

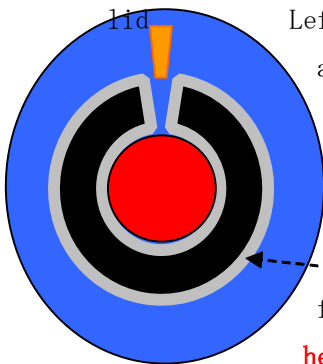
—Emergent Methane Catastrophe in Arctic<the quick lesson>— '09/8/22, 23, 24

Even amateurs could see or intuit it !!. In the end, a future prophecy is referred, however, it could be changed by our present will.

①The earth with GHG⁽²⁾ in atmosphere is a nearly vacuum flask:

<<Why, does the global temperature rise with GHG increasing!!>>

(1)A typical example of vacuum flask as almost thermal closed system:



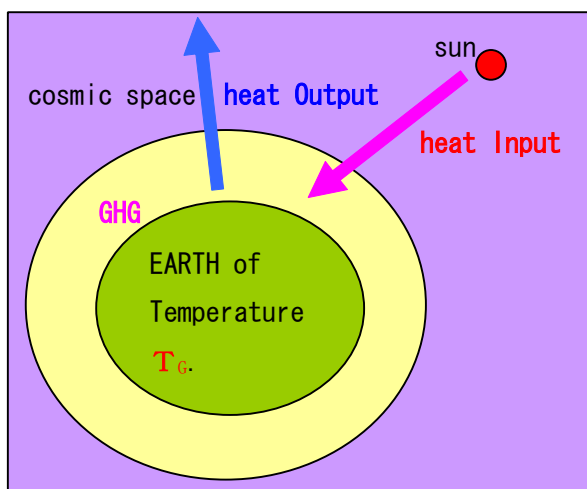
Left figure is a typical vacuum flask of which black zone is a vacuum space which prevents heat flow in material conduct. However, a heat energy as Electro-Magnetic (EM) radiation can penetrate through vacuum space. Then gray zone is a mirror which reflects heat flow of electro-magnetic (EM) radiation (infrared ray to visible light). Thus energy (heat) flow is shut off between interior and exterior. The role of heat trapping gas such as CO₂, CH₃, ... is similar to a mirror (but, not the same) for EM radiation wave. The red zone is a thermal death space.

(2)The most troublesome GHG (Green House effect Gas):

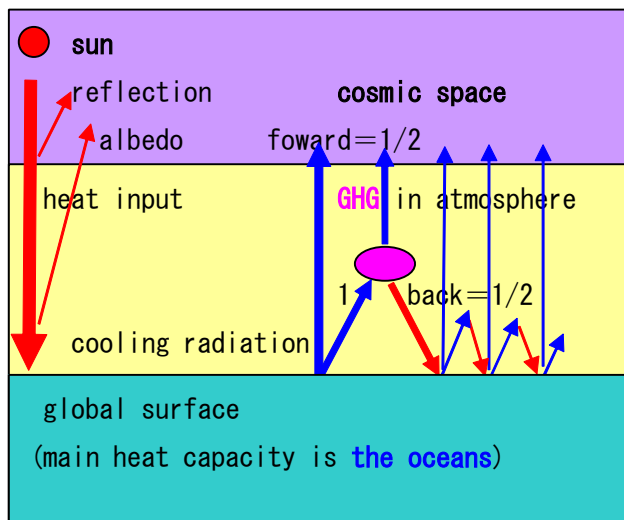
GHG is a heat trapping gas (CO₂, CH₄, ...) in atmosphere. Solar ray input of higher frequency of EM wave can penetrate GHG in atmosphere, and heat up global surface, then any material with heat output EM wave (cooling or blackbody radiation) depending on the mean surface temperature (T). In normal history of the past,

Global heat Input from solar = Global heat Output from earth. ①(2)

were just balanced. Now $(I-O)/I \approx$ about 1/365. It's very slight deficit, but serious effects on us due to, which would destine our future !!!!.



Before the industrial revolution, (1750), CO₂ emitting by mankind was constant of so small that the balance had been maintained for long time. Then note that the balance equation is a meaning of year averaged account. Of course day is more input than output, while, night becomes up side down.



Then note that infrared ray of cooling EM output radiations are trapped by GHG in atmosphere. The half of energy re-radiate into cosmic space, while the other half go back-radiate into global surface. It is go-back radiations from GHG that is to heat up on this globe.

Note some of cooling radiation is not trapped by GHG, and the other is trapped. Those process depend on the concentration of GHG in the atmosphere. You could see that surface heat up components are that of {direct input solar ray} and {sum of repeated go-backing radiations} from many many GHG molecular. See more details <<http://www.geocities.jp/sqkh5981g/REDBodyrad.pdf>> <<http://www.geocities.jp/sqkh5981g/RADIATION-FORCE.pdf>>

By anyhow, troublesome heat on globe has unique and only its dispative root, the way to cosmic space, however, there is evil gate of called GHG.

②The important cooling component of "albedo" the solar input reflectors.

(1)albedo the solar input reflectors.

You could see {white cloud and ice cover} on globe in satelite photoes. Those are direct reflectors of solar ray input on globe. Then reflected radiation components never heat up temeprature on globe. Those desireable function is called albedo. If you see black surface or nealy one of globe, it's the worst to absorb solar heat. The two of {GHG concentrations & albedo} are basic parameter deciding global temperature T_g in the(nealy)balanced equation of ①(2).

(2)Ice cover diminishing and direct solar ray input in Arctic.

Recent most topic in climate change is the abrupt ice melt in Arctic. Then opened black sea surface would absorb direct solar heat to warm up the ocean. Note the most insolation in summer north pole is stronger than that of equator ! In the sea flor, there are huge thermal bomb called methan clathrate(MC). The amount is estimated as 400~1000GtC<Giga tone in pure Carbon standard>.

③ Catastrophe by POSITIVE FEEDBACK

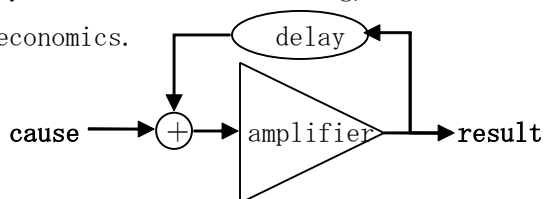
in temperature rise with spontaneous GHG emission rise.

This would be fatal mechanism driving us to mass extinction, so reader must carefully understand the concept and the mechanism with GHG spontaneous emission.

Now author judge it not on going, but very very near at the critical point !!.

(1) Result is fed back to enhance cause (POSITIVE FEEDBACK).

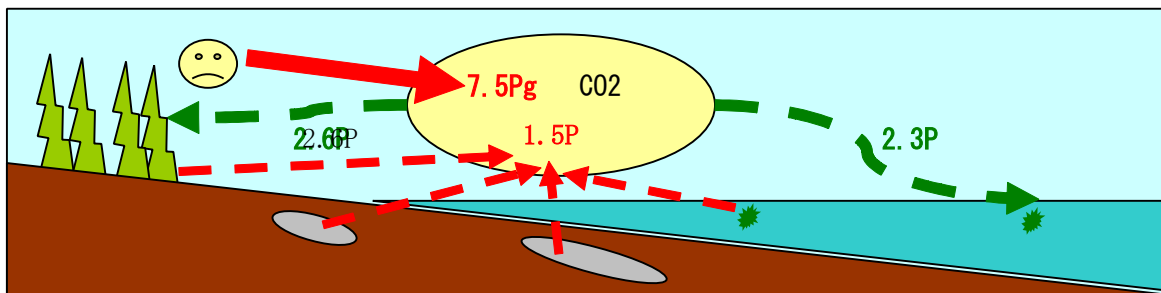
For example, income down of everybody decrease total selling, which enhance more income decrease. It's a deflation in economics.



(2) Global temperature rise is to increase spontaneous GHG emit in land & marine.

For example, {land vegetation, marine itself and the planktones, etc} have great role in absorbing CO2 in atmosphere. However once temperature exceeded certain point, they would turn to emit CO2. It's a spontaneous emission in nature, but not in man-made. So if natural emission amount exceeded that of absorbing=4.9PgC, none could rule out run-away of temperature rise.

The kernel of our debate is just on the state of degree in globe.



(3) The Global Carbon Budget in 2007.

http://www.globalcarbonproject.org/global/pdf/GCP_CarbonBudget_2007.pdf (p19).

year (man made + natural) **emitt** and (oceans + land) **sink** by **photosynthesis**.

+man made emission	= 7.5PgC/y	P=10 ¹⁵ . C is carbon standard.
+natural emission	= 1.5PgC/y.	For example)
—Oceans sinks	= 2.3PgC/y	CH4=16g, but C=12g.
—Land sinks	= 2.6PgC/y	CO2=44g, but C=12g.
<hr/>		
+atmospheric accumulation	= 4.2PgC/y	

(4)Note, in L' quia, **more than 80% carbon reduction** was recognized in G8 meeting. By simple balance between emit and sink, $(2.3+2.6) = (7.5-x) + 1.5$ yield $x=4.1$. $4.1/7.5=55\%$. However to stop natural emit increasing by huge thermal momentum of oceans **the world largest heat reservoir of more than 90%**, reduction as more than 25% additional is necessary to pull down the temperature into stable state.

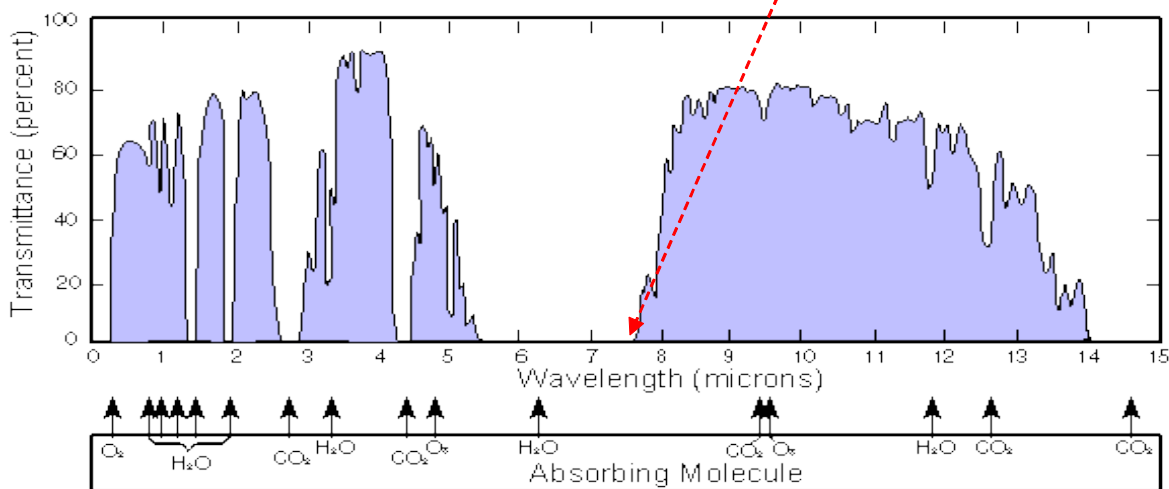
(5)Yah, it's certainly outrageous for our wishwasy life filled with fossil energy. However without it, our future could not be anymore.

<http://www.geocities.jp/sqkh5981g/OPERATION-GLOBAL-RAMADAN.pdf>

④Methan clathrate(MC) the introduction:
(1): Validity on methan of strong heat trapping in cooling radiation into cosmos.

http://upload.wikimedia.org/wikipedia/commons/6/6a/Atmosfaerisk_spredning.gif
 Wave length of infrared ray absorbing in methan is near at $7.6 \mu m$, where is rare area of nothing absorption called **window one** ($8\sim 14 \mu m$) by H_2O or CO_2 , etc. Hence methan could act strong effect in heat trapp by even small amount.

☞: CH_4 is about **20~70 times stronger than CO_2** in global heat up.



(2): Global **1°C** temperature rise of **a catastrophic degree standard** by **10GtC eruption** and the MC reservoir amount **400GtC~1000GtC in Arctic.** (8/24)

Certainly $1^\circ C$ change in our dairy life is entirely no hazadous to life. However the present global mean temperature $0.8 \doteq 1^\circ C$ rise had already caused serious global many disasters at everywhere. You should imagine how much heat is necessary for global $1^\circ C$ rise. It's outrageous amount of energy which cause the violences in climate. Then 10GtC eruption would be very rare possibility, however it entirely depend on heat input in sea flor. Now the state is seen in **⑤(6)(c).**

Then the serious problem is such huge amount 400GtC~1000GtC in the reservoir. Once triggered positive feedback of rising temperature and MC melting amount, it never be stopped until full diminishing of 400GtC~1000GtC reservoir, which would turn to cause **fire ball earth**<see ⑥(2)6c increase>.

(2)Very thermal instability of MC in shallow Arctic continental shelves(200~300m).

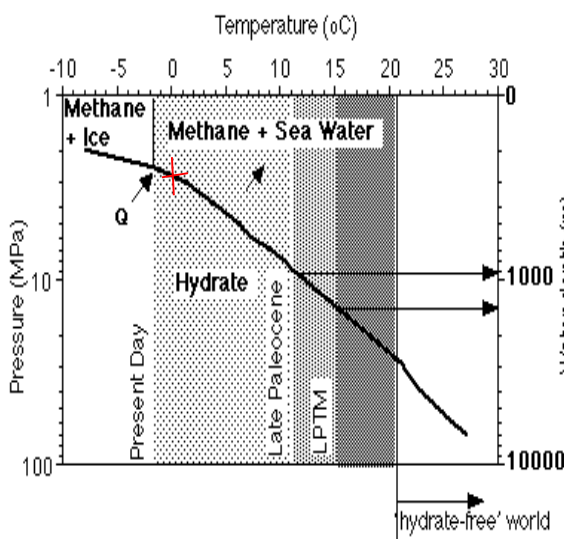
A main chemical component of life is **carbon** accumulated as huge methane clathrate in shallow continental shelves of depth under 1300m. Then note on {temperature \doteq 0°C, sea depth \doteq 200m in phase diagram in the below}, which is a criterion for thermal stability in Arctic sea floor.

<http://ethomas.web.wesleyan.edu/ees123/clathrate.Htm>

Then you could see **slight temperature rise** shall cause methane eruption from MC. That is, ice methane is melted to gas methane by heat input.

ice cover full melting in Arctic would turn to melt also "MC" before long.

Time of heat transfer into shallow 200m depth is in a year.



⑤ Methan Catastrophe the Emergent Possibility:

(1)NASA GISS/Methan the scientific journey(the obscurity to stardom) by Gavin Schmidt, 2004/9. <http://www.giss.nasa.gov/research/features/methane/>

In 1970s of starting climate change problem, Methane was almost no concerned. However Wei-Chyung Wang found the strong GHG effect. Jerome Chappellaz

developed fine chemical analysis on ancient air bubble in accumulated ice layers. Consequently many amazing facts in paleo-climatology has found. In early 1990's, Jim Kennett noticed that during an extremely short time, carbon isotope ratios ($^{12}\text{C}/^{13}\text{C}$) everywhere suddenly changed. This became so called the **clathrate gun hypothesis**. A temperature rise enhance methane eruption into atmosphere causing more temperature rise, which in turn to enhance more the eruption. This process become **positive feedback** causing **the abrupt global catastrophe such as MASS EXTINCTION of species at PETM and at Permian end**.

http://en.wikipedia.org/wiki/Arctic_methane_release

In 2002, actual methane clathrate was first dug out from sea floor.

As was seen in above, these events is as recent 10 years one.

(2) In 2000 in Japan congress, stateman S. Katoh speeched on the risk of methane and necessity of its consideration in climate prediction model system of IPCC.

(3) They declared carbon reduction rate of **5%** in Kyoto protocol in 1997. However G8 (advanced nation) meeting in L' Aquia Italy in 2009, they at last recognized amazing more than **80%** rate. Even though, too late time limit 2050 was despair. EU nations had done the reduction, while Japan (ratification nation) and USA (not joined) had risen CO2 emit. Reader would be shocked for the irresponsibility (5→80) of the international organizations. Why not? It's invisible command of the real dominator of the world (secret unite of USA & EU) in their behind that force those activities.

(4) **Crisis of Arctic ice decay in 2013^{(6)(b)} and emergent reduction of carbon emit.**

Simply and only diminishing of ice cover in Arctic may be no hazardous?, however huge amount of **methane clathrate (MC)** reservoir in the sea floor could become thermal bomb by **slight degree temperature rise** to cause irreversible or abrupt big heat catastrophe of perishing lives on globe.

In order to avoid the catastrophe, the emergent reduction rate of more than 80% carbon must be taken by **the global rationing economy regime**. Unless we do it, none could be relieved. It's only way to survive. So the current regime of global capitalism could not be.

Thus our possible option is two, one is the conservatism to perish, and **the other is co-surviving by pulling down of carbon in atmosphere by GLOBAL COMPELLING**.

(5) Now the global current mass media in the synergy domination by the established global power still has been hiding the fact of emergent crisis. The method of global compelling seems to be outrageous in the current huge momentum of the world, **however, there is no way without it.** It's also not impossible as the principle.

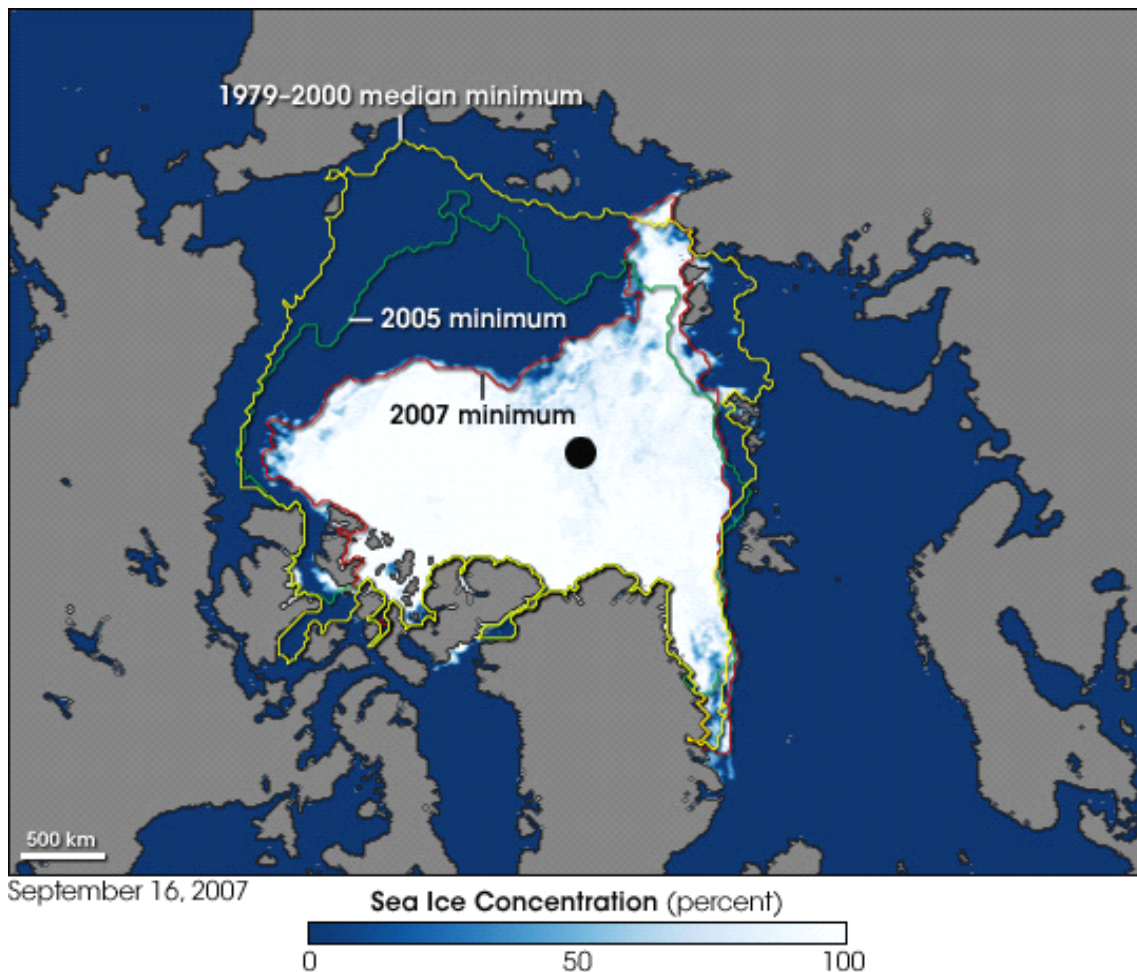
(6) Even amateurs could intuit on the emergent crisis (the visible validities).

(a) Arctic sea floor of **very shallow and wide continental shelves** where huge amount of methane could be accumulated in the long long history. Then the shallowness would enable **rapid heat transfer into sea floor** in short time. Heat transfer time in 200~300m sea depth is in a year.

<http://www.jamstec.go.jp/arctic/mapsearch/locationdepth.Htm>

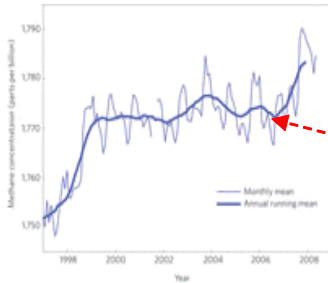
(b) Prediction report of ice cover diminishing in **2013** in Arctic.

<http://www.beyondzeroemissions.org/2008/03/24/Dr-Wieslaw-Maslowski-ice-free-summer-arctic-2013-or-sooner-loss-of-reflectivity-non-linear>



(c) Unexpected rise in global methane levels.

<http://www.nature.com/climate/2009/0904/full/climate.2009.24.html>

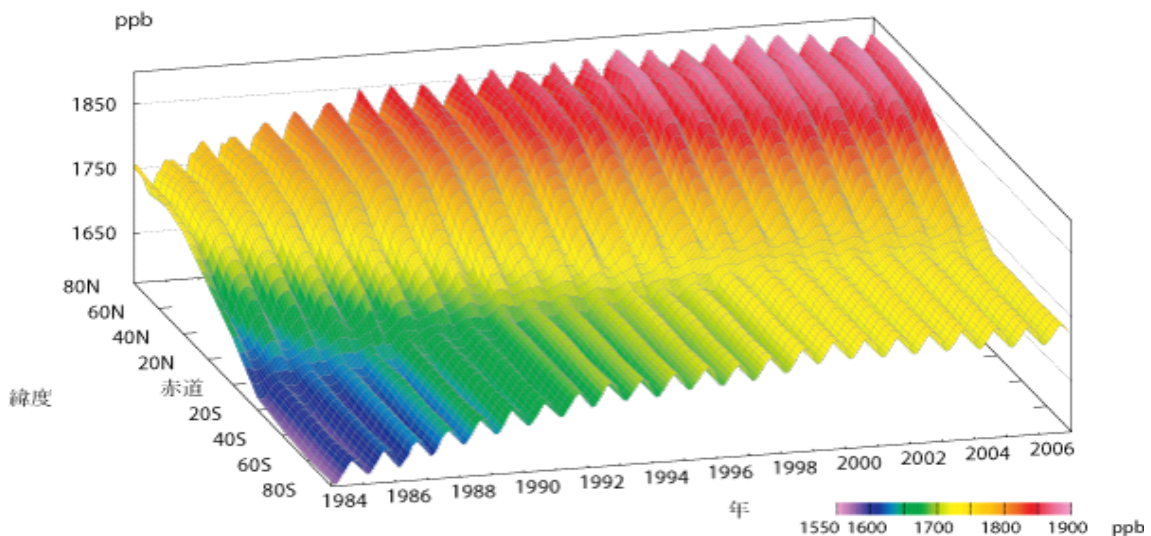


The average atmospheric concentration of methane shot up suddenly in 2007, [Full figure and legend \(21 KB\)](#)

*You could see 20ppb jumping, of which mass is 40MtC. 10GtC rise causes global 1°C temperature rise of a catastrophic degree standard. In current momentum, there could be degree of 100MtC=0, 1GtC eruption. <M=10⁶, G=10⁹, C=pure carbon standard>

(d): Methan eruption in the Northern area since 1990.

*<http://www.data.kishou.go.jp/obs-env/ghghp/22ch4.Html>.



(e) "No one can say right now whether that will take years, decades or hundreds of years," she said. But one cannot rule out sudden methane emissions. They could happen at "any time."

<http://www.spiegel.de/international/world/0,1518,547976,00.html>

(f) P49. CONCLUSION summarizing both essence of catastrophe and relief in a comic.

http://www.cdf.u-3mrs.fr/~henry/presentations/hydrates_paris6.ppt

⑥: Hell scenes in the **runaway** climate catastrophe.

Everybody evade conscious of own death. However a hell caused by **runaway climate catastrophe is extra-ordinary**. If you would have encountered the outrageous suffers, you would be terribly regret not to make decision on **adopting the global rationing regime the sever, but survivable**. For its sake, you should see a hell.

(1) Alarming of IPCC announcement in Valencia 2008/11/17 (P53/3.4).

Anthropogenic warming could lead to some impacts that are **abrupt** or **irreversible**, depending upon the rate and magnitude of the climate change.

http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf

Abrupt or irreversible means an explicit alarming for nothing relief, if current momentum continued. However they did not refer the reality of **the impacts**. Scientists are under censorship by the senior IPCC.

The very key point of climate change is not global temperature-itself, but the temperature over which irreversible positive feedback begins (**tipping point**).

Then temperature rise enhance eruption of spontaneous natural GHG into atmosphere, which enhance more temperature rise. It never could be stopped until **the final catastrophe of "fire ball earth"**. The flammable reservoir is too sufficient on this globe.

(2) This is the site where they reveal facts of runaway climate hell !!!

What will climate change do to our planet?: This is our future-famous cities are submerged, a third of the world is desert, the rest struggling for food and fresh water. R. Girling investigates the reality behind the science of climate change.

<http://www.timesonline.co.uk/tol/news/uk/science/article1480669.Ece>

RED ALERT: global warming continues at the current rate, we could be facing extinction. So what exactly is going to happen as the Earth heats up? Here is a degree-by-degree guide

1c Increase: Ice-free sea absorbs more heat and accelerates global warming; fresh water lost from a third of the world's surface; low-lying coastlines flooded

2c Increase:Europeans dying of heatstroke; forests ravaged by fire; stressed plants beginning to emit carbon rather than absorbing it; a third of all species face extinction

3c Increase:Carbon release from vegetation and soils ?speeds global warming; death of the Amazon rainforest; super-hurricanes hit coastal cities; starvation in Africa

4c Increase:Runaway thaw of permafrost makes global warming unstoppable; much of Britain made uninhabitable by severe flooding; Mediterranean region abandoned

5c Increase:Methane from ocean floor accelerates global warming; ice gone from both poles; humans migrate in search of food and try vainly to live like animals off the land

6c Increase:Life on Earth ends with apocalyptic storms, flash floods, hydrogen sulphide gas and methane fireballs racing across the globe with the power of atomic bombs; only fungi survive

Chance of avoiding six degrees of global warming: zero if the rise passes five degrees, by which time all feedbacks will be running out of control.

*In authors observation, once we allowed full diminishing of ice in Arctic at nearly 1°C of now, it would cause positive feedback of methane eruption into 6°C rise of the final hell.

2050 of time limit may be a phantasy, actual one is 2013?,
no sufficient time is left !.

⑦ THE ALARMIG SONGS in the WORLD MUSIC SEANES.

We could be given precious alarming musics, Please listen carefully.

(1) Jumping Jack Flash by the Rolling Stones(1968).

I was born in a **cross-fire hurricane**
And I howled at my ma in the **driving rain**,
But its all right now, in fact, its a gas!
But its all right. Im jumpin jack flash,
Its a gas! gas! gas!

I was raised by a toothless, bearded hag,
I was schooled with a strap right across my back,
But its all right now, in fact, its a gas!
But its all right, Im jumpin jack flash,
Its a gas! gas! gas!

I was **drowned**, I was washed up and left for dead.
I fell down to my feet and I saw they bled.
I frowned at the crumbs of a **crust of bread**.
Yeah, yeah, yeah
I was crowned with a spike right thru my head.
But its all right now, in fact, its a gas!
But its all right, Im jumpin jack flash,
Its a gas! gas! gas!

Jumping jack flash, its a gas
Jumping jack flash, its a gas
Jumping jack flash, its a gas
Jumping jack flash, its a gas
Jumping jack flash

*Jumping jack flash was born in an extra-ordinary enviroment of almost hell,
which may be just **in the runaway climate enviroment**.He was **drowned** to nealy
death **with very hunger**.....I frowned at the crumbs of a crust of **bread**.I was
terribley angry(as a spike right thru my head)against crown(the highest status
who waste crust of bread).He was schooled with a strap right across his back.
So what he told may be up side down.It's not entirely a joke now and is an
extremely outrageous in future.

(2)**Save the Children by Marvin Gaye(1971)** in album"What's going on".

I just want to ask a question

Who really cares?

To save a world in despair

Who really cares?

There'll come a time, when the world won't be singin'

Flowers won't grow, bells won't be ringin'

Who really cares?

Who's willing to try to save a world

That's destined to die

When I look at the world it fills me with sorrow

Little children today are really gonna suffer tomorrow

Oh what a shame, such a bad way to live

All who is to blame, we can't stop livin'

Live, live for life

But let live everybody

Live life for the children

Oh, for the children

You see, let's save the children

Let's save all the children

Save the babies, save the babies

If you wanna love, you got to save the babies

All of the children

But who really cares

Who's willing to try

Yes, to save a world

Yea, save our sweet world

Save a world that is destined to die

Oh, la, la, la, la, la, la, la

Oh, oh dig it everybody

*He had looked an extra-ordinary world filled with suffer for even children.

Everybody must deeply debate with each others on the very very responsibility.

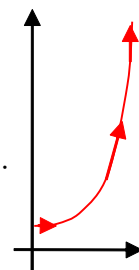
Now the time left for COP15 in Copenhagen is slight 4 monthes.

(3)"Toward the flame" composed by Scriabin in 1914.

Symbolic catastrophe of exponetial function increasing at the last.

At first, it begin in very slow and calm, but,....

<http://www.spiegel.de/international/world/0,1518,547976,00.html>



(4)Author happened to get the music records in the past, but not remeber why he did. An artist is one who could see deep insight on even their future (without confusional conscious methods) by their **para-normal ability**, which could become a kernel in our solidarity for tackling the emergent difficulty.