

**Climate and Energy presentation and debate, 3<sup>rd</sup> of april 2009, Sint Genesius Rode.**

Summary prepared by Lars Myrén and Anne Debeil<sup>1</sup>

**The objective** of the conference was stated as the need to re-open the debate on climate and energy matters especially in the scientific world, because of the social and economic implications of the decisions taken by the politicians in this field.

But first answer to some comments or questions:

*“Why a conference on both Climate and Energy?”* Decisions about energy are now taken in function of climate research.

*Climate change, real or virtual scare?* Margaret Thatcher elected prime minister in 1974, (also with a B.Sc. in Chemistry), wanted to reduce the power of the coal miners, that brought England to a halt at each strike. She started a scare: due to emissions of CO<sub>2</sub> from coal, the oceans would rise and London could be flooded<sup>2</sup>. She succeeded in closing most of the coalmines and crushed Arthur Scargill, the coal union leader, and built nuclear power. Soon thereafter, IPCC was started (Bert Bolin et al) and CO<sub>2</sub> was blamed for causing Global Warming: real or virtual? This evening we will try to contribute to open the debate and will present theories different from what is generally found in the media.

In his presentation titled **“Do Humans cause Global Warming? Dr ir. Fred Goldberg**, after a short introduction on the prevailing “political correct” anthropogenic CO<sub>2</sub> theory, covered a range of different (natural) theories which can also explain or contribute to “Climate Change”.

His presentation covered:

1. Chemical and Physical Properties of CO<sub>2</sub>
2. The Climate Effects of Ocean Currents
3. What makes the Ocean Currents change direction?
4. Is the Arctic and Antarctic Ice Melting?
5. Solar Cycles
6. The Climate Effect of Solar Activity.

A short summary follows:

1. Chemical and Physical Properties of CO<sub>2</sub>

Water vapour and carbon dioxide are greenhouse gases as they absorb IR-radiation from the ground. Which is the most important Greenhouse gas? The greenhouse gas effect of CO<sub>2</sub> is about 1 % and that of water vapour is about 95 % of the earth's greenhouse effect expressed in net forcing W/m<sup>2</sup>.

The Modtrans curve shows that the radiation effect of CO<sub>2</sub> follows a declining logarithmic function, such that a doubling of the CO<sub>2</sub> concentration in the atmosphere from the pre industrial level of 280 ppm to 560 ppm will result in an increase of radiation by only 1.5 %, i.e. 257 to 261 W/m<sup>2</sup>.

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<sup>1</sup> These notes are our interpretation of what the speakers said. The “end of page” notes are our own comments, we consider will illustrate and complement the speakers presentations.

<sup>2</sup> Ref. Svante Arrhenius “On the Influence of Carbonic Acid in the Air upon the Temperature of the Ground” Philosophical Magazine 41, 237-276, year 1896).

According to Tom Segalstad<sup>3</sup>, the proportion of CO<sub>2</sub> molecules in the atmosphere from fossil fuel and biomass burning is only 4 %<sup>4</sup>. This has been proved by analysing the relative proportions of carbon 12 and carbon 13 i.e. the delta C<sub>13</sub> / C<sub>12</sub> isotope ratio. The human addition (anthropogenic) of CO<sub>2</sub> is actually about 8 GtonC per year. The total atmospheric CO<sub>2</sub> is about 750 GtonC. The biomass absorbs 121 Gton and the Oceans absorb 92 Gton per year which means that 28 % of all CO<sub>2</sub> in the atmosphere is exchanged or absorbed by the oceans and biomass each year<sup>5</sup>.

## 2. The climate effects of Ocean currents.

The ocean temperature varies, and correlates well with solar activity, sunspot numbers and length of solar cycles. Out gassing of CO<sub>2</sub> takes place at the equator ( $\pm 18^\circ$  latitudes) and uptake of CO<sub>2</sub> at the higher latitudes of the oceans; warm water releases and cold water absorbs CO<sub>2</sub>. Measurements of the atmosphere at Mauna Loa (near Hawaii) show that since 1980 CO<sub>2</sub> has risen from 330 ppm in a straight line to 385 ppm in January 2008 correlating with a sea temperature rise of 0.35 °C.

The oceans, 70 % of Earth surface, are the major recipients of solar energy; and store much more heat than the atmosphere. Other sources of heat are under water volcanic activities.

Ocean currents, of warm and cold water such as El Nino (ENSO, El Nino Southern Oscillation), leads to warming and La Nina, leads to cooling, have a short term global impact on Earth climate and CO<sub>2</sub> in the atmosphere ( 1-2 years). There are also ocean currents with longer return periods s.a.

    PDO (Pacific Decadal Oscillation)

    IOD (Indian Ocean Dipole)

    AMO (Atlantic Multidecadal Oscillation)

    Gulf Stream-North Atlantic

    Etc...

The PDO has an average cycle of about 60 years ( 30 positive years and 30 negative years). It was negative (colder weather) between 1880 and 1910, then positive, warmer weather between 1910 and 1940, again negative 1940 to 1977, and positive from 1977 to April 2008. Last year, in 2008, NASA confirmed that PDO had effectively reversed. This could forecast a 30 year cold period. There is a generally a good correlation between PDO indexes and global temperatures.

## 3. What makes the Ocean currents change direction?

<sup>3</sup> and recently confirmed again by Tom Quirk

<sup>4</sup> 4 % instead of the 30 % stated in IPCC reports or in the media

<sup>5</sup> the concept that the earth and atmosphere constitute a "greenhouse" is misleading. Take the example of a car, exposed to the sun. Visible and some UV light penetrate into the car through the windows. The floor of the car heats up and emits IR waves. This IR radiation heats up the air inside the car which is trapped, because it cannot penetrate through glass and may heat up the car to 50-70°C (normal glass traps IR radiation). The earth and atmosphere are not closed as cars or greenhouses and convection and conduction transfer IR energy. H<sub>2</sub>O and CO<sub>2</sub> molecules absorb some of the IR energy and radiate it towards outer space, unlike in the car where the heat stays trapped. These molecules can be seen as retardants of heat transfer to space (Ref. to German Physicists G. Gerlich and R.D. Tscheuschner "Falsification of the Atmospheric CO<sub>2</sub> Greenhouse effects within the frame of physics". Sept 9, 2007, and also Miklos Zagoni's presentation at the Heartland Institute based on the article by Ferenc M. Miskolczi also published in the "Quarterly Journal of the Hungarian Meteorological Service Vol 111, N°&, jan-March 2007).

Dr. Goldberg suggests a recent theory that the ocean currents could be affected by variations of Earth's rotation rate (ref d'Arrigo et al 2001). The ocean currents show a high correlation with earth's rotation rate (length of day, LOD) and reversals in the PDO current.

#### 4. Is the arctic and antarctic ice melting?

Yes and no. Dr. Goldberg showed a slide that was alarming: "icebergs are melting, there are hardly any more, a radical change in the climate, there is scarcely any ice as far as 81 degrees 29 minutes", etc but that announcement came from US Weather Bureau 1922...

More southern westerlies have recent years caused the collapse of Antarctic's Larsen B Ice shelves. Warm sea currents from the PDO and Gulfs Stream have also melted ice at Greenland and the Arctic Ocean.

However in the cold winter 2007/2008 record sea ice extents were observed at both poles (ref. Univ. of Alabama), and the cold trend seems to continue this year.

#### 5. Solar cycles and 6. Climate effect of Solar activity.

There are different sunspot and magnetic activity cycles; they seem to be multiples of the 11 years solar cycle. The sun controls our climate through its solar wind that controls the amount of galactic cosmic radiation, which creates more or less clouds. More clouds cause cooling of the earth and vice versa.

#### Conclusion :

Besides the anthropogenic CO<sub>2</sub> theory there are several natural phenomena that can explain the warming we saw between 1979 and 1998. The question that remains is essentially how much can be blamed on the anthropogenic CO<sub>2</sub> and how much on natural phenomena? Dr. Goldberg, just as a growing number of scientists, is convinced most of the warming is natural.

#### References

If you would like to know more about these arguments and the most recent research, we suggest you consult the presentations made this year at the Heartland Institute.

You can download these from:

<http://www.heartland.org/events/NewYork09/proceedings.html>

see especially :

- Tom Segalstad: where you will find information about the isotope measurements, CO<sub>2</sub> measurements in ocean water and acidification (chemical)
- Craig Idso: Carbon dioxide, Global warming and Coral Reefs (biological)
- Fred Goldberg: Do the planets and the sun Control our Climate and the CO<sub>2</sub> in the Ocean (you will find most of his viewgraphs)
- Don Easterbrook: "Global warming is over" (geologist)

Finally, in December 2008, NOAA, the US National Oceanic and Atmospheric Administration, has issued their Synthesis and Assessment Product : "*Reanalysis of Historical Climate Data for key Atmospheric Features : Implications for Attributions of Causes of Observed Change*" aimed at providing current assessments of climate change science to inform public debate, policy (made for the US Congress) and operational decisions. This report concludes "*Reanalysis of data play an important role in assessing the ability of climate models to simulate the average climate and its variations. The data also help in identifying deficiencies in representations of physical*

*processes that produce climate model errors ...advances of new methods are necessary to develop integrated Earth system models and analysis systems that include key climate elements for decision support that were not contained in initial atmospheric reanalysis, such as carbon cycle, aerosols and other important atmospheric constituents". The human effect on the climate has been judged less important as many other factors have been judged more important than previously. Further analysis of new data and re-analysis of old data are required".*

**So the debate is officially open again, at least in the US!**

**Dr ir. Samuele Furfari, "Geopolitical Energy Policy and Energy Supply Security"<sup>6</sup> (personal opinions).**

Europe's energy story in a nutshell:

Our development in the late 19<sup>th</sup> and in the 20<sup>th</sup> century took place thanks to engineers who started to transform oil into energy. In Europe each individual uses on average, an amount of energy equivalent to the work done by 100 slaves! In the 1970's we had our first big oil crisis. Why? Petroleum had become a political weapon. We panicked. Europe started the Sundays without car. It is at that time that we started investing in wind, solar and biomass power<sup>7</sup>. We started to invest in gas pipelines and terminals and several European countries invested in nuclear. This resulted in a 10 % reduction of the emission of CO<sub>2</sub> for the EU-15 countries between 1980 and 1985.

But then the Chernobyl catastrophe, caused by wrong design, mal-operation or rather sabotage, happened on the 26<sup>th</sup> of April 1986, and the nuclear energy was banned in many countries, with moratoriums on nuclear energy.

The Lisbon strategy of the year 2000 "*aimed at making the European Union the most dynamic, competitive knowledge based economy in the world, capable of sustainable economic growth, with more and better jobs, and greater social cohesion and respect for the environment by 2010*".

However to produce economic growth, energy is needed. No "work" without "energy", this is a fundamental principal of thermodynamics.

Therefore, the Kyoto protocol and the EU 20/20/20 directive are in fact incompatible with the Lisbon strategy goals. But worse, Kiev controls the supply line of 80% of the gas from Russia to Europe. Russia and Ukraine stopped supply of gas to Eastern Europe in 2006 and again in 2009, causing similar panic as in 1973.

What does Europe do, responding to Kiev? In 2006, Europe reacts in panic taking no united EU action like in the 1970's, but in 2009, EU started to speak with one voice.

The EU action on Climate Change (Kyoto and the 20/20/20 directives) must support 3 objectives:

- reduce atmospheric greenhouse gases (GHG) by 20 % (rather incompatible with maintaining economic growth according to the Lisbon strategy).
- increase renewable energy by 20%

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<sup>6</sup> Here Samuel Furfari gives his own opinion and does not talk in name of his employer, the EU, but rather as Professor of Geopolitics of energy at the Free University of Brussels.

<sup>7</sup> Remark: we also started insulating houses, but by limiting ventilation, dry rot (*serpula lacrymans*) and mildew destroyed the buildings. We experienced this personally!

- and improve energy efficiency by 20 %,

Europe must agree on a united European energy policy to ensure energy supply routes, a Southern gas corridor via Turkey, a Mediterranean energy ring, Baltic Interconnection Plan, LNG terminals, north/south electricity and gas interconnections, etc.

The EU energy situation is vulnerable: the goal of reaching 20 % renewable energy by 2020 seems difficult to reach. We are trying since 1973! But the other 80 % (or 86 % if we start from 2005) is even more important to secure. Media and some politicians have made people believe that it all can be done with renewables. Now we have to convince them of accepting nuclear power plants and traditional ones based on coal, the black devil! Dr. Furfari showed many countries have decided to build nuclear power plants lifting earlier moratorium on nuclear.

It is clear that the most economic and also non-carbon energy sources are nuclear and hydro power. However, to sustain an economic growth in EU, energy sources must, for now, also include coal, oil and gas i.e. for transportation and other needs. For the energy supply we urgently need a European roadmap, now and towards 2050, an energy policy consistent with the Lisbon strategy goals of sustainable economic growth compatible with respect for the environment.

The population on earth will grow from present 6,7 to 9 billion people in 2050. These people will want to enjoy the same standard of living as we have now in the west. Any attempt to slow down growth of the western economies will have damaging consequences for the whole world. The growing population will demand more food, energy, oil and water that cannot be met, leading to hunger and social unrest<sup>8</sup>.

The renewable energy sources presently include biomass, biofuel, biogas, wind and solar power which are all to be evaluated regarding their economy and cost of abatement Euro/tCO<sub>2e</sub><sup>9</sup>. It may be seen as remarkable that the most promising source of renewable energy is producing heat from biomass and particularly incineration of waste. But there again, by using the wrong technology in the eighties (too low residence time and temperature), we produced dioxins which were banned since the Seveso incident in Italy in 1976. Now we do have a good technology: incinerators produce less dioxins and even destroy them, but it is difficult to get permits for the installations because of the NIMBY syndrome. Also let us not forget that biomass is not new: it is the predominant energy source of the developing countries where it creates air pollution and unhealthy conditions in the houses causing many pulmonary diseases and deaths.

Far the most efficient and less costly way to decrease CO<sub>2</sub> emissions<sup>9</sup> is energy conservation. Opportunities are to be found in insulation improvements, fuel efficient vehicles, lighting systems, cogeneration etc. The EU is active with an energy efficiency action plan, and various directives like the building directive, cogeneration directive and the ecodesign directive that is prohibiting inefficient electrical equipments to be sold in the EU.

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<sup>8</sup> and will be exacerbated by global cooling, if this now is at our doorsteps.

<sup>9</sup> Ref McKinsey & Company, Pathways to a Low-Carbon Economy dated 2009

Dr Furfari compared the idea that we easily would be able to get all our energy from renewable energy sources as an attempt to reinvent the Perpetuum Mobile (Perpetual motion). This refers to any closed system that produces more energy than it consumes. Such a device is in violation of the law of conservation of energy, which states that energy can never be created or destroyed (first law of thermodynamics).

We will be dependent on oil for transportation for many years in the future. That is not a problem as oil reserves will be discovered or exploited in function of demand. The price of a natural reserve is determined in function of demand. No demand, no value for the reserve (the situation we had before engineers transformed oil into energy). We also have coal. Coal has a bad name because of air pollution in the 19<sup>th</sup> century, for example in London, or now, the brown haze in China. But a modern pulverized coal power plant equipped with proper air pollution abatement systems (to remove sulphur components and carbon black) is a cheap and good environmental solution.

Oil reserves are not, as we may think, owned by the big oil companies but, for more than 90 %, by nations which are all more or less nationalist or even dictatorships. This can easily lead us towards a situation, created for political reasons, where our basic needs are not fulfilled anymore.

Renewable technology is interesting in some places, example sun-energy for water heating could be more exploited in the southern European countries (but it is Germany who leads this market). However one might wonder if it is a good thing to invest at all in “non-sustainable” renewables like wind and solar power.

Dr. Furfari also presented a resolution from the Italian Senate which, 2nd of April, that asks the Italian Government to defend the idea in the EU that there is no scientific unanimity on anthropologic climate change and therefore EU should review the current energy and climate policy.<sup>10</sup>

#### Conclusion:

Member states of the EU do not have coherent energy and economic policies. This makes Europeans believe that we can have a carbon free world without giving up our own living standard and that the Kyoto agreement would be all benefit for the developing countries<sup>11</sup>.

Up to 2008 Europe concentrated all communications on the 20 % renewables but now insist on the security of the supply of the 80 % basic energy that will have to be produced by traditional means (nuclear, oil, gas and coal).

Europe's energy dependence makes Europe vulnerable and dependent of the political games of other countries. If, together with a scarcity created for political reasons, we also have to cope with a 30 year cooling period as forecasted by many scientists, it will be no fun, especially for the socially more vulnerable.

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<sup>10</sup> <http://www.senato.it/service/PDF/PDFServer/BGT/410174.pdf>

<sup>11</sup> The costs of Kyoto or follow-up of Kyoto, are enormous, easily around 1 to 2% of GDP, and will hurt the poor and the developing world the most.

Dr. Furfari ended his presentation by saying that development will not stop because of lack of resources. Rather, it will simply change direction as technology delivers new methods and new opportunities arise.

For the energy supply we urgently need a European roadmap, now and towards 2050, an energy policy consistent with the Lisbon strategy goals of sustainable economic growth compatible with respect for the environment.

No catastrophe or apocalypse ahead. Men are the real resource!

### References

“101 questions sur l’énergie”, Samuele Furfari, Editions Technip, 2009.

Le Monde et L’Energie – Enjeux géopolitiques, Samuele Furfari, Editions Technip, 2007

### **Questions and debate**

There are two main group of questions:

#### 1. Scientific procedures, economic and political interests

*Marcel Van Beylen, to both speakers:* What is the reason why the politicians and some scientists do not want to hear the arguments against the popular beliefs of climate, CO<sub>2</sub> and refuse to listen to the arguments of people who know? (Where is the money?)

*Jean-Pierre Vanbergen to S. Furfari :* Intérêts politiques et économiques ? A qui rapporte le crime?

*Jean-Marc Sparenberg to Fred Goldberg:* How did IPCC (GIEC) come to forget scientific procedures/debates?

*Georges Severne to both speakers:* the practical problems for climate change and for renewable energy, seems to me essentially to be their financial implication. Indeed it is surely not a bad thing:

- to reduce the production of CO<sub>2</sub>
- to reduce the consumption of petrol

These positive aspects go a long way to explain their success.

Answer:

The reason why some scientists do not want to hear the arguments against the popular beliefs of CO<sub>2</sub> is most probably coupled to money and grants for research.

Researchers who have expressed their doubts have seen their research budgets cut off and some have even been threatened. Funds spent for climate research have become enormous (50 billion dollars).

IPCC is under the auspice of the “Intergovernmental” panel and the summaries are drafted with the intervention of politicians and officials, e.g. by the Environment Ministers. The “lead” authors or authors of the “Summary for Policy Makers” prepared their summary together with the politicians. They probably came to forget scientific procedures and debates because they had been given a political mandate to “prove” that global warming was anthropogenic. Everything that was pointing in

another direction was excluded, as it had nothing to do with the mandate received from the United Nations. The message needed to be clear and unequivocal<sup>12 and 13</sup>.

The Greenhouse theory fits well with the popular ideology of the green parties, the Gaia theory and attracts money to the NGO's. It is a blow to the "capitalist" economic theories, which had become predominant after the fall of the Berlin Wall, and are condemned as a form of "Pensée Unique". It also supports the anti-globalist groups.

Yes it is true that reducing the production of CO<sub>2</sub> and reduction of petroleum consumption is, per se, not a bad thing, and that is probably why many, although they do not necessarily believe in the greenhouse theory, support it ("la fin justifie les moyens", Machiavelli) but this can lead to costly wrong decisions and people have not yet understood the cost implications and the consequences of these, such as job losses.

## 2. Scientific background on global warming

*Thomas Claessens to Fred Goldberg:* I would like to return to your graph on the variation of CO<sub>2</sub> over geological times (650000 years). What about the CO<sub>2</sub> concentration in the atmosphere being higher to day than it has ever been over geological times?

(Thomas refers to a graph showing Antarctic Ice Core data together with temperature where you can see that the max CO<sub>2</sub> concentration, measured in air bubbles imprisoned in the ice, during previous warm periods never exceeded around 280 ppm while the present CO<sub>2</sub> concentration is 380 ppm).

Fred Goldberg answers that air bubbles give a 100 years average value, because of ice melting and diffusion of CO<sub>2</sub>. So we really cannot compare the modern CO<sub>2</sub> measurements with the ice core data. The trends of the geological data are certainly right but the absolute values probably not and need to be considered with care. There are indications that the entire CO<sub>2</sub> content curves from the ice cores should give higher values. At less than 200 ppm CO<sub>2</sub> life can not be sustained anymore.

*Thomas* further asked questions about ocean acidification: if more CO<sub>2</sub> is absorbed in the oceans then the oceans will acidify. This acidification could have a huge impact on biological life and biodiversity. Fred answered that, according to chemists (and geologists) the oceans are not acidifying. The term acidifying is not correct as the oceans are alkaline, but could only become a little less alkaline. The ocean pH varies between 7.8 and 8.2 due to differences in salinity, temperature, mineral composition and bio-activity. Carbonate/ bicarbonate buffers the pH, but there are also other complicated buffer reactions with silicate and kaolinite which keep the pH constant.

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<sup>12</sup> The IPCC report is not a pure scientific report. It is a kind of editing of research with a political message. The base texts and summaries made up by the scientists have been changed and adapted to correspond to the message that the politicians agreed upon in the first place. This procedure created anger with several scientists who left the IPCC as a result of this. Similarly the peer review system did not work properly as in normal scientific reports, because it was politically driven.

<sup>13</sup> Finally there are a lot of economical personal interests involved e.g. Emission Trade Scheme, ETS or Carbon Trade, which attracts a lot of money, cfr Al Gore's "Generation Investment Fund". See also the Report on Climate Change sent around to the banks by Lehman Brothers. Private business also benefits such as the Power Companies in Germany who made a lot of money on the ETS scheme, and the wind power and solar lobbying companies. Also it is the best marketing tip we ever had!

*Nathan* then continued on biodiversity and the damage to coral reefs. Fred answered that according to biologists (e.g. Craig Idso<sup>14</sup> or Tomas Cedhagen, Denmark), damage to coral reefs has more to do with pollution<sup>15</sup> and temperature, high and low, than with ocean acidification. Anne answered there is no definite answer yet (and there will be no clear answers for many years): the oceans are far more complicated than the atmosphere and we still do not understand much of the mechanisms in the oceans. “Ocean biogeochemical dynamics” is a relatively new field<sup>16</sup>.

*Anne-Liv* asked a question about how to know what is right and wrong: one says this and the other one says the reverse. Anne answered that this is the way science progresses. A theory is put forward<sup>17</sup>, someone finds some proofs for it, then somebody else refutes the proofs, then the theory is adjusted, proofed, refuted until it is not refuted by experiments or facts anymore. That is the normal debate in the scientific world.

*Nathalie* wanted to know more about the solubility curve of CO<sub>2</sub> showed by Fred. The curve he showed is how CO<sub>2</sub> solubility in pure water varies with temperature. Solubility in seawater is completely different as seawater contains many different salts and minerals and is subject to biological activity s.a. phytoplankton, which absorbs CO<sub>2</sub>.

*Tino Vanini* said that Exxon, do not deny Global Warming due to CO<sub>2</sub>. They give a lot of money to the Stanford University to support research on Global Warming, but stick to their primary business of oil and gas<sup>18</sup>.

### **Dr Corentin de Salle concluded the session.**

Dr Corentin de Salle summarised the evening: “Beware of a direct line to decision makers, without democratic debate” (ligne directe entre “être” et “devoir être”)<sup>19</sup>. This leads to technocracies. Democratic debates are necessary: without debate there is no democracy. We need to have democratic debates and evaluation of consequences of new technology and its implementation or applications of new ideas. Refer to the catastrophic effects of palm oil fuel from Indonesia and bio-ethanol from corn etc. because consequences were not evaluated. The same applies to the decision to forbid DDT, to prevent environmental and health effects. This decision, well intended as a

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<sup>14</sup> See Center for the study of Carbon Dioxide and Global Change , [www.co2science.org](http://www.co2science.org) and [www.scienceandpublicpolicy.org](http://www.scienceandpublicpolicy.org)

<sup>15</sup> Anne has read an article that the bleaching of coral reefs in tourist areas had to do with pollution due to sun protection creams, true!

<sup>16</sup> See “Ocean Acidification : the other CO<sub>2</sub> problem” by Scott C. Doney et al., see also Gruber, Sarmiento

<sup>17</sup> And the more the theory predicts a coming catastrophe, the easier it will be to get money to study it.

<sup>18</sup> A recent article in the International Herald Tribune, dated April 8<sup>th</sup>, “ Big Oil reverses gears on renewable energy goals” describes that all the big oil companies, Exxon Mobil, BP, Shell and Chevron now abandon renewables with the exception of some 2<sup>nd</sup> generation biofuels, from non-food crops in case of BP and Shell, while Exxon is working on long-term programs to improve fuel economy and reduce emissions.

<sup>19</sup> Like the “Summary for Policy Makers” of the IPCC reports, ordered by the politicians and prepared by scientists with a political agenda.

precaution, actually still results in millions of additional deaths<sup>20</sup> per year, in Africa particularly<sup>21</sup>.

The climate is a complex phenomenon. Climate research and debate cannot be closed as claimed by IPCC<sup>22</sup>. Open debate is the lifeline of science as proved by Galileo, Newton and Einstein<sup>23</sup>.

Corentin de Salle went on comparing the actual “écologisme” (he insisted on the “-isme” where he refers to an ideology as opposed to ecology, which is a science) with the antique Greek representation of the Cosmos (limited to the earth and the stars on the ceiling). He compared it to the myth of Icarus, who, with his father, tried to escape from the labyrinth of King Minos, with the help of wings out of wax and feathers, but which melted as he came too close to the sun and fell in the sea<sup>24</sup>. This kind of ideology is found in many old philosophies and religions. It is also the basic theory of “*The Limits to Growth*”, a 1972 book modeling the consequences of a rapidly growing world population and finite resource supplies, commissioned by the Club of Rome and based on a world in equilibrium<sup>25</sup>.

The “Cosmologic or Ptolemaic model” was abandoned in the 16<sup>th</sup> century with the “Copernic revolution”, placing the sun at the centre of the solar system. Copernicus paved the way for the relativity theory of Einstein.

The modern concept of cosmology or relativity includes the concept of infinity: a particle sent into a frictionless space will continue on its track until infinity, or there are a number of infinite points on a line between two points... Space is considered infinite; the number of planets is about infinite (so we do not have to bother about consuming more than one earth...). This is a very optimistic vision of the world which tends to tell us resources are infinite and mankind is creative, and will find new ways, compared to a pessimistic vision of limited resources<sup>26</sup>.

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<sup>20</sup> The increase of malaria deaths is estimated at 3000000 per year. Help from international organizations was conditioned to not using DDT. This decision has recently been revoked.

<sup>21</sup> The same applies to the idea that we have to take precautionary steps to prevent global warming, although there is no scientific proof that humans influence the climate (for the moment there are theories and models based on theories but no real scientific proof)

<sup>22</sup> Al Gore, James Hansen, Susan Solomon, Jean-Pascal Van Ypersele....

<sup>23</sup> Attempts to stop research have been made, as when Galileo was put in house arrest by the Pope Paul V and later harassed by Pope Urban VIII, earlier his patron and support. Galileo narrowly escaped the fate of being burnt at the stake, because he claimed that the sun and not the earth is at the centre of our planet system. We should not return to the dark ages, but keep open minds to evaluate and discuss new research. We should be ready to adapt ourselves to any changes in the climate, not attempt to try to change the climate. The latter would be as Don Quichotte, fighting windmills

<sup>24</sup> This kind of ideology is also to be found in many religions: “don’t try to escape your faith. You are bound to live your life on earth as designed by the superior. Later on, after your death, you will be rewarded one way or another for that” if we may summarize with our own words.

<sup>25</sup> We can also present this as the ancient Gaia theory, mother earth in balance and man destroying this balance opposed to a “dynamic earth”, like the weather systems in constant evolution to something else; a drive to maintain balance versus a drive to adapt.

<sup>26</sup> Or as we discussed it during a break, the “precautionary principle”, where no risks can be taken, because you don’t know, is opposed to our engineering approach of “living with risk” where you assess and evaluate the risk you want to take. If you follow the “precautionary principle” you could never take a plane or drive a car or invent a new vaccine!

This is inline with the idea of Dr. Furfari, that resources have only a value because a use has been found for these resources. Example : more oil can be found or be extracted from tar sands, when time is ready, meaning when the price we are willing to pay for it is sufficient to pay for the extraction. New energy resources will be found, such as 4<sup>th</sup> generation nuclear plants, fusion technology, coal gasification or liquefaction... when the need for it appears. Man will find a solution, no reason to panic about shrinking resources.

The danger Corentin said, with this type of restrictions like the myth of the limited cosmos or the “precautionary” principle, is that new developments, inventions, are hampered.

Also by saying some catastrophe will happen, you might create the conditions so that it indeed happens: ex. Oedipus was sent away because there was a prophecy that he would kill his father and marry his mother. As Oedipus, when he came back, could neither recognize his father nor his mother, the prophecy was finally fulfilled. To adapt this to the theme of the evening: the prophecy put forward by IPCC, that humans cause Global Warming, scares politicians and people into taking the wrong actions. Blaming fossil fuels for causing a climatic catastrophe has promoted wasteful investments in uneconomic renewable energy. By putting too much emphasis on non-economic renewable energy, we might end up without sufficient food and energy, especially if we get trapped by a long cooling period. That would really be bad for mankind (children and grand-children, future generations).

The “Green” theories can be put in the first category, the Cosmologic or Ptolemaic model.

What Corentin de Salle especially regrets is the fact that there is actually only one “political correct” vision. There is no place anymore for the optimistic philosophy. Even worse, “non believers”, of the greenhouse gas theory, are qualified as revisionist and according to some<sup>27</sup> should even be put in jail!

It is only through open democratic debate, that we will be able to progress.

He is a proponent of freethinking, “Libre Examen”, as a base for progress and innovation with respect for the humans and the earth. “Believe in Man, don’t cut his wings” is his main message.

Rhode St Genèse 16 April 2009  
ir Anne Debeil and ir. Lars Myrén

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<sup>27</sup> Ref James Hansen