Argumentative answers to questions about the climate situation and energy production

(Data from a book in progress)

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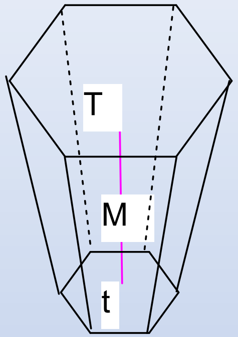
Big trick: *dimension change*. Time also becomes a factor!

How many CO_2 molecules are in this pyramid?



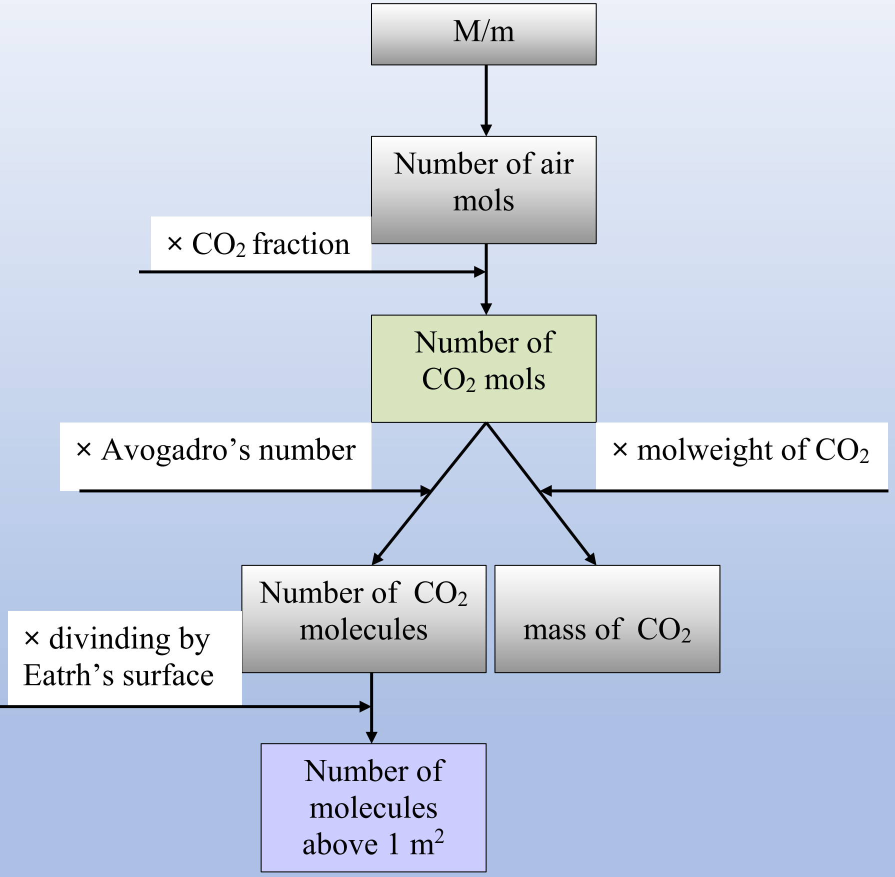
t = 1 m² hexagon or pentagon
M = 80 km

$(M/m) \times c \times A$ = the number of carbon dioxide molecules in the atmosphere

Meaning of ..

M = 5.137×10^18 kg, mass of dry atmosphere,
m = 0.028971 kg, average molar mass of air,
c = 0.00028 carbon dioxide fraction of dry air at the beginning of the industrial revolution,
A = 6×10^23, Avogadro's number

Flow sheet of calculation



Almost all essential data can be calculated by it

Relationship between the number of CO_2 molecules and the number of photons

The order of magnitude is important.

CO_2 concentration in air	Number of molecules/m^-2	Number of photons/m^-2
At the beginning of the industrial revolution (c=280 ppm) (288,15 K)	5.84×10^25	1.9×10^22
Current status (c= 410 ppm) (288.15 K)	8.55×10^25	1.9×10^22
$5{,}84\times10^{25}$ pcs stick-shaped CO2 could fit tightly into 800,000 rows behind each other (Lambert-Beer law)		
Number of N_2 and O_2 molecules surrounding one CO_2 molecule in the atmosphere: 3840/m		

$(M/m)\times c\times A$

$E = A\sigma T^4$

$E= h\nu= hc/\lambda$

3 orders of magnitude more CO_2!

There was a huge surplus already in the beginning of the Industrial Revolution!

But that's not all...

The excited molecule -*striving for minimum energy* - loses its charge, this takes time:

Process	*Time*
Charging of a CO_2 molecule	10^-15 s
Electromagnetic radiation	< 1 s
Collision relaxation time	10^-5 – 10^-6 s

The molecule that has lost its charge can absorb an IR photon again.

From the second cycle onwards, the regenerating molecules participate in absorption again. This fact is not incorporated into the model calculations!

Only 0.065 % of the CO_2 molecules in the atmosphere are in the excited state.

Methane breaks down into carbon dioxide in a short time, it is no significance in itself, it only increases the large excess of carbon dioxide.

The excess of carbon dioxide relative to emitted photons was already enormous at the beginning of the Industrial Revolution and today too!

Our first statement: The increase in atmospheric temperature is not caused by the increase in carbon dioxide concentration.

Contradiction with IPCC!

So, what warms the atmosphere?

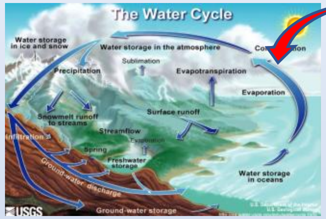
The combustion of coal and hydrocarbons produces CO_2 and water. **But, these special water molecules previously were not part of the hydrosphere because the hydrogen atoms come from depth of the earth.**

$C + O_2 = CO_2$

paraffins: $C_nH_{2n+2} + [(3n+1)/2]\ O_2 = n\ CO_2 + (n+1)\ H_2O$ (a)

naphthenes and cycloparaffins: $C_nH_{2n} + [3n/2]\ O_2 = n\ CO_2 + n\ H_2O$ (b)

aromatic and ring molecules $C_nH_{2(n-3)} + [3(n-1)/2] = n\ CO_2 + (n-3)\ H_2O$ (c)



Fossil carbon and hydrogen atoms burn to form carbon dioxide and water in air at flame temperatures of 1000–2000°C. As the combustion products cool to ambient temperature they transfer thermal energy from their surroundings into the air, increasing the internal energy of the atmosphere. **The source of this is not the Sun, but the rearrangement of chemical bonds!**

$Q_1 = c_1 \times m_1 \times \Delta T$

$Q_2 = c_2 \times m_2$

$\Delta U = \delta Q + \delta W$

Fossil source	Impact of a 130 ppm increase in atmospheric CO2				
	Proportion, %	Carbon Dioxide realized, mol	Amount of water realized		Amount of heat realized, kJ
			Number of moles	kg	
Coal	42.9	8.3×10^15	0	0	3.0×10^20
Crude oil	48.1	9.3×10^15	9.3×10^15	1.67×10^17	3.17×10^20
Methane	39	7.5×10^15	1.5×10^16	2.7×10^17	5.98×10^20
Total	100	2.51×10^16	2.43×10^16	4.37×10^17	1.21×10^21

This amount of heat would be generated by detonating **20 milion** Little Boy atomic bombs.

Our second statement: the condensing vapor increases the mass of the hydrosphere, and the heat generated by oxidation - *by rearrangement of chemical bonds* -increases the internal energy of the atmosphere and consequently the air temperature.

What is a good solution for energy production?

There is a technology that has been known since 3,500 years, the heating of carbohydrates in an oxygen-poor environment, also known as coal burning, in the language of chemistry as pyrolysis. In this process, *without investing external energy and using catalysts*, element carbon and a gaseous product can be obtained, the composition of which is hydrogen (50%), methane (38%), and carbon monoxide (1.5%). All of these can be burned, so they are a good source of energy.

Energy extracted from fossil energy sources in a year 589x10^20 MJ.

Amount of carbohydrates produced per year is 150 Gt.

Annual energy consumption could be produced by oxidation of pyrolysis products obtained from 40 t carbohydrates.

The prototype is already operating in Hungary and produces 2 t of carbon element and 2000 m^3 of pyrolysis gas from 5 t of plant waste per day.

The perfect energy-generating process that leaves no "footprint" is the pyrolysis of a fraction of the enormous amounts of carbohydrates produced each year.

Offshore drilling rig and pyrolysis reactor (Pyrowatt KFT)

Cost of one platforms: 4x10^8 USD

Cost of one rector: 3x10^5

(4x10^8×843)/3x10^5= 1,126,000

There would be enough funding for this many reactors.

Our third statement: Pyrolysis is the only real solution for clean energy production.

Research funds should be directed towards the pyrolysis!

Detailed calculations are contained in 3 papers and a book. We are happy to provide these to those interested.