The Global Surplus Heat is entirely flowing into Arctic where "Ticking Time Bombs "(thermally unstable methan clathrate of 400G ton)are setted (Part Ⅰ).

A heat flows from high temperatuer into lower one <2nd Low of Thermo-Dynamics>

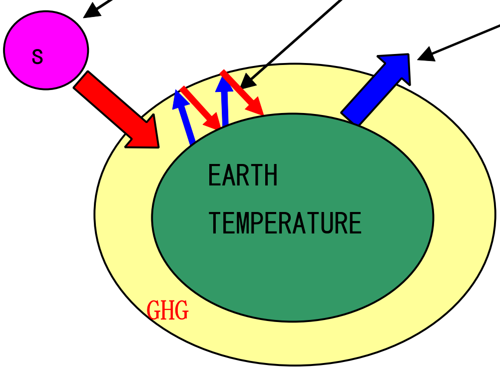
[1]Global temeparature T up is entirely caused from

the surplust heat ＝ (solar input＋GHG radiation force) － cooling radiation

1.4X10^{22}J/y. 　 1.7X10^{22}J×365＋1.4X10^{22}J 　 1.7X10^{22}J×365

The surplus is such slight as a day amount in total 365 days of year input.

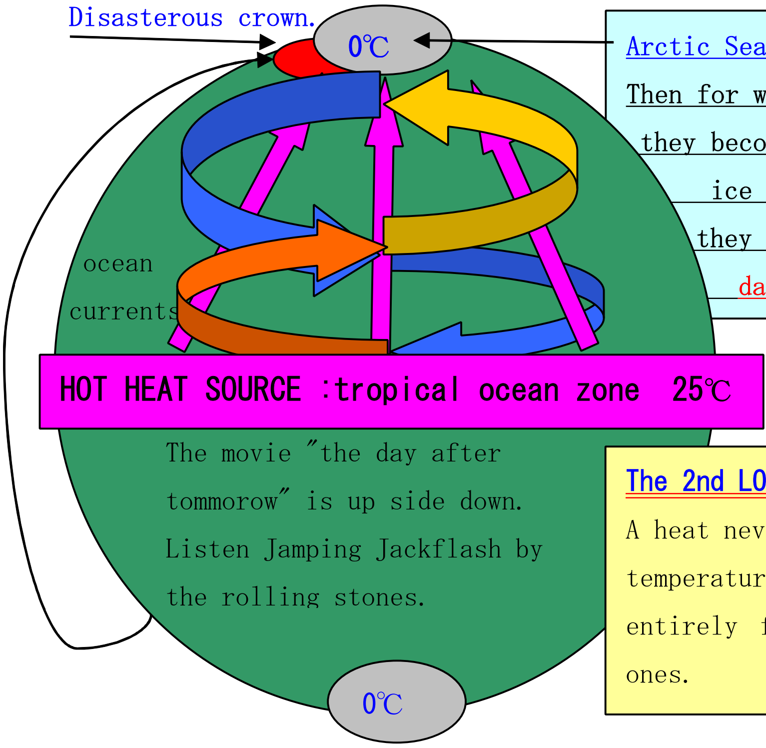
However。。。。。。。。。。。。



GHG is green house effect gas which trapp and reflect cooling radiation from and to global surface. As the consequence the refleted input cause to make the surplus heat the evil.

[2]Then to where hudge amount of the surplust heat flow ?!, Arctic !!!
,where sea fundamentally absorb nothing heat due to invariant 0℃.

Disasterous crown.



Arctic Sea of invariant 0℃.
Then for what the suplus be paid ??,
they become entirely heat for melting ice for the time being, and then they would turn to be that for the dangerous methan ice.

The 2nd LOW of THERMODYNAMICS

A heat never can flow from low temperature to high ones.But they entirely flow from high place to low ones.

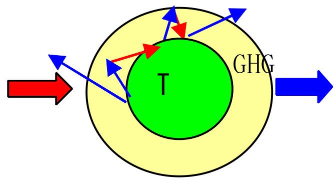
[3]The Validities for above Mentioned Matters:

①energy balance equaiton:input solar heat and cooling radiation output on earth:

<<generalized Stefan-Boltzmann low>>

$\pi R^2 F_0 (1-m)/(1-b) = 4\pi R^2 \sigma_0 T^4$. . . [3]①

<<input power=output power>>



F_0=1366W/m^2=original solar heat input.

R_E=6.38X10^6m=Earth radius,

m=albedo(≒0.4)=reflection(by white clouds,ice sheets)probability for F_0.

b(≒0.48)=1-a、a=passing probability of cooling radiation through GHG.

σ_0=<Stefan Boltzmann=5.67X10^{-8}W$m^{-2}K^{-4}$.>constant in pseudo cavity radiation.

T(=273+15)℃=global mean temperature on the surface.

Note that **global mean temperature** T is dominated only by two factors={m,b}. That is ALBEDO REFLECTION probability m and GHG TRAPP probability b.This fact is to become main factors also for policy making against climate change crisis.

②Anticipated temperature up rate=ΔT≡0.5℃/10years=0.05℃/y,

<http://www.777true.com/IPCC2007-11-17.pdf>

③Temperature up is results of energy slight unbalance in [3]①.That is,

(1)The global input power in 24hours=$4\pi R^2 \sigma_0 T^4$X24X3600sec

=$4\pi(6.38\text{X}10^6\text{m})^2 5.67\text{X}10^{-8}\text{Wm}^{-2}\text{K}^{-4}.(288\text{K})^4$X24X3600=1.7x$10^{22}$J.

=$\pi R^2 F_0(1-m)/(1-b)$X24X3600=$\pi(6.38\text{X}10^6\text{m})^2$1366W/$m^2$(1-0.4)/(1-0.48)X24X3600

=1.7x10^{22}J.

(2)The surplus energy≡ΔQ=input power−output power。

(3)Almost global heat is trapped in ocean surface the global heat reservoir:

(a)In desert,day is hotter and night is rather cooler,it has no heat capacity C_H, while,ocean water temperature is almost invariant.Atomosphere C_H is 1/1100.

<http://www.nies.go.jp/kanko/news/10/10-2/10-2-04.html>

(b)How much sea depth exchanging heat with exterior in long term ?≒almost 100m:

Solar ray never reach almost under 100m as the averaged value.This depth is essential to estimate global effective C_H.The details is seen in the below(d).

(c)The total ocean heat capacity Co$=$5. 3X10^{24}J/K by linear estimation.

<http://hypertextbook.com/facts/2001/SyedQadri.shtml>

ocean volume$=$1. 37X10^{9}km^{3}. Ocean weight of density 1=1. 4X10^{9}kX(10^{5}cm)^{3}$=$1. 4X10^{24}g.

specific heat of sea water$=$3. 85(pure water4. 18)J/gK.

Co$=$3. 85J/gKX1. 4X10^{24}g$=$5. 3X10^{24}J/k.

(b)average depth of ocean$=$3796m、solar ray reaching depth$=$100m、then

roughly estimated active heat capa of ocean ≒5. 3X10^{24}J/KX100/4000≒1. 3X10^{23}J/K.

(d)Total effective global heat capacity C_G derived by NASA.

<http://www.ecd.bnl.gov/steve/pubs/HeatCapacity.pdf>.

Effective global heat capacity $C_e=10^{9}Jm^{-2}K^{-1}$ x0. 53±0. 22

Total effective global heat capacity $C_G=4\pi R^2$x0. 53x$10^{9}$$Jm^{-2}K^{-1}$

$=4\pi$(6. 38X10^{6}m)^{2}x0. 53x$10^{9}$$Jm^{-2}K^{-1}$$=$2. 7x$10^{23}$J/K.

④The surplus energy≡ΔQ$=$[input power－output power]/year。

ΔQ$=C_G\Delta T$$=$2. 7x$10^{23}$J/K. x. 0. 05K/y$=$1. 4x$10^{22}$J/year.

Note:24hours input power from sun≡S$=$1. 7x10^{22}J/day.

The surplus is almost slight unbalance of a day in 365 days of a year.

[4]How much energy flowing into Arctic for melting ice ？:

(1) I $=$melting amount of ice in Arctic$=$150km^{3}/y(36mile^{3})/year in recent times。

<http://www.washingtonpost.com/wp-dyn/content/article/2006/03/02/AR2006030201712.html>

J$=$total weight of melting ice$=$0. 917g/cm^{3}x150x$100000^{3}$$=$1. 376x$10^{17}$g.

(2)Q$=$minimum melting energy $=$melt heat×J$=$334. 7J/g×1. 376x10^{17}g.

$=$4. 5x10^{19}J/y$=$slightly as 0. 3% of the fiscal surplus≪1. 4x10^{22}J/y.

(3)Necessary energy for melting 10Gton methan clathrate(MC) in Antarctic.

(a)carbon standard C=12→CH4. 6H20(124) conversion$=$(124/12).

H$=$10Gton(carbon standard weight)$=$10Gt×(124/12)$=$103Gt.

(b)Cc$=$melting heat of MC$=$440KJ/Kg. K$=$(1. 3times of ice$=$335KJ/KG. K).

Q$=$HCc$=$440KJ/Kg×103x10^{12}Kg$=$4. 5x10^{19}J$=$0. 3% of 1. 4x10^{22}J/y.

[5]:Global Time Constant for Climate Change:

(1) Our most concern may be **time information for Climate Change.** From view of global ocean current velocity = v, the time for heat exchanging between tropical zone and pole zone is order of $\tau = \pi R/v \fallingdotseq$ few years<see fig[2]>, where πR is the current path length. This is <u>**global thermal relaxation process** reducing thermal unbalance between "hot regeon and cold one"</u>.

$\pi R = \pi \times 6.38 \times 10^6 m = 2.0 \times 10^7 m.$ $v \fallingdotseq 1200 m/h.$ $\rightarrow$ $\tau = 1.9y.$

$v \fallingdotseq 600 m/h.$ $\rightarrow$ $\tau = 3.8y.$

☞:Now author have no reliable information on ocean current pathes and velocity.

(2)**The principle of time lag mesurement by cross corelation function method:**

$f_1(t) \equiv A_1 \sin(\omega t)$、$f_2(t) \equiv A_2 \sin(\omega \langle t - \phi \rangle)$,

$C(\tau) \equiv N \int_{-\infty}^{\infty} dt f_1(t) f_2(t-\tau) = N \int_{-\infty}^{\infty} dt A_1 \sin(\omega t) A_2 \sin(\omega \langle t - \phi - \tau \rangle)$

$= \frac{1}{2} N A_1 A_2 \int_{-\infty}^{\infty} dt [\cos(\omega \langle \phi + \tau \rangle) - \cos \omega (2t - \phi - \tau \rangle)]$

$= \frac{1}{2} N A_1 A_2 \cos(\omega \langle \phi + \tau \rangle) \int_{-\infty}^{\infty} dt = \cos \omega \langle \phi + \tau \rangle.$ $N \equiv 1/\frac{1}{2} A_1 A_2 \int_{-\infty}^{\infty} dt.$

$C(\tau) = \cos \omega \langle \phi + \tau \rangle$ has <u>max value at $\tau = -\phi$</u>, thus we could mesure **time lag** between $f_1(t)$ and $f_2(t)$ of time record phenomena. The concept could be generalized in various time series informations.

(3)<http://www.ecd.bnl.gov/steve/pubs/HeatCapacity.pdf>.

NASA said that mesuring global time constant of climate change(almost 5 years) could be derived by calculating **autocorelation** of such as global mean temperature records. However it is possible own **peoridic cycle time** of the records. <u>Sea temperature time lag between such as tropical zone and north pole must be mesured by their cross corelation function</u>.

☞:Certainly a cycle is also a time lag in a concerned system.

(3) **Once again, to where almost the hudge surplus heat is going?, Ocean sea flors !.**

Certainly a heat tends to flow lower temperature zoen such as Arctic, however the amount seems to be too slight, then to where most of the part is going to?. They are flowing into the most wide ocean flors of lower temperature. Then such sea flors are also dangerous due to being hudge amount of methan clathrate reservoir of twice much as total fuel oil and coal ones.