

## Weak Point Analysis of the Hypothesis of the “Man Made Climate Change”

**The following analysis is not a scientific study but a plausibility assessment of existing commonly accepted data by an engineer.**

Since about 25 years established media is publishing a flood of articles, films and news about the man made „climate change“. The message is that without an abandonment of the use of fossil fuel mankind is going to an apocalypse. This message is communicated in the kind of a brainwash.

Analyzing the communication about the „climate change“ a first finding is a very selective reporting. Local warm periods are attributed to the „climate change“. Other weather anomalies as the first snow fall in Cairo since 112 years in 2013 are not attributed to it<sup>(2)</sup>. The statement “science is settled” gives a guidance that there is no fact oriented expert discussion about this hypothesis intended or it is directly refused<sup>(36)</sup>. Critics of this hypothesis are usually not attacked by their thesis but their reputation and their employers (see *hacked e-mails*). The wording as „denying climate change“, “holy Greta” sounds like the communication of a religion. The “climate change” is made responsible for allergies<sup>(4)</sup>, the civil war in Syria<sup>(22)</sup>, Tsunamis <sup>(47)</sup>, reduced human fertility<sup>(58)</sup> and many more which sounds as well more like a religious dogma. Pelosi (D, House Speaker) ““For me, it's a religious thing”<sup>(80)</sup>

Focusing on the statements of leading „Climate Scientists<sup>(a)</sup>“ of the last two decades. Ex.: The Maldives should have sunken already<sup>(38)</sup>. Al Gore told 2008 that the artic will be totally free of ice in 2013..<sup>(3)</sup>. “The Himalaya glaciers will become molten till 2035 or earlier” reported the IPCC in 2007<sup>(37)</sup>. „The president has 4 years left to save the world“, James Hansen in the Guardian Jan. 17<sup>th</sup>, 2009<sup>(1)</sup> (*hypothesis positive feedback loop*). The leading “climate scientists<sup>(a)</sup>” dealing with facts seems to be very flexible. Established media does not challenge the “climate scientists” at all.

John Kerry Bidens climate envoy uses regularly <sup>(82)</sup> a family owned private jet for ex. to Iceland for taking a climate award <sup>(62)</sup>. The climate scientists used 400 private jets to visit the climate conference in Glasgow 2021 <sup>(82)</sup>. Al Gore said 2006 that in 15 – 20 years „Even Manhattan would be in deep water“<sup>(51)</sup>, bought an ocean front property in 2010. The personal behavior of the leading climate scientists<sup>(a)</sup> seems not to correspond with their message.

In the Paris Climate Agreement 2015 a maximum „warming“ of 1.5°C vs. the pre-industrial time is agreed as a „climate target“. Within the 27 pages (English Version) there are no references about the definitions of the „pre-industrial time“, the reference temperature, or the measurement method.

In the IPCC reports there are strong indications that the period 1850 – 1900 is considered as „pre-industrial time“. In these reports GMST (Global Mean Surface Temperature) and GSAT (Ground Surface Air Temperature) are mentioned. In the period 1850 – 1900 systematic temperature measurements did take place in a few places of the earth most in Europe. The standards did not

meet today's standards. The reference data is unnecessarily inaccurate, interpretable. The use of unnecessary diversely interpretable reference data is very unusual for international treaties. It is not in line with the claimed scientific approach. It is the documentation of a common confession of faith. By the way it is extremely arrogant to intend to control the climate by an international treaty.

A scientific study with the thesis that the penis is responsible for the climate change, Lindsay & Boyle (17)(18), mostly gender science, intended by the authors as a joke vs. political correctness, was contrary expectation published swiftly. It is to worry that ideology and religion are going to stand above science as in the middle age.

**Conclusion: The communication of the supporters of this hypothesis seems to be more close to an ideology or religion than a scientific communication. The dealing with facts seems to be very flexible. The behavior of the leading "climate scientists" does not fit to their message - kidding their believers.**

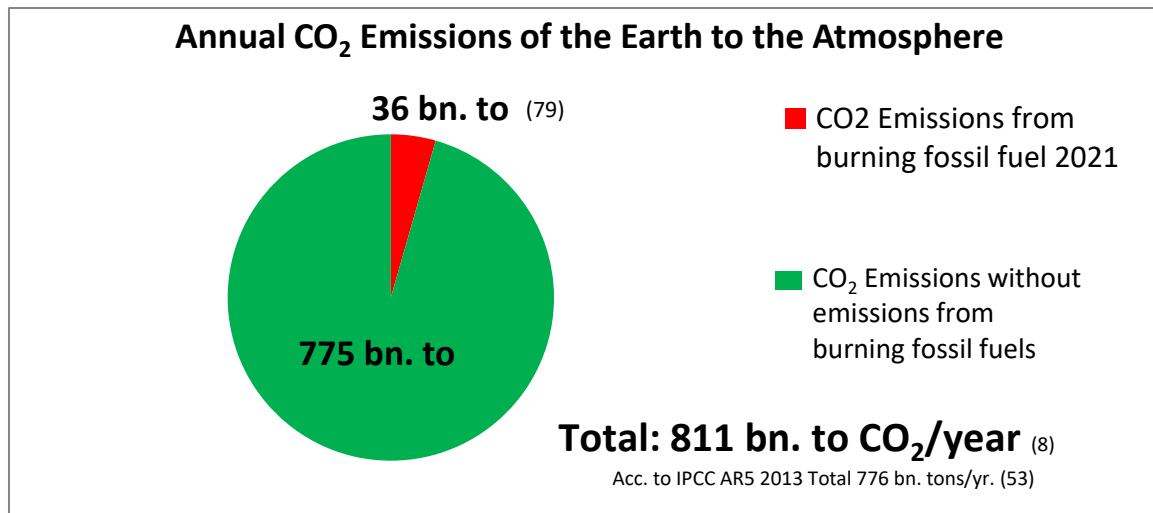
## **Die Hypothesis of the Climate Change**

According to this hypothesis the CO<sub>2</sub> emitted by nature is absorbed by nature completely. The CO<sub>2</sub> added by the use of fossil fuels usage accumulates in the atmosphere. The resulting higher CO<sub>2</sub> level in the atmosphere increases the greenhouse effect and thus it is warming up the planet. Computer models predict this warming exactly with an accuracy of  $\frac{1}{10}$  degree °C. Some reports mention a positive feedback loop. This warming is described as a general apocalypse for the planet and manhood if there is no turnaround.

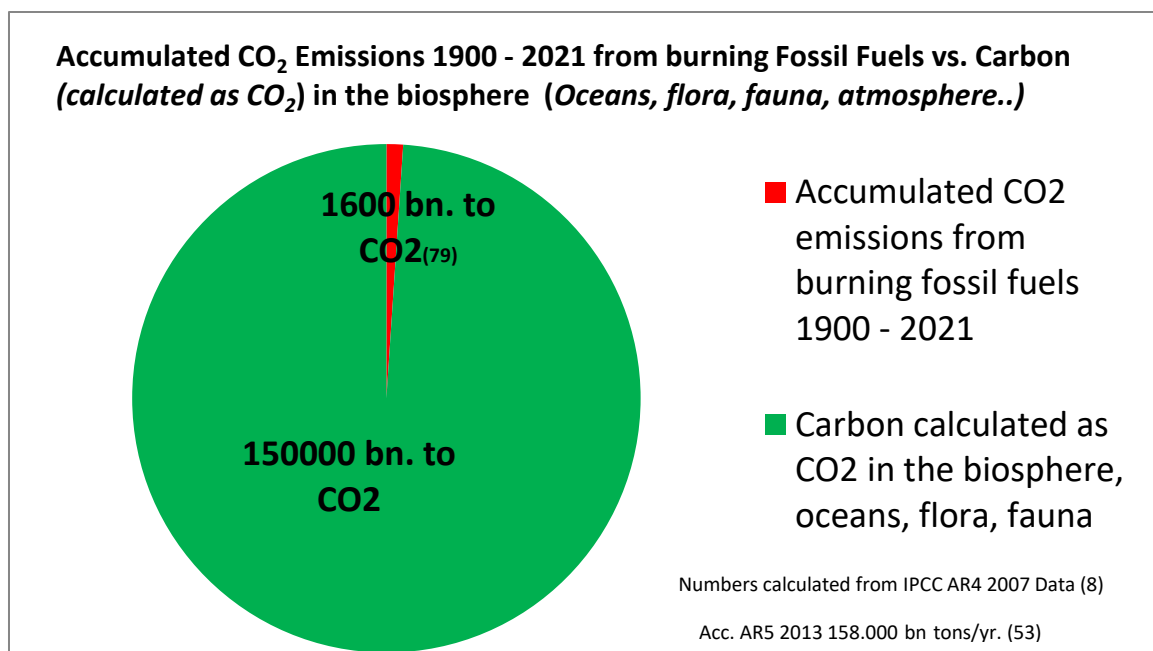
## **Weak Point Carbon Cycle**

The CO<sub>2</sub> emissions from burning fossil fuel can be calculated by the known consumption of fossil fuels, oil, coal and natural gas. In 2021 these emissions totaled 36 bn. tons/yr.(79). The total carbon emissions calculated as CO<sub>2</sub> mostly of natural origin are roughly estimated by the IPCC (AR4 2007) to 810 bn. to/yr.(8). Acc. to IPCC AR5 2013 Total 776 bn. tons/yr. (53)

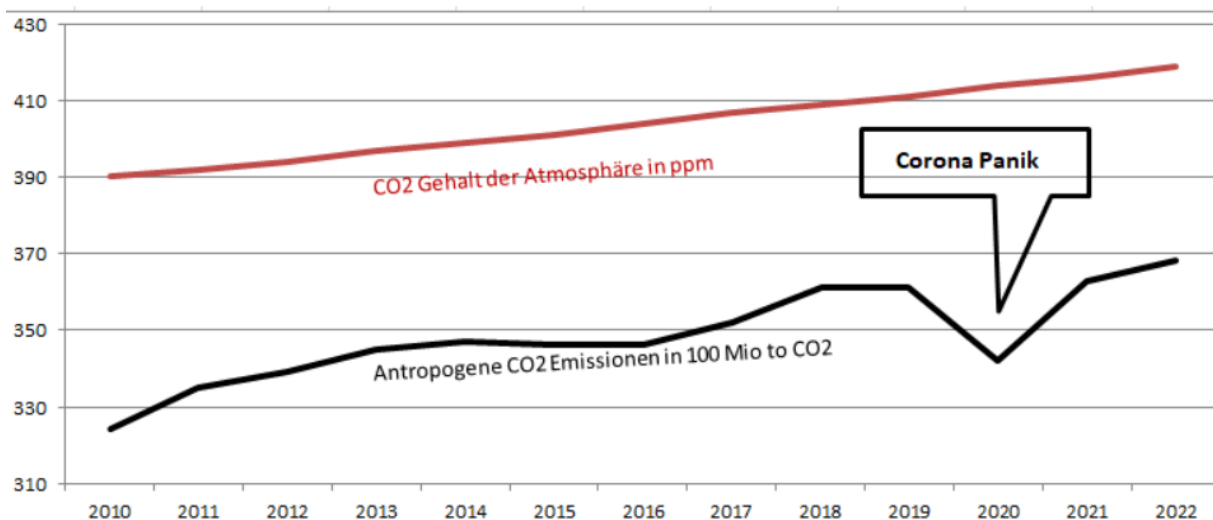
The CO<sub>2</sub> absorption and emission of the seas depends on the water surface temperature, wind and waves. Due to weather, seasons, currents and multi-year events as Al Nino these numbers are not more than rough estimates. The vegetation of the land surface is very divers and changes with the season. These numbers are as well best estimates. The estimate of the IPCC about the sedimentation of CO<sub>2</sub> in the oceans of 0,7 bn. to CO<sub>2</sub>/yr. seems surprisingly low.



According to the hypothesis the nature can absorb exactly the varying by nature emitted quantity of CO<sub>2</sub> (*Estimates vary as well*). The tiny surplus from the usage of fossil fuel is accumulated in the atmosphere. The accumulated CO<sub>2</sub> emission from the usage of fossil fuel since 1900 is compared with the easy dissoluble carbon in the biosphere, the atmosphere, oceans, flora and fauna which are as well acc. to the IPCC reports in an intensive interchange. The diagram below shows this comparison with the IPCC<sup>(8)</sup> figures:



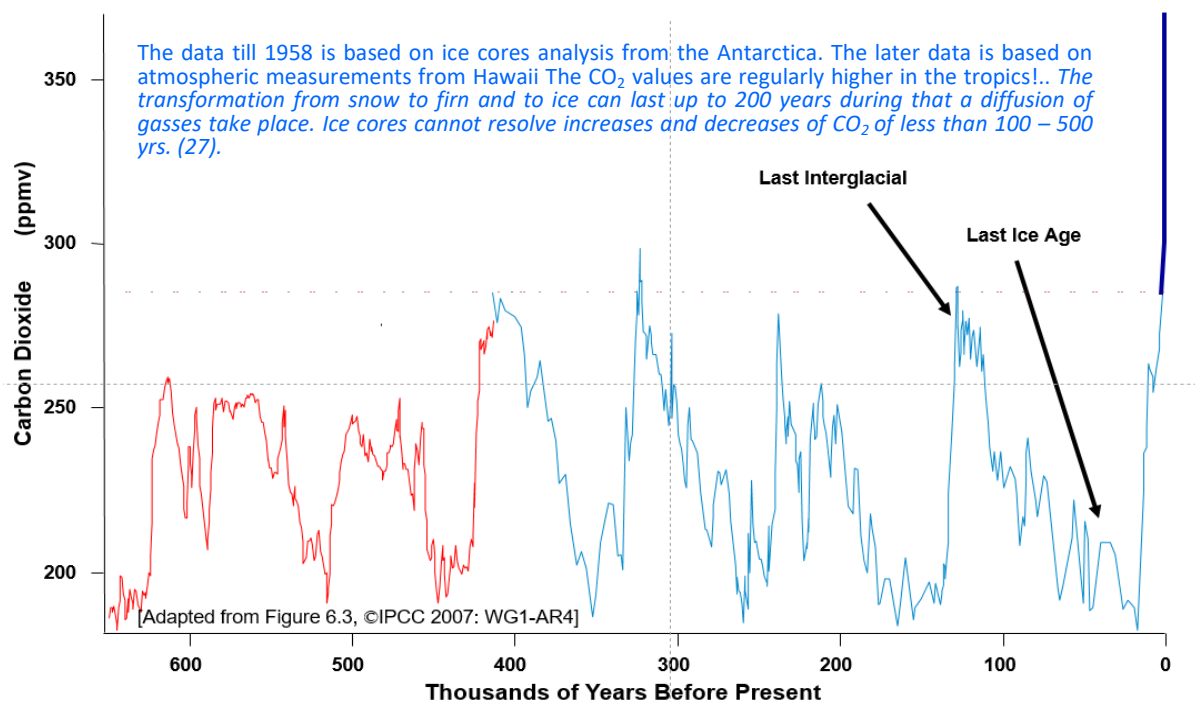
The oceans contain the majority of the solved carbon as CO<sub>3</sub><sup>2-</sup> ions. The solvability of the seawater decreases with increasing water temperatures by app. 5%/C°. A temperature change of the oceans of 1°C is equivalent to a reduced solvability of 7 trillion to. CO<sub>2</sub> equivalent to 200 – fold the annual emissions from burning fossil fuels. Acc. to the „Climate Scientists<sup>(a)</sup>“ the tropical sea emits CO<sub>2</sub> and the cold polar sea absorbs it. It is assumed that in case of a warming of the oceans the emitting areas increase and in case of a cooling of the oceans large areas shifts in favor of an absorption of CO<sub>2</sub>.



Data IEA (79), NOAA (90)

There is no strong apparent correlation between the changes of the share of CO<sub>2</sub> in the atmosphere and the anthropogenic CO<sub>2</sub> emissions. This contradicts the “climate scientists” but seem logic considering the negligible share of anthropogenic CO<sub>2</sub> emissions in the carbon cycle. It is an indication that the anthropogenic emissions do not have a dominant influence on the possible increase of the CO<sub>2</sub> share in the atmosphere since 1960.

### Historical share of CO<sub>2</sub> in the Atmosphere acc. IPCC

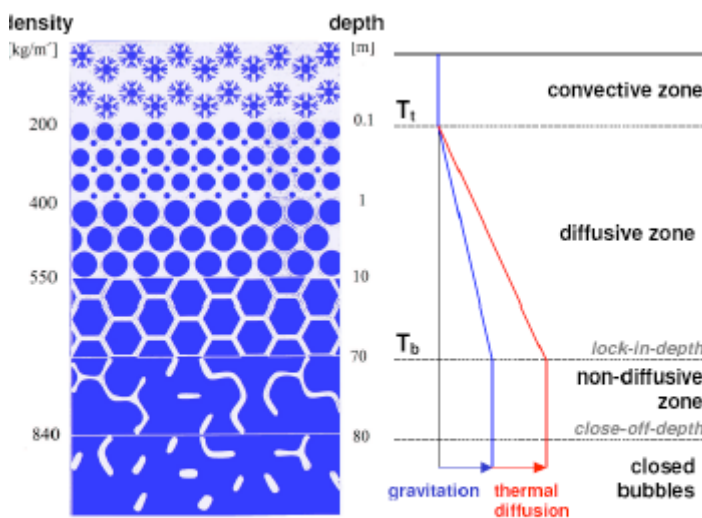


Ref. (7) *Supplement in dark blue Susan Salomon IPCC WGI*

**Conclusion:** It seems absurd that the insignificant CO<sub>2</sub> emissions from the usage of fossil fuels compared to the potentially much bigger fluctuations of the CO<sub>2</sub> emissions from oceans, unfreezing of the permafrost soil at the transitions from ice ages to warm ages and back, ceated an unprecedented increase of the share of CO<sub>2</sub> in the atmosphere whithin nearly 1 mio. yrs..

Speculative it seems an option that the historical data was adjusted at very low values by the method of measuring.

The most probable reason for the measured increase of the CO<sub>2</sub> concentration in the air is a systematic faulty estimation of the historic CO<sub>2</sub> concentration in the atmosphere. The IPCC data till 1958 is based on ice cores from the Antarctica and as of that time on the Keeling curve that shows a steady linear increase of measured CO<sub>2</sub> data from app. 320ppm 1960 till more than 400ppm 2018, see remark CO<sub>2</sub> measurements. In parallel there are since 1811 accurate chemical methods to measure the CO<sub>2</sub> concentration of the atmosphere. Since 1857 the Pettenkofer Methode is used. The historic chemical CO<sub>2</sub> measurements, E.G. Beck(9,10), show systematic higher CO<sub>2</sub> values, some above 500ppm, than the values obtained from measurements of ice cores and shown in the figure from the IPCC above.



Depending on temperatures snow- and rainfall fresh snow transforms within app. 200yrs. to a gas tight plastical glacier ice. Within this period gasses can diffuse and outgas. Further changes as the disappearing of the gas bubbles take place up to an ice depth of 840m (Stauffer 1100m)

The processing of ice cores is a brutal and dirty procedure that changes the specimen drastically (Jaworowski 1994a, Jaworowski et al. 1990, Jaworowski et al. 1992a, (30))

**Fig. 18: Development of the gas archive in ice cores [Schwander, 1996]** (29)

Acc. to Jaworowsky (30) the data from ice cores is not suitable for a quantitative analysis of historic atmosphere data. The CO<sub>2</sub> data from ice cores are regularly 30 – 50% below the data of the original atmosphere. Other scientists got to other conclusions<sup>(f)</sup>. A different method to quantify historical CO<sub>2</sub> data is the examination of the petrified leaves and needles from trees, called stomata. This method finds higher and more fluctuating historical CO<sub>2</sub> values (55). ). **It seems likely that an increase of the CO<sub>2</sub> share in the atmosphere since 1960 is a typical process caused by the temperature increase since the little ice age that is accompanied by a lower CO<sub>2</sub> solubility in the sea surface water and thawing of permafrost soil in the Arctic.**

An alternative option is that the earth carbon cycle is estimated quantitative significantly too high, that the CO<sub>2</sub> emissions from burning fossil fuel might play the role given by the hypothesis of the “climate change”. The Keeling curve fits perfect in this option. In opposite critical scientists as Tim Ball (52) usually estimate the carbon quantities of the carbon cycle regularly higher than the IPCC.

The probability that anomalous high CO<sub>2</sub> emissions from the oceans, for instance by upwelling<sup>(e)</sup> (26) and melting permafrost soil goes along with the end of the little ice age and cause a historic unparalleled increase of the CO<sub>2</sub> share in the atmosphere seems very low.

The long term carbon circuit,  $\text{CaO} + \text{CO}_2 \leftrightarrow \text{limestone (CaCO}_3\text{)}$  is only roughly explored. Most of the earth surface carbon is bound in limestone, calculated as  $\text{CO}_2$  126,000 trillion to  $\text{CO}_2$ (19).  $\text{CaCO}_3$  is solved by the rain from limestone and sedimented in the sea (till app. 5000m water depth). In the course of the continental drift the limestone comes back to the surface. In the deep sea lime stone is solved by the seawater. A shift in the sedimentation boundary could influence the short term carbon cycle. The low  $^{13}\text{C}$  isotope share in the atmosphere contradicts such hypothesis<sup>(h)</sup>.

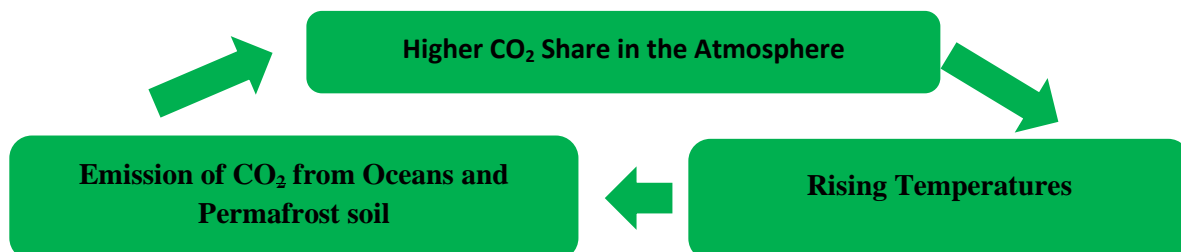
### Weak Point - Dynamic of the Carbon Cycle

The hypothesis of the „climate change“ assumes that the carbon cycle is largely a static process like a saving account. A dynamic carbon cycle is not supportive for the hypotheses of the “climate change”. But it seems necessary to expect a dynamic. A higher  $\text{CO}_2$  partial pressure in the atmosphere resp.  $\text{CO}_3^{2-}$  concentration in the sea shifts chemical and biological processes in favor of a  $\text{CO}_2$  absorption. It increases together with the higher temperature since the end of the little ice age (app. 1850) the growth of the vegetation. There are many biological organisms that react on higher temperatures and  $\text{CO}_2$  concentrations with a higher rate of photosynthesis. Typical examples are the cyanobacterium synechococcus (blue algae) and C2 plants. It causes an increased sedimentation of  $\text{CO}_2$  as  $\text{CaCO}_3$  from corals, mussels, snails. This sedimentation is acc. to the IPCC figures 0.7 bn. to  $\text{CO}_2$  /year negligible<sup>(g)</sup>. This seems a bit strange putting the quantity of oceanic life in consideration. Lüdecke et al<sup>(35)</sup> a critics of the hypothesis investigated the dynamic of the carbon cycle and estimates that the max.  $\text{CO}_2$  level of the atmosphere will not rise above 800ppm due to absorbing biological processes and will come down in the long term to a new equilibrium<sup>(g)</sup>.

### Positive Feedback Loop of the Carbon Cycle

If the hypothesis of the „man made climate change“ is thought further, ex. Hansen („climate scientist<sup>(a)</sup>“), there is the challenge of a positive feedback loop. The  $\text{CO}_2$  solvability of the seawater decreases about 5%/°C. That means a temperature increase of 1°C of the oceans could cause a potential emission of up to app. 7 trillion to  $\text{CO}_2$ /°C, plus  $\text{CO}_2$  emissions from defrosting permafrost soil. It is an X-hundred fold of the annual emissions from burning fossil fuels. These emissions would increase according to the hypothesis of the climate change the temperature of the earth and these higher temperatures would further increase the  $\text{CO}_2$  emissions from the oceans and the permafrost soil. There is acc. to some “climate scientists<sup>(a)</sup>” a trigger point for such a self-intensifying  $\text{CO}_2$  level increase - climate warming - feedback loop.

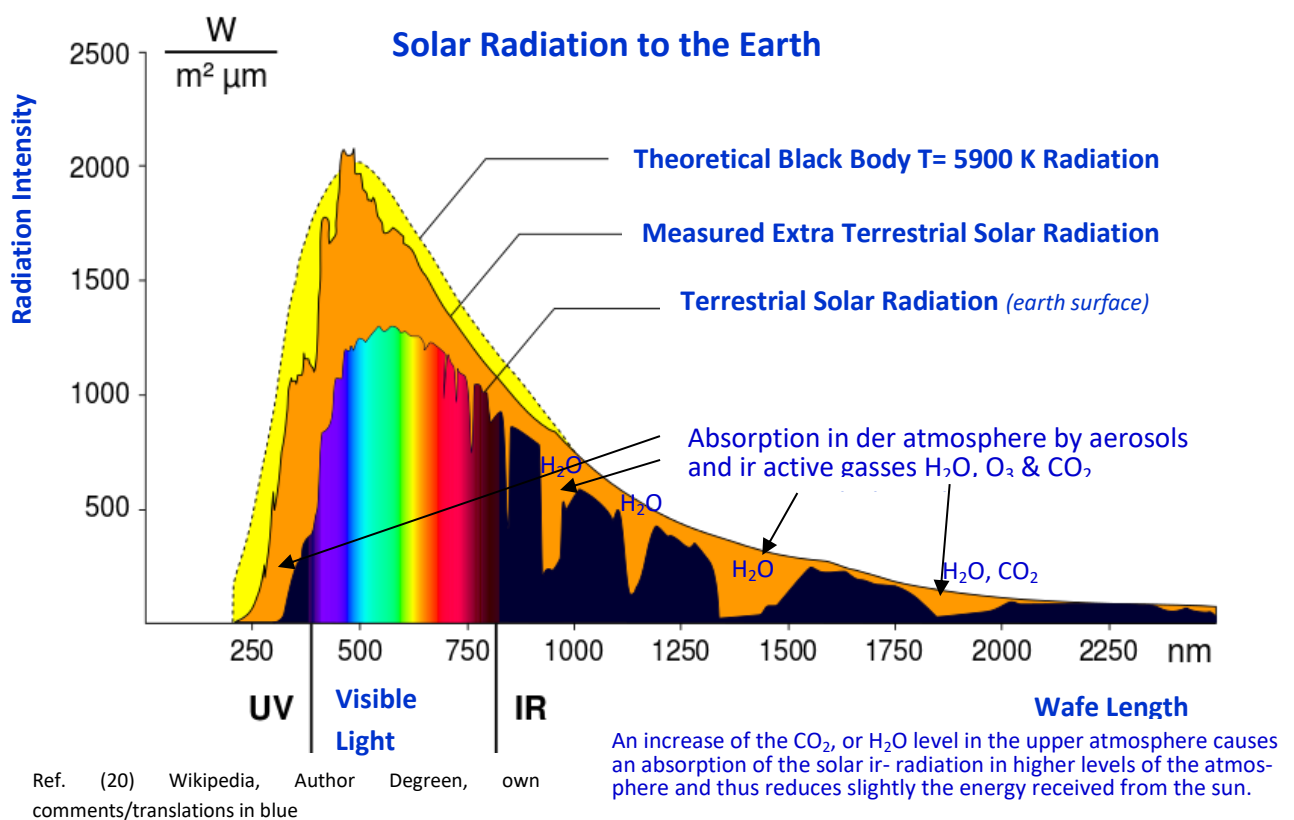
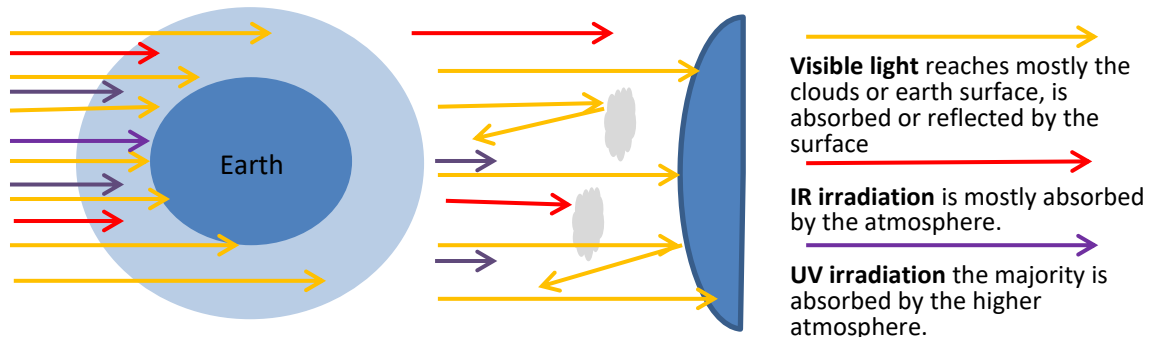
### Hypothesis Positive Feedback Loop of the Carbon Cycle



The potential reasons that such a development did never happen during the last 600 mio. years might be acc. to my own assessment potentially the dynamic of the carbon cycle and a potentially very low sensitivity of the climate towards an increase of the  $\text{CO}_2$  levels in the atmosphere.

## Explanation Solar Irradiation and Earth Back Radiation

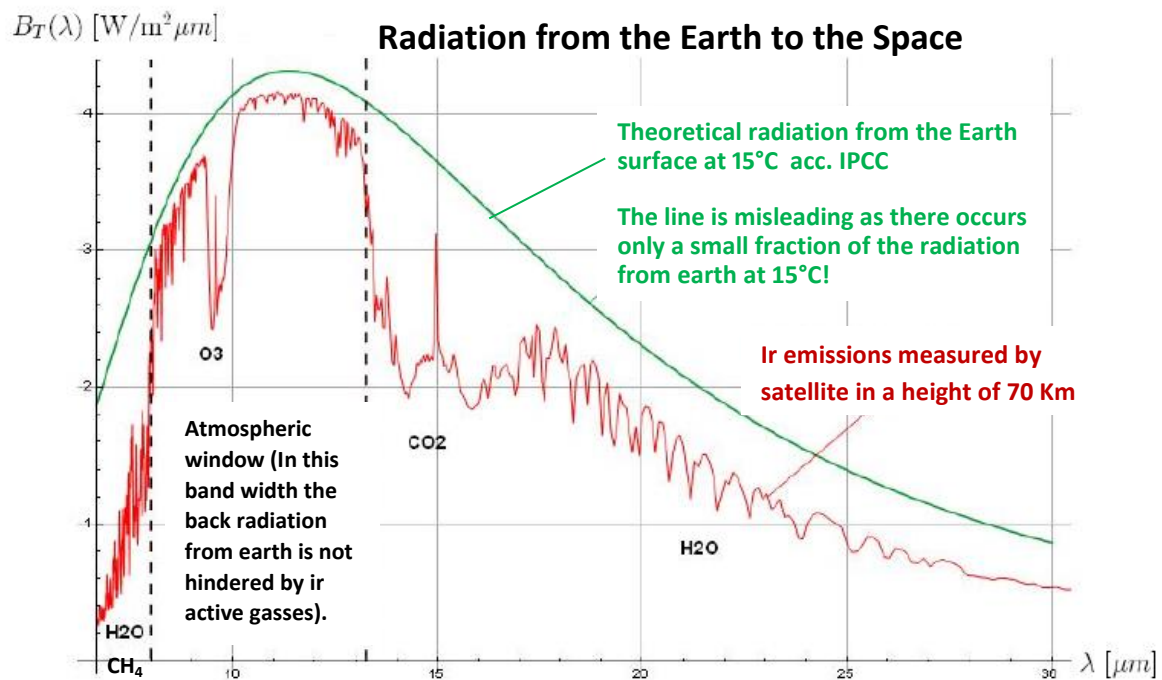
Due to its surface temperature of 5900 K (5630 °C) the sun emits most of its energy in the short wave ir, the visible light and the UV spectrum.



When the solar radiation hits the surface of the earth a major share of it is absorbed, the remainder is reflected back from the surface depending of the surface and the angle of impinge. The reflected share varies depending the kind of surface, the weather and the season. The IPCC estimates the share of reflected radiation called albedo to 0.3. The IPCC estimates with an albedo of 0.3 and without the greenhouse effect a „global average temperature“ of -18°C, equivalent a greenhouse effect of 33 °C. The earth emits about the same quantity of energy as received back to the space.

Received radiation + terrestrial heat + anthropogenic heat = emitted radiation.

Otherwise the earth cools down or warms up till a new equilibrium is achieved. The radiation from the earth surface takes place in the infrared spectrum  $> 2.5\mu\text{m}$  due to the earth surface temperatures of  $-70 - +70^\circ\text{C}$  average temperature app.  $288\text{K}$  ( $15^\circ\text{C}$ ).



Radiation from earth, (red) earth surface in a height of 70Km. Data simulated by MODTRAN

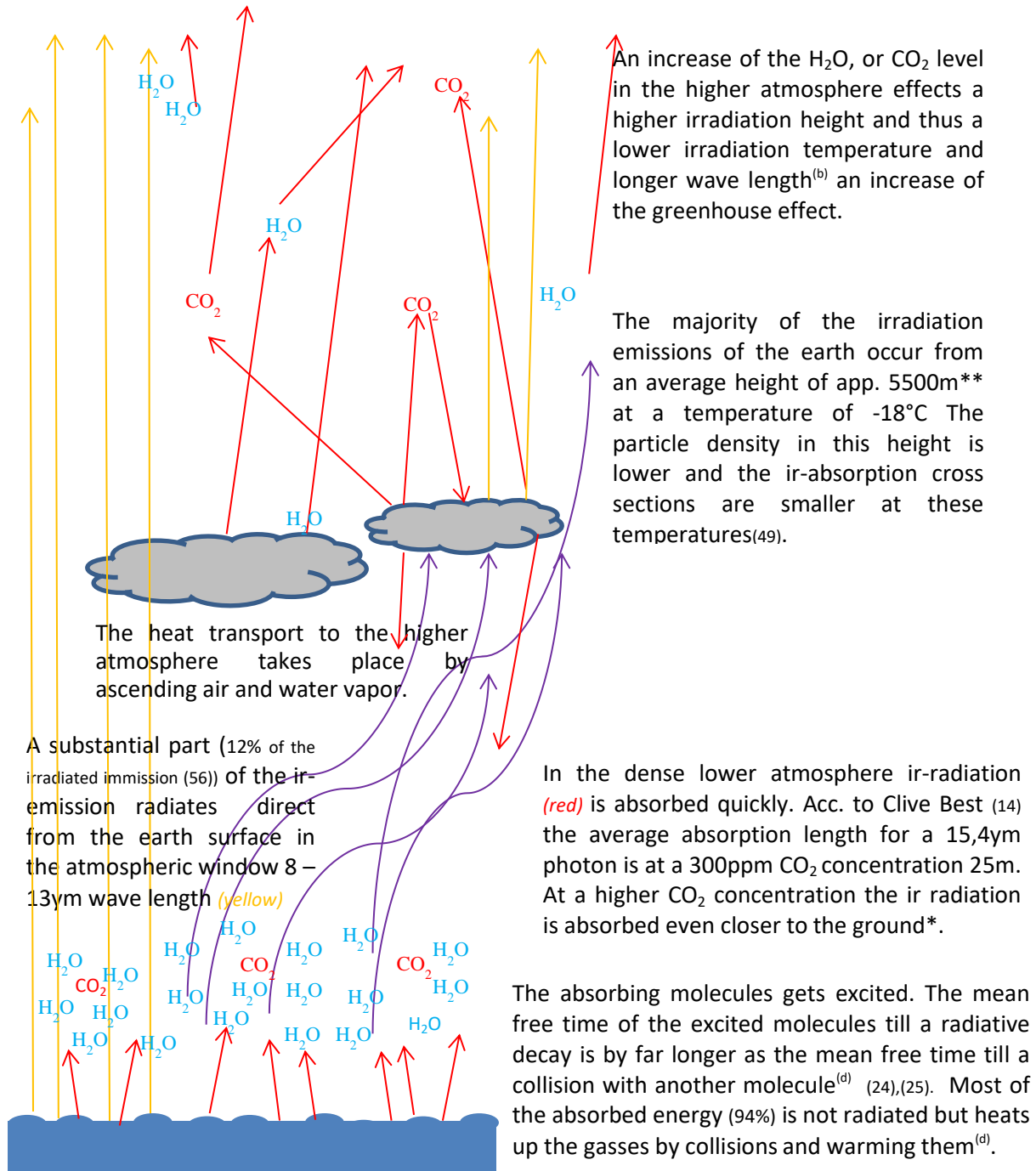
Ref. (13)

The figure above gives the impression that  $\text{CO}_2$  has an important effect on the radiation from earth in the band between  $13 - 17 \mu\text{m}$ . In many publications the gap in the back radiation from the earth between  $13$  and  $17\mu\text{m}$  wave length is communicated induced by increased  $\text{CO}_2$  levels. A deeper gap is predicted for higher  $\text{CO}_2$  concentrations.

The reality is by far more complex as the illustration seems to show. In the following figure the process of the energy transport from earth to space is sketched roughly. The majority of the radiation from the earth takes place in a height of  $2.8 - 85 \text{ Km}$  in a long wave infrared spectrum.



# Energy Emission back from the Planet Earth

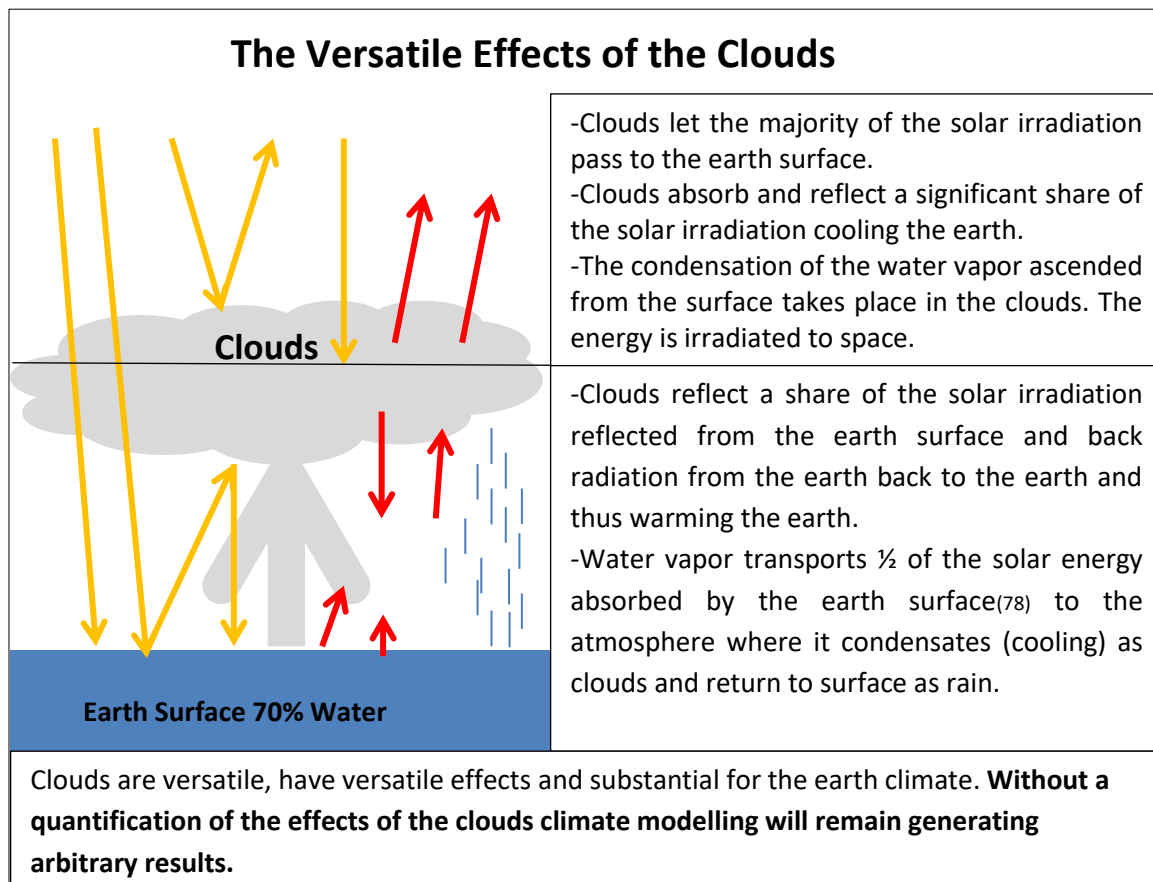


\*Die average mean free length  $\lambda = 1/(\sqrt{2} * \pi * n * d^2)$  n= particle density and d the effective cross section of the gas.

\*\*The final radiation height from earth to space depends on the wave length 2.8 -85Km.

## The Water Coverage of the Earth as Crucial Factor for the Climate

### Challenge for Climate Modelling - The Effects of the Clouds

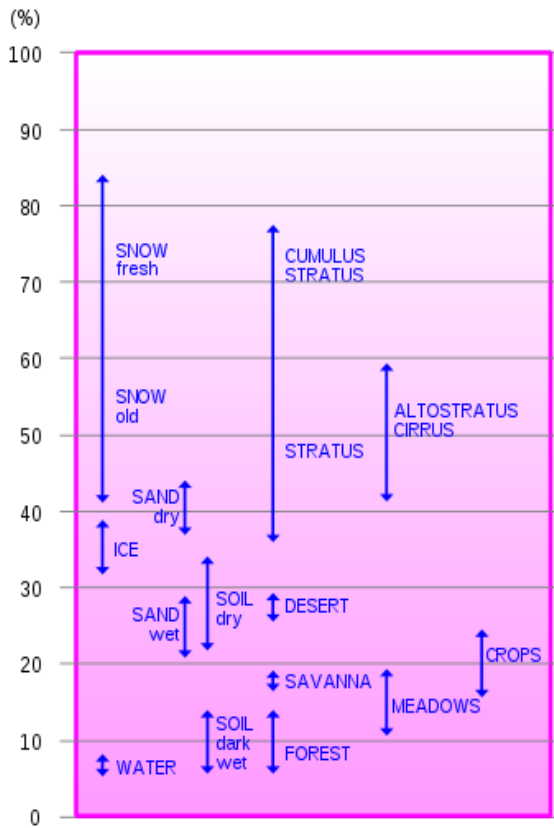


The main effect of the water evaporation/clouds is the transport the heat from the earth to the higher atmosphere where it is radiated from earth. Acc. to Babkin (23) or NASA  $\frac{1}{4}$  (78) of the irradiated solar energy is dissipated by water evaporation. The evaporation from bodies of water and the vegetation increases strongly with increasing temperatures. Example: The evaporation from tropical seas is about 8 – 10 fold higher than that of polar seas. The water vapor is rising to the sky and condensing as clouds. The condensation energy is mainly emitted as ir-radiation to the space.

Another major effect of the clouds on the climate is that clouds absorb and reflect a share of the solar irradiation. The clouds increase the albedo and cool the earth and hence cause a cooling during the daytime. On the other hand the clouds cause a warming covering of the earth from the cold space in the night. At daytime and in tropical regions clouds are cooling. During nighttime and in polar areas where the back radiation surpasses the solar irradiation clouds are warming. Nights with a cloud covering are warm. Acc. to the „climate scientists<sup>(a)</sup> “ thick clouds have a cooling effect, thin clouds the opposite effect. Clouds appear in different heights and layers. It is difficult to calculate the effect on the climate and thus creates a range of results in climate models. This challenge is seen by serious IPCC climate scientists as well<sup>(i)</sup>.

## Challenge for Climate Modelling - The Challenge to estimate the Albedo

### The Challenge to estimate the Albedo of the Earth



(83) Wikipedia Albedo

The albedo - reflexion of the sunlight received by the earth atmosphere – is estimated to 30% - 31% by “Climate Scientists”.

It is varying strongly with snowfall, clouds, dry vs. wet soil, fields. It varies during daytime, from day to day the weather and seasons.

It is at best a very rough estimate. It would be extremely challenging to estimate the change in albedo in case of a global warming and cooling.

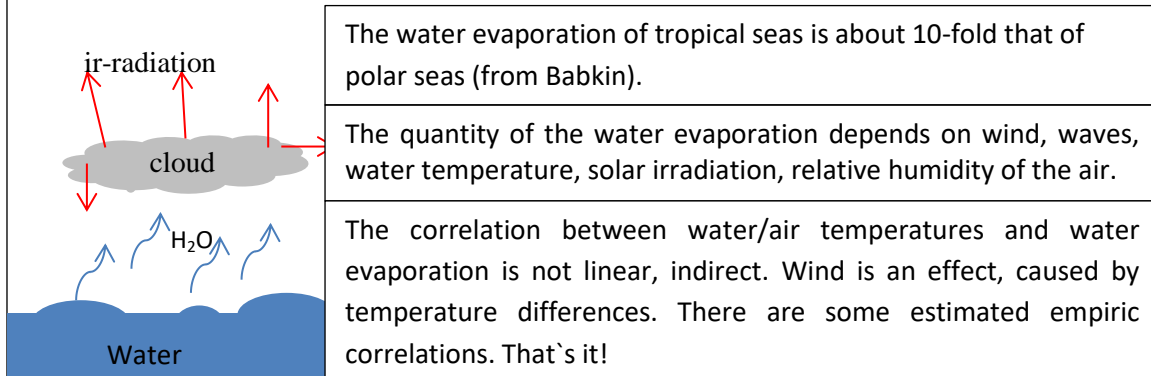
It would be one of the key challenges if someone would try to make a serious climate modelling. The estimation error of the albedo might exceed the influence of the CO2 by far.

*On the average, the earth reflects 31 units of solar radiation back to the space for every 100 units received (thus, the total earth albedo is 0.31). The cloud albedo accounts for 23 units of the 31. For individual clouds, local albedo may be in excess of 0.7 (84).*

## Challenge for Climate Modelling - Water Evaporation

### Water Evaporation

Acc. to the NASA (78)  $\frac{1}{2}$  of the solar energy absorbed by the earth surface is discharged back to the sky by water evaporation.



The water evaporation of tropical seas is about 10-fold that of polar seas (from Babkin).

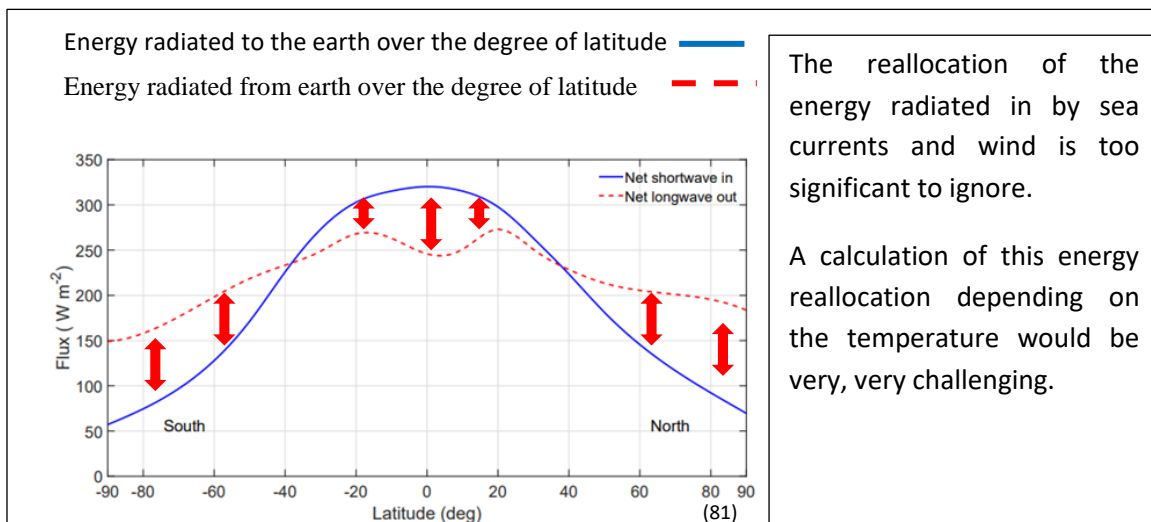
The quantity of the water evaporation depends on wind, waves, water temperature, solar irradiation, relative humidity of the air.

The correlation between water/air temperatures and water evaporation is not linear, indirect. Wind is an effect, caused by temperature differences. There are some estimated empiric correlations. That's it!

**A quantitative assessment of the water evaporation depending on water and air temperatures is a need for a realistic climate modelling, but would be a hard challenge for a serious climate modelling as well.**

## Challenges for Climate Modelling - The Effects of Wind and Sea Currents

Warmed air has a lower density as cold air. It is rising up and is causing wind. Warm water has a lower density moves in sea currents as the Gulf Stream north were it cools down sinks and returns as a cold ocean current. Thus Polar Regions are warmer and tropical regions colder as in a stationary climate. In Polar Regions the back radiation is stronger as the solar irradiation. Clouds are warming in Polar Regions instead of cooling like in tropical regions. It would be one of the many challenges for a serious climate modelling.



The reallocation of the energy radiated in by sea currents and wind is too significant to ignore.

A calculation of this energy reallocation depending on the temperature would be very, very challenging.

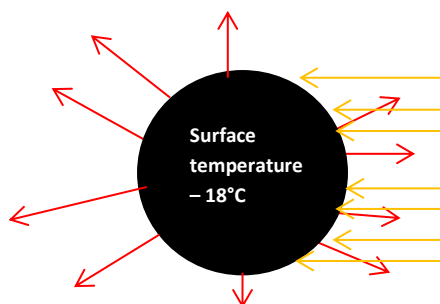
Till today the estimates of the heat transfer by ocean currents and wind are not more than guesses. A effect of a different climate on it are not known.

**A realistic calculation of the effects of the heat transfer of ocean currents and wind would be necessary for a realistic climate modelling.**

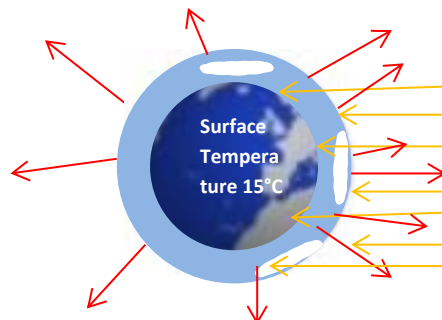
## Deceptive Comparison Base of the Greenhouse Effect

### Greenhouse Effect of the Earth Simplified

IPCC Reference Fictional Naked Planet



Planet Earth with Atmosphere



(66)

The calculation of the irradiation from the sun is based on a circular area with the diameter of the earth and 30% reflection/albedo (Grey body). The back radiation is calculated by the Boltzmann formula based on the surface of an earth sized ball with a black body surface with an averaged! surface temperature. The surface temperature of this fictional celestial body is calculated to -18°C (255K).

The radiation to the earth surface and as well the back radiation from the earth surface is influenced by the atmosphere, clouds, aerosols, ir-active molecules and dust. Due to all these effects the average earth surface air temperature is 15°C. The final back radiation to space takes place mostly in the atmosphere at lower temperatures.

This simplified approach makes use of the temperatures used in IPCC publications.

Black body is an abstraction of a physical concept, hardly any substance on the Earth is a black body. The assumption that the earth's surface is a black-body surface  $\epsilon = 1$ , is never true. If  $\epsilon$  is not 1, but 0.9, 0.8, 0.7 or 0.6, T (surface temperature) would be -11.4°C, -3.6°C, 5.5°C or 16.5°C respectively. The finding of -18°C is simply a result of a technical error (sloppiness). In fact, the emissivity of the earth surface can be determined  $\epsilon \approx 0.7$  from satellite outgoing radiation spectra. The estimate of a „greenhouse effect“ of 33°C is a deception, Jinan Cao (12). A realistic value of the greenhouse effect is much below that.

**“There is no surprise that scientists can make errors, but it is perhaps a surprise that the technical errors have been shared by so many scientists across a discipline to such an unprecedented extent”,** Jinan Cao (12). From my point of view this fatal flaw is a result of the missing scientific discussion.

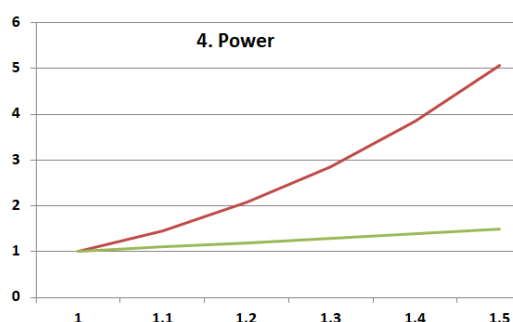
Only about ½ of the solar radiation arrive at the earth surface. The remainder is absorbed by the atmosphere, the clouds or reflected by the clouds. The back radiation to the space takes place mainly in the atmosphere at lower temperatures than the near surface temperatures as assumed by the IPCC model.

**A comparison of the earth with a fictive celestial body with a black body surface, without atmosphere, water covering, linear averaged surface temperature, is a fatal deception.**

## Sloppy Assumption of the Earth Surface Temperature

Acc. to the IPCC the primary back radiation of the earth takes place from the surface with a mean temperature of 15°C (288K) in the ir band > 2,5  $\mu\text{m}$ . The near surface air temperature as used by IPCC is not the surface temperature that is about ~13°C. It is a different physical value.

71% of the earth surface is covered with water. The surface temperature of the sea water varies between -1 in polar seas and 30°C in tropical seas in average 13.5°C. The ground temperatures vary between -70 and +70°C fluctuating with daytime and season.

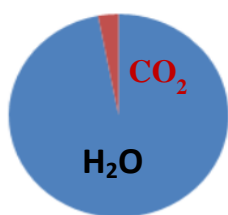


The irradiation from earth varies acc. to the Stefan Boltzmann with the 4<sup>th</sup> power of the temperature. The irradiation of a tropical sea with a surface water temperature of 30°C can be calculated to be 50% above that of an arctic ocean with a surface temperature of -1°C.

The assumption of a linear average temperature means accepting a systematic error that probably exceeds the effect of a potential increase of the CO<sub>2</sub> share in the atmosphere x-fold.

## Weak Point Overestimation of the minor ir-active gas CO<sub>2</sub>

Asymmetric oscillating molecules have in certain wave length bands very high absorption cross sections for radiation. It is called infrared active. The major infrared active molecules are:



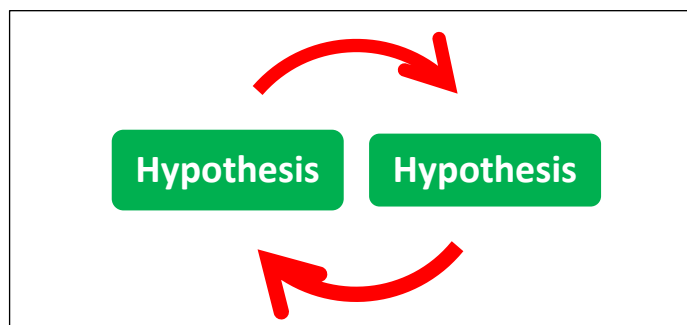
- H<sub>2</sub>O app. 13000 ppm in the atmosphere, absorbs ir radiation in several wide band ranges
- CO<sub>2</sub> app. 400 ppm in the atmosphere, absorbs ir radiation in 2 narrow band ranges at 4 and 15 $\mu\text{m}$
- CH<sub>4</sub> app. 2 ppm in the atmosphere, absorbs ir irradiation in narrow bands ranges at 3-4, 7-8 $\mu\text{m}$
- O<sub>3</sub> troposphere, stratosphere, absorbs ir irradiation in the range <0.3 and 10 $\mu\text{m}$

The numbers above clearly show that water vapor is the dominant greenhouse gas. The significance of the minor ir-active gas CO<sub>2</sub> is strongly overestimated.

# Weak Point Estimation of the CO<sub>2</sub> Sensitivity of the Climate

## Empirical Methods

The estimates about the CO<sub>2</sub> sensitivity of the earth climate are based in many IPCC predictions/models on empiric data. Simplified the allegedly increased CO<sub>2</sub> concentration of the atmosphere is attributed to the temperature increase since the end of the little ice age and the claimed „climate change“. The higher temperatures are used as a proof of the CO<sub>2</sub> induced “Climate change. The temperature increase is used to predict higher temperatures with higher CO<sub>2</sub> concentrations.



**The hypothesis is very often used as a proof of the hypothesis.**

## Climate Modelling

Another method used by the “climate scientists” to estimate the CO<sub>2</sub> sensitivity of the earth climate is modelling. The earth surface and the atmosphere is complex and characterized by many effects that interact with each other.

Acc. to the NASA GISS Climate Modelling of 1988 the average temperature should be already 2,1°C (GSAT?) <sup>(71)</sup> above the temperatures of the period 1850 – 1900 (Target Paris Climate Agreement 1.5°C).

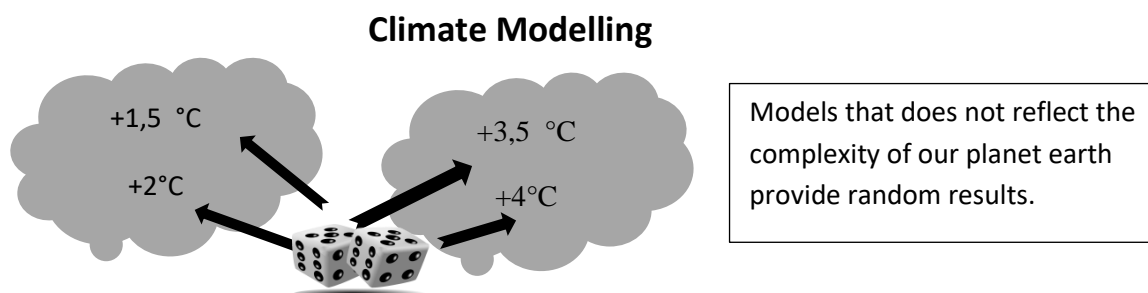
Acc. to the first IPCC Climate Report 1992 the “average temperature ” should have already reached the Paris Agreement target of 1,5°C (GSAT?) above the temperatures of the period 1850 – 1900<sup>(73)</sup>.

If the trend line of the Al Gore documentary "An Inconvenient Truth"<sup>(76)\*</sup> is extended till 2021 the “climate target” of the Paris Agreement of a temperature increase of 1,5°C (no definition) vs. the period 1850 – 1900 is already passed.

The previous climate models regularly overestimated the increase of temperature. They are regularly adjusted to reality to avoid the «climate change» is becoming outdated by the time passed by.

\* 00:20:53, dec. 2006, based on the data of Mann et Al published in the Climate Report of 2001

The earth surface and the atmosphere is complex and characterized by many effects that interact with each other. A main differentiation between these estimations is the qualitative effect of the clouds. A quantification of a potential temperature increase in case of a potential increase of the secondary ir-active gas CO<sub>2</sub> in the atmosphere would be a very, very tough scientific challenge. An appropriate calculation method could be a Monte Carlo simulation analog to the reactor physics with the cross sections of the atmospheric gasses in the different wave lengths, clouds, the different earth surfaces, latitudinal lines, weather, seasons, variation of the gas composition in combination with a calculation of the heat transmission. It would have to include the effects of clouds water evaporation the heat transfer by ocean currents. Effects that are not quantified yet. **The models might be consistent as such but does not model our complex planet adequate.**



**Conclusion: The estimates about the CO<sub>2</sub> sensitivity of the earth climate are less than a guess. The greenhouse effect of the atmosphere is very complex. A quantification of the greenhouse effect, a quantification of the effect of the ir- active gasses would be extremely challenging.**

### **Other Influences on the Climate**

Beside the overemphasized influence of minor ir-active gasses (CO<sub>2</sub>) there are plenty of other influences on the climate as variations of the solar irradiation, aerosols, the earth axial tilt (41000 yrs.), variation of the eccentricity of the earth orbit (100.000 yrs.), cosmic influences (29). Hard cosmic radiation causes ionization in the atmosphere. Ions are initial crystal nucleus for water vapor and thus influence the build-up of clouds in the atmosphere. This effect is expected during the pole flip

(54)



## Stability of the Earth Climate

The earth climate is kept by 3 control mechanism that stable that sophisticated life did never extinct during the last 600 million years.

1. Acc. to the Stefan Boltzmann law the counter radiation of a body (earth) increases with the 4<sup>th</sup> potence of the temperature  $P = \sigma \cdot A \cdot T^4$  with  $\sigma = 5,67 \cdot 10^{-8} \text{ W/m}^2/\text{K}^4$
2. The water evaporation increases with increasing temperatures heavily, respectively decreasing heavily with decreasing temperatures. This control mechanism keeps the climate of the earth very steady. The temperature variation is much bigger in dry deserts than in wettish areas of the earth.
3. The enourmous heat capacity stored in the oceans softens temperature changes for several thousand years. A warming of the oceans by 1°C is equivalent to the solar irradiation of 15 years (J).

**Conclusion: The hypothesis of the anthropogenic CO<sub>2</sub> stimulated climate change is very poor. It is communicated similar to a religious confession of faith.**

### Global Warming could be more an Opportunity than a Risk

If the climate of the earth would become warmer, ex. A stronger solar irradiation, it could provide:

- Due the back radiation that increases with the 4th potence, the strong increase of the water vaporization with higher temperatures the temperature increase would be higher at the poles than at the equator. The share of the earth surface supportive for life and agriculture would increase.
- Due to the increase of the water vaporization with increasing temperatures the planet would become more humid and fertile.
- Higher temperatures would melt the ice in Greenland and glaciers in other parts of the world faster. The Helmholtz Institute in Germany estimates the sea level rise from it to 0.8mm actually (67). The Antarctica with an average inland temperature of -58°C would probably gain mass due to the higher humidity. Potentially the rise of the sea levels would increase slightly.

### Contact:

If there are any adjustments, ideas please let me know: [pivandale@yahoo.com](mailto:pivandale@yahoo.com)

### Some further critical statements and articles can be found at:

John Clauser, Nobelpreis-Träger Physics (2022)

The Red Hot \*Lies\* of Global Warming Science -- Professor Ian Plimer.

<https://www.youtube.com/watch?v=PFA1Lz4Y9xc>

Richard Lindzen, Judith A. Curry

How to Think About Climate Change | William Happer, William Happer Professor of Physics Emeritus, Princeton University, <https://www.youtube.com/watch?v=CA1zUW4uOSw>

MIT Climate Expert, 500 Prominent Global Experts Write In Letter To UN  
<https://www.climatedepot.com/2019/09/24/no-climate-emergency-mit-climate-expert-500-prominent-global-experts-write-in-letter-to-un/>

The „Heidelberg appeal“ was signed by 4.000 Natural Scientists, of which 72 were Nobel Laureates.

There are plenty of critical scientific articles on „Populartechnology „.

- Another blog is <https://scienceofdoom.com/>

- Prof. Don Easterbrook in the expert hearing in the Senate Part 1 <https://youtu.be/w98S2xs-qs4>

Part 2 <https://www.youtube.com/watch?v=JI5rjx1MCzM>

Auf „NoTricksZone“ findet man zahlreiche Artikel 600 Non Warming Graphs, 85 Papers: Low Sensitivity, 129 Climate Scandals, 100+ Papers – Sun Drives

- Prof. Dr. F. K. Reinhart <https://www.eike-klima-energie.eu/2017/07/23/schweizer-physiker-ipcc-hypothesen-vergewaltigen-die-realitaet-co2-nur-ein-sehr-schwaches-treibhausgas/> -Prof. Nir Shaviv <https://www.eike-klima-energie.eu/2018/12/02/klima-fachgesprach-im-deutschen-bundestag-eine-denkwuerdige-veranstaltung-mit-einer-premiere-teil-ii/>

- Prof. Dr. Kirstein <https://www.eike-klima-energie.eu/2017/06/27/rt-deutsch-exklusiv-zum-klimawandel-prof-dr-kirstein-co2-ist-harmlos/>

- Prof. Don Easterbrook bei einer Expertenanhörung im Senat Teil 1 <https://youtu.be/w98S2xs-qs4>

Teil 2 <https://www.youtube.com/watch?v=JI5rjx1MCzM>

[https://www.youtube.com/watch?time\\_continue=281&v=EzPvaqVNjY](https://www.youtube.com/watch?time_continue=281&v=EzPvaqVNjY)

Physics Nobel Prize winner Dr. Ivar Giaever:

<https://www.youtube.com/watch?v=SXxHfb66ZgM>

Chemistry Nobel Prize winner Dr. Kary Mullis:

<https://www.youtube.com/watch?v=Y1FnWFDvxE>

Prof. Freeman Dyson, a famous physics professor from Princeton university:

<https://www.youtube.com/watch?v=fmy0tXcNTPs>

Princeton physics professor William Happer:

<https://www.youtube.com/watch?v=M8iEEO2UIbA>

Professor Richard Lindzen, 40 years of climate research at MIT:

[https://www.youtube.com/watch?v=H2czGg3fUUA&list=PLfzVvbPcgGQ1T2Q3n\\_3I50MI9yg4LG1kE](https://www.youtube.com/watch?v=H2czGg3fUUA&list=PLfzVvbPcgGQ1T2Q3n_3I50MI9yg4LG1kE)

Dr. Nils-Axel Mörner, retired head of the paleogeophysics & geodynamics at Stockholm University and former IPCC expert:

<https://www.youtube.com/watch?v=W1PS9-oOfRw>

#### Further Remarks:

(a) "Climate Scientists" There are some well-known natural scientists in the IPCC which have a representative role. Many of the leading people of the IPCC have close ties to the WWF, FOE, or Greenpeace (32,33,34). As these people usually have as well degrees in different sciences the name „Climate scientists“ fits well. “I am doing a detailed assessment of the IPCC reports and the Summaries for Policy Makers, identifying the way in which the Summaries have distorted the science. I have found examples of a summary saying precisely the opposite of what the scientists said.” (60) Dr. Philip Lloyd. Dr Andrew Lacis: “There is no scientific merit to be found in the Executive Summary. The presentation sounds like something put together by Greenpeace activists and their legal department.” (60)

(b) Acc. to the Wien's displacement law a black body radiation curve peaks at a wavelength that is inversely proportional to the temperature. The shift of that peak is a direct consequence of the Planck radiation law, which describes the spectral brightness of black body radiation as a function of wavelength at any given temperature.  $\lambda_{\text{max}} = b/T$ ,  $b \approx 2900 \mu\text{m}\cdot\text{K}$

(c) Rough translation..We do not even know the CO<sub>2</sub> absorption or emissions of the soil in Germany and there is barely another region of the world where the soil is better researched. There is plenty of further research required. „Oder schauen Sie sich die Böden in Deutschland an. Es gibt kaum eine andere Region auf der Erde, wo die Böden besser untersucht sind als hier. Aber dennoch wissen wir noch nicht, ob diese Böden eine Quelle oder eine Senke für Kohlendioxid sind. Es gibt also eine Reihe von Prozessen und Faktoren, die wir nicht richtig einordnen können. Modelle sind notwendig, aber ihre Ergebnisse darf man immer nur mit der nötigen wissenschaftlichen Skepsis beurteilen. Wir haben noch enorme Forschungsdefizite.“ (11)

(d) After an absorption event, the CO<sub>2</sub> molecule is in an excited state with an estimated lifetime,  $\tau_{\text{rad}} = (\nu_j / \Delta\nu_j)^2 / \nu \approx 6 \mu\text{s}$  for the 15  $\mu\text{m}$  lines. This corresponds to the spontaneous radiative decay rate,  $R_{\text{rad}} = 1.7 \times 10^5 \text{ s}^{-1}$ . Collisions with the dominant gases of the atmosphere lead to a non-radiative decay. At sea level and  $T = 288 \text{ K}$ , the collision rate of all gas molecules is approximately the inverse of the mean free time between collision. Its value is  $7 \times 10^9 \text{ s}^{-1}$ . The present CO<sub>2</sub> concentration amounts to  $c_{\text{CO}_2} = 400 \text{ ppm}$ . This leads to a non-radiative collision rate with the CO<sub>2</sub>  $R_{\text{non}} = 28 \times 10^5 \text{ s}^{-1}$ . The chances of radiative emission in this situation is given by  $R_{\text{rad}} / (R_{\text{rad}} + R_{\text{non}}) \approx 0.06$ . In the troposphere, where most of the absorption takes place, most of the absorbed energy by the CO<sub>2</sub> heats the dominant atmospheric gases. This is, however, no longer the case in the stratosphere and even higher levels, where the collision rate is dramatically decreased. Infrared absorption of atmospheric carbon dioxide, F. K. Reinhart (25).

(e) The solvability of CO<sub>3</sub><sup>2-</sup> in seawater decreases with increasing water temperatures. The cold water in the deep sea is very rich on CO<sub>3</sub><sup>2-</sup>. If carbon rich deep sea water wells up at the coast vast quantities of CO<sub>2</sub> are emitted. Changes of ocean currents are able to influence the CO<sub>2</sub> concentration in the atmosphere.

(f) Prof Staufer mentions gas diffusion enrichment and depletion effects during forming process from snow to gas tight ice. But he does not reject generally the use of ice cores for the assessment of historical atmospheres. (31)

(g) The thesis of Prof. Luedecke et al (35) examines the dynamics of the carbon cycle. It is based on the CO<sub>2</sub> data from ice cores as used by the IPCC. These values are at least questionable. The value of this thesis is the examination of a dynamic of the carbon cycle as such.

(h) In nature there are 2 stable isotopes of carbon  $^{12}\text{C}$  99% and  $^{13}\text{C}$  1%. In the vegetation the isotope  $^{12}\text{C}$  is enriched. A high share of  $^{12}\text{C}$  is an indicator it is emitted from plants or burnt fossil fuel and not from the sea, volcanos or limestone.

(i) Executive Summary Clouds and aerosols continue to contribute the largest uncertainty to estimates and interpretations of the Earth's changing energy budget. This chapter focuses on process understanding and considers observations, theory and models to assess how clouds and aerosols contribute and respond to climate change. The following conclusions are drawn. Progress in Understanding Many of the cloudiness and humidity changes simulated by climate models in warmer climates are now understood as responses to large-scale circulation changes that do not appear to depend strongly on sub-grid scale model processes, increasing confidence in these changes. For example, multiple lines of evidence now indicate positive feedback contributions from circulation-driven changes in both the height of high clouds and the latitudinal distribution of clouds (medium to high confidence<sup>1</sup>). However, some aspects of the overall cloud response vary substantially among models, and these appear to depend strongly on sub-grid scale processes in which there is less confidence. {7.2.4, 7.2.5, 7.2.6, Figure 7.11} (50)

(J) The earth receives  $341 \text{ W/m}^2$  of which  $99 \text{ W/m}^2$  are immediately reflected (61). The earth surface is 510 mio.  $\text{Km}^2$ . That adds up to  $5 \times 10^{16} \text{ W}$  or  $4.38 \times 10^{20} \text{ J/yr}$ . The oceans have a volume of  $1.35 \times 10^{18} \text{ L}$ . The specific heat of water is  $4190 \text{ J/Kg K}$ . A change of the oceans temperature of  $1^\circ\text{C}$  requires  $6.6 \times 10^{21} \text{ J}$  or 15-fold the solar radiation of 1 year.

This calculation is a simplified theoretic approach as most of the solar radiation is radiated back to space. The circulation of the ocean water takes place in about 1000 years. As a take away the heat capacity of the oceans slows down the warming or cooling of the earth for several 1000 years by several tenth of a degree.

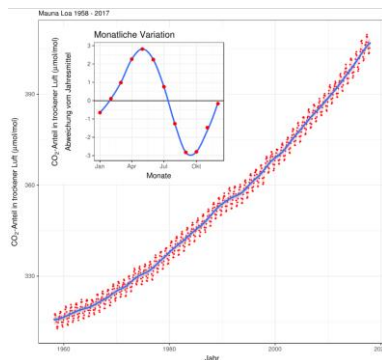
### Remark CO<sub>2</sub> Measurements

Measurements provide often unexpected results. There are outliers, systematic and non-systematic errors. There is always the temptation to replace unexpected results by new measurements or to eliminate it. The engineer's career teaches to be careful with measured data.

E.G. Beck's work is based on 9000 historic measurements performed as of 1811. Most probable most of the data is from Western Europe and ships. An important aspect is to know how properly these historic measurements were documented. Another important aspect is if the influence of industrial and residential fireplaces was excluded at these measurements. E.G. Beck's reports show intensive data fluctuations. It is to assume that E.G. Beck did not do a lot of processing of the data. A scientific research of this data is beyond this plausibility study.

The IPCC CO<sub>2</sub> data till 1958 is based on ice cores from the Antarctica. The later data is from Keeling from Hawaii. The CO<sub>2</sub> level in the Antarctica is in average about 3% beneath that of the tropics, s. NASA illustrations (45). It results in a systematic error of 3%, or 12 ppm CO<sub>2</sub>.

The IPCC uses exclusively the CO<sub>2</sub> Data from Keeling (father & son) since 1958. The advantage is that the data is all from the same place and measured by the same method. The disadvantage is that there is no comparison to other measurements. Earlier data from measurements not done by Keeling shows intensive fluctuations (43). The Keeling curve shows a very steady, linear increase of the atmospheric CO<sub>2</sub> concentration since 1960 without any random error. The volcanic activities were acc. to Wikipedia (44) eliminated. It is probable that Keeling got better raw data due to the place high above the ground and his method. It seems as well very probable that Keeling processes his raw data intensively before publishing. If this processing is done to make the graphic more clear to the public, or to adapt it to certain expectations, or a systematic manipulation, E.G. Beck, Tim Ball, is beyond this plausibility assessment. The very steady linear curve is neither in line with the temperature increase since end of the little ice age (app. 1850) nor with the exponentially increase of the CO<sub>2</sub> emissions from the use of fossil fuels.



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