－Zero Emission Simulation and the Destiniy of Earth－.

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Annual global net heat account：{Sun. input－Space. output}＝**Heat increase on EARTH.**

Sun. input＝Space. input－Earth reflectiion＝Solar. constantx(1－**reflection rate**).

Space. output＝**space passing rate**x(Earth Cooling(blackbody of T_G)Radiation).

Space passing rate(≡@)＝determined by heat trapp gass concentrations≡C.

(1)**Our destiny entirely depneds on annual account in heat input and output.**

The essence is heat input and output account at boudary between earth and space. If input＝output, nothing problem. However current situation is **deficit** in Cooling Radiation into space(CR). Consequently t year earth temperature $T_G(t)$ is entirely increasing as heat accumulation as **debt** on earth(99% in oceans of depth 1000m).

＊$C_G(dT_G(t)/dt) = \pi R_G^2 F_0(1-m(t)) - 4\pi R_G^2 @(t)\, \sigma\, T_G(t)^4$ .....(1)

Earth heat capa C_G×temperature increase/year＝**surplus heat amount**≡$\Delta Q_G(t)$

＝**net Solar Heat Input－Earth Heat Output into Space.**

(2)geophysical constants:

＊$4\pi R_G^2$≡global surface≒$4\pi(6.38\text{x}10^6\text{m})^2$.

＊C_G≡earth heat capacity≒$1.29\text{x}10^{24}$J/K.

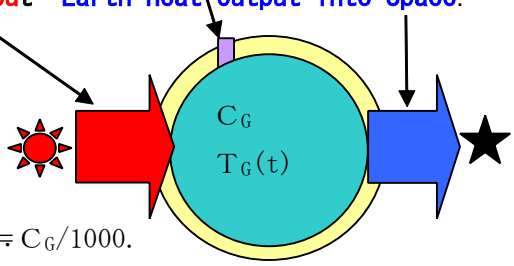
(all oceans of depth 1000m)、atmosphere capa 0≒C_G/1000.

＊F_0≡solar constant＝1366W/m^2. s

＊σ ≡blakbody radiation SB constant＝$5.67\text{x}10^{-8}$W/m^2K^4.

＊m(t)≡sun ray reflection rate ＝albedo≒0.3?.

＊@(t)≡passing rate of CR into space≒0.614?.



<<0 dimension MODEL>>

＊yellow ring is GHG (heat trap gass)atmosphere.

(3)**Green House Gass concentrations**{$C_j(t)\,|\,j=1,2,..,N$}**and CR passing rate**≡@(t).

＊@(t)≡I(t;H)(＝outer space CR intensity)/I(t;0)(＝earth surface CR intensity)

＝$<\int_0^\infty d\nu\, I(t;0;\nu)>^{-1} \int_0^\infty d\nu\, I(t;0;\nu)/[1+(H/2)\Sigma_{j=1}^{N} C_j(t)\, S_j(\nu)]$.....(3)

≒$1/[1+(H/2)\Sigma_{j=1}^{N} C_j(t)\, S_j(\nu_m)]$.

<H≡effective atmosphere height, $S_j(\nu_m)$≡molecule j spectroscopic character>.

If{$C_j(t)$}increased, @(t) became lower(3), so CR decreasing enhance ΔQ_G rise(1).

Hence {$C_j(t)$} must be lowered to make surplus heat $\Delta Q_G(t)$ **negative!!**

in order to make global temperature down to safety zone.

＊The detail on (3):http://www.777true.net/Radiative-Forcing-0dim-Model-p1.pdf

⑷**Simulation on Global Temperature Processing with Zero Carbon Emission.**

The work forced author terrible tension untill he observe the result. It takes about **30 years** to stop increasing, with the maximum temperature **0.3℃**, and takes more than 60 years to recover the current temperature<calculated by ⑴>.

http://www.777true.net/Global-Temperature-FACT-7.ppt

IPCC did not show a simulation of temperature down turn. Ofcourse the zero emission is an ideal. Henceforth scientist with Laquia summit G8(20) in Italy 2009 proposed **80% reduction rate**, even though the amount might be rather optimistic. Becauase, the global 0.3℃ rise would cause more than three times higher temperature in Arctic, where huge amount of dangerous methane clathrate lies. Then the stability margin temperature is told about (1～2℃). It's a betting. Once large scale melting occured, it would induce{gass concentration rise→temperature rise→more methan eruption→....}positive feed back looping with nothing reliefing for us. Therefore, more quickly, global citizens know this fact, reliefing would become more possible with recognition on the necessity of zero emission global policy. Especially **large scale operation of global reforestization** may be a biggest hope now. The zero emission policy would become global Ramadan life for global citizen. As a final and biggest operation by mankind, it shall be necesssary to program, manage and control all global people's life in order to co-live by prediction calculations.

⑸**"Radiative Forcing" as surplus heat caused by GHG concentration rise:**

Earth is almost closed sytem, but excepts are elements of **net solar ray input** and **net output of infrared ray(coolong) radiation** from global temperature T_G.
Difference of those(excess heat) at the top of atmosphere is also called **radiative forcing(RF)** by geo-scientists(IPCC). However, at the bottom of atmosphere(global surface), the definition is almost not changed, because atomosphere has almost nothing heat capacity compared with all oceans of depth about 1000m. Lands is also neglegible. Note that our concern is not short time local weather, but long year trend of global climate. As the consequnce, RF would determine global temperature rise and also fall. Effective RF is a function of many variables **{global albedo, GHG concentrations}**. Scientists discovered carbon concentrations's major role in RF, and then also noticed extraordinarity of operation on controlling global temperature <low **forcing** on GHG emit managing>. On the other hand, also world energy bussiness the urtra rich did so. Since they are too sensitive on own guard. Thus, scientists might have cynically, but faithfully named surplus heat as "radiative forcing".