

Climate Mending Technology the Troublesome Portion. 2015/11/26,27,28,29

Effective climate mending needs urgent more than 80%CO2 cut and Arctic Cooling.

Now possible troublesome portion in the mending is examined here. We need **global defense troops on global environment**(ocean,land and Arctic)is decisively necessary. Also in this meaning,**global climate wartime regime** with the declaration is necessary.

[1] : **Renewable Energy**

In global view,the total solar,wind and marine power resources-themselves are enough.

The ideal of regional self-sufficient is best in climate wartime regime.However regional resources distribution is fairly unequal.**Renewable energy trade might be necessary ?!**.Then hydrogen gas energy in liquid state in ordinal pressure and temperature has become possible by method of organic hydride.It is so to say a **carbonless oil**.Hydrogen gas can be generated in ordinal solar,marine and wind power.Especially the latter two are advantageous.

Energy Revolution Is Possible... And It Would Only Take 782 Rich People To Pay For It

<http://www.commondreams.org/news/2015/11/20/energy-revolution-possible-and-it-would-only-take-782-rich-people-pay-it>

100% renewable energy

https://en.wikipedia.org/wiki/100%25_renewable_energy

100% RENEWABLE ENERGY VISION

<http://thesolutionsproject.org/>

In 2015, Uruguay will produce 90% of its electricity from renewable 01/09/2013

<http://www.greenetvert.fr/2013/01/09/en-2015-luruguay-produira-90-de-son-electricite-grace-au-renouvelable/70728>

Beginning in 2015, Uruguay could become a world leader in the field of renewable energy, with production dominated 45% by hydropower, 30% wind and 15% biomass.

Is 70% Percent Renewable Power Possible?Portugal Just Did it For 3 Months.

<http://thinkprogress.org/climate/2013/04/14/1858811/is-70-renewable-power-possible-portugal-just-did-it-for-3-months/>

The truth behind Costa Rica's renewable energy

<http://www.theguardian.com/commentisfree/2015/mar/30/truth-behind-costa-rica-renewable-energy-reservoirs-climate-change>

5 Countries Leading the Way Toward 100% Renewable Energy January 9, 2015

<http://ecowatch.com/2015/01/09/countries-leading-way-renewable-energy/>

Europe Moving Towards 100 percent Renewable Energy

<http://www.thegreenmarketoracle.com/2015/04/europe-moving-towards-100-percent.html>

Sweden en route to a 100% petroleum-free society

<https://mrmondialisation.org/la-suede-en-route-vers-une-societe-100-sans-petrole/>

Stanford Engineers' Plan To Convert U.S. To 100% Clean Energy !

<https://www.popularresistance.org/stanford-engineers-plan-to-convert-u-s-to-100-clean-energy/>

*Instead oil, **H2 gas should be used by engine fuel.** This is highly possible before long.

<http://www.hrein.jp/english/about%20organic%20hydride/index.htm>

<http://www.greencarcongress.com/2013/06/mch-20130603.html>

This is new industrial revolution from oil to H2gas.→ corporate conversion

Author himself is optimistic for renewable energy, because once oil was banned, **anyone would endeavor to seek renewable energy.** It is this outrageous motive force that could accomplish carbon-less world. Those technology seems not so difficult. Many invention would emerge soon.

Operation on Deserts Forestation by large scale.

This is realizable and many merits with various vegetation

<http://www.kkl.org.il/eng/forestry-and-ecology/afforestation-in-israel/turning-the-desert-green/>

<https://www.hitachi-c-m.com/global/company/csr/contribution/horuchin/index.html>

<http://sabakuryokka.org/>

Crack it! Energy from a fossil fuel without carbon dioxide: November 19, 2015

<http://www.sciencedaily.com/releases/2015/11/151119103553.htm>

The production of energy from natural gas without generating carbon dioxide emissions could fast become a reality, thanks to a novel technology. Researchers have been researching an innovative technique to extract hydrogen from methane in a clean and efficient way. After two years of intensive experiments the proof-of-principle has now been provided. With the experimental reactor running reliably and continuously, the future potential of this technology has become apparent. <Karlsruhe Institute of Technology>

[2] : Geo Engineering.

Now Arctic ice area decreasing has been going on by **vicious positive feedback** toward Arctic Methane Catastrophe before 2050<in case nothing Arctic Cooling Mending Method>.

<http://www.ameg.me/>

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

Ice melt increases solar heat input into black ocean mouth which warms ocean water to melt more ice<the **positive feedback**>.It can not be stopped by natural,but only by man-made **Arctic Cooling**.This is why climate scientists had become desperate for climate recovery !!.

Now the urgent implementation is necessary.The technology is proposed in following.However actual running test has been intercepting by **Nothing Political Supports**.

This is the most deadly problem in politics at now !!!.

<http://geo-engineering.blogspot.jp/>

<http://geo-engineering.blogspot.jp/2007/05/cloud-seeding.html>

<http://geo-engineering.blogspot.jp/2007/10/pipes-in-oceans-to-pump-up-water.html>

<http://geo-engineering.blogspot.jp/2011/12/can-we-capture-methane-from-arctic.html>

<http://geo-engineering.blogspot.jp/2013/05/electrostatic-nanocone-ion-gun-vortex-separated-ideal-drop-size-saltwater-cloud-cannons.html>

<http://geo-engineering.blogspot.jp/2013/03/supersonic-and-high-velocity-subsonic-saltwater-and-freshwater-cloud-making-cannons.html>

<http://geo-engineering.blogspot.jp/2013/03/an-integrated-systems-plan-for-10-year-carbon-pumpdown-to-280ppm.html>

<http://geo-engineering.blogspot.jp/2013/04/klaus-lackner-works-on-carbon-capture-technology.html>

<http://geo-engineering.blogspot.jp/2014/01/six-commercially-viable-ways-to-remove-co2-from-the-atmosphere-and-or-reduce-co2-emissions.html>

<http://geo-engineering.blogspot.jp/2014/08/seven-ocean-fertilization-strategies.html>

<http://geo-engineering.blogspot.jp/2015/04/save-the-arctic.html>

How to Cool Arctic.

<http://arctic-news.blogspot.jp/p/how-to-cool-arctic.html>

Sea-going hardware for the cloud albedo method of reversing global warming

<http://rsta.royalsocietypublishing.org/content/366/1882/3989.full#sec-7>

Climate 'tech fixes' urged for Arctic methane 17 March 2012

<http://www.bbc.com/news/science-environment-17400804>

Depending on the size and location, Prof Salter said that in the order of 100 towers would be needed to counteract Arctic warming.

“1 dimensional thick ice wall building intercepting Arctic sea warming(author).

minimum ice extent
in 2012
=3.4million Km².

The surrounding length might be about
 $=\sqrt{\pi(3.4 \times 10^6 \text{Km}^2/\pi)} \sim 7000 \text{Km}..$

$70 \text{Km}/\text{troop} = 7000 \text{Km}/100 \text{troops}.$

It is **sea water pumping & spreading** for ice building
in sever cold winter operation.

Difficult of Geo engineering is its **outstanding geometrical scaling**. Thereby it is problem how to accomplish the aim with highest effectivity by **least implemented units**. It may become collaboration between engineering and regional climate judgment.

Frankly to tell,author in nothing actual experience in Arctic environment has no more idea than description at here.

[3] : Other Possible Dangerous Factors in Climate Mending.

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 GtCO ₂ /yr 91%	marine = 9.4 ± 1.8 GtCO ₂ /yr 26%
land = 3.3 ± 1.8 GtCO ₂ /yr 9%	land = 10.6 ± 2.9 GtCO ₂ /yr 29%
* methane now is order of MtC/yr (here)	air = 15.8 ± 0.4 GtCO ₂ /yr 44%

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

(1) **Ocean Acidification** 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°C <bad point ? >.

* Possibility of accident of ocean contamination.

Conclusion-(1):

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

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

(2) **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.

(3) **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.

(4) **Terror on the LIFE Environments !!.**

In anytime anywhere, there always are the opposers, 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 essence 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	
man-made	= 32.4 ± 1.6 GtCO ₂ /yr 91%	marine	= 9.4 ± 1.8 GtCO ₂ /yr 26%
land	= 3.3 ± 1.8 GtCO ₂ /yr 9%	land	= 10.6 ± 2.9 GtCO ₂ /yr 29%
* methane now is order of MtC/yr (here)		air	= 15.8 ± 0.4 GtCO ₂ /yr 44%

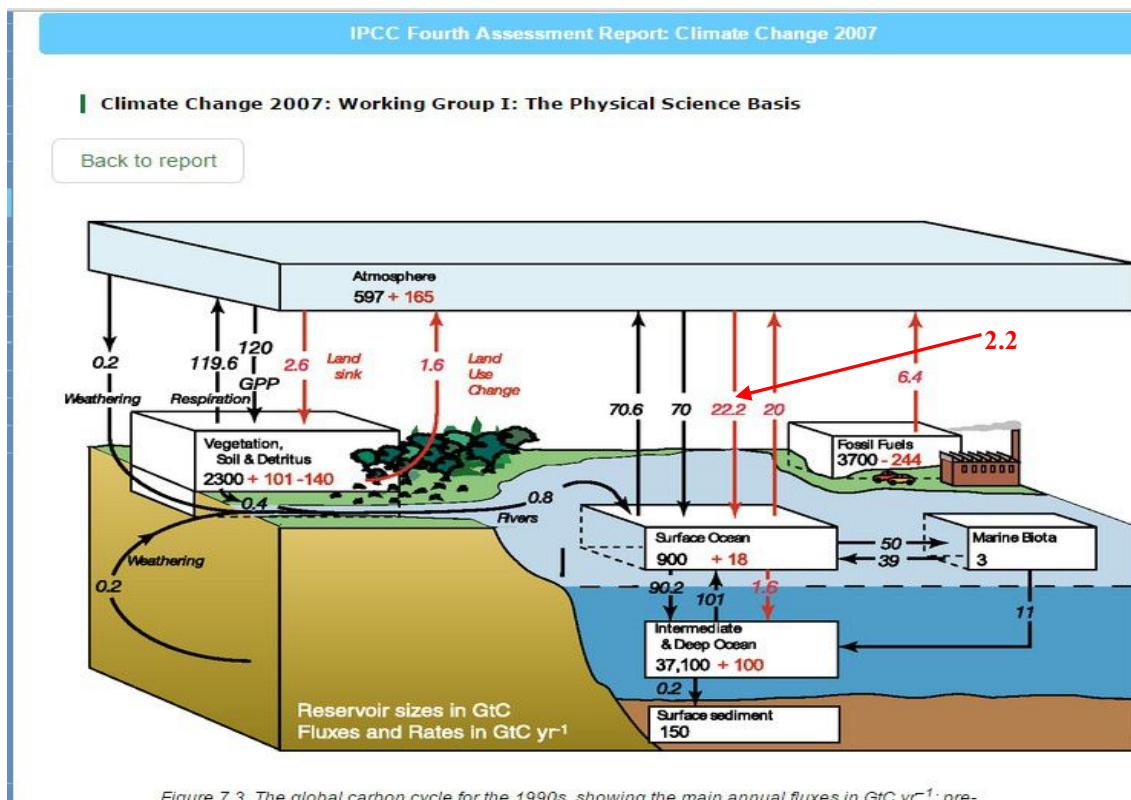
☞ : Note following 2007 IPCC data value are different from above 2014 by 5 times scalking. It is incredible to be too different, then which is right ?? **However the partition rate are almost near.**

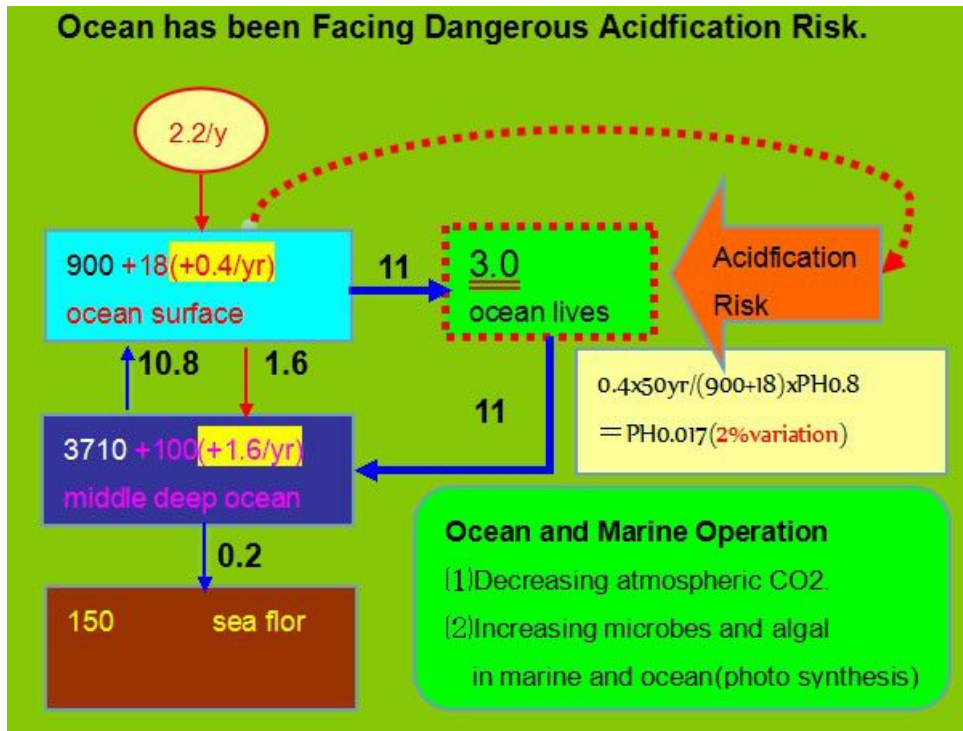
The absolute value would not influence on the conclusion we calculated here.

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





The **Ocean Lives** are decisively important role in carbon circulation, which transfer carbon from ocean surface into middle depth or deepest ocean zone (11 GtC). Ocean acidification is told to cause **bad effect to ocean lives**. Then 0.4 GtC/yr carbon accumulation in **50 years** is 20 GtC change in **ocean surface carbon pool** in coarse linear approximation.

It is variation of $0.4 \times 50 / (900 + 18) = 2\%$ 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 °C 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 microbe 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.