Earth? This is in fact the core question.

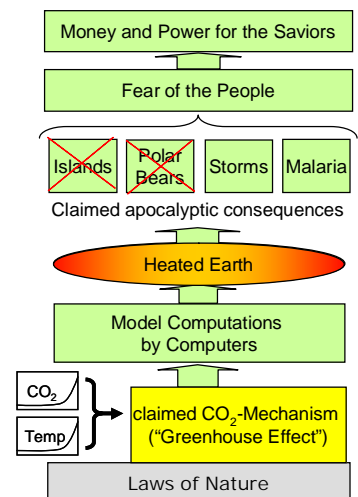


Fig. 1: The “Green Tower of Climate Dogma”

If one sorts out the flood of purported research results, warning cries, and political decisions regarding “climate”, an illuminating schema emerges: It is all about the re-allocation of money and influence! Fear is the catalyst.

Picture: ©KE Research, 2009, 2012

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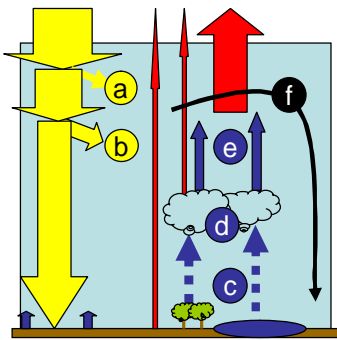


Fig. 2: Flow of energy in the atmosphere (schematic: no reflexion, scattering, wind).

When the inbound solar radiation hits oxygen atoms, a part of the UV is absorbed ("ozone layer") (a). IR active gases absorb some of the solar IR (b). Of the irradiant energy reaching the ground almost half is used up to evaporate water: it is stored in the vapor and then transported upwards by convection (c). This part is released when clouds are formed (d) - then temperatures are affected. This boosts convection (e), until the air cools down by radiation and sinks back to the ground (f).

Red arrows indicate the cooling of the Earth by radiation into space, see fig. 4 for quantification.

Picture: ©KE Research, 2012

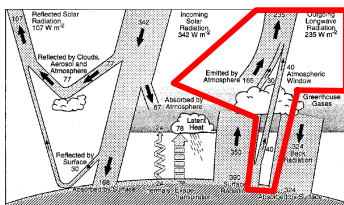


Fig. 3: Radiation and flow of energy

This chart by Kiehl & Trenberth (1997) had been displayed in many school books. The area within the red marks added by us shows the "cooling system".

First of all, we need a precise description how exactly the mechanism works that allegedly raises temperatures on Earth. But right here, we get into a double bafflement:

- There is no one common understanding. Instead, "Climate scientists" present various descriptions of how their respective greenhouses should work, which do not match in their physical content or even mutually contradict each other.⁴⁾
- Furthermore, there is not a single experiment that would demonstrate cold air raising temperature of a warmer surface below, due to small change in the air's chemical composition.

The Atmosphere and its Gases

The Earth's atmosphere is cold, and it is even colder higher up. It consists of a mix of three sorts of gases:

- 99.96% of the dry air (without water vapor) consists of the three major gases: nitrogen (N₂), oxygen (O₂) and argon (Ar).
- All trace gases combined only contribute 0.04% to the volume of the dry air. CO₂ belongs in this category.
- The share of water vapor (H₂O) fluctuates between 0.5% (deserts) and 5% (rain forests).

Water vapor and some trace gases like CO₂, CH₄ (methane), O₃ (ozone), N₂O (nitrous oxid), are "IR active", i.e. they can absorb and send out (emit) the invisible infrared radiation. This is used to put together a flawed illustrative model of how atmosphere works (s. schoolbook example, fig. 10). The misleading term "greenhouse gases" was coined on purpose.

Flow of Energy: Heating and Cooling of the Earth (Fig. 2)

The sun transmits energy to Earth as radiation. About half of it is reflected (clouds, ice), scattered or absorbed in the atmosphere (details in Ermecke 2010). The rest has the following effect:

- About half of the rest makes water vaporize (oceans, vegetation). During vapor formation, energy is taken up and stored as "latent heat". This does not create a rise in temperatures.
- The other part heats soil and water (temperature increase).

Since the ground warms up, temperature difference develops between the ground and the colder atmosphere above it.⁵⁾ As a result, energy flows as heat into the air. This means – depending on the point of view:

- The ground heats the atmosphere,
- The atmosphere cools the ground.

Warming as well as moistening makes the air specifically lighter: it rises by convection. The rising air expands and cools. The water vapor condenses, forms droplets, clouds appear.

During the formation of clouds the latent heat is released, often kilometers above the ground. The air flowing through the cloud becomes warmer and lighter relative to that in its surrounding, so convection is boosted.

But where does the energy released in the process go? The answer: it is emitted into outer space as infrared radiation ("IR"). The air cools, gets denser, and sinks to the surface.⁶⁾

The "cooling system" of the Earth operates by radiating energy into space. The quantitative assessment of this radiation is linked to a number of complex physical and technical problems (measurement equipment). American atmospheric scientists Kiehl and Trenberth determined the following (Fig. 3, 4, 9):

- 17 % originates from the earth or ocean surface.
- 13 % originates from the upper sides of the clouds
- 70 % is "emitted by atmosphere" from higher altitudes.

The fascinating question at this point is what in the atmosphere enables this radiation. In fact, the above mentioned major gases do not radiate, they are not IR active. Only the IR active gases emit into space. Those are – the "greenhouse gases"!

So "greenhouse gases" (and clouds) cool the atmosphere. Only because they cool it, cold air becomes available to take up heat on the ground. In other words: If there were no "greenhouse gases", the atmosphere would heat up, and by lack of cooling the surface would become warmer!

The Test in the Real World

In physics, it is required to validate theoretical considerations by measurement in the lab or in nature.

The opportunity to do so is provided by the Moon.⁷⁾ Moon has about the same distance from the sun as Earth and accordingly, at the same parallel, receives the same amount of radiative energy per square unit. Its surface is similar to our sand deserts: it is dry and consists of fine mostly dark granulated material (sand, dust).⁸⁾ But there is no atmosphere – and no "Moon warming by greenhouse gases".

According to the dogma, temperatures on Earth shall be 33°C above those of a fictitious Earth without atmosphere and consequently without IR active gases.

To verify this claim, we compare the noon temperatures of the uppermost sand layers, in dry tropical deserts:

- Sahara (measured):⁹⁾ 80°C
- Theoretical reference value by dogma (80°C – 33°C): 47°C
- The real Moon (max. temperature reported by NASA): 134°C

The greenhouse dogma contradicts the measurements.¹⁰⁾

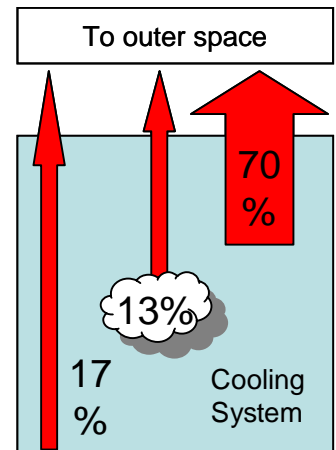


Fig. 4: Our cooling system

Cooling of the Earth is performed by matter which emits radiation into space. But which matter?

According to Kiehl and Trenberth (fig. 9) only 17% of the radiation reaching the sky originates from the surface. 70% of the cooling is done "by atmosphere" (fig. 3)⁹⁾ In other words: by the "greenhouse gases"!

Picture: ©KE Research 2009-2013

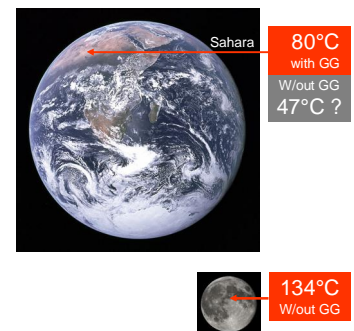


Fig. 5: Moon too warm – "Greenhouse Earth" too cold

Our moon has no atmosphere, so it lacks the pretendedly warming "greenhouse gases" ("GG").

On the day side our moon is a furnace rather than a cold body. According to NASA, temperatures might reach 134 °C.

Picture: ©KE Research, 2012; Photos: NASA



Fig 6: Man and Nature

Given a world population of 7 bn people, every individual has a share of 763,000 metric tons of air and 200 million cubic meters of water (the photo displays Kochel Lake in Upper Bavaria, Germany, which has a water volume of 185m m³). Gases are continuously exchanged between air and water (Henry's law).

Given these huge masses, any request to children to "protect the climate" by means of abstinence from eating beef and using computer stand-by mode is nothing but greenish end-of-the-world esoterism. An entire lifetime would not suffice to change significantly the chemical trace gas composition only in the "own" share of the world.

Students and their parents should take a clear stand against unreasonable requests by their schools.

Photo: Schlaier (public domain)

Conclusion

- "Greenhouse gases" and clouds continuously radiate energy into outer space. Thereby they cool the atmosphere. This enables the atmosphere to cool the ground. This has been going on over billions of years.
- Since IR active gases cool the Earth (at least indirectly), an increase in their concentration cannot cause a raise of temperatures. This constitutes a disproof of the CO₂ warming hypothesis (yellow block in the "Green Tower" in fig. 1).
- All further claims of the climate dogma (computerized climate prophecy, apocalyptic consequences, need of political action and "climate protection") would only make sense if the CO₂ warming hypothesis is proven. But as the hypothesis is demonstrated invalid by our comparison with the Moon, the claims derived from it as well as the actions suggested make no sense. The entire CO₂-based "climate research" proves to be pseudo science – or charlatanism.
- In certain countries, public education is misused by governments to implant fears in the brains of students – being the result of a wrongly built understanding of nature.

Our recommendations

Students

- Talk to your parents, co-students and teachers. But do not make claims, be instead friendly and open minded, ask questions. A polite question avoids confrontation and transports a message more effectively.
- Are you requested to write a thesis or give a presentation? Then try to get in contact with experts – many of them enjoy helping young people from time to time.
- Use your brains! Learn!
- Forward our paper!
www.ke-research.de/downloads/Greenhouse.pdf

Parents

- Have a close look at the activities at your school. Do they teach science – or green esoterism? Mobbing of critical minds? Access to classrooms for outside eco activists? Form networks. Ask questions! Write us!

Teachers

- The politically driven CO₂ hysteria will lead to silent weakening of the economy. The unavoidable outcome at the end will be a decline in public income. What will be the impact on teachers' salaries and pensions? Food for thought, as we think.

Hints for the physics teacher

The task of the schools is to provide useful competencies to the students. Among those is the ability to identify and analyse a problem in everyday life and apply the knowledge of natural laws as well as scientific thinking and methodology to solve it.

Following the climate and energy debates we observe that in certain countries politicians silently undermine this principle. With the excuse of "education to protect the environment" children at school (and even at kindergarten) are filled with fears. Kids are requested to participate in symbolic actions which pretendedly help "save the climate". The purpose of these campaigns seems to be to keep people away from questioning the subtle erosion of liberty and tolerate the implementation of ever new taxes and duties. The teacher is put into the role of facilitator of an ideology that contradicts people's needs.

The qualified handling of the greenhouse debate requests a teacher

- to understand thermodynamics and fluid dynamics,
- to master differential calculus and stochastics,
- to have a basic knowledge of meteorological processes.

Furthermore, regarding the question if mankind can "load" the atmosphere with CO₂ at all, a principal background of geochemistry and in particular ocean chemistry is necessary (fig. 6).

A critical introduction into the climate debate therefore should be assigned to the physics teacher, ideally in cooperation with his colleague covering chemistry. (Symptomatically, in our State of Bavaria ocean chemistry is not even part of the curriculum of the elite high schools, over here called "Gymnasium"). Teachers of geography, languages or other topic areas usually lack the principal training in physics to unveil the greenhouse myth as such.

The different sets of hypotheses which underly the respective versions of the "greenhouse effect" are long physically falsified. Among the many critics the following are those who attack the very core of the dogma with complementary arguments:

- Gerhard Gerlich, Ralf D. Tscheuschner: explain a broad set of physical and mathematical flaws in the usual descriptions of the „greenhouse effects“.
- Gerhard Kramm, Ralph Dlugi, Michael Zelger: supplement the approach of Gerlich/Tscheuschner with numerous aspects of Theoretical Meteorology.
- Heinz Thieme, Detlef Hebert: look into the true behavior of the atmosphere as a thermodynamic system.
- Wolfgang Thüne: challenges the misleading terminology and the political utilization of the dogma.



Fig 7: Brainwash

Schools are run or at least supervised by governmental bodies. In some countries children are now systematically trained towards green thinking. Principals hope to bolster their careers by touting solar energy and "climate protection". Publishers of school books drive political acceptance with forthright ecological propaganda. (see fig. 10).

Frequently even organized green activists get access to classrooms and perform "teaching" – like on the picture!

Photo:
www.umwelt-aktion.de/oomla/index.php?option=com_content&view=frontpage&Itemid=53



Fig. 8 Oblation for the "global climate"

While many schools still preach the salvation of "energy, friendly to the climate", there are already thousands of wind turbines abandoned in certain parts of the USA. If subsidies are abolished, such installations cannot even earn enough to sustain their own maintenance. Naive private investors are facing total loss.

Mysteriously, this fact is rarely mentioned in the public discussions.

Photo:
<http://themerrypoppins.blogspot.de/2011/11/14000-abandoned-wind-turbines.html>



Fig. 9: Greenhouse Gurus

Jeffrey Kiehl (left) and Kevin Trenberth are American atmospheric scientists and "lead authors" of the IPCC. They are renowned advocates of the CO₂ greenhouse dogma.

In two frequently cited meta studies (1997 and, together with John Fasullo, 2008) they tried to quantify flows of energy and radiation in the atmosphere.

For this study we assume their assessments regarding the "cooling system" to be correct.

Photos: University Corporation for Atmospheric Research, NCAR/CGD

Endnotes

- 1) We had already analyzed the greenhouse dogma in our report "Rescue from the Climate Saviors" (Ermecke 2010). In this new paper written primarily for highschool students, parents, and teachers, we explain one of the core arguments of the previous report in greater detail. Both papers mutually add to each other.
- 2) By the year 2050 the EU Commission wants to have collected no less than 11,000 bn Euros for pretended means of climate protection. www.faz.net/aktuell/wirtschaft/wirtschaftspolitik/plan-der-eu-kommission-der-klimaschutz-kostet-billionen-1595645.html (in German).
- 3) This contradicts the 2nd law of thermodynamics: heat can never flow from cold to hot without further means.
- 4) Gerlich & Tscheuschner (2007) have presented no less than 14 such descriptions.
- 5) At night the surface cools down quickly, it can even become colder than the air right above ("inversion").
- 6) Thieme (2005).
- 7) Explanation of the Sahara and Moon example: Thieme (2005).
- 8) Properties of Moon surface material described by Kring (2006).
- 9) In our deserts there is sand of different colors and brightness, including material which is comparable to the mostly dark Moon dust. However, no temperatures have been documented which grossly exceed the 80°C mentioned here (Laity 2008, p. 52).
- 10) Regarding the Moon temperatures some argued that the night side of the Moon was much colder than that one of the Earth. While true, the statement misses the point. The claim was that the molecules of the "greenhouse gases" would raise the surface to a higher temperature by additional radiation. If this – as shown here - does not hold for daytime, it will not hold for the night either.
- 11) Kiehl, Trenberth (1997), Trenberth et al. (2008)
- 12) Gerlich & Tscheuschner (2007) analyzed the derivation of the alleged greenhouse effects from the viewpoint of physics and rejected it because of a multitude of serious flaws.

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Appendix

School books: "Acting green" as objective of learning?

Under the influence of decade long campaigns, the popular knowledge of natural science has declined – it is the right attitude which counts. School books mirror this trend. Not only do they teach faulty physics (here of all things in an English textbook for German high school students), but on the following pages the students are called up for action. One repairs her bike – then she is "green" (which seems to mean "right") and "helps the environment"!

"green" is one political orientation and set of beliefs, it competes with others. Schools may portray it, but shall refrain from single sided advertising. Schools must teach scientific thinking, even if that disproves certain green dogmata.

Teachers often use red ink. That is what we do now. Unfortunately, there is by far not enough space here to outline everything what needed to be noted!



That picture series is a naive agitprop piece and should be shown – if t all - in a course of modern arts: as a bad example.

Here the plural should be used: There are many different temperatures on Earth

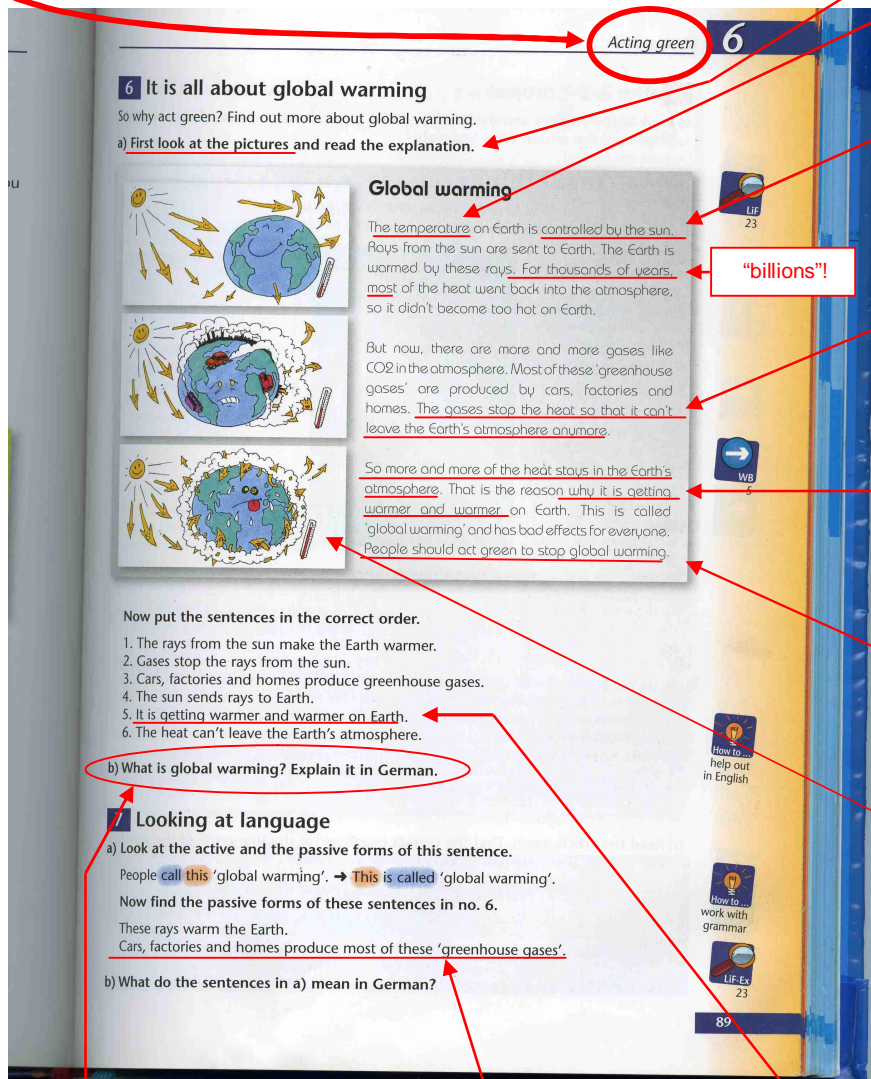
How warm it gets on the ground depends on the amount of solar energy received. Cloud coverage controls that. This coverage however strongly fluctuates over the years. "It's the clouds, stupid!"

This turns reality upside down. The IR-aktive gases are the primary agent of the Earth to dispose of energy, by radiating into space (see fig. 2-4).

There is no current warming trend in the first place. There are only claims based on computer models. They are programmed in a way that they "compute" warming automatically when the CO₂ concentration is raised.

What a strange delusion! The belief humans could control the weather this way is absurd.

The thermometer shows an increase of 7 points, presumably 7 degrees centigrade. In case of an even warming of 7°C the Earth's IR radiation into space would increase by 11%. This had to be compensated for, by 11% of more heating power. Where does this come from? The detailed discussion of this argument can be found in Ermecke (2010) pp. 4-5.



This is a school book for high school students in Germany, 9th grade. At this point, the language teacher (who is usually not especially trained in natural sciences) shall enter into a discussion based on pseudo physics.

This is not true. The dominant IR-active gas is not CO₂ but water vapor. Solar radiation evaporates 500,000 bn tons of water per year. The natural release of CO₂ is estimated to be 556 bn, the manmade to be 26 bn tons.

This depends on the starting point of the survey. Since the year 2000, it became a little cooler, since 1850 a little warmer. Since the last ice age (12,000 years ago) it became much warmer, since the "Holocene Optimum" (6,000 years ago) clearly cooler.

Fig. 11: School book delusion
Scan from: Portobello Road 5, Bildungshaus Schulbuchverlage Westermann, Schroedel Diesterweg Schöningh Winklers GmbH, Braunschweig, Germany, 2005.
The chapter "Acting Green" covers 12 pages.

The Authors



Klaus Ermecke, Founder of „KE Research“: Studies of Business Administration at Helmut-Schmidt-Universität in Hamburg, additional studies in International Politics and Computer Science. Professional career steps with PCS Computer Systeme, ParcPlace Systems, Giga Information Group and Forrester Research.



Heinz Thieme is Diplomingenieur and was involved in complex physical tasks as a consultative expert in the energy sector over many years. Starting in 1997 he published several papers in which he analyzed the true role of the “greenhouse gases” in the atmosphere.

Publisher

Klaus Ermecke GmbH
KE Research
Sommerfeld 37
82041 Oberhaching
Germany

Tel: +49-89-6134276
Fax: +49-89-6252130
info@ke-research.de
www.ke-research.de

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