More Confirmation on the Climate Fact. 2016/8/02

Mankind destiny has been depending entirely on **climate fact recognition by you**,so this is the confirmation in **the total view**. Risk management is anticipating all possible coming bad events .After all,climate fixing is mending worsened{a,@}albedo and emittivity.The main task are both **urgent implementation** of **Arctic Cooling Engineering** and **more than 80%CO2 cut**.

Then some supplemental comments are necessary.By anyhow,urgent stopping temperature rise by **minimum degree(0.3～0.4℃)** is best.

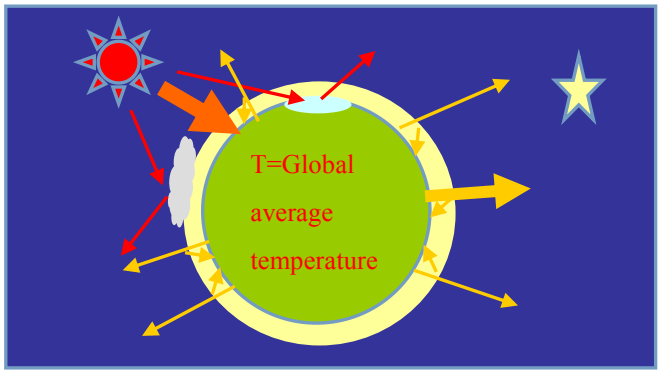
[1]:View from the Equation telling Global Temperature Evolution.

Following is evident **balance** equation in global heat exchange.It is **Heat Debt(Radiative Forcing)** that cause climate chaos(floods,drought,hurricane,cold & heat waves,..) by temperature rise.

(1)Heat Debt/year≡{Heat Input－Heat Output}/y＝Heat for Global Temperature Rise/y

≡(total)Radiative Forcing(RF). $*C(dT/dt)=I_0(1-a)-@\sigma T^4\equiv\Delta F$.

global heat capacity×temperature rise/year＝{solar input－cooling radiation output}/year



http://www.777true.net/Accounting-principle-verify-reconstruction-the-Past-Climate-Records.pdf

http://climate.envsci.rutgers.edu/climdyn2013/IPCC/IPCC_WGI12-RadiativeForcing.pdf

$*\Delta F=2.3W/m^2$.

(2)Heat Input＝$I_0(1-a)$≡solar constant(1－albedo)＝$342W/m^2(1-0.3)$.

☞:**albedo**≡a is elements for **solar reflection rate** toward space,such as bright cloud,ice & snow white a＝1,earth surface＜1,black sea water surface absorbs solar heat.

Note albedo=a increasing down T while the decreasing rise T.

(3)Heat Output by **Cooling Radiation** of global temperature "T"＝$@\sigma T^4$.

T≡global absolute temperature＝288K.

$\sigma=5.67x10^{-8}W/m^2K^4$.<Stefan-Boltzmann constant>,

☞:@≡**sensitivity** due to density of GHG(CO2,NH3,..), vapor,....,in atmosphere.

Those density rise is to cause less CR by less @,which turn to T rise..

@ is CR passing probability to space ruled by heat trapping gas(**G**reen **H**ouse **G**as).

⑷That is,climate fixing is nothing,but
mending worsened{a,@}albedo and emittivity.

⑸**Actual Fixing Task the Urgent.**

Ⅰ:emergent Arctic Cooling Engineering to recover ice sheet(local albedo)**.**

See Question & the Answer:⑺Is ARCTIC COOLING really possible ?!!(p8/22)

http://www.777true.net/Q-A_Die-or-Do_Mending-the-Deadly-Climate_the-Problem-Solution-Reaction.pdf

Ⅱ:emergent more than 80%CO2 cut to recover stable T(emittivity global)

http://www.777true.net/Why-more-than-80percent-cut-and-the-Realizability-in-your-life.pdf

[2]:Counting up all possible climate feedback elements for checking.

⑴Risk management is anticipating all possible coming events. Above all, in climate fixing, **positive feedback elements** must be intercepted by highest priority.That is,temperature rise is to cause **automatically** more temperature rise by something **positive feedback elements**

⑵Climate Feedbacks the Evaluation.

http://www.metoffice.gov.uk/climate-change/guide/science/explained/feedbacks

https://en.wikipedia.org/wiki/Climate_change_feedback

https://www.nsf.gov/news/special_reports/clouds/question.jsp

Water vapor (positive feedback);Clouds (positive and negative feedback)

Land carbon cycle by **land and marine vegetation**(currently negative feedback)

Albedo (positive feedback)

Permafrost methane (positive feedback);Methane hydrates (positive feedback)

ocean	land	atmosphre
marine vegetation	northern vegetation	clouds(positive & negative)
ocean acidic＊＊	forest fire	vapour
	tropical vegetation	
Ice albedo in Arctic	snow & ice albedo	**NH3,**
Sea floor Methane in Arctic	Permafrost Methane	**CO2**

＊red＝highest risk,yellow =possible coming risk by temperature rise degree,green=favorable state, white=unkown

＊＊2% variation of sea water **ph** in 50years may be not so pessimistic.

See details in [3]:**APPENDIX-1:Ability Decline of CO2 Absorption by Ocean ?!!.**

Oceans

As the ocean absorbs CO2 it becomes more acidic, reducing the amount of CO2 it can further absorb.As the temperature of the ocean increases this reduces its capacity to absorb CO2.

☞：algae and plankton growing engineering are proposed to intercept those decay.

→ **marine mass vegetation engineering with less 0.4℃. rise control.**

Land - climate change can affect the land in a variety of ways, including:

Negative climate feedback as temperatures increase because the areas in which trees can grow will extend north to higher latitudes. New trees will absorb CO2, taking it out of the atmosphere.

Positive feedbacks around **the tropical zones**. As temperatures increase, soils, plants and trees in these areas will become more heat stressed - potentially releasing the huge amounts of carbon they store and even threatening the future of important areas such as the Amazon rainforest.

☞：Limiting temperature rise within 0.5℃ may be possible to intercept those decay.

→ **land mass vegetation engineering with less 0.4℃. rise control.**

Desert forestation is favorable both for CO2 absorbing & foods production.

→ **mass CO2 absorbing technology development**.

Very Good News from UK !! *Photosynthesis microble is tough !!

Don't forget plankton in climate change models, says study

http://www.sciencedaily.com/releases/2015/11/151127102337.htm

⑶Checking other elements in Arctic Cooling Engineering.

Now Arctic sea ice has been decreasing toward the dangerous ocean floor warming.

It is vicious feedback that ocean warming decrease ice surface which turn to increase **solar heat input**.Solar heat at now is 30W/m^2,however it could be 4times larger＝120W/m^2 without ice sheet.This is decisive outstanding reason why intercepting solar input is imminent.

Then brave researchers has been calling **Arctic Cooling Geo-Engineering** to intercept it.

One of those is heat intercepting **cloud making** by spreading sea water salt in atmosphere in Arctic summer.The other is Arctic winter.It is making one dimensional **big thicker ice circle** by spreading sea water by pumping.

*See Question & the Answer:⑺**Is ARCTIC COOLING really possible ?!!**(p8/22)

http://www.777true.net/Q-A_Die-or-Do_Mending-the-Deadly-Climate_the-Problem-Solution-Reaction.pdf

Then note dangerous heat input into Arctic ocean are not only solar heat,but also air flow ,oceans heat input both by Bering Strait Current and North Atlantic Current.

Heat Budget in Arctic at now<note heat output is only cooling radiation＝CR(115W/m^2)>

Input heat	Output heat	Debt heat(warming)
air＝84		atmos warm＝0.
ocean＝6		ocean warm＝4.5
solar＝30(→120!)	CR＝115	Ice decay＝0.5W?
sum＝120W	sum＝115W/m^2.	sum＝＋5W/m^2.

http://www.777true.net/Arctic-Ice-Vanishing-within-15years-toward-Methane-Catastrophe.pdf

http://www.777true.net/Rapid-Temeperature-Rise-in-Arctic-a-simple-verification.pdf

If sea ice was full vanishied ,heat input rise could be 120－30＝90W and is fatal！！.

As for air and ocean flow heat input rise by $\Delta Q = MCV\Delta T$.

{M=mass,C=heat capacity density,V＝flow velocity}are assumed almost constant.

While the temperature rise $= \Delta T > 0$.

Note Arctic temperature rise is about 3 times larger than that of average global one.

If global temperature rise is 0.5℃、that of Arctic may be less than 2℃.

If ocean sea water temperature increase 2℃ from 273℃、the variance is 2/273＝0.7％ is enough neglegible,while air temperatue rise 4℃ from 273℃=1.4% is also neglegible.

Thus heat input rise both in air and ocean flows may be neglegible.

[3]:Supplement on possible Dangerous Factors in Climate Mending.

2015/11/29.

Climate mending demands following decisive premise. **CO2 absorption by marine and land vegetation is almost stable hereafter !!!.** If you see following,you would admit that urgent earth troops for mending Arctic,land,ocean and marine is also necessary..

The Carbon Budget 2014

http://www.globalcarbonproject.org/carbonbudget/14/presentation.htm

emission	**absorption**
man-made＝32.4±1.6 GtCO2/yr 91%	marine＝9.4±1.8 GtCO2/yr 26%
land ＝3.3±1.8 GtCO2/yr 9%	land ＝10.6±2.9 GtCO2/yr 29%
＊methane now is order of Etc/yr(here)	air ＝15.8±0.4 GtCO2/yr 44%

＊1Gigatonne (Gt) = 1billion tonnes =1×10^{15}g = 1 Pentagram (Pg)

⑴**Ocean Calcification** is advancing by CO2 increasing in sea water..

Then 80%cut policy could instantly reduce CO2 concentration in air<good point>

For about 20～30 years long,ocean temperature is to rise by 0.3～0.4℃<bad point？>.

* Possibility of accident of ocean contamination.

Conclusion-⑴:

Urgent CO2 Cut is decisive not to kill the ocean vitality !!!.

Something **Bio-Geo Engineering** for marine microbes & algal is necessary.

⑵**Land Vegetation Vulnerability**<forest fire,Devastating Amazon Region,etc>

Something bio-Geo engineering for land vegetation is necessary<desert forestation>.

Fire fighter troop patrol is necessary for highly possible regions of firing.

Ban for deforestation by anymore.

⑶**Land Methane Eruption Possibility.**

Urgent CO2 Cut is decisive not to rise land temperature.

Eruption fighter troop patrol is necessary for highly possible regions of eruption.

Methane can be converted to H2 gas without carbon.

⑷**Terror on the LIFE Environments !!.**

In anytime anywhere,there always are the op posers,who must be cracked down.

Now we almost are the opposers !?!?who must be urgently be cracked down ?!!.

APPENDIX-1:Ability Decline of CO2 Absorption by Ocean ?!!.

Climate mending demands stable CO2 absorption by land and ocean.Then risk of **ocean calcification** has been being warned.Now simple calculation indicate a suggestion on it.

Then note cited data are confused.However the essense may be not so changed.

Authors conclusion is not become so pessimistic,but care on the risk.

The Carbon Budget 2014

http://www.globalcarbonproject.org/carbonbudget/14/presentation.htm

emission	**absorption**
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＊methane now is order of MtC/yr(here)	air ＝15.8±0.4 GtCO2/yr 44%

☞：Note following 2007 IPCC data value are diffrent from above 2014 by 5 times scalking.It is incredible to be too different,then which is right ??.**However the partition rate are almost near.**

The absolute value would not influence on the conclusion we calculated here.

Carbon Cycle by IPCC.

https://www.ipcc.ch/publications_and_data/ar4/wg1/en/figure-7-3.html

http://www.data.jma.go.jp/gmd/kaiyou/shindan/sougou/html_vol2/col_1_4_2_vol2.html

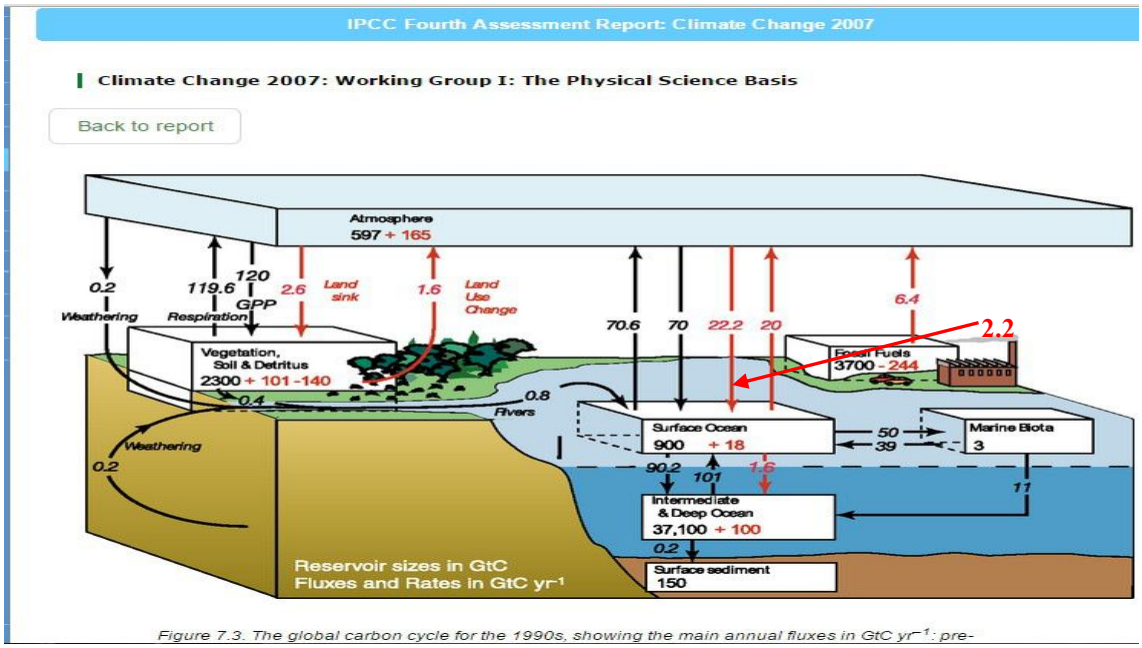
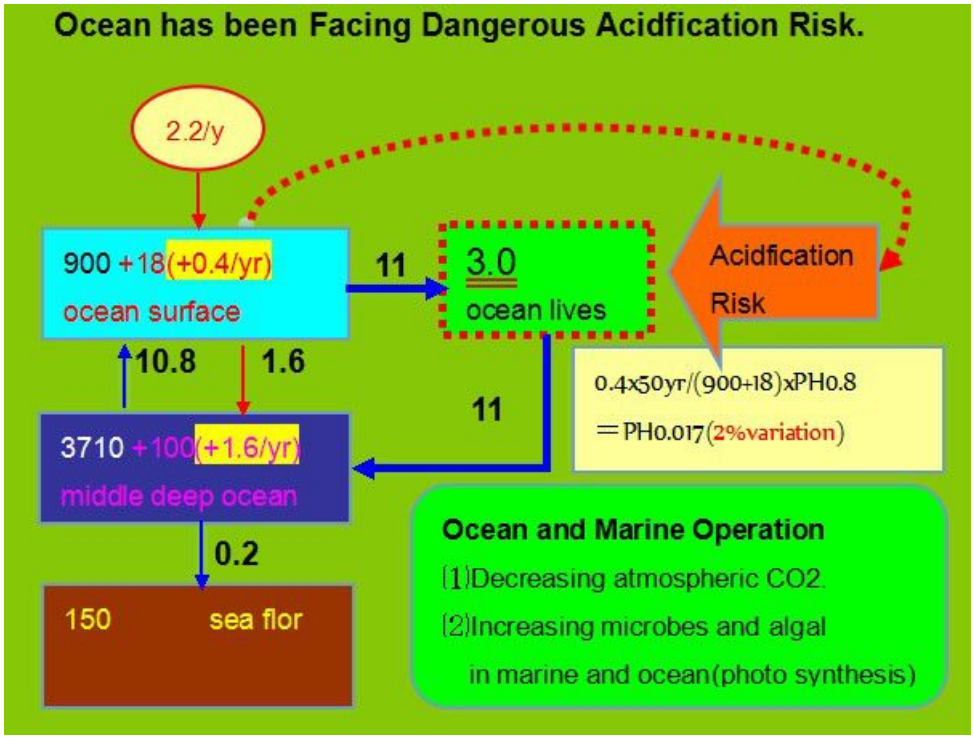


Figure 7.3. The global carbon cycle for the 1990s, showing the main annual fluxes in GtC yr^{-1}: pre-



The Ocean Lives are decisively important role in carbon circulation,which transfer carbon from ocean surface into middle depth or deepest ocean zone(11GtC).Ocean acidfication is told to cause **bad effect to ocean lives**.Then 0.4GtC/yr carbon accumulation in **50 years** is 20GtC change in **ocean surface carbon pool** in coarse linear approximation.
It is variation of 0.4x50/(900+18)＝2% variation from now.Note this is ratio calculation,so the absolute value is no concern.It is a bit value,however whether it is fatal or not is unknown to author.Also ocean water temperature rise(0.2～0.4℃ by 80%cut) is not favorable.
However these situation may be not so pessimistic,but also not optimistic.
Hereafter we must pay full care on ocean with including **bio geo engineering**.
Those would be decisive tasks for the researcher and governments on the duty.
Ocean pool may be enough large and stable to sustain the lives,author strongly wish so.

*Very Good News from UK !! *Photosynthesis microble is tough !!*

Don't forget plankton in climate change models, says study

http://www.sciencedaily.com/releases/2015/11/151127102337.htm

A new study from the University of Exeter, published in the journal Ecology Letters, found that phytoplankton -- microscopic water-borne plants -- can rapidly evolve tolerance to elevated water temperatures. Globally, phytoplankton absorb as much carbon dioxide as tropical rainforests and so understanding the way they respond to a warming climate is crucial.

.....

While these experiments focused on a single species and strain of phytoplankton, the researchers believe that the rapid evolution of carbon-use efficiency will apply to other species of phytoplankton and substantially improve models describing ecological and biogeochemical effects of climate change.