SCIENCE BEHIND
THE WORLD CLIMATE
DECLARATION

GLOBAL CLIMATE INTELLIGENCE GROUP

DECEMBER 1, 2019

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The Earth's climate system is so elaborate and so complex that we not only don't know what we know, but that we also don't know what we ought to know.
Therefore, today's mainstream climate model makers use only a tiny part of the required knowledge and a fraction of the required data.
The message is that these climate modelers should show a lot more modesty in their claims.

Science behind the
World Climate Declaration

A high-level global group of more than 700 prominent climate scientists and professionals ('Global CLINTEL Group') has submitted a declaration that there is no climate emergency.

The Group's Declaration warns global leaders that "the general-circulation models of climate on which international policy is at present founded are unfit for their purpose".
The Declaration adds that the models, which have predicted far more warming than they should, "are not remotely plausible as policy tools", in that "they ..... exaggerate the effect of greenhouse gases such as CO_2" and " ..... ignore the fact that enriching the atmosphere with CO_2 is beneficial". It is strongly advised "to replace current mitigation policy by adaptation measures". Adaptation works, whatever the causes are.

The Group has sent the Declaration with a registered letter to António Guterres, Secretary-General of the United Nations as well as to Ursula von der Leyen, President of the European Union. This action has received an overwhelming response from all over the world.

In the following the science behind the Declaration is summarized. The gap between the real world and the modeled world tells us that we are far from understanding climate change. The science is far from settled.

MISPLACED BELIEF IN CLIMATE MODELS

The Earth's Climate System (ECS) represents multiple phenomena that interact with each other in complex ways. These phenomena are the responses of external and internal driving forces. The short-term variability represents daily weather, also referred to as *process* changes. The long-term variability represents changes in the climate, also referred to as *system* changes. They are evolutionary changes.

Over short periods climate change may be very difficult to detect and the observed deviations are merely changes in the weather. Over long periods, the variations in the weather need be averaged out, exposing changes in the climate.

Hence to accurately represent climate change, climate models must be able to simulate in a bias-free and aliasing-free[1] way the averaged-out weather over large observation windows, many decades at least. It is not surprising that long-term climate change and short-term weather changes are difficult to distinguish and therefore they are often inter-mixed. That is certainly true for the complex and unique ECS.

In the ECS we have insufficient knowledge of the driving forces, their interrelationships, as well as the system responses of those driving forces. These forces range from space (radiation) and inner earth (volcanism) to ocean oscillations and cloud forming. The substantial gaps in our knowledge should keep us humble about claiming climate certainties.

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1. In data science aliasing is a well-known mistake that occurs if incoming data is too coarsely sampled, generally to keep the data volume manageable. It leads to time functions that may be completely different from the real ones. The correct procedure is measuring finely sampled data first, followed by anti-aliasing filtering (smoothing). Modeled and observed climate data is full of aliasing.

WRONG INPUT, WRONG OUTPUT

Modeling output is not the result of magic: computer models are human-made. What comes out is fully dependent on what theoreticians and programmers have put in: hypotheses, assumptions, relationships, parameterizations, stability constraints, etc., most of it being undeclared.

To believe the outcome of a climate model is to believe what the model makers have put in. This is precisely the problem of today's climate discussion to which climate models are central. Climate science has degenerated into a discussion based on beliefs, not on sound self-critical science. It is common that the output of computer models are published as hard facts.

We see an interesting and relevant example in IPCC's report of 2018. If the CO_2 sensitivity is set to zero, the modeled global warming is zero. This means that: **"In IPCC's models the modelers have set the global warming from natural sources to zero".** This is completely ignoring the past, where warming was always natural. In other words, the modelers have explicitly assumed that any global warming must come exclusively from anthropogenic (human-made) CO_2.

We repeat: "The output of a model is completely dependent on what model makers have put in". If we take empirical science more seriously, CO_2 may turn out to be an insignificant control knob.
Already in the 2013 IPCC report it was noted in Section 9.2 that there had been a hiatus in global warming, despite a significant rise in global carbon dioxide concentration. Read also the work of professor Francois Gervais and and listen also to Dr. Judith Curry's informative US Senate testimony, indicating the modest effect of CO_2 with respect to natural causes.

TUNING IS NOT VALIDATION

The history of science tells us that the only way to discern the *validity* of a model is to compare the model-driven simulations with real world measurements ('model validation'). If there is a material gap between simulations and measurements the model is immature and more work is needed. If the gap is very large it is advisable to start all over again.

During the validation process, we can tune the models' parameters (turn the knobs of the model) so that model simulations agree with the recorded measurements. This tuning however, is not validation. It is model fitting. It is only one of the numerical steps in the total validation process.
With enough model parameters and a relatively small observation window a fitting exercise is always successful.

Successful fitting is the argument climate modelers always use to claim that they are right. However again, model fitting is not validation! For instance, if we extend the observation window – necessary for analyzing long-term system changes rather than short-term process changes – then immature models fail due to physical and numerical errors. Note here the essential distinction between *physical accuracy* and *calculation precision*.
Quoting John Maynard Keynes (1883–1946): **"Better to be approximately right than precisely wrong."**

The ultimate validity test we can do is to evaluate the *prediction* capability. For underdeveloped models, large differences between the predicted future and the actual future will occur. Scientifically, this difference is an indispensable source of knowledge: it contains the information to update the prevailing insights and to improve the model ('learning process'). On the other hand, the practical consequence of a substantial prediction gap is that the model is not ready for policy use and should NOT be relied upon for setting long-term climate or energy policies.

Modeling is most valuable in exploring new concepts and ideas, particularly by using today's powerful computers. But believing the predictions without thorough validation is misleading and can result in irresponsible policies. In that respect, note that a true scientist is driven by curiosity. He/she continuously learns by analyzing the difference between modeled and real measurements. For validation purposes a competent scientist changes the model; a pseudo-scientist changes the measurements.

CLIMATE MODELS ARE NOT FIT FOR THEIR PURPOSE

In climate science we want to detect, understand and predict system changes. Therefore, it is an absolute must to include the history of the Earth's climate. To be legitimate, climate models must be capable of accurately simulating this

history. If we understand the past, we are ready to explain the present. With this rich reservoir of knowledge it makes sense to then explore the future.

Reconstructions of the remote past – based on (ice) core data and confirmed by astrophysical, geological and archeological knowledge – show that the Earth has experienced glacial and interglacial periods. Even in more recent times (Figures 1b,c), the Medieval Warm Period (MWP) – around 850 AD – was warmer than today, while in the Little Ice Age (LIA) –around 1650 AD – the seasons were cooler than today. Hence, it is no surprise that after the LIA the Earth is warming-up again to a next kind of MWP (Figure 1d). That has been the natural sequence of warm – cold – warm periods.

More specifically, Figure 1a shows the temperature cycles of the past 450,000 years, Figure 1b shows the past 12,000 years, Figure 1c shows the past 1000 years and Figure 1d shows the past 150 years. The results are very consistent: temperatures have never been constant. On the contrary, the Earth's climate system is very dynamic with small and large cycles.

Looking at the history of the climate system, we cannot expect that the system is stationary today. We are in the middle of moving to another phase. Whatever we would do to fight against this change, the effect will likely to be marginal.
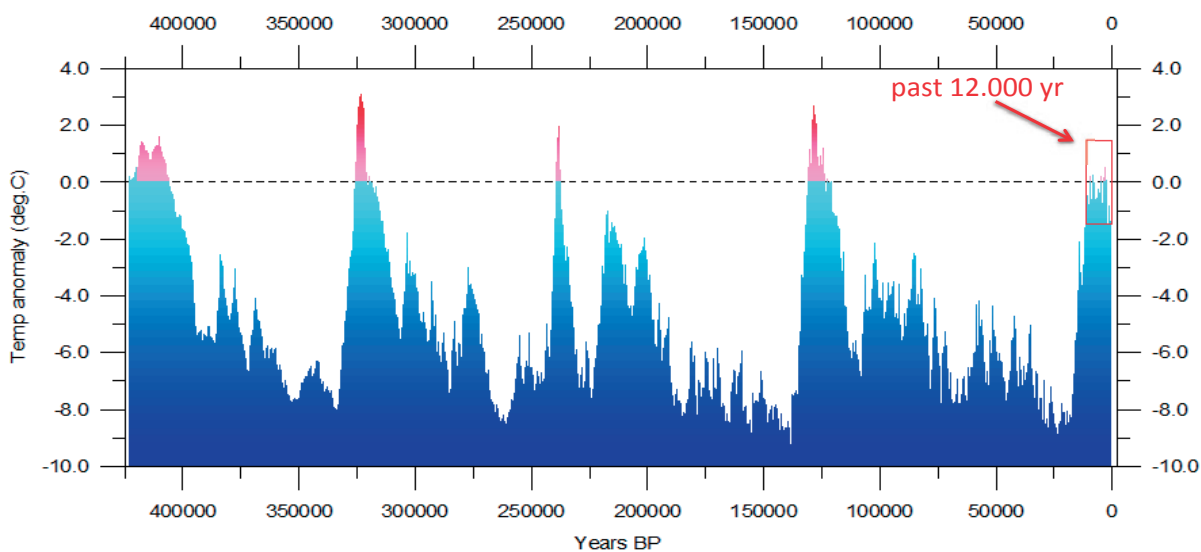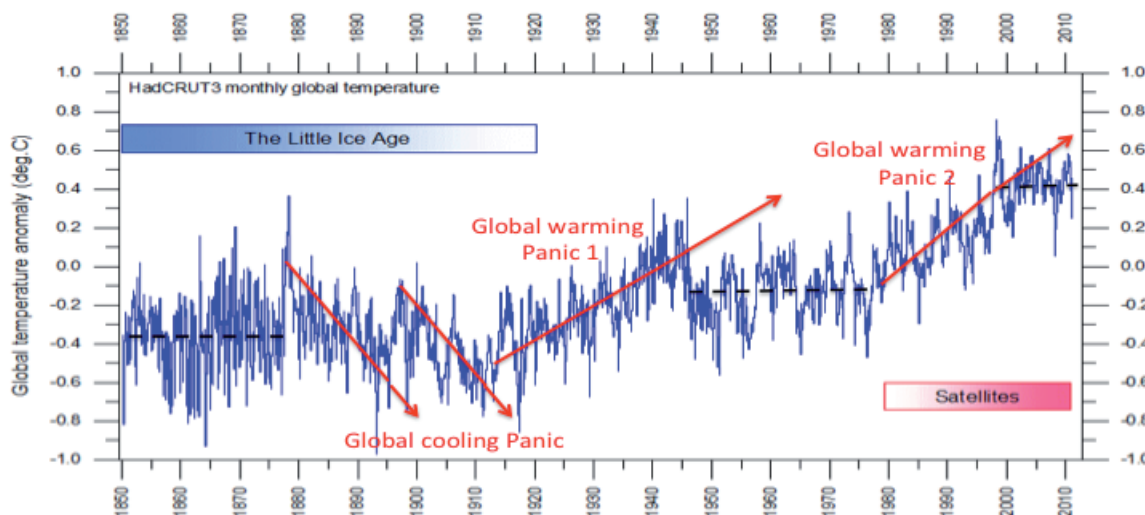

Figure 1a: A summary of the knowledge we have about the temperatures of the past 450,000 years. *The message is that the Earth's climate is a dynamic system with a natural sequence of cold and warm periods due to long-term system changes (climate) and short-term process changes (weather).*
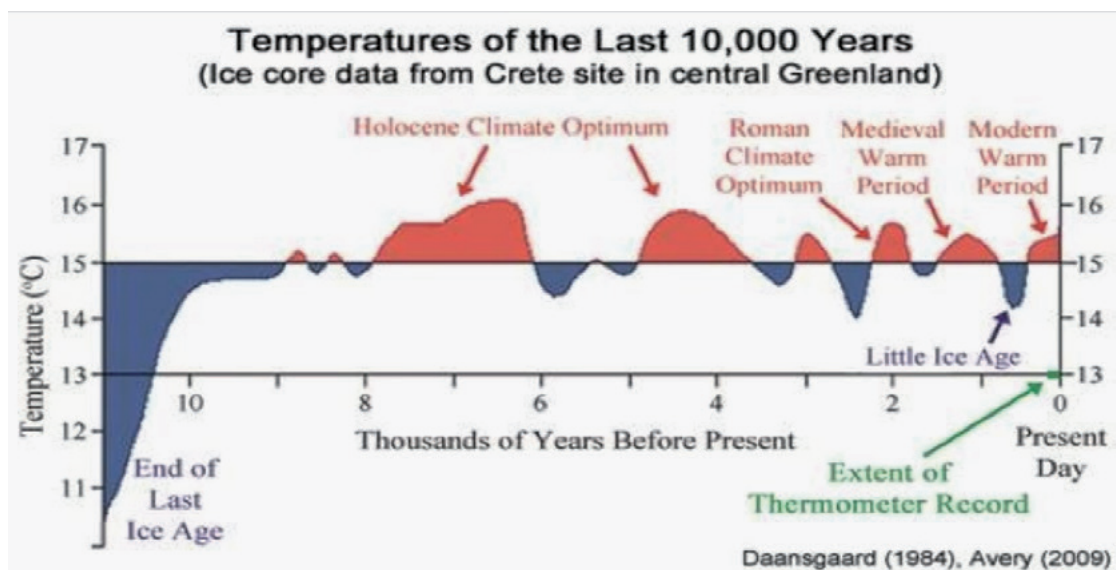
Figure 1b: A summary of the knowledge we have about the temperatures of the past 12,000 years. *Here we see again that warm and cold periods are natural phenomena. Note the very warm period at 6500 before present day (warmer than today).*
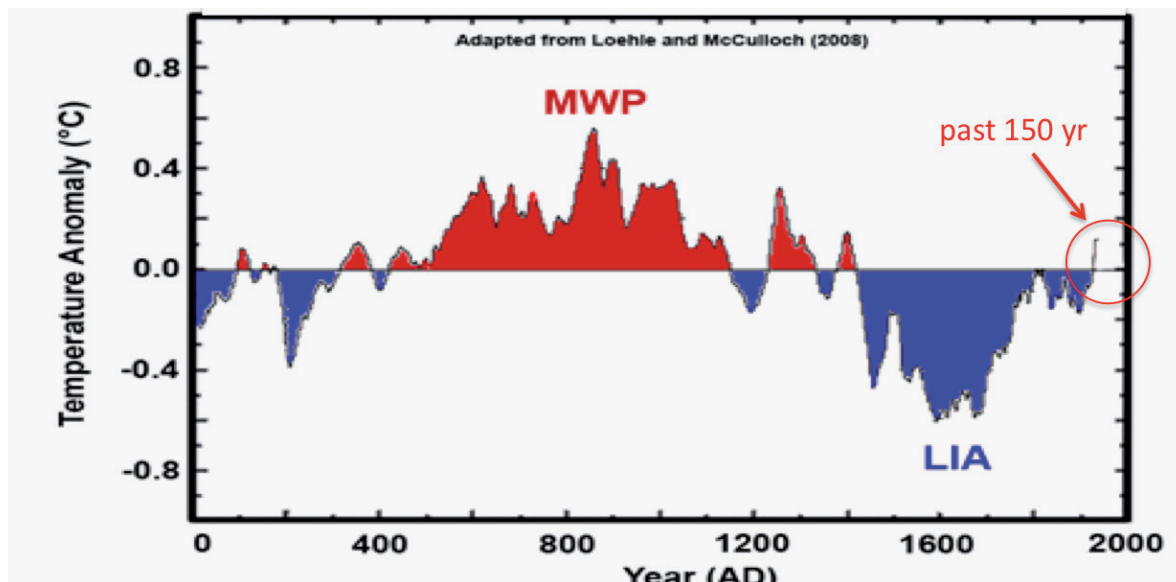
Figure 1c: A summary of the knowledge we have about the temperatures of the past 2000 years (Loehle, 2007). *Here we see again that warm and cold periods are natural phenomena. Note the MWP around 850 AD and the LIA around 1650 AD.*

Figure 1d: A summary of the knowledge we have about the temperatures of the past 150 years (HadCRUT data). *At this small scale, changes are a mixture of small system changes and relatively large process changes. These changes – presenting cooling and warming periods – caused in the media all sorts of panic stories.*

Note the very warm and very cold periods in Figure 1a; the cyclic long-term system changes –climate change – were entirely caused by *natural* phenomena. Figure 1b shows the smaller climate variations between the last glacial and today. Figure 1c shows the IPCC's temperature graph of the last 2000 years, Figure 1d of the last 165 years.

It is interesting that in the IPCC reports after the year 2000 the Medieval Warm Period and the Little Ice Age were smoothed out, showing the temperature of the past 2000 years in the shape of a hockey stick. In Figure 1d the short-term dynamics of largely weather is clearly visible.

Note the large difference in vertical scale between Figures 1a and 1d (a factor of 7). On the system scale of Figure 1a, a system change in Figure 1d would be hardly visible. Current alarming climate predictions, which ought to be predictions of a long-term system change, thus appear in a very dubious light.

Figure 2a shows that the influence of anthropogenic CO_2 emissions on global warming is very questionable. In the left graph the CO_2 emissions were small (about 10 ppm) but on the right graph they were much larger (about 70 ppm), as can be seen in Figure 2b. However, warming rates in the two records are similar. There is even a stable temperature period in between (1945-1975) and afterwards (2000-present).
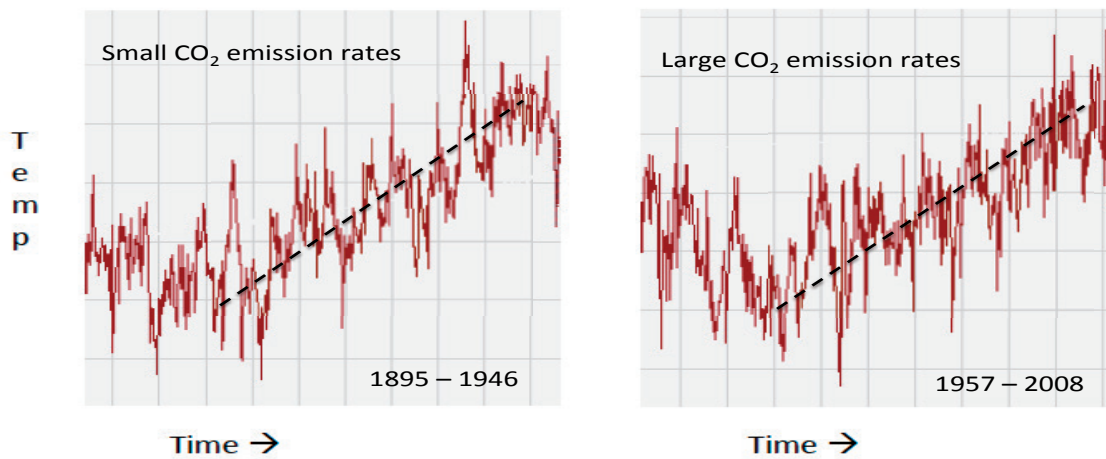
Figure 2a: A close up of the two warming-up periods in Figure 1d. *At the left-hand side the period 1895- 1946 and at the right-hand side the period 1957-2008 is shown. In the first period the CO_2 emission rates are minor with respect to the second period, but the warming rates (see dashed trend lines) are very similar.*

If we look at the past 100 years we see that the correlation between temperature and CO_2 concentration in the atmosphere is pretty poor. However, note that even if the correlation would have been strong, we must bear in mind that correlation and cause & effect are two fundamentally different concepts. For instance, there is a strong correlation between CO_2 increase and poverty decrease, but more CO_2 does not cause less poverty. It is not that simple.
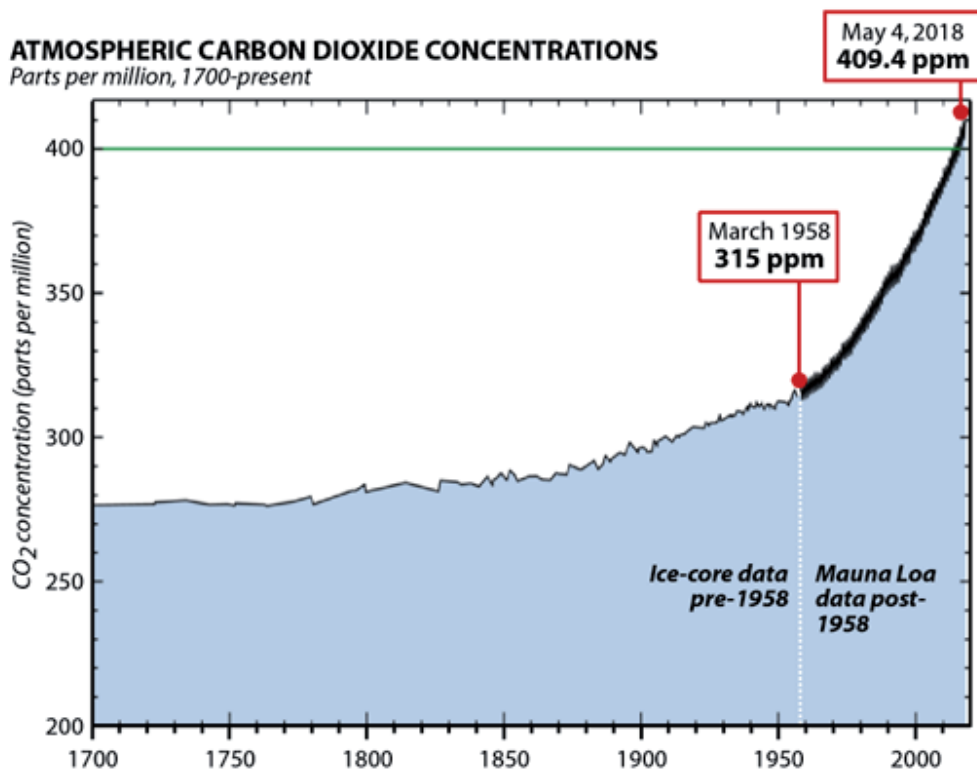
Figure 2b: After 1958 the CO₂ concentration in the atmosphere increased fast *(from about 315 ppm to 410 ppm), i.e. 1.5 ppm per year. Note that the vertical axis starts at 200 ppm and ends at 410 ppm.*

There is little doubt that the the increase of CO_2 concentration in the atmosphere is primarily anthropogenic. However, how much this anthropogenic CO_2 has contributed to the global warming (10%?, 50%, 90%?) is unknown. The statement that anthropogenic CO_2 is 'the principal cause' is not more than an assumption.
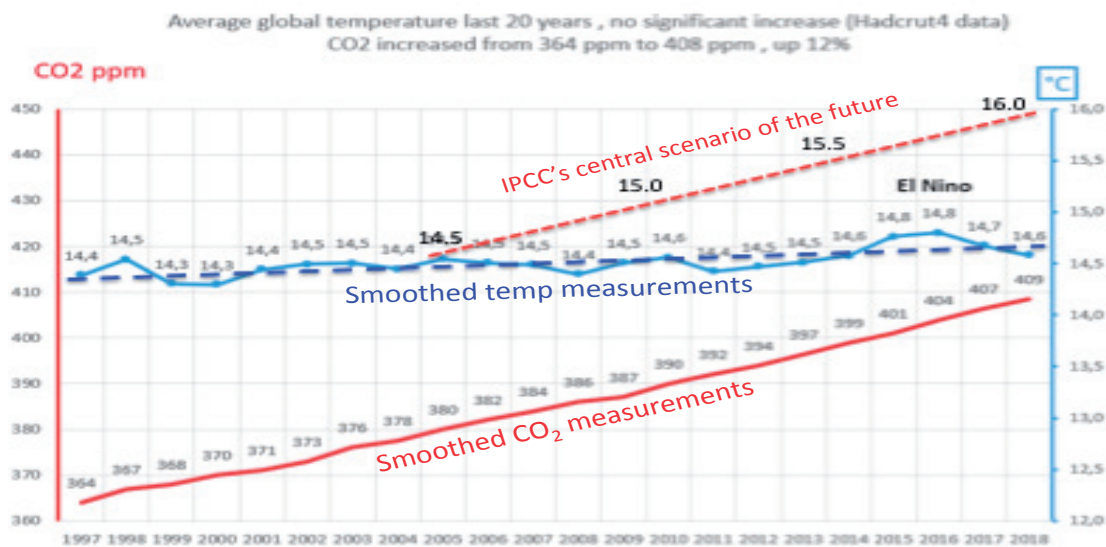
Figure 2c: A picture of the smoothed temperature and CO_2 measurements in the past 20 years. Note that the temperature increase is very small (about 0.1 °C), but the increase in the atmospheric CO_2 concentration is more than 40 ppm. Note also that the central scenario of the CO_2-driven model (see Figure 3) is very different from the measurements. Message: "There is no Climate Emergency".

A climate model that claims to represent climate change in a reliable way must be capable of explaining the sequences of warm and cold periods in the past as shown in Figures 1a and 1b. Only by extending the observation window can we study the system changes in the ECS (i.e. climate change). Mainstream climate models only focus on the minuscule period after 1950 AD. They peer through a keyhole at the climate system. How can we accurately differentiate in such a narrow observation window between process dynamics (weather) and system changes (climate)?

FORECASTING WITH IMMATURE MODELS

Hind casting (looking back) is necessary, but certainly not sufficient to ascertain model validity. Climate models are only of value for policymaking if they can reliably predict the future. However, so far models have consistently exaggerated future warming.

Figure 1d showed that if modelers use data in small windows, they get a sequence of false alarms. Figure 3 compares the Anthropogenic Global Warming (AGW) scenarios of the IPCC with real measurements. Note the very wide range of futures IPCC shows. Note also the large gap (+2° C in 2050) between the scenarios and extrapolation of the real measurements.

It means that what the model makers have put in the model is very biased to high temperatures.
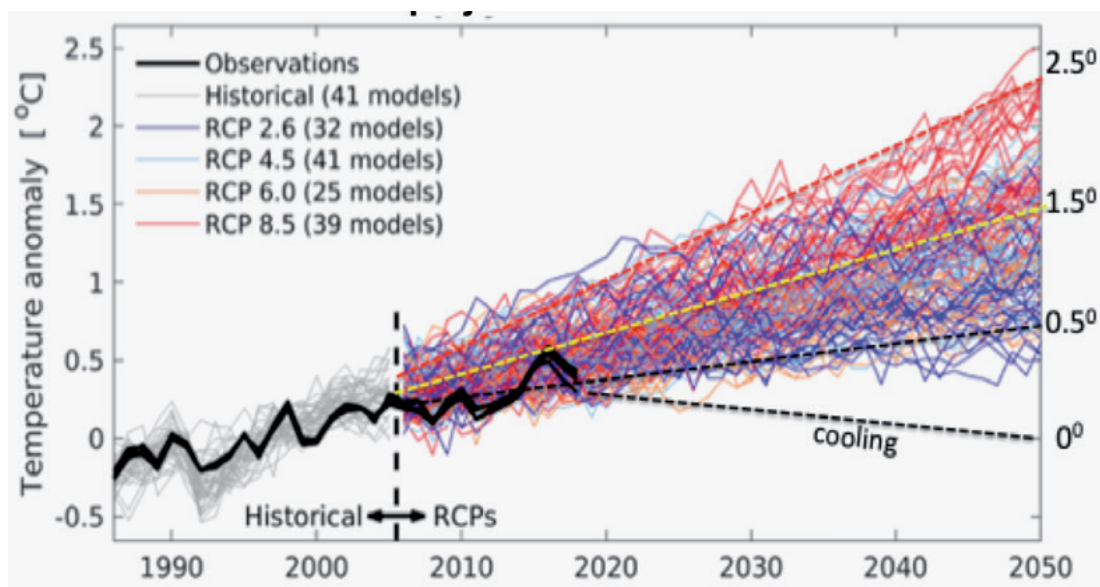

Figure 3: CO_2-driven model predictions and extrapolated measurements show a large gap with increasing prediction time. *It tells us that the science of climate change is very biased to high temperatures and far from settled. It also tells us that predictions are not suitable for policy making. Moreover, why are cooling scenarios fully excluded?*

Figure 3 suggests that the CO_2 scenarios are at least one full degree Celsius too high in 2050. This bias leads to total exclusion of global cooling. Moreover, why is the influence of the solar system set to zero? The large bias and low precision in the temperature predictions indicate that the science is far from settled[2].

Note also from Figure 3 that extrapolation of the empirical data (real measurements) to 2100 would give a temperature increase of 1°C only. Hence, there is no climate emergency.

It is remarkable that exaggeration of future global warming gets a favorable reception, while any alternative theory that predicts lower temperatures is fiercely criticized. Recently, the German professor Hans Joachim Schellnhuber predicted a global temperature raise of 6° C if the CO_2 concentration in the atmosphere would double. With his doom and gloom he got a lot of positive publicity and large applause.

Adulation of exaggerated prediction also occurs with Sea Level Rise (SLR). For example, half of The Netherlands is situated below sea level. Therefore, for hundreds of years the Dutch have specialized in accurate measurement of the sea level near its coast. A most recent report confirms previous conclusions that the rise of the Dutch sea level (1.86 mm/year) does not show any measurable acceleration for the past 100 years. That leads to a local SLR of about 15 cm in 2100.

The message is again that there is no Climate Emergency. The total Cryosphere (the frozen places of our planet) appears to be stable.

If there is a reason for SLR concern, it is more likely caused by subsidence (land level fall) – often due to manmade groundwater extraction – not to climate change.

PREDICTING NATURAL DISASTERS

Natural disasters have always happened. We saw that climate models systematically exaggerate future global warming (output of IPPC's Working Group 1) and, based on this exaggeration, IPCC's Working Group 2 forecasts that natural disasters will increase. However, again when we look at reality, statistics of natural disasters shows a very different picture.
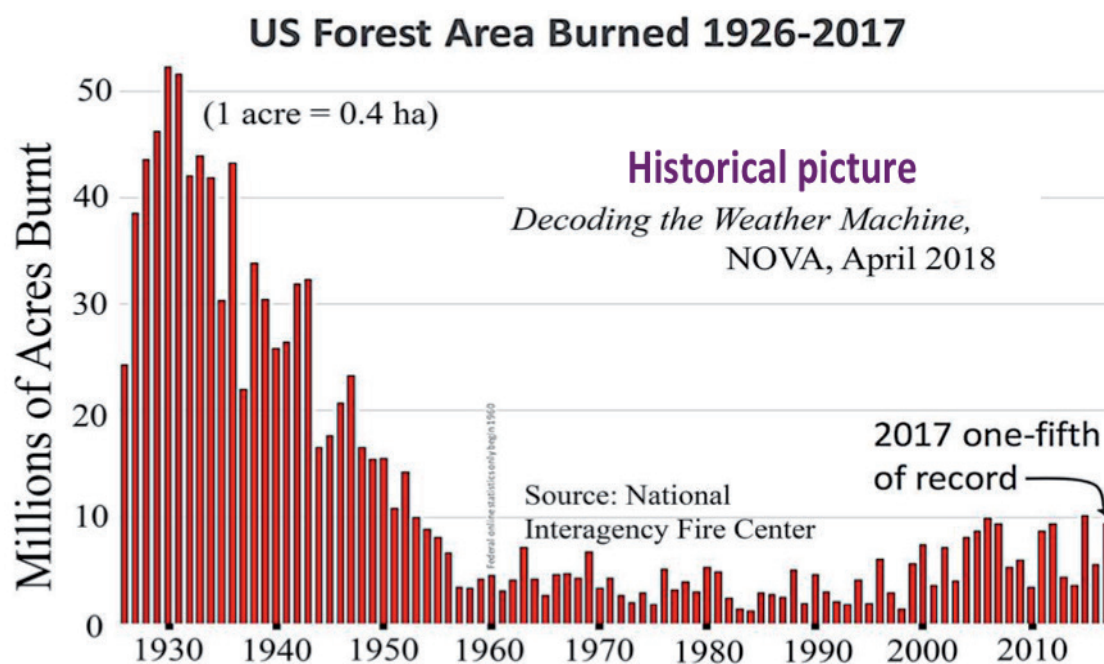
Figure 4: Statistics do not show that natural disasters are increasing. Here an example of wildfires is shown. *Like we saw with the predictions of temperatures, disaster predictions are far from reality. Message: "There is no Climate Emergency".*

Figure 4 gives one example: wildfires. It appears that the IPCC builds assumptions (WG2) on assumptions (WG1), leading to a frightening future. Also here we see: the more frightening the future, the louder the applause of the policymakers.

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2.   Apart from underestimating the interaction of the solar system with the Earth's climate, the complex influence of ocean cycles and cloud forming in global warming provides an additional uncertainty. Knowing how to better include changes in the solar system and changes in the ocean cycles and cloud forming concentration in the models may drastically change Figure 3.

Is it not irresponsible to spend trillions of dollars on a mitigation policy that is based on immature computer models? The advice that concludes our Declaration is this: **"Go for adaptation instead of mitigation; adaptation works whatever the causes are".**

Considering again the facts, mitigation has not saved one life while adaptation has drastically decreased the casualties of natural disasters. For instance, in 1999 a cyclone of the highest category in India (Odisha) caused about 10,000 victims but in May 2019 a cyclone of the same category in the same area (with more people) caused 41 victims. Why?

The answer is simple and clear: "Implementation of an adaptation policy." See Figure 5.
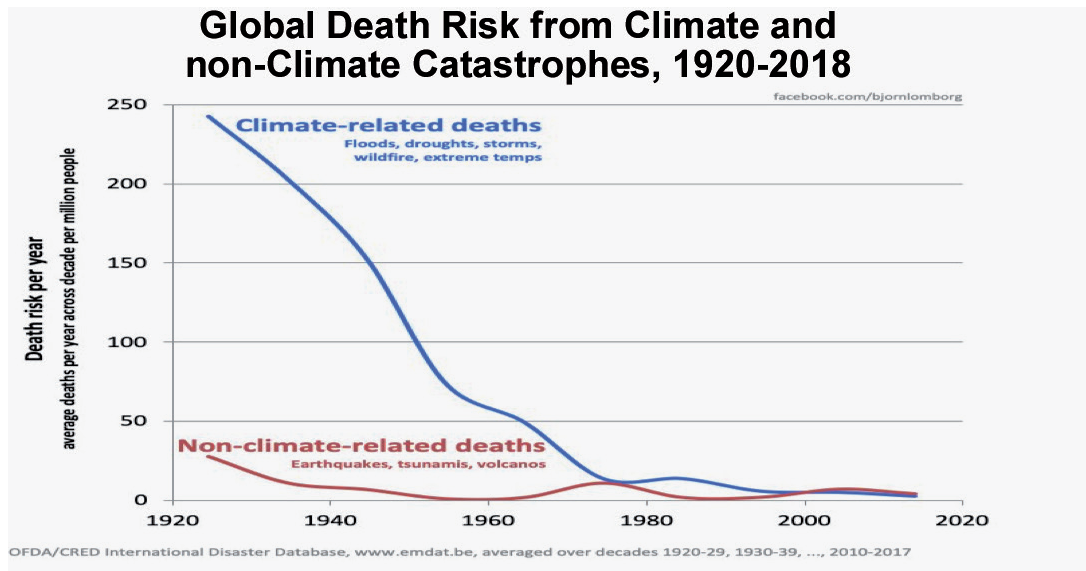
Figure 5: *Mitigation policy has never saved a life, but statistics tell us that adaptation policy is very successful. For example, in the past 100 years there has been a sharp decrease in climate-related deaths.*

Looking at today's panic, the mitigation target – 50% reduction of CO_2 in 2030 – is unrealistic and irresponsible. It involves an entire rebuild of the energy system with unproven technologies. Bear in mind that, prosperity is based on plentiful low-cost, reliable energy. Today's mitigation policy means abandoning our proven low-cost, reliable energy system within a very short period. That will inevitably lead to economic decline and increased poverty. Is panic-driven mitigation not an immoral climate policy?

Finally, our second strong objection against mitigation is the fact that CO_2 is plant food, the basis of all life on Earth. Hence, CO_2 is not a pollutant but **CO_2 is essential to all life on Earth; photosynthesis is a great blessing.** More CO_2 is beneficial for nature, greening the Earth. Additional CO_2 in the air has promoted growth in global plant biomass (see Figure 6). It is also good for agriculture, increasing the yields of crops worldwide. Why is the huge benefit of CO_2 for life on Earth always concealed for the public?
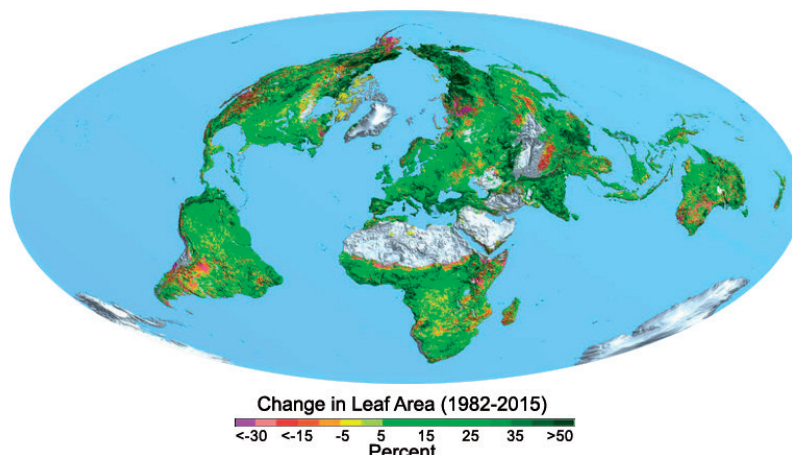
Figure 6: Using the fact that more CO_2 in the atmosphere promotes growth of plants, the Earth must be greening. *This is exactly what is being observed.*

Understanding short-term weather (process variability) and long-term climate change (system variability) is a substantial interdisciplinary scientific challenge and requires bringing together independent scientists from a wide range of fields. The title 'climate scientist' was invented ±30 years ago, but it does not exist as a profession. No one understands the huge complexity of the climate system; no single *'climate scientist'* can claim all encompassing knowledge nor does he know how to distinguish reliably between weather and climate. Much that has been blamed on climate change is simply weather variability.

What does exist though are scientists who can bring-in their own piece of knowledge to solve the climate puzzle. Working together – independent of political pressure – they can provide all the important pieces of the puzzle necessary to reveal the big picture.

Glacial cycles and orbits
Over short periods the long-term climate changes are too small to be visible. The only observable changes are the short-term changes in the weather. These short-term changes are extrapolated in an attempt to generate long-term "climate change" results (Figure 1d). This is a mistake. To simulate long-term climate change, models must be able to reliably simulate data over geological time (30 years is just one climate sample). The combination of astronomy and geology tells us that the big changes in Figure 1a are natural and were caused by the variable influences of the solar system on planet Earth, particularly the Earth's orbital variability.

Measurement informs and updates models
Major advances in science start with better measurements. Much research money has been spent on advanced measurement: telescopes, electron microscopes and, very recently, the Large Hadron Collider that confirmed the existence of the Higgs boson, and the new Dutch LOFAR antenna network that discovered some 300,000 galaxies. The more complicated the system we study, the more important are the measurements that provide inputs to the theoretical models as well as verifying their outputs.
In recent decades, the climate community has given priority to theoretical models. True, investments were also directed to satellite measurements in the atmosphere and to robot measurements in the oceans. But until now, the climate discussion remains obsessed with models.
Since the 1992 climate convention in Rio de Janeiro, it has been assumed that humans are responsible for global warming and that equilibrium sensitivity to doubled CO_2 is 1.5-4.5 C°. After 25 years this range is still as wide as it was then. Meanwhile, the need for quality measurements is still undervalued; it is no surprise that there has been disappointingly little progress in the last 30 years *(Richard S. Lindzen, 2018, Global warming and the irrelevance of science)*.

Verification, not merely confirmation
There is further reason for the lack of progress. Following the Rio climate meeting of 1992 and the Kyoto climate treaty of 1997, IPCC's reports have focused on gathering information that conforms to their preconceived CO_2 theory, and on ignoring or even excluding information that calls it into question.

This prejudice has greatly increased the one-sidedness of decades in climate research, with a near-exclusive preference for research results that support the anthropogenic global warming hypothesis *(Ref: Hourdin et al, 2017, 'The art and science of climate model tuning', BAMS).*

But true scientific research is dispassionate. The aim of the IPCC program should have been to collect and analyze all relevant information, especially that which contradicts the CO_2-driven models. This Popper-falsification is part of the model verification process and attempts to identify the weaknesses and limits of scientific hypotheses. It is much more than model fitting (tuning). It must include verification of predictions. It is falsification of hypotheses that is the driving force behind scientific progress. However, in a culture that resists all evidence against the Party Line, scientific stagnation ensues. Critics are not welcome.

If official climate science is sound, why do its disciples resort to restricting freedom of speech, silencing doubters, suppressing or altering contrary evidence, scaring the public, encouraging street rebellions and misinforming school children?

Aiming at confirmation and searching for possible falsifications is therefore diametrically opposed to each other. It's no surprise that contradictions soon arose between these totally different research cultures.

An effective solution is to let model development go hand in hand with the development of measuring systems. In many disciplines the interaction between the two has been given a new impulse by the current revolution in data sciences. Bringing the modeling world and the measuring world together has developed into an iterative scientific learning process. This is urgently needed in climate science.

CLINTEL GROUP

The European Climate Declaration (ECD) has brought a large variety of competent scientists together. Due to its fast growing popularity it has evolved into a World Climate Declaration (WCD) signed by more than 700 prominent scientists and professionals from all over the world[3]. The considerable knowledge and experience of this group is indispensable in reaching a balanced, dispassionate and competent view of climate change.

The knowledge group is going to function as a Global Climate Intelligence Group (CLINTEL Group). The Group will give solicited and unsolicited advice on climate change and energy transition to governments and companies worldwide. The message of the CLINTEL Group is:

"The mainstream models of climate on which international energy policy is at present founded are unfit for their purpose. In current climate policies the CO_2 control knob destroys prosperity and increases poverty. It is opposite to what is needed. In a prosperous society men and women are well educated, birthrates are low and people care about their environment."

The mission of the CLINTEL Group is to create a new era in climate research by:
1. Promoting the integration of an unprecedented wide range of theoretical and empirical scientific disciplines, from astronomy via atmospheric and oceanic sciences to archeology and geology.
2. Welcoming contrary viewpoints, restoring mutual respect in the climate debate and keeping out politics.
3. Supporting scientists silenced by peer-reviewed journals, climate ideologists and misinformed consensus makers. As Michael Crichton wrote, "If it's science, it's not consensus: if it's consensus, it's not science." And as Peter Ridd proposed: "We need to modernize the peer-reviewed system."

We invite the public to support Clintels efforts to encourage open, civil debate and full cost-benefit analysis of proposed climate and energy policies. We also invite public support for our efforts to recognize that climate models are useful tools in the research for a better understanding of the Earth's climate, but today's models are scientifically immature and misleading for policy planning. **At present, adaptation offers the best utilization of scarce public funds and gives us the best economic and social benefits.**

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3.   It is not the number of experts but the quality of arguments that counts.

We repeat the Council's message to the Secretary-General of the United Nations not to fight but work together:

"WE INVITE YOU TO ORGANIZE WITH US A CONSTRUCTIVE HIGH-LEVEL MEETING BETWEEN WORD-CLASS SCIENTISTS ON BOTH SIDES OF THE DEBATE EARLY IN 2020."

On behalf of the Global Climate Intelligence Council,

NOBEL LAUREATE PROFESSOR IVAR GIAEVER	NORWAY
PROFESSOR GUUS BERKHOUT	THE NETHERLANDS
PROFESSOR REYNALD DU BERGER	FRENCH SPEAKING CANADA
JOHN DROZ JR	USA
TERRY DUNLEAVY	NEW ZEALAND
VIV FORBES	AUSTRALIA
PROFESSOR JEFFREY FOSS	ENGLISH SPEAKING CANADA
JENS MORTON HANSEN	DENMARK
MORTEN JØDAL	NORWAY
ROB LEMEIRE	DUTCH SPEAKING BELGIUM
PROFESSOR RICHARD LINDZEN	USA
DR. HENRI A. MASSON	FRENCH SPEAKING BELGIUM
PROFESSOR INGEMAR NORDIN	SWEDEN
JIM O'BRIEN	REPUBLIC OF IRELAND
PROFESSOR IAN PLIMER	AUSTRALIA
PROFESSOR ALBERTO PRESTININZI	ITALY
PROFESSOR BENOÎT RITTAUD	FRANCE
DR. THIAGO MAIA	SOUTH AMERICA
PROFESSOR FRITZ VAHRENHOLT	GERMANY
THE VISCOUNT MONCKTON OF BRENCHLEY	UNITED KINGDOM

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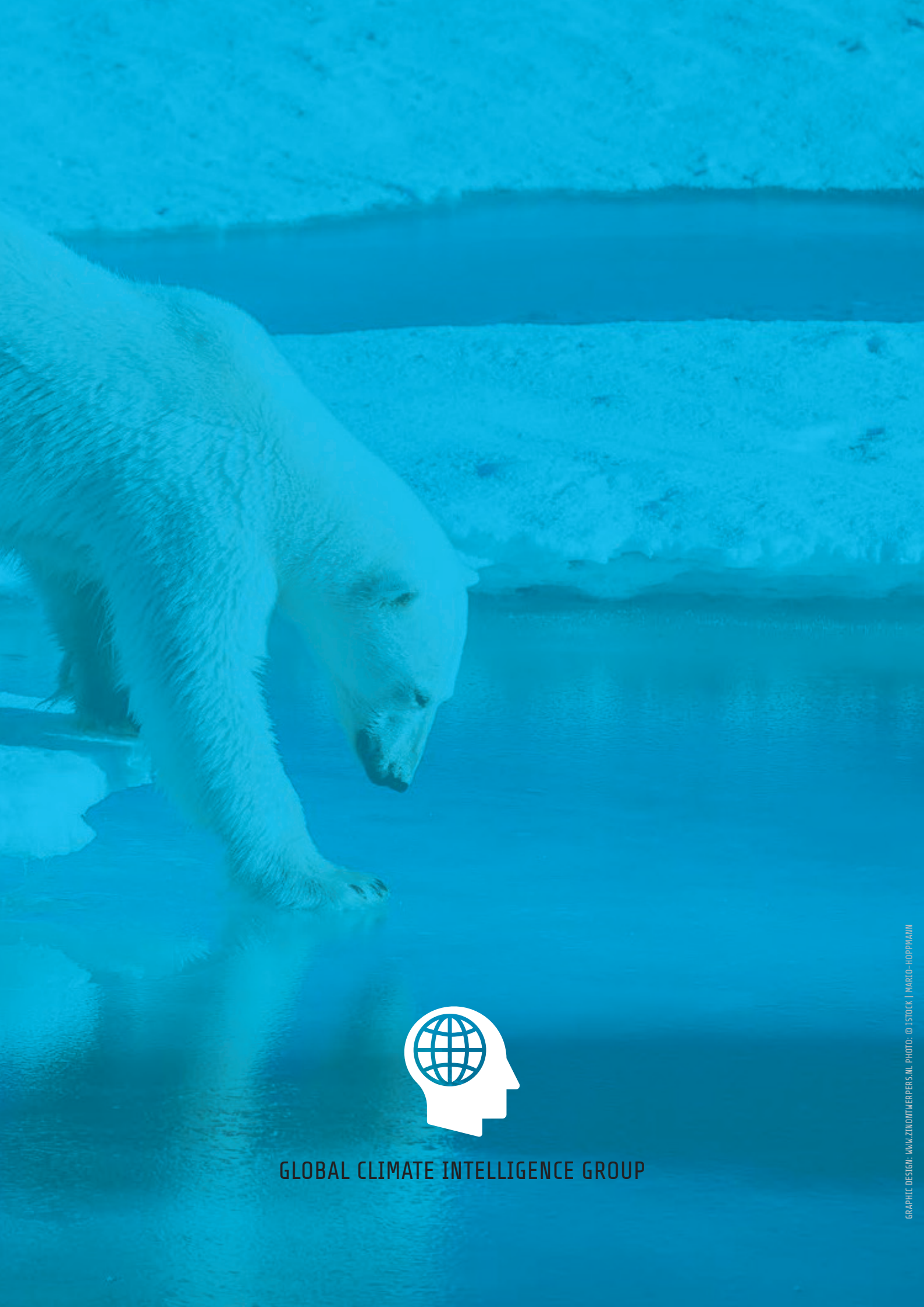- *Senior Member of the Dutch Academy of Engineering (AcTI)*

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RECOMMENDED READING MATERIAL

– List of 80± informative books on the Earth's climate that gives the reader a more complete picture:
http://wiseenergy.org/Energy/AGW/Sample_AGW_Books.pdf
– Dr. Judith Curry's US Senate testimony of Jan 16, 2014:
https://curryja.files.wordpress.com/2014/01/curry-senatetestimony-2014-final.pdf
– Dr. Patrick Frank's paper that reminds us to pay more attention to the difference between bias, precision and accuracy in temperature predictions:
Propagation of Error and the Reliability of Global Air Temperature Projections, Frontiers in Earth Science, September 06, 2019
– Emeritus Professor François Gervais' peer-reviewed paper that reminds us not to underestimate the major influence of oceans on the Earth's climate:
Anthropogenic CO_2 warming challenged by 60-year cycle, Earth Science Reviews, April 2016
– A short video overview of the Council's declaration in English, French and English with Italian subtitles:
https://www.youtube.com/watch?v=GpVBH-HY5Ow&feature=youtu.be
No Climate Emergency say 500 Scientists to UN
Il n'y a pas d'urgence climatique
Non v'è alcuna emergenza climatica

GLOBAL CLIMATE INTELLIGENCE GROUP