

New Dawn of Truth

the London Conference at Conway Hall

September 8 and 9, 2016

on

Climate Change: Science & Geoethics



The Conference Volume: **Extended Abstracts & Commentary Notes**

Nils-Axel Mörrner
editor

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This Conference

is organized by the Independent Committee on Geoethics (ICG)

It will be held at Conway Hall, Red Lion Square, London

<https://geoethic.com/london-conference-2016/>

on September 8 and 9, 2016

(09.00 to 17.00)

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Welcome to join us at this milestone event

Towards a New Dawn of Truth

Bolin–Palme–Brundtland launched the idea of creating an Intergovernmental Panel on Climate Change (IPCC) with the intension of proving the existence of an Anthropogenic Global Warming (AGW) due to the increase in atmospheric CO₂ content. *When Reason slept, Monsters took wing** – and now we have the fear of a catastrophic rise in temperature, the fear of a catastrophic sea level rise, the fear of a catastrophic ocean acidification, etc – all issues worshipped at the Paris COP21 meeting in 2015, although all being based on modelling in strong opposition to observational facts and physical laws.

False facts are highly injurious to the progress of science

Charles Darwin

*I saw that most men only care for science
so far as they get a living by it, and
that they worship even error
when it affords them a subsistence*

Johan Wolfgang von Goethe

*Nothing in life is to be feared,
it is only to be understood.
Now is the time to understand more,
so that we fear less*

Marie Skłodowska-Curie

*The problem is not human intervention in the climate;
it's improper political intervention in climate science.
It has corrupted scientific findings from the very beginning.*

Paul Driessen & Ron Arnold (2016)

*I suspect that a suitably learned community in geoethics
will enhance the needed global effort to sustain human existence
and our environment on Earth*

John Gleissman (in EOS, 2016)

*Chapter 16, p. 177-184, in *Planetary Influence on the Sun and the Earth, and a Modern Book-Burning*, N.-A. Mörrner, ed., Nova Science Publishers, New York 2015.



The Swan, Hilma af Klint, 1914/15

What is correct?

a white swan on a black sky or a black swan on a white sky

We know that only the white swan is the commonly occurring bird in nature itself.

Also, we know that the sky use to be bluish or greyish.

In the Swan Lake by Tjarkovskij (Tchaikovsky), the black swan Rothbart, the sorcerer, performs excellently, and not until his wings are cracked, the spell breaks and Odette appears in her real shape.

We are gathered to explore if the idea of a CO₂-driven global warming is real or just another hoax (bluff). The post-industrial and post-war rise in atmospheric CO₂ seem to have:

Little (maybe even negligible) effect on global temperature

No effect at all on sea level changes

Negligible effect on global acidification

Therefore, the recent rise in atmospheric CO₂ rather seems beneficial to the Plant Kingdom, and hence to life on Planet Earth. The claim of an urgent need of a transition into “*a low carbon Earth*” seems exaggerated, unfounded and illusive.

Conference Background

The Independent Committee on Geoethics (ICG) was formally established on October 17, 2015 (www.geoethic.com). We were co-sponsors of the Paris Climate Challenge meeting (December 1-3, 2015) organized by Philip Foster.

On January 1, 2016, I received a note from Athem Alsabti, Special Advisor of ICG, saying: *"I am more than happy to organise and host an event for our group at UCL in Central London this year if you wish."*

Minutes later, I had expressed my enthusiasm over the proposal and informed the Steering Committee of ICG – and the London Conference was in preparation. As working title we set: *Climate Change: Science and Geoethics*. Two weeks later, a preliminary conference program was taken, and September 8–9 was set as time of the conference.

By March 11, Christopher Monckton sent his excellent logo.



In March, we got a donation of 1000 €. The Pearson lecture room at UCL was booked and confirmed in early April. So, by then everything was just a matter of getting a good program and attendance. It all proceeded very well.

But then suddenly – as late as July 12 – a bomb exploded.

Professor Jonathan Butterworth*, head of Physics and Astronomy Department of UCL sent a mail to Professor Alsabti saying:

"It has been brought to my attention that you have booked a room at UCL for an external conference in September for a rather fringe group discussing aspects of climate science."

"If this event were to go ahead at UCL, it would generate a great deal of strong feeling, indeed it already has, as members of the UCL community are expressing concern to me that we are giving a platform to speakers who deny anthropogenic climate change while flying in the face of accepted scientific methods. I am sure you have no desire to bring UCL into disrepute, or to cause dissension in the UCL community, and I would encourage you to think about moving the event to a different venue, not on UCL premises."

The same day Professor Alsabti cancelled the booking.

I can assure you all that this was a terrible moment for me. Everything I had worked on for 7 months seemed to be in ruins. *"The Thermageddon Cult had struck again"*, to use the terminology of Christopher Monckton (Chapter 12 in my Nova book of 2015; cf. p. 118).

We had to save the conference, the date and all the arrangements by all the participants. So, out of this new modern book-burning emerged a fresh and vivid Phoenix bird:

We were able to relocate the conference to Conway Hall at Red Lion Square (Holborn).

and here we foresee the real *"New dawn of truth"*

* <https://wattsupwiththat.com/2016/08/01/a-threat-from-university-college-london-over-a-climate-skeptic-conference/>

* <http://www.breitbart.com/london/2016/08/02/meet-the-bullying-lefty-cockwomble-physics-prof-who-hates-actual-climate-science/>

Introducing the global warming speedometer

A single devastating graph shows climate panic was unfounded

By Christopher Monckton of Brenchley

A single devastating graph – the new global warming speedometer – shows just how badly the model-based predictions made by the Intergovernmental Panel on Climate Change have failed.



The Speedometer for the 15 years 4 months January 2001 to April 2016 shows the [1.1, 4.2] C°/century-equivalent range of global warming rates (red/orange) that IPCC's 1990, 1995 and 2001 reports predicted should be happening by now, against real-world warming (green) equivalent to <0.5 C°/century over the period, taken as the least-squares linear-regression trend on the mean of the RSS and UAH satellite global lower-troposphere temperature datasets.

Predictions

IPCC (1990), at page xxiv, predicted near-linear global warming of 1.0 [0.7, 1.5] C° over the 36 years to 2025, a rate equivalent to **2.8 [1.9, 4.2] C°/century**.

IPCC (1995), at fig. 6.13, assuming the subsequently-observed 0.5%-per-year increase in atmospheric CO2 concentration, predicted a medium-term warming rate a little below 0.4 C° over 21 years, equivalent to **1.8 C°/century**.

IPCC (2001), on page 8, predicted that in the 36 years 1990-2025 the world would warm by 0.75 [0.4, 1.1] C°, equivalent to **2.1 [1.1, 3.1] C°/century**.

IPCC (2007, 2013) are too recent to allow reliable comparison of prediction against reality.

Reality

RSS and UAH monthly global lower-troposphere temperature anomaly values were averaged and the least-squares linear-regression trend on their mean determined as equivalent to **0.47 C°/century**.

The least IPCC prediction made at least 15 years ago is that global warming should now be occurring at a rate equivalent to 1.1 C°/century. Yet that minimum prediction is well over double the rate of warming over the past 184 months, and IPCC's maximum prediction of 4.2 C°/century by now is more than eight times what has happened in the real world.

Conclusion

Fifteen years is long enough to verify the predictions from IPCC's first three *Assessment Reports* against real-world temperature change measured by the most sophisticated method available – satellites.

The visible discrepancy between wild prediction and harmless reality demonstrates that the major climate models on which governments have relied in setting their mitigation policies are unfit for their purpose. Removing the exaggeration inbuilt into the models eradicates the supposed climate problem.

Day-1: September 8
Natural Drivers of Climate Change

Planet Earth in Cosmos



The planet of Water and Life
affected by multiple interacting parameters
in the driving of climate changes and related terrestrial phenomena

Day 1: Thursday 8 September 2016

(*Keynote presentations)

08.30 Registration (uploading of ppt-files)

08.50 Welcome and information

Session 1: Influence of the Sun and the major planets on the Earth's climate

09.00 Nils-Axel Mörner: *An introduction to planetary-solar-terrestrial interaction*

09.10 Roger Tattersall & Richard Salvador: *Does solar system orbital motion and resonance synchronize solar variation, LOD and ENSO?*

09.20 Ned Nikolov & Karl Zeller: *A new planetary temperature model and its implication for the Greenhouse theory*

09.40 Nicola Scafetta: *Multi-frequency spectral coherence between planetary and global surface temperature oscillations*

10.00 Discussion

10.10 Tea and coffee

10.30 Jan-Erik Solheim: *Ice margins, the Sun and the planets*

10.50 Per Strandberg: *Drivers of ENSO variability*

11.10 Indrani Roy: *An overview of Solar Influence on Climate*

11.30 Oliver Manuel: *Neutron Repulsion **

11.40 Discussion

12:00–13:00: Lunch

Session 2: Ocean variability

13.00 Martin Hovland: *Documented pH and temperature anomalies in the deep ocean **

13.20 Wyss Yim: *Sub-aerial and submarine volcanic eruptions and climatic variability*

Session 3: Natural influences on climate

13.40 Peter Ward: *Ozone depletion, not greenhouse warming, caused recent warming **

15.00 Hans Jelbring: *The dominant physical processes that cause climate change*

15.20 Alex Pope: *Ice on land*

15.40 Discussion

16.00 Tea and coffee

16.20 Fabio Pistella and Leonello Serva: *The CHIC project of ICG*

16.50 Discussion

17.00 End of Day-1 program

An introduction to planetary-solar-terrestrial interaction

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Independent Committee on Geoethics, <https://geoethic.com/>

At the Fifth Space Climate Meeting in Oulu, Finland, in 2013, I noticed that time was now ripe to tackle the old problem of planetary-solar-terrestrial interaction. I realized that this was not the task for a single author or group of authors, but needed to be covered by independent authors in a collection of independent paper. This was the background for the Special Issue of Pattern Recognition in Physics, edited by Nils-Axel Mörner, Roger Tattersall and Jan-Erik Solheim (2013). It contains 15 separate papers. Scafetta (2014) gives an excellent historical review of the problem. The conclusion (shared by 19 specialists) states that: “*the driving factor of solar variability must emerge from gravitational and inertial effects on the Sun from the planets and their satellites*” (Mörner et al., 2013) as illustrated in Fig. 1.

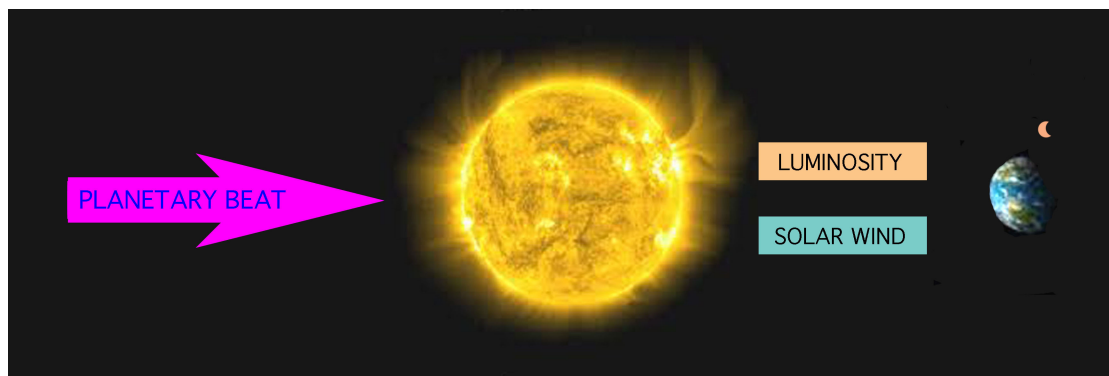


Fig. 1. Planetary-solar-terrestrial interaction (from Mörner et al., 2013)

Two central implications of this conclusion were noted: (1) *that the old planetary hypothesis was lifted to the level of a “planetary theory”*, and (2) *“that we are on our way into a new grand solar minimum”*. In addition to point 2, it was noted that: *“this sheds serious doubts on the issue of a continued, even accelerated, warming as proposed by the IPCC project”*. This last line – innocent as it is, perfectly true as it is and shared by 19 eminent scientists as it is – struck a hot issue (i.e. a weak point in the IPCC scenario) and the Editor decided to close down the entire scientific journal. This led to the publication of the Nova book: “*Planetary Influence on the Sun and the Earth and a Modern Book-Burning*” (Mörner, 2015).

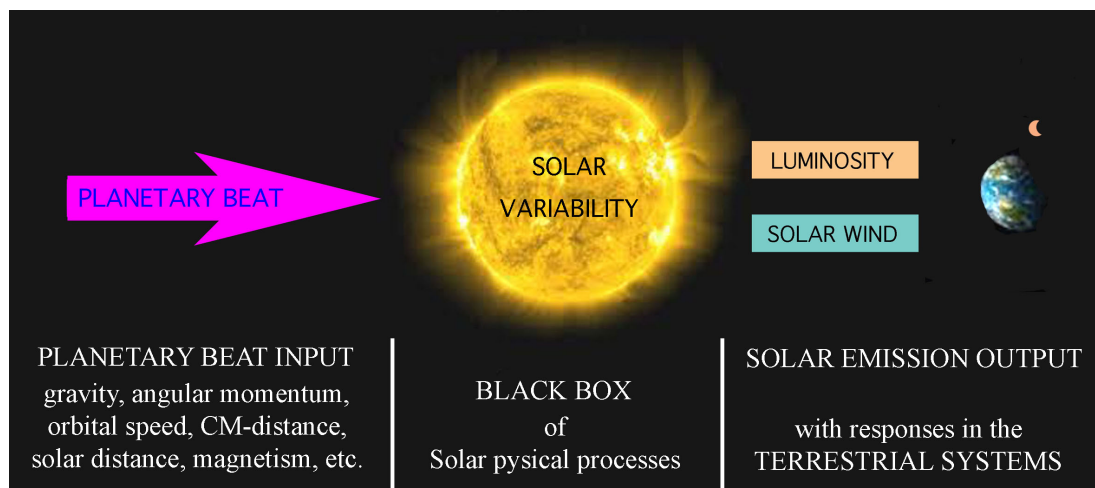


Fig. 2. Planetary-solar-terrestrial interaction as presented in Mörner (2015).

In Mörner (2015), the solar response to the planetary beat is presented as a “black box of Solar physical processes”. We still debate where in the Sun the main driving forces of solar variability are located; at the surface, at the tachocline or within the core.

The emission of Solar Wind emerges as a prime factor in transferring solar variability signals to terrestrial processes (Mörner, 1996, 2010, 2012, 2013a, 2013b, 2015b).

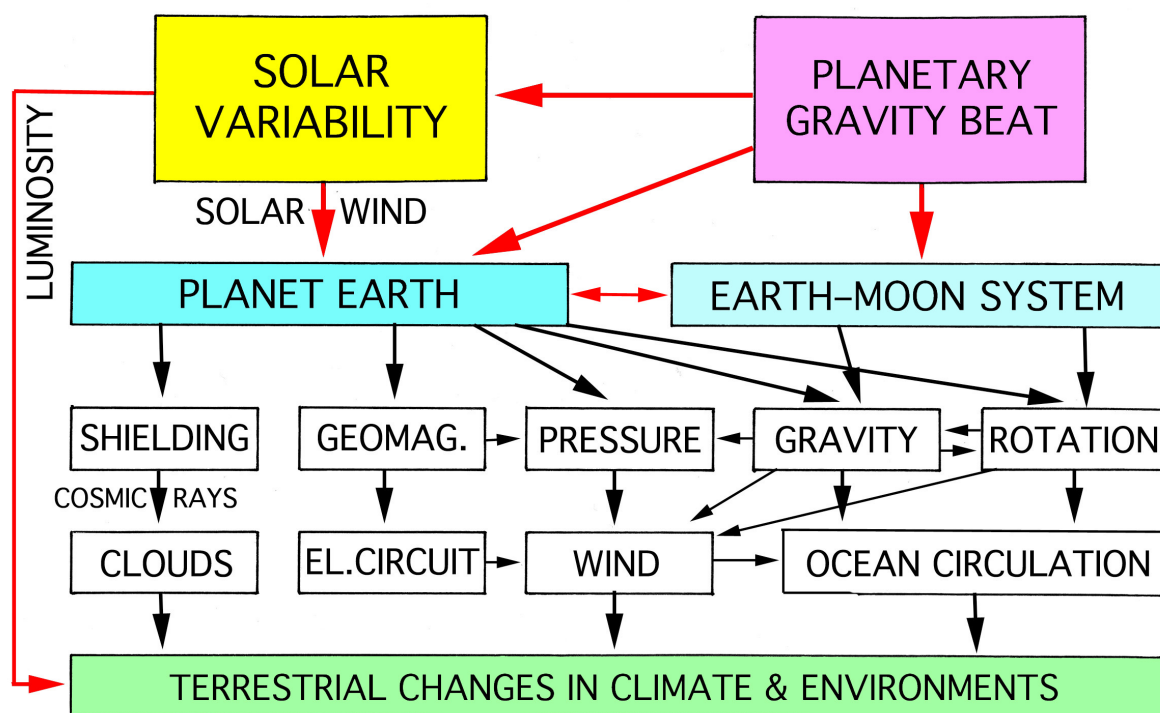


Fig. 3. Planetary beat processes, solar variability and the spectrum of terrestrial variables affected (from Mörner, 2012, 2013b).

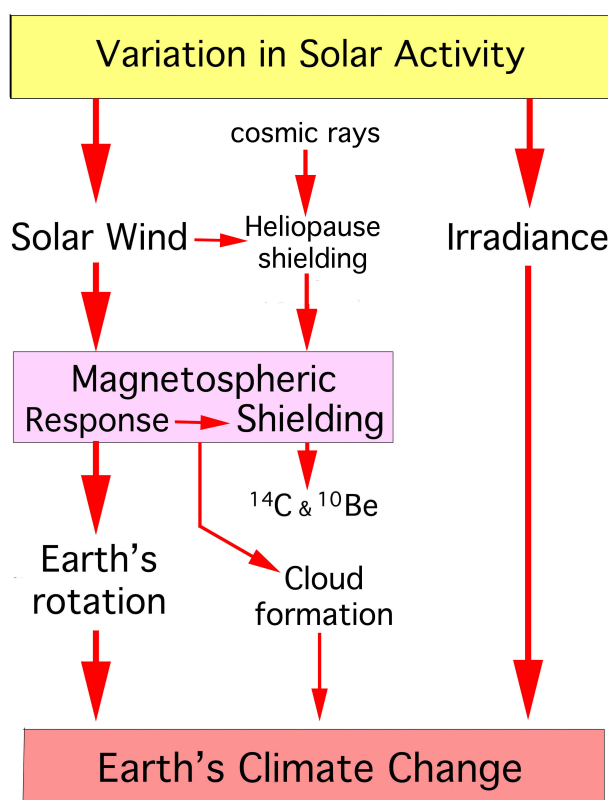


Fig. 4. Three ways of affecting Earth's climate all ultimately driven by planetary beat cycles (from Mörner, 2010, 2013b).

Fig. 3 illustrates the complex interaction of a number of terrestrial variables in response to planetary beat and solar variability and changes in Solar Wind. It explains how alternations between Grand Solar Maxima and Minima affect Earth's rotation, ocean circulation and the redistribution of ocean-stored heat (Mörner, 1996, 2010, 2012).

Fig. 4 illustrates the 3 ways by which changes in solar variability may affect Earth's climate: (1) via changes in the Solar Wind (Fig. 3; Mörner, 2010, 2013b), (2) via changes in the cosmic rays in-fall and cloud formation (Svensmark, 1998, 2007), and (3) via changes in irradiance (e.g. Lean et al., 1995).

Motions around the Centre of Mass

It is a well-known fact, that the planetary motions around the Sun force the Sun to adjust its position with respect to the centre of mass of the Solar system (e.g. Landscheit, 1976, 1979; Charvátová & Heida, 2014). The maximum displacement of the Sun from the centre of mass amounts to 2.169 solar radii. The location the individual barycentres of the Sun and its planets is given in Figure 5 (Mörner, 2015c).

The mere locations of the barycenters suggest that the ones of the Earth, Uranus and Neptune are likely to affect the Sun's interior processes (cf. Grandpierre, 2015), whilst the barycenters of Saturn and Jupiter are likely to affect the tachocline. The barycentre of Jupiter must have a direct effect on the outer convecting zone and the surface of the Sun.

Every single barycentre has to experience significant gravitational compensational movements with respect to the planetary and solar motions around the solar centre of mass. This implies that they experience "excenter-wheel motions", which may act as a "motor" for the driving of solar variability (Mörner, 2015c). Those forces are likely to generate quite significant processes within the Sun leading to changes in solar activity; emission of luminosity, Solar wind and neutrino flux.

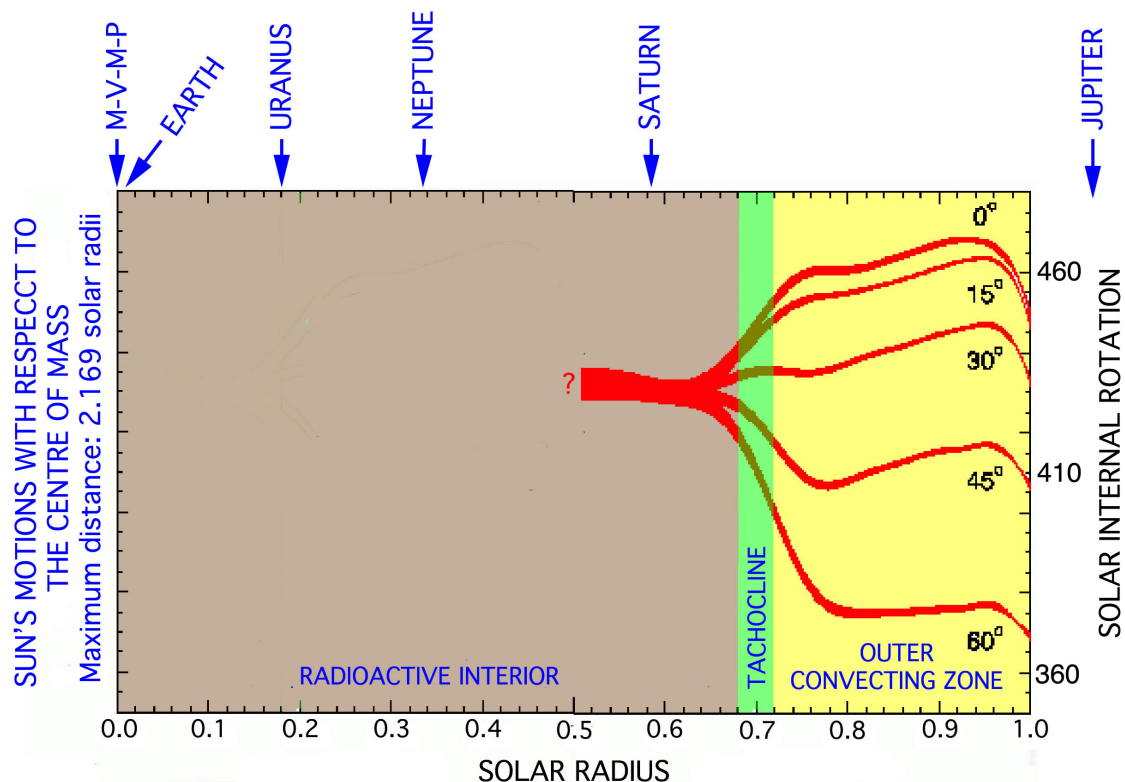


Fig. 5. Location of the barycenters of the planets and the Sun with respect to the solar radius. Mercury, Venus, Mars and Pluto have their barycenters more or less in the centre of the Sun. The Earth-Sun has its barycentre 449 km up in the base of the solar interior. Uranus and Neptune have their barycentres in the lower middle of the solar interior at 0.18 and 0.335 solar radius. Saturn has its barycentre in the upper part of the solar interior at 0.586 solar radius. Jupiter has its barycentre shortly outside the Sun's surface at 1.068 solar radius, i.e. 46,000 km above the surface. (from Mörner, 2015c).

The neutron repulsion by Manuel (p. 30), the plasmoid dynamo of Grandpierre (2015) and the tidal dynamo of Gregori (p. 88) all need a “motor”. I propose that this motor is the “*excenter-wheel motions*” of the constantly adjusting barycentres (cf. Mörner, 2015c).

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Does Solar system orbital motion and resonance synchronise solar variation, LOD and ENSO?

Roger Tattersall and Richard Salvador

The planetary-solar hypothesis considers the possibility that the orderly spatio-temporal structure of the solar system produces its quasi-stability, and is shaped by orbital resonance, caused by the force of gravity acting on mutually perturbing celestial bodies. The unresolved imbalances in the system induce feedbacks which modulate solar activity. Synchronously, the gyroscopic effect of the variously orientated planetary orbits modulate the rotation rates of the planets and the differential rotation rates of the plasma layers on the solar surface. All true systems exhibit cybernetic feedback, producing observed oscillations either side of mean motion. The solar system is no exception. Examples of this oscillation include the ~11 year solar cycle and the 100,000 year cycle in the ellipticity of Earth's orbit.

The hypothesis that planetary motion may be a driver or modulator of solar activity has been under development for over 150 years, since Rudolf Wolf made the conjecture in a letter to Richard Carrington in 1859. Concurrently, the hypothesis that solar variation is a major driver of the Earth's climatic variation has been in development since Sir William Herschel found a correlation between sunspot numbers and the price of wheat in 1812; a finding confirmed by Pustelnik and Yom Din (2003).

Recent papers by Wilson (2013), Scafetta (2014a) and Abreu et al. (2012) positing a link between planetary motion and solar activity have been accompanied by the development of a simple orbital harmonic resonance model by R.J. Salvador (2013) correlating 1000 years of solar activity as measured by the C14 isotope, and an unpublished update to a 4000 year model based on TSI proxy Be10.

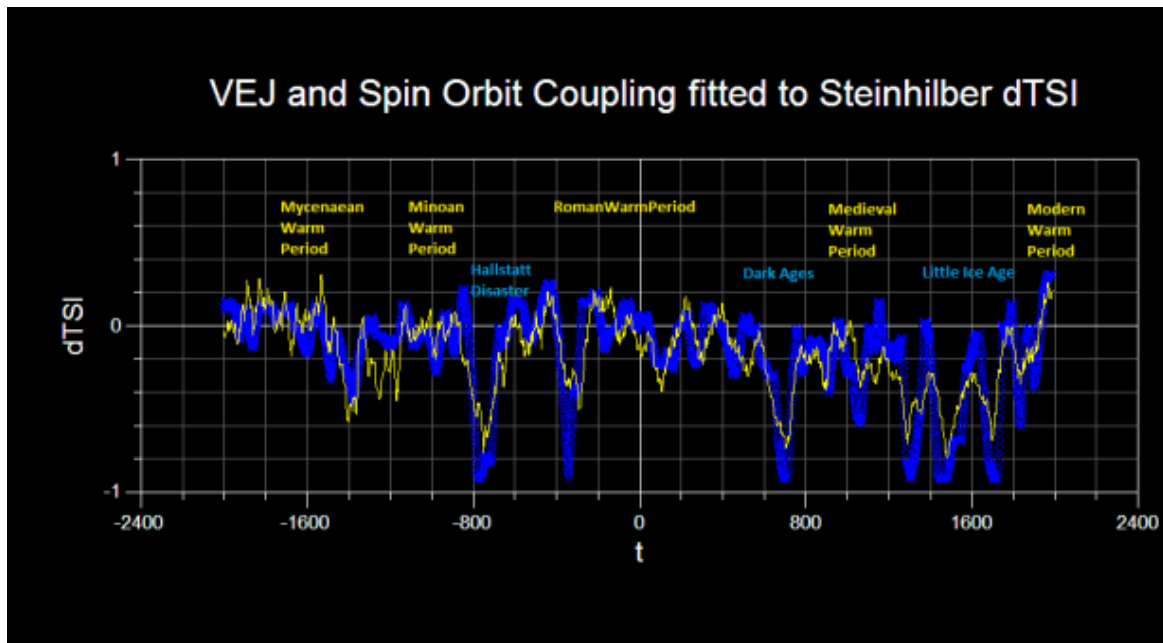


Figure 1: 4000 years of variation in solar proxy ^{10}Be (Steinhilber et al – blue curve) vs orbital motion and resonance model (R.J. Salvador – yellow curve).

Mechanisms amplifying relatively small changes in solar activity to the surface temperature variation observed on Earth through modulation of cloud cover have been proposed by Svensmark, and Shaviv. The present paper will offer an additional potential mechanism, involving changes in Earth's Length of Day (LOD), which we will show to be synchronised with solar variation.

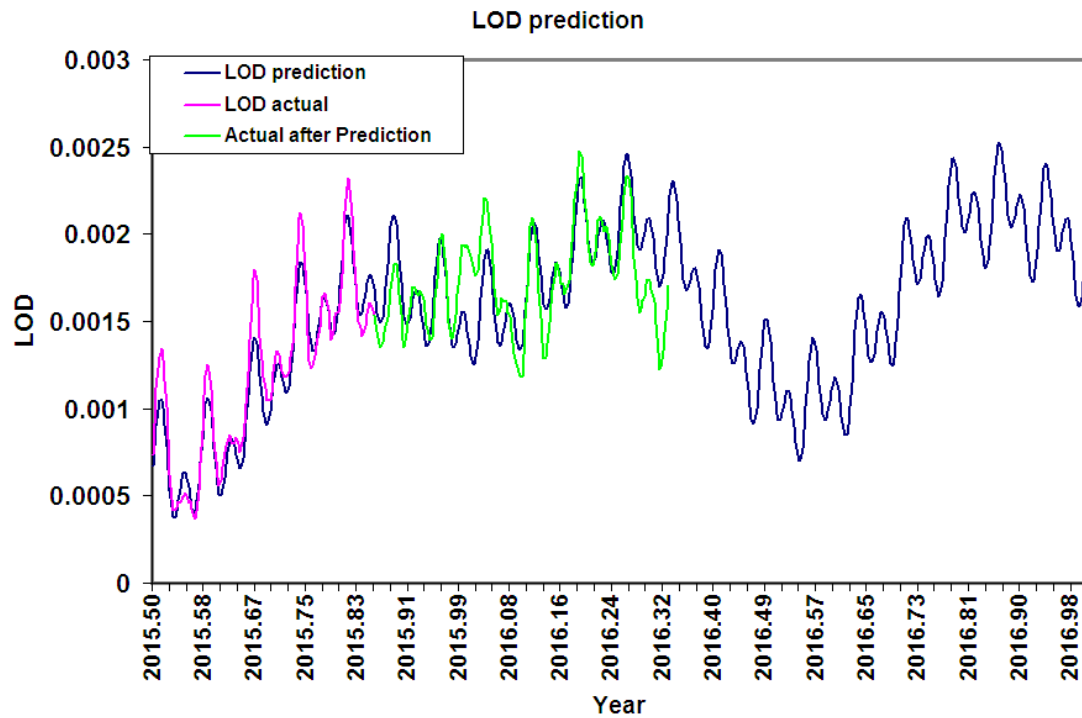


Figure 2: Variation in Earth's Length of Day (LOD in seconds - Magenta and Green curves) vs Model (R.J. Salvador – Blue curve).

The planetary orbital resonance principle has now been extended by R.J. Salvador to modelling changes in LOD, and variation in the El Nino Southern Oscillation (ENSO). Planetary motion modulated solar input to Earth's climate system, coupled with synchronous changes to Earth's length of day, affecting tidal distribution of that energy, may be driving ENSO, and hence variation in GST, which shows strong coherence with ENSO.

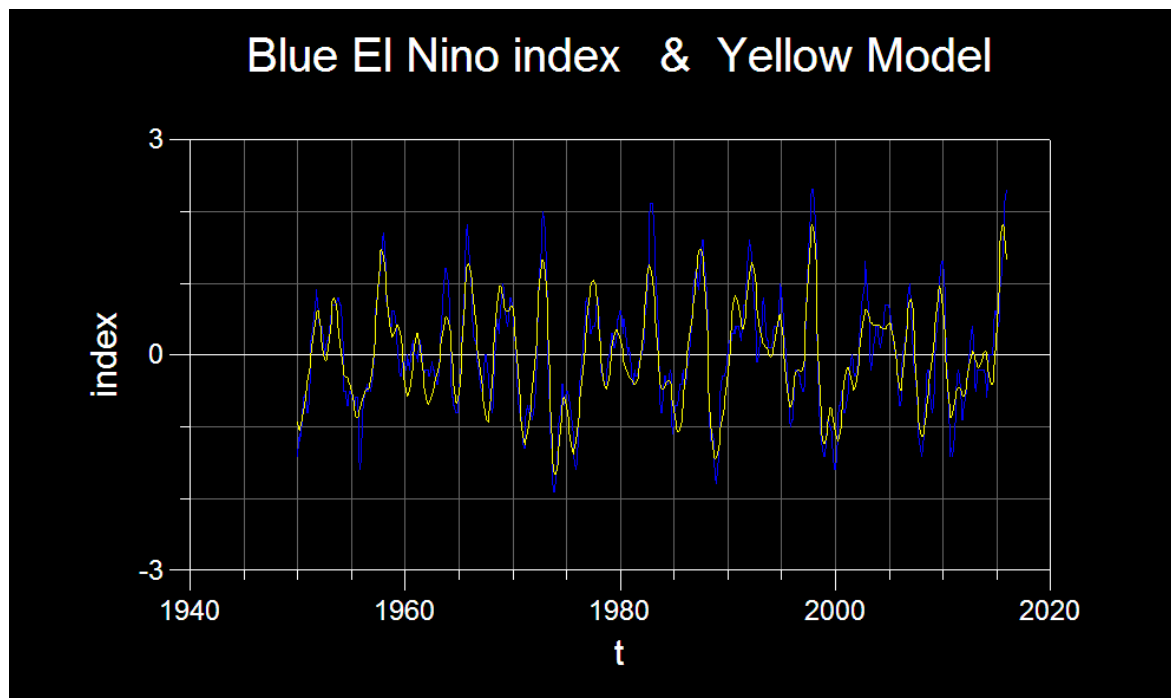


Figure 3: ENSO variation (Blue curve) vs Model (R.J. Salvador – Yellow curve)

A New Planetary Temperature Model and Its Implications for the Greenhouse Theory

Ned Nikolov and Karl Zeller

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The basic physics of the atmospheric Greenhouse Effect (GE) has been accepted as well understood for over 150 years. GE is currently viewed as a radiative phenomenon caused by the atmosphere's thermal infrared opacity, which is a function of the concentration of heat-absorbing trace gases such as CO₂, water vapour, methane, ozone and a few others. The atmosphere is mostly transparent to incoming shortwave radiation while absorbing a substantial amount of the outgoing (upwelling) long-wave flux emitted by the surface. This infrared absorption is thought to reduce the rate of Earth's cooling to Space, hence significantly raising the surface temperature above that of an equivalent airless environment such as the Moon. Thus, according to the current GE theory, the atmosphere acts as a 'radiative blanket' that keeps the Earth surface sufficiently warm to allow the existence of liquid water and biological life on our planet. Hence, increasing the tropospheric concentrations of non-condensable greenhouse gases through fossil fuel burning would boost the atmospheric infrared optical depth as well as the absorption of thermal radiation leading to an *enhanced* GE and surface warming as a result. This concept forms the basis of present climate projections. However, mounting scientific evidence indicates that Global Circulation Models (GCMs) fail to simulate key features of past climates as inferred from geo-chemical proxies while overestimating the observed global temperature trends since 1993. The model-data discrepancy has grown to a level that warrants a re-examination of fundamental assumptions in the Greenhouse theory.

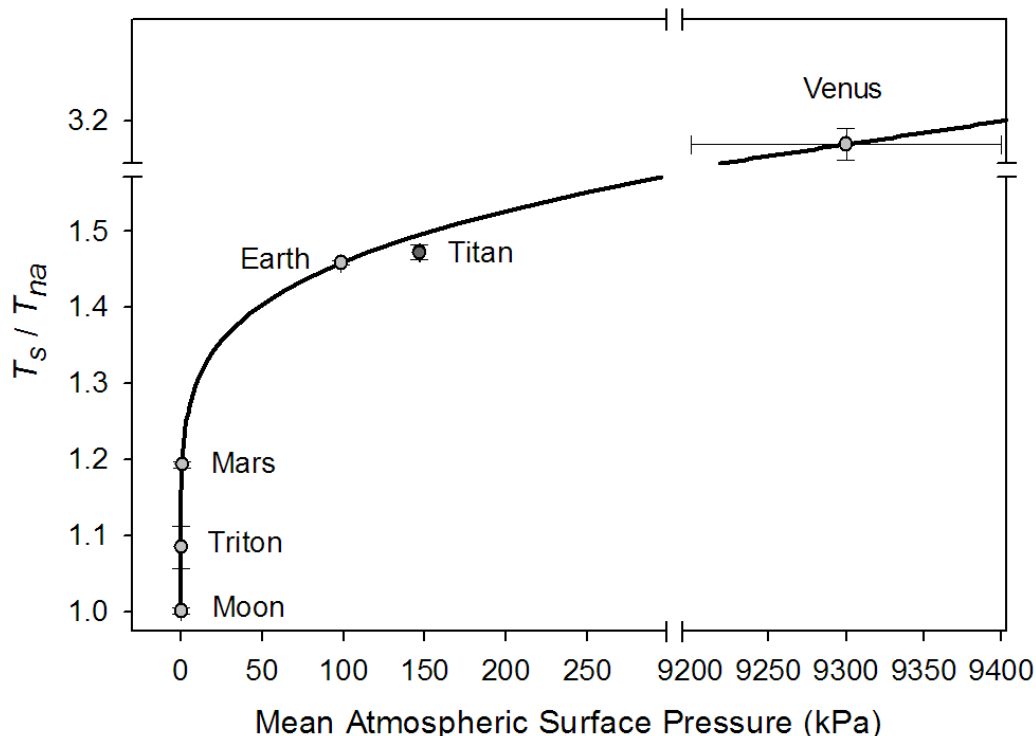


Figure 1. The Relative Atmospheric Thermal Enhancement (T_s/T_{na} ratio) as a function of the average surface air pressure derived from data representing a broad range of planetary environments in the Solar System. Saturn's moon Titan has been excluded from the regression analysis leading to the final model. Model predictions for Titan are within the uncertainty of available observations for that moon. Error bars of some bodies are not clearly visible due to their small size relative to the scale of the axes.

We present results from a novel Dimensional Analysis of observed planetary data spanning a broad range of environments in the Solar System, i.e. from the hot Venus to the frozen world of Neptune’s moon Triton. Our analysis reveals that the average global surface temperature of rocky planets with tangible atmospheres and negligible geothermal surface heating can accurately be predicted over a broad range of atmospheric conditions and radiative regimes using only two forcing variables: top-of-the-atmosphere stellar irradiance and total surface atmospheric pressure. The new empirical model displays characteristics of an emergent macro-level thermodynamic relationship heretofore unbeknown to science (Fig. 1). Figure 2 portrays the absolute model errors with respect to studied planetary bodies. The relationship is shown to be statistically robust while describing a smooth physical continuum without climatic tipping points of which Earth is an integral part. A key theoretical implication of the new model is that GE is not a radiative phenomenon as currently believed, but a pressure-induced thermal enhancement, which is independent of atmospheric composition. Our results provide new fundamental insights about the nature of climate forcing on different time scales, which we discuss. Using the new planetary temperature model as a base, we explain how climate models simulate warming with increasing greenhouse-gas concentrations in the atmosphere, and why such predictions are physically and mathematically incorrect.

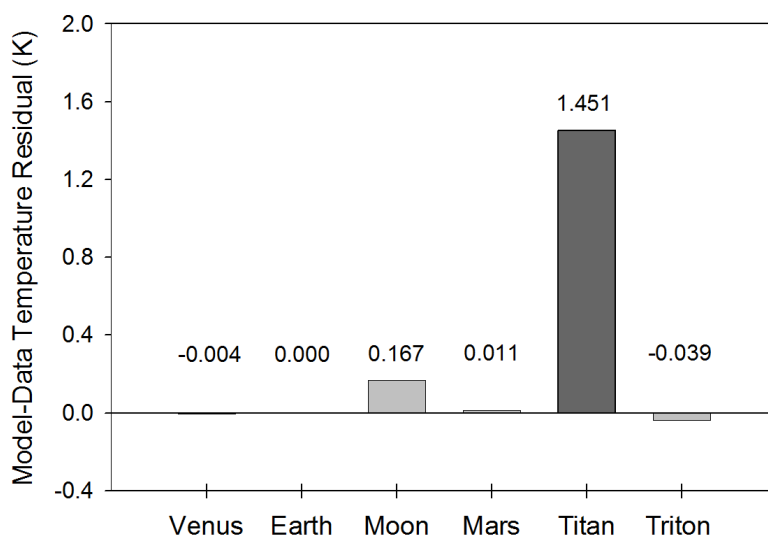


Figure 2 Absolute differences between modelled and observed average global surface temperatures of planetary bodies. Saturn’s moon Titan represents an independent data point, since it has been excluded from the regression analysis leading to the new model.

Multi-frequency spectral coherence between planetary and global surface temperature oscillations

Nicola Scafetta

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Scafetta (2016) investigated the existence of a multi-frequency spectral coherence between planetary and global surface temperature oscillations by using advanced techniques of coherence analysis and statistical significance tests. The performance of the standard Matlab mscohere algorithms is compared versus high resolution coherence analysis methodologies such as the canonical correlation analysis. The Matlab mscohere function highlights large coherence peaks at 20 and 60-year periods although, due to the shortness of the global surface temperature record (1850-2014), the statistical significance of the result depends on the specific window function adopted for pre-processing the data. In fact, the window functions disrupt the low frequency component of the spectrum. On the contrary, using the canonical correlation analysis at least five coherent frequencies at the 95% significance level are found at the following periods: 6.6, 7.4, 14, 20 and 60 years. Thus, high-resolution coherence analysis confirms that the climate system can be partially modulated by astronomical forces of gravitational, electromagnetic and solar origin.

This study adds an important contribution to the climate change debate. In fact, since 1900 the global surface temperature of the Earth has warmed by about 0.9 °C (Figure 1) and since the 1970s by about 0.5 °C. This warming occurred during a significant increase of atmospheric concentration of greenhouse gases (GHG), especially CO₂ and CH₄, which has been mainly induced by anthropogenic emissions because of fossil fuel burning. According to analytic climate models - e.g. those of the Coupled Model Intercomparison Project Phase 5 General Circulation Models (CMIP5 GSMs) (IPCC, 2013) - anthropogenic emissions have been responsible for more than the 90% of the global warming observed since 1900 and virtually 100% of that observed since 1970.

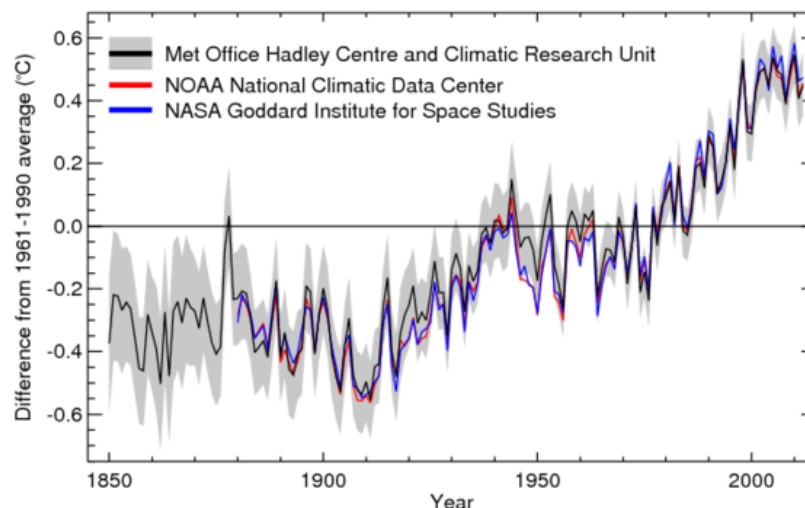


Figure 1: Global surface temperature.

However, several authors have pointed out that climate variability presents a sufficiently clear and strong solar and astronomical signature at multiple time scales (e.g.: Hoyt and Schatten, 1997; Bond et al. 2001; Kerr, 2011; Scafetta, 2010, 2013; Steinhilber et al., 2012; and many others). It has been also shown that a number of climatic fluctuations could be

induced by: 1) long range ocean tidal oscillations caused gravitationally by the Sun and the Moon (e.g.: Haigh et al., 2011; Wang et al., 2012; Scafetta, 2012b); 2) gravitational oscillations of the solar system, which are induced by the movement of the planets around the Sun (e.g.: Abreu et al., 2012; Morner, 2013, 2015; Solheim, 2013; Scafetta, 2010, 2012a-d, 2013, 2014, 2016; and references therein). Thus, several evidences point toward an astronomical/planetary origin of both solar variation and climate change also at the annual to the millennial time scales. Several planetary proxies have been used to highlight the coherence between planetary and climate oscillations. For example, in some study relevant for this abstract I used the speed of the Sun relative to the barycenter of the solar system, which is a convenient proxy to determine the main gravitational oscillation of the solar system: see Figure 2.

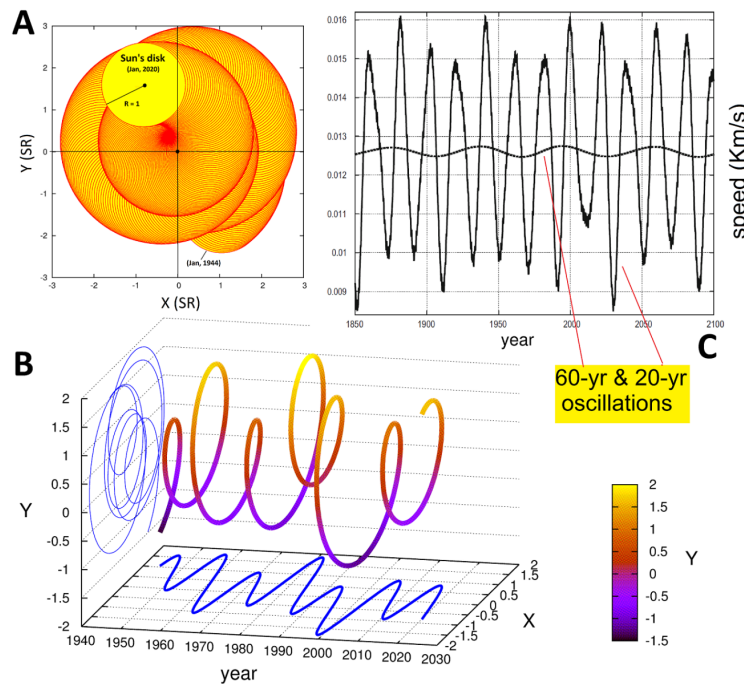


Figure 2: [A,B] The wobbling [A,B] and the speed [C] of the Sun relative to the center of mass of the solar system (From Scafetta, 2014).

Planetary theories of climate variations were widespread in ancient times and, in more recent times, a planetary theory of solar variation was proposed by Wolf (1859) to explain the 11-year solar cycle. Wolf hypothesized that the just discovered 11-year solar cycle could emerge from a combined influence of Venus, Earth, Jupiter and Saturn, which has been recently confirmed (Hung, 2007; Scafetta, 2012a; Scafetta, 2012b; Wilson, 2013). However, since the 19th century, the same theories have also received a number of critiques (e.g.: Smythe and Eddy, 1977; Callebaut et al., 2012; Cameron, R. H., Schüssler, 2013; Cauquoin et al., 2014; Holm, 2014; Holm, 2015). But several rebuttals to these critiques have also been produced.

The most typical rebuttals to the critiques can be summarized as follows: i) the Sun can react to a planetary tidal forcing because it is a nuclear fusion generator that might amplify the gravitational tidal effect (e.g.: Scafetta, 2012b; Wolff and Patrone, 2010); ii) an additional electromagnetic coupling could link the Sun to the planets throughout the solar wind (e.g.: Scafetta and Willson, 2013b); iii) the solar-climate physics occurs throughout some heliosphere dynamics (e.g.: Scafetta and Willson, 2013b; Scafetta and Willson, 2013a); iv) the coupling between some astronomical and the solar-climate harmonics is very good when the appropriate astronomical proxies that takes into account multiple planets are constructed (e.g.: Scafetta, 2014; Scafetta, 2016; Sharp, 2013; Wilson, 2013); v) the spectral coherence at the given harmonics is statistically significant above 95% when the calculations are done

correctly and once the limits of the used analysis algorithms are properly considered (see also: Scafetta, 2014; Scafetta, 2016).

About the last issue, more specifically, Holm (2014) claimed that “*An estimate of the magnitude squared coherence shows instead that under certain conditions only coherence at a period of 15–17 years can be found in the data*” and, therefore, he dismissed the otherwise well observed and expected coherence between astronomical and climate records at the 20- and 60-year periods. Scafetta (2014, section 3) rebutted the claim demonstrating that Holm's analysis was prejudiced by its too low spectral resolution due to Holm's adoption of too short Fourier windows. In his response, Holm (2015) acknowledged the validity of my rebuttal and that longer windows needed to be used. He also confirmed the existence of a spectral coherence peaks at 20 and 60-year periods when a window of 109-year is adopted. However, in his 2015 work Holm added that the coherence result did not meet the 95% confidence level and concluded that because “*none of the high values of coherence then turn out to be significant ... the planetary hypothesis is therefore dismissed.*”

Scafetta (2016) rebutted Holm's claim demonstrating that Holm's result is an artifact of the low spectral resolution of the mscohere and wavelet methods that he adopted. In fact, the data have specific characteristics (e.g. the shortness of the temperature data) that require the adoption of high resolution spectral coherence methodologies to perform a meaningful analysis of the spectral range of interest and of its significance evaluated with Monte Carlo simulation based on a non-parametric random phase method.

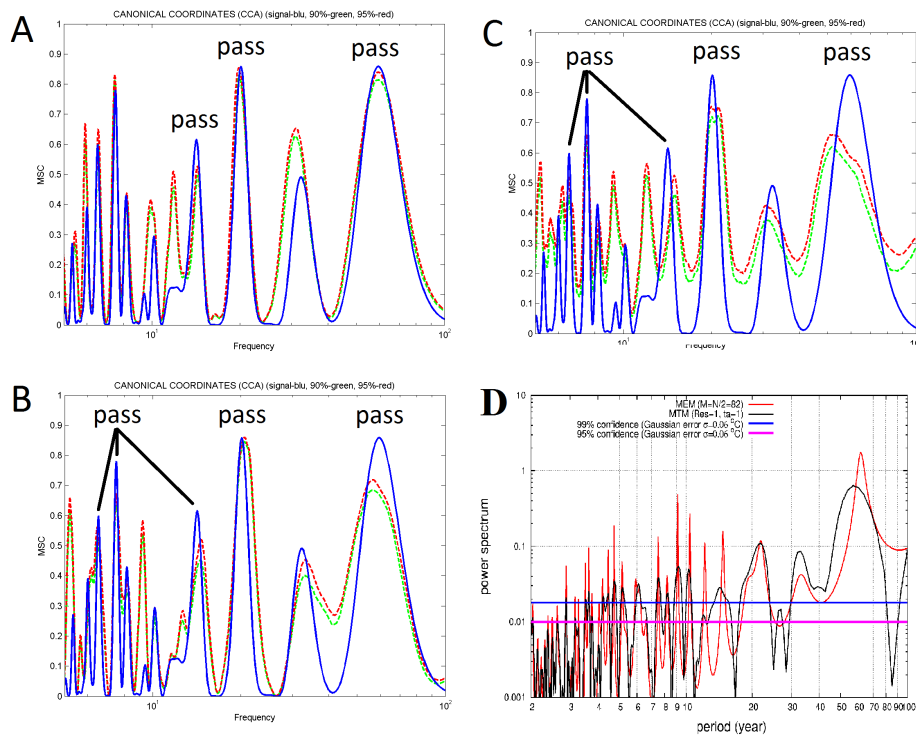


Figure 3: [A, B, C] The magnitude squared coherence canonical coordinates analysis (blue) vs. 90% (green) and 95% (red) significance levels. [D] Spectral analysis of the global surface temperature record (Scafetta, 2016).

Figure 3 show the canonical correlation analysis between the global surface temperature record and the speed of the Sun relative to the baricenter of the solar system. The same Monte Carlo simulations based on the non-parametric random phase method for serially correlated data is applied for the significance test. As the figure shows, the 95% significance level is well met by both the 20- and 60-year MSC peaks either when the Fourier shuffling of the test is applied to only the temperature data (Figure 3A), or to only the astronomical record (Figure 3B) or to both records simultaneously (Figure 2C). Also other coherence peaks at about 6.6, 7.4 and 14 years pass well the 95% significance level.

In general, Figure 3 fully confirms the significance of the coherence results revealed by the direct moving window MEM time frequency analysis between the global surface temperature record and the speed of the Sun relative to the baricenter of the solar system reported in Figure 4 (Scafetta, 2014).

Because a common set of oscillations between the astronomical and the climate harmonics has been identified, Scafetta (2013) proposed that the global surface temperature record could be reconstructed from the decadal to the millennial scale using a minimum of 6 harmonics at 9.1, 10.4, 20, 60, 115 and 983 years plus an anthropogenic and volcano contribution. The latter could be evaluated from the CMIP5 GCM average outputs under the condition that their original contribution is reduced by half. In fact, as explained above, the inability of the CMIP5 models in reconstructing the temperature oscillations such as the 60-year cycle, implies that the real climate sensitivity to radiative forcing is about half than what assumed by the current analytic climate models.

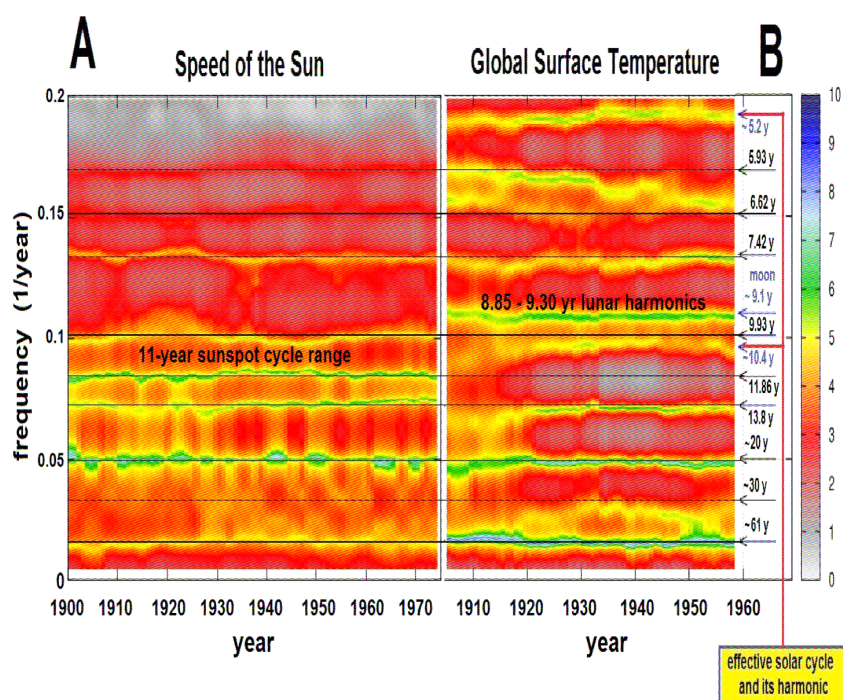


Figure 4: Comparison between the continuous spectral analysis of the speed of the sun relative to the barycentre of the solar system (left) and of the global surface temperature record (right) (Adapted from Scafetta, 2014).

Figure 5 compares the original average simulations of the CMIP5 models according to four alternative emission scenarios (rcp 2.6 to rcp 8.5) used by the IPCC (2013) against the correspondent predictions of the solar–astronomical semi-empirical model constructed as explained above and proposed in Scafetta (2013). The proposed solar–astronomical semi-empirical model reconstructs the temperature record significantly better than the CMIP5 models by a factor of 2 or 3 (Scafetta, 2013). This is particularly evident since 2000 where the CMIP5 models clearly overestimate the warming while the solar–astronomical semi-empirical model well reconstructs the standstill temperature pattern. This temperature standstill could last until 2030.

Figure 5 also shows another important result of the solar–astronomical semi-empirical model. In fact, by 2100 the model predicts a warming lower than 2 °C even in the worst anthropogenic emission scenario, which is the rcp 8.5 meaning that the radiative forcing increases by 8.5 W/m² from 2000 to 2100. This projected warming should be compared to the very alarming 4 °C increase predicted by the original CMIP5 models adopted by the IPCC (2013). Thus, the inclusion of the natural oscillation of the climate imply that this is significantly less sensitive to anthropogenic forcing and that the 21st century could experience, at most, a moderate and not too alarming warming of no more than 2 °C.

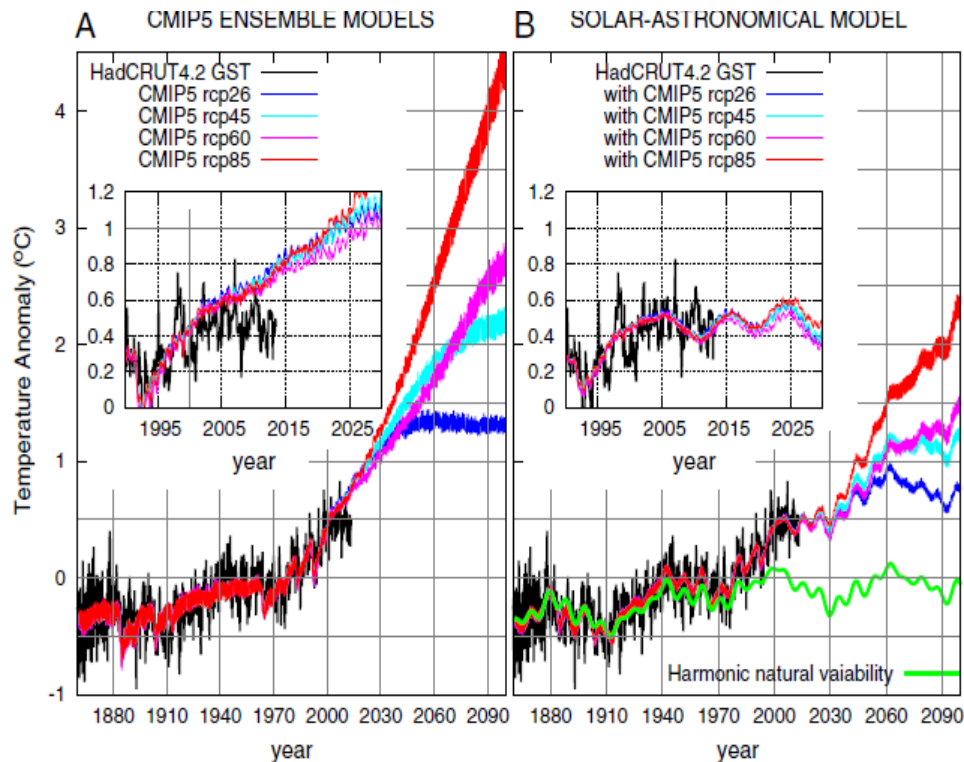


Figure 5. [A] The four CMIP5 ensemble average projections versus the HadCRUT4 GST record (black). [B] The solar–astronomical semi-empirical model (Scafetta, 2013).

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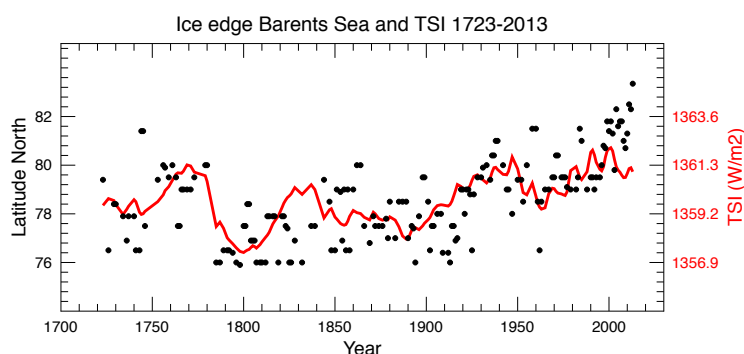
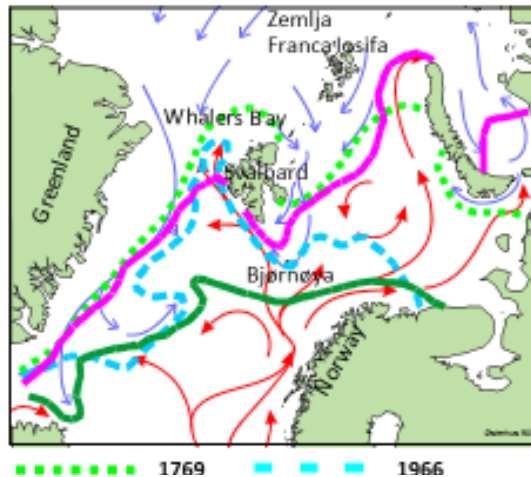
The ice edge position in the Barents Sea – related to Sun and planets since 1579

Jan-Erik Solheim; University of Tromsø, Norway (retired)
Stig Falk-Petersen; Akvaplan-niva and University of Tromsø
Ole Humlum; University of Oslo and UNIS, Svalbard



The Ice edge observed between Svalbard and Greenland on Feb. 18, 2015 (photo: Ole Humlum)

The first oil-boom in Europe was based on oil from whales captured north of 79°N in a period of reduced sea ice in the Arctic 1680-1790. The near extinction of the bowhead whale stock near Svalbard during this time was followed by a period of rapid increase in the extent of summer (August) sea ice commencing around 1790, when the ice edge moved some 500 km southwards to the southern tip of Spitsbergen (around 76°N) within just a few years (1). This coincided with the Dalton sunspot minimum. The period of heavy summer ice lasted until approximately 1910, after which the ice again retreated northward. Since the 1980s the summer ice edge has once again occurred north of 80°N, and bowhead whales are observed north of Svalbard after 2000 (1). Based on logbooks from whalers and early explorers, supplied by airplanes and satellites in modern times, it has been possible to estimate the location of the ice edge between Svalbard and Franz Josefs land (20-45°E) for the period 1579-2015 (2).

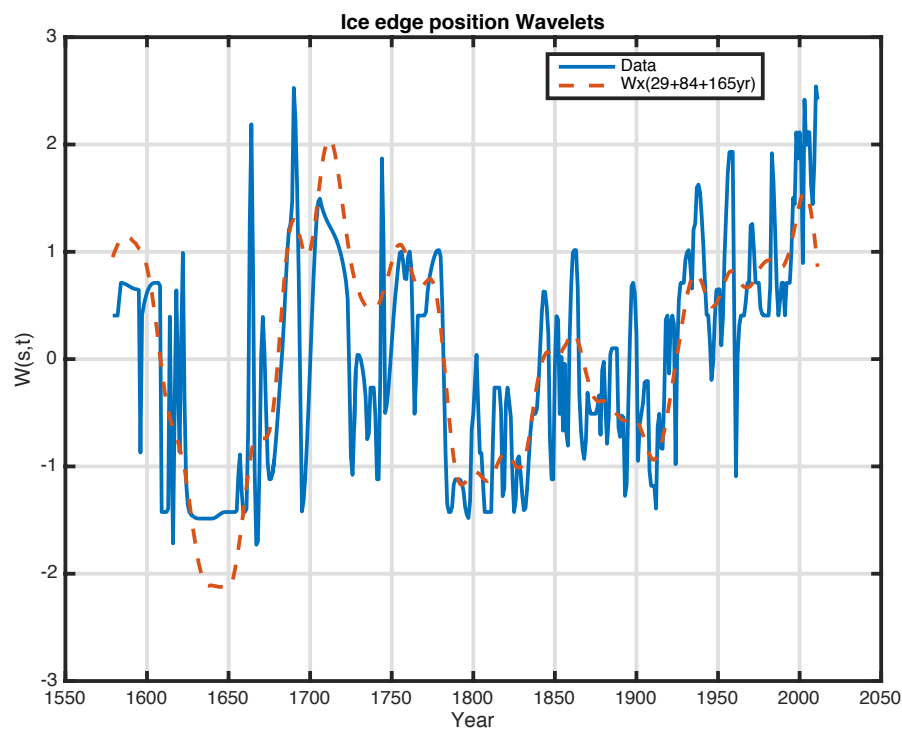


The location of the ice edge mirrors the solar activity, showing the Maunder and Dalton minima, and a shorter minimum around 1910 before the modern maximum with a peak about 2000. The position of the ice edge correlates with the

Hoyt-Schatten TSI reconstruction calibrated with ACRIM satellite data ($r=0.66$) from about 1720. In the figure (previous page) the ice position is shown with black dots and the TSI with a red curve.

Subtraction of an ice-edge-TSI linear relation shows a secular movement of the ice edge one degree north per 300 years, which may be interpreted as an effect of the precession of the Earth's orbit (3). Before 1720 there are gaps in the data. The ice edge was often far south between 1610 and 1720, but there were years within the Maunder minimum with very little ice, either due to increased solar activity or special climate conditions. We suspect that the Little Ice Age also created unusual wind patterns that could move the ice far North.

We have analyzed the ice-edge-position time series with a wavelet that also gives phase information. An autocorrelation of the wavelet spectrum identifies stationary first periods, sub-harmonic periods and coincidence periods in the wavelet spectrum. The autocorrelation spectrum is rather complex and may be related to lunar, solar and planetary cycles. We find periods close to the orbital periods of Uranus ($P_U=84$ years), $2 \cdot P_U$ (168 years) or Neptune ($P_N=165$ years), and Saturn ($P_S=29$ years).



The sum of the three planet related wavelets explain very well the change in ice edge position as shown in the figure above. Since the planets move in determined orbits we may calculate future variations in the ice edge position, as we can do with the TSI (4). We may expect a new solar deep minimum with the ice edge moving south during the next decades.

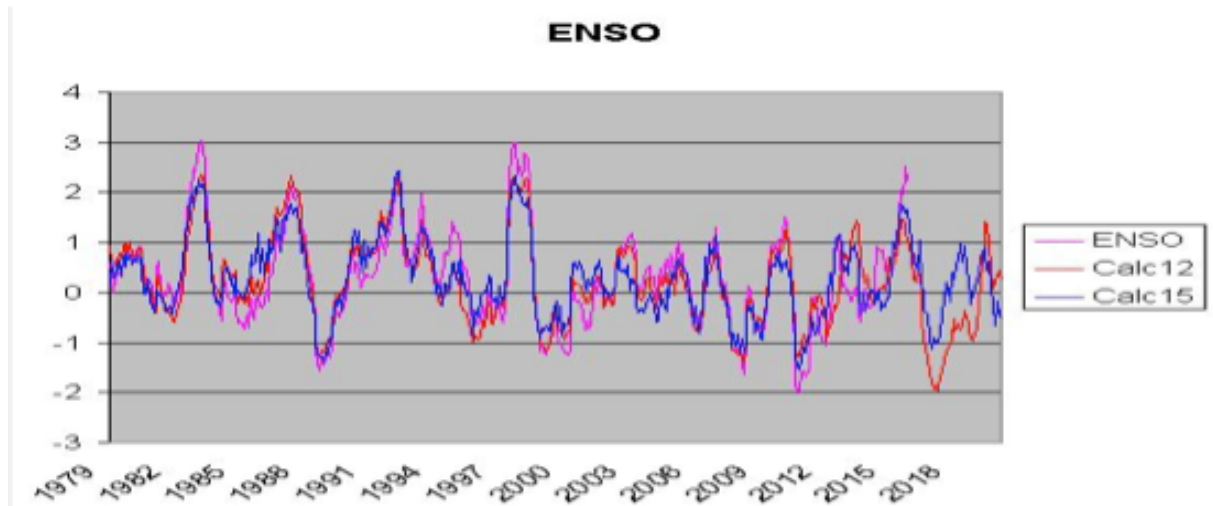
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Drivers of ENSO variability

Per Strandberg

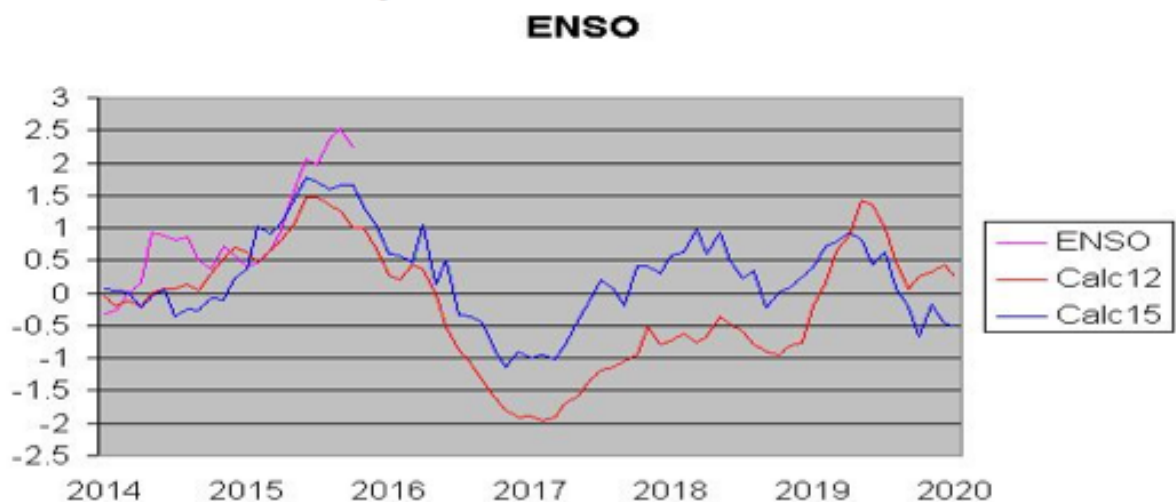
With the use of an Artificial Neural Network (ANN) software it has been found that Lunar Perigee Pulses, variations in Kp and Ap indices and variations in solar wind can explain large part of ENSO variability. The ENSO index used here is the MEI Multivariate ENSO Index from NOAA.



ENSO El Niño Southern Oscillation ANN forecast.

In this picture over ENSO, the first line is the ENSO index according to monthly Multivariate ENSO Index (MEI) values which ends in October 2015.

The values Calc12 and Calc15 are from the ANN. Both of these use the same training period from 1979 and up the end of 2004. The difference between Calc12 and Calc15 is that for Calc12 the test period is from 2004 and up to the end of 2011 and which is then followed by forecast, but for the Calc15 the value test period is from 2004 up to the end of 2014 which is followed by forecast between 2015 and up to 2020.



ENSO tidal pulse and solar ANN forecast Oct. 2014 to 2020.

The calculated size of the gravitational anomaly during Lunar Perigee is the resulting vector that is calculated based on the Lunar Perigee tidal gravitational force vector and of the Solar tidal gravitational force vector at the time of Lunar Perigee.

The strength and the latitude on which the gravitational anomaly is acting during each Lunar Perigee Pulse varies widely. Seemingly it looks chaotic, but in fact its effect on ENSO is systematic. The daily high tide gravitational force is about 60% stronger when the Moon is closest to Earth, than when it's in Apogee. Add to that, an extra 30% increase in the gravitational force when Perigee is occurring during Full Moon or during New Moon. When the Moon is in Perigee, it's angular speed is over 14 degrees during a 24-hour period. The result of this is that each Lunar Perigee Pulse act during a short time window.

There exist an 8.85 years cycle in the angular shift in the orientation of Moon's elliptical orbit.

The points where the Moon crosses the ecliptic plane moves. These points make a complete orbit after 18.6 years. The Moon's orbit is tilted about 5% against the ecliptic plane. The result of this, is that the latitude of the gravitational vector during Lunar Perigee, including also that from the tidal force from the Sun, can vary from about 0 degrees and up to about 25 degrees as the tilt of Earth's axis is about 23 degrees.

The connection between these Lunar Perigee pulses and ENSO is on the derivate values of ENSO, while the solar wind and variations in Earth's magnetic field have a direct influence on the proportional value of ENSO.

There are many ways that Lunar Perigee Pulses can affect ENSO. One way is that it can change the speed of the Northern and Southern Pacific Gyros. When they speed up, then ENSO is driven toward La Niña conditions and when they speed down, ENSO moves toward El Niño conditions.

Lunar Perigee Pulses also seems to initiate tropical pacific Kelvin Waves. Kelvin Waves transport warm water from the warm pool in the Western Pacific Ocean and move this water toward the east of the Pacific Ocean under the surface. However, two consecutive Lunar Perigee dates never both creates Kelvin Waves. This is probably due to variations in the size of the Lunar Perigee Pulse gravitational force, on variations on its latitude and on influence from the MJO index. In other words, Kelvin Waves, which is a mechanism which fuels El Niños with warm water appear at intervals which follows multiples of what is called the Anomalistic month. The different between two close consecutive Kelvin Waves is usually 55 days.

While the future values of Lunar Perigee Pulses can be precisely calculated, that is not true for changes in the magnetic field and for changes in solar wind. However, estimated trends can be drawn. Ap and Kp index of Earth's magnetic field are influenced by solar activity. The other solar parameters used are solar wind speed, solar wind density and solar wind temperature. Data for the forecast for the magnetic and solar wind are simulated based on expected trend in solar activity. The likely connection of these solar parameters and ENSO is that these parameters affect Walker Circulation through changes in the trade wind. The ANN uses monthly data. The in-data to the ANN are picked from months ranging from the previous month and months back to 3 years. Lunar Perigee Pulses, changes in Earth's magnetic field and variations in solar winds are major drivers of ENSO variability. My estimate is that Lunar Perigee pulses is responsible for about 60-70 %, variations in Earth magnetic fields and solar wind are responsible for about 25-35 % and that chaotic weather noise is responsible for about 5-10 % of the forcing of ENSO.

Additional information

at <http://www.coolingnews.com/the-cause-of-enso>

for calculation of position of the Sun and the Moon: http://www.alcyone.de/alcyone_ephemeris.html

for Ap, Kp and solar wind: <http://omniweb.gsfc.nasa.gov/form/dx1.html>

for tidal force calculations: https://en.wikipedia.org/wiki/Tidal_force

An overview of Solar Influence on Climate

Indrani Roy
University of Exeter

An overview of the processes shown in determining the solar influence on climate is formulated in a holistic way and presented in the form of a flow chart, focusing on the Pacific region (Fig. 1). Hypotheses and evidence relating the combined influences of the Quasi-Biennial Oscillation, the El Niño-Southern Oscillation, and the Solar Cycle on the Walker and Hadley circulations are discussed in the context of atmosphere-ocean coupling. It suggests that the Sun plays a crucial role in that coupling, but it appears to be disturbed during the final half of the last century, probably related to climate change. This study leads towards a better understanding of atmosphere-ocean coupling system, accounting for solar cyclic variability and will be useful for improving understanding of the sun-climate relationship.

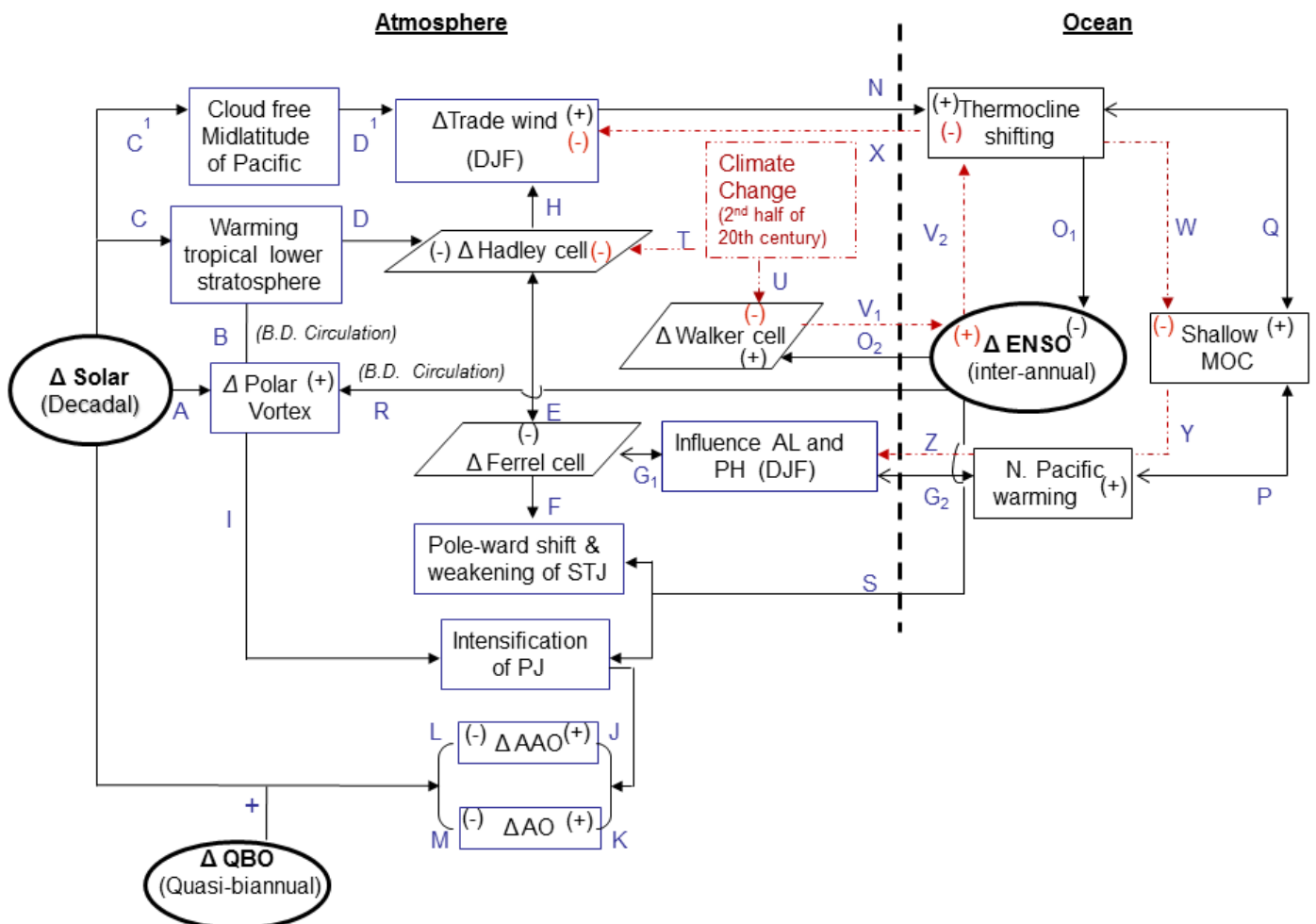


Fig. 1. Flow chart showing atmosphere and ocean (only Pacific) coupling involving Sun, QBO, ENSO and climate change (from Roy, 2014).

Table indicating whether the pathways in Figure 1 are evidenced or hypothetical

	Observation	Mechanism	
		Explained	Hypothesised
Lower Stratosphere and midlatitude of Pacific (A-H)	<u>A.B.D.E.F.G.H</u>	<u>A.B.C.D.E.F.H</u>	<u>G.H</u>
Atmosphere ----- (A-M) ----- Upper Stratosphere (A, I-M)	<u>A.I.J.K.L.M</u>	A	
Atmosphere-ocean Coupling (N-S)	<u>O.P.Q.R.S.G</u>	<u>R.N.O</u>	<u>P.G</u>
Climate Change (T-Z)	<u>T.U.V.W.X.Y.Z</u>	<u>T.U.V.X</u>	Z

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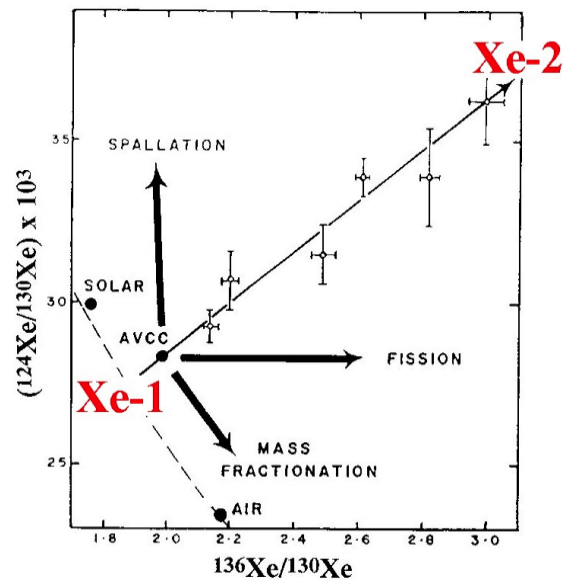
Neutron repulsion

Oliver K. Manuel

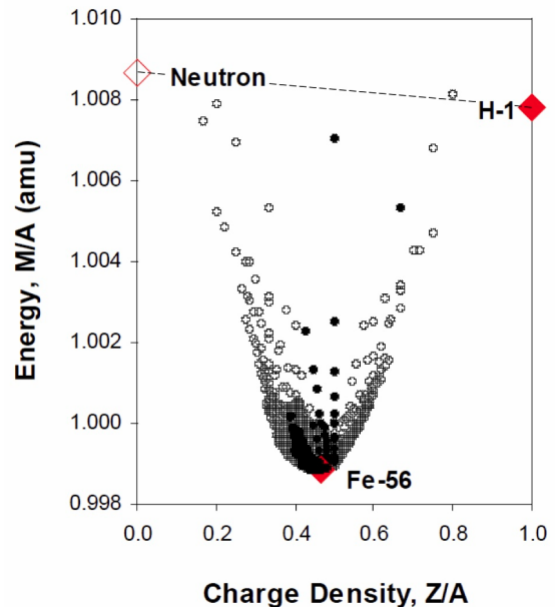
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Earth is connected gravitationally, magnetically and electrically to its heat source, a pulsar heated by neutron repulsion - like a hot filament in an incandescent light bulb of H and He waste products. Einstein and Aston considered rest masses of atoms in terms that would later explain variations in abundances of elements and isotopes, climate-changing solar eruptions, and life's origin and evolution in terms confirming Kuroda's 1945 insight into the beginning of the world (page 2): *"The sight before my eyes was just like the end of the world, but I also felt that the beginning of the world may have been just like this."*

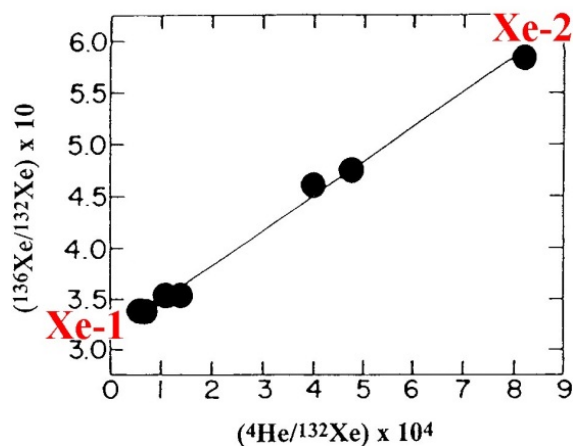
1. "Strange xenon" (Xe-2) in outer parts of the solar system; "Normal xenon" (Xe-1) of rocky planets and meteorites is severely mass fractionated in the Sun:



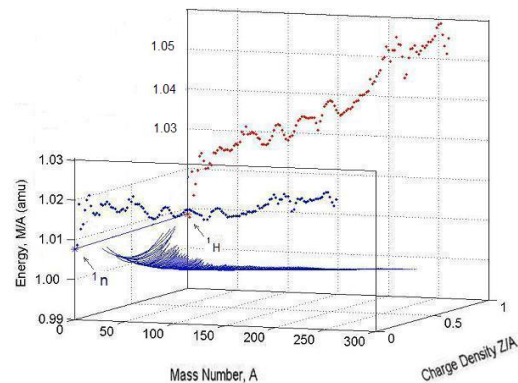
3. Aston's packing fraction correctly defined nuclear stability in terms of mass or energy, M/A . Weizsacker mistakenly calculated nuclear binding energy as energy loss from the dashed, sloping line.



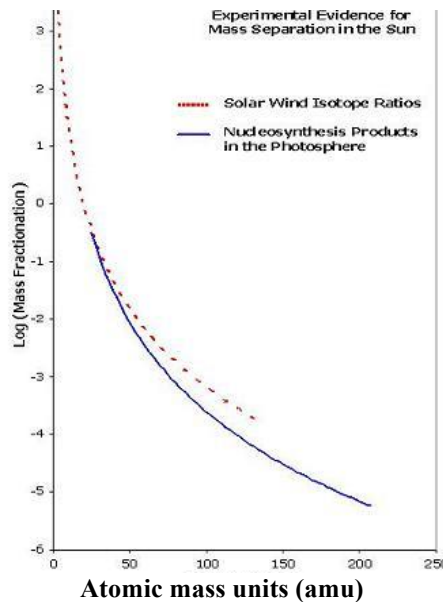
2. "Strange xenon" (Xe-2) was made by the r- and p-processes of nucleosynthesis in outer, He-rich part of the supernova that birthed the solar system and formed gaseous planets like Jupiter of H & He.



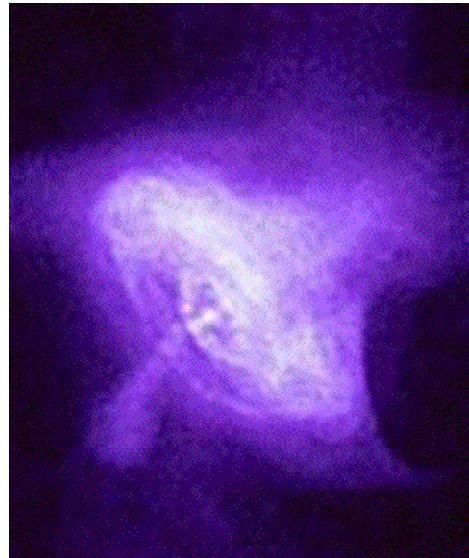
4. Weizsacker's nuclear binding energy exaggerates proton repulsion (Red d-ts, back) and hides neutron repulsion (Blue d-ts, front) in atoms, planets, stars, galaxies that triggers neutron-emission, neutron-decay to hydrogen, fragmentation and expansion of the universe.



5. Enriched [lightweight s-products](#) in the photosphere and [noble gas isotopes](#) in the solar wind show mass-fractionation (3-207 amu) and a solar interior of Fe, O, Ni, Si & S - like meteorites and rocky planets.



6. The Sun's rocky mantle encases a pulsar remnant of the supernova that birthed the solar system 5 Ga ago and sustains atoms, lives and planets today, just like the one that birthed the Crab Nebula in 1054 AD.



Conclusion: Sane government policies protect society from real dangers - like the impulsive solar eruptions induced by planetary-solar interactions that may reset civilization every 1,000 years - rather than plant nutrients - like CO₂. It is now becoming obvious, even to mainstream science news reporters, that the [heavens are filled with “mysterious” explosions](#), probably generated by neutron repulsion, the source of energy that is indelibly recorded in exact rest masses of the ~3,000 types of atoms that compromise all matter ([Blue Dots](#) in Figure 4).

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Documented pH and temperature anomalies in the deep ocean

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The Oceanic Crust of the Earth

The deep ocean water column is stratified, with cool (high-density) water masses generally ‘hugging’ the deepest portions of the oceans. The oceans cover about 72% of our planet’s surface, and have a mean depth of ca. 3,600 m. The deepest portions of the oceans are floored by ‘Oceanic Crust’ (OC), composed mainly of the high-density rock, basalt. Thus, the OC covers about 60% of the Earth’s surface.

In contrast to the Continental Crust, which consists of low-density, granitic rock, and reaches thicknesses of up to 200 km, the OC, is much thinner, with an average thickness of only 8 km. Because the upper mantle is partly molten, it has a temperature of about 1,100 – 1,200 °C, and because the overlying OC is so thin, it lets some of the heat from the interior of the Earth leak through, to the ocean floor, where the heat flux interacts with the ocean water column. Over 35 years of scientific ocean drilling (e.g., ODP ‘Ocean Drilling Program’), has shown that the OC is highly mobile and has a very complex structure, depending on where it is located relative to spreading centers and subduction zones. ODP-results have shown that the OC is surprisingly porous, with up to 25% regional porosity, which allows seawater to circulate in and out, and even lets water interact with the upper mantle.

Hydrothermal systems

One of the first documentations of high-temperature deep-water anomalies was made during the British ‘Discovery’-expedition to the Red Sea, in 1964. One oceanographic station was located in the middle of the 1,800 km long Red Sea, at a water depth of just over 2,000 m, the ‘Discovery Deep’. When the water sampler reached the decks of Discovery, the scientists were astonished to find hot, high-salinity water of 44 °C, and a pH-value of only 5.2!

What was heating the seawater, here? Why was the seawater so salty (158 ‰, whereas normal seawater has a salinity of 30 ‰)? Could there be heating of the seawater by volcanic eruption, or was seawater circulating into and out of the local crust? It took earth scientists another 30 years, before they finally witnessed how seawater is sucked into the OC and vented out of it after being heated by a magma chamber located near the seafloor surface.

In 1977, the deep-diving submarine ‘Alvin’ dove over the ‘East Pacific Rise’ (EPR), which was known to be a ‘spreading ridge’, where two OC-plates were rifting-apart, and partly exposing a magma chamber. Inside the Alvin were J.B. Corliss, and J.M. Edmond. For the very first time, the immense force of a hydrothermal system, a so-called ‘black smoker’ deep hot vent was visually documented. It billows water blackened by heavy loads of different minerals, some of which are metals. Inside the chimney structure from which the scolding hot water emits, there is supercritical water, a phase of water which is neither gas (vapor), nor a liquid, but something in between. It has a density of 0.3 and a temperature close to 400 °C.

Serpentinization

Today, about 50 years after the Discovery-expedition, we have documented about 300 of the estimated 11,000, or so deep-ocean hot vents of the Earth...In addition, we know that there are also other warm and hot vents, which are not ‘black smokers’. Perhaps the most important geo-process on our planet is the so-called serpentinization process, whereby seawater interacts directly with hot (ultramafic) rocks of the upper mantle.

The rocks of the upper mantle consist of magnesium silicates, called ‘peridotite’ and ‘pyroxenites’ (Holm et al., 2015), which contain olivine, $(\text{Mg,Fe})_2\text{SiO}_4$. In 2001, the ‘Lost City’ vents were discovered, - again, with ‘Alvin’, diving near the Mid Atlantic Ridge, south of the Azores. This time, no black smokers were seen, but up to 60 m high spires of seeping, white carbonate. The temperature of the emitting water was 90 °C, and the pH-value of the water was up to 10 (highly alkaline)! The process producing these warm, highly alkaline fluids turned out to be serpentinization, a reaction between seawater and the mantle magnesium silicates. The reason why this is such an important process, is that it produces large amounts of free hydrogen (H_2), which combines with CO and CO_2 to produce enormous volumes of methane (CH_4) and other hydrocarbons (Holm et al., 2015).

Cold vents

In addition to the thousands of hot and warm vents in the deep ocean, there are also cooler venting systems, associated with the deep sedimentary basins of the world, like those found in river deltas, and collision zones, ‘accretionary prisms’. In these locations, there is active natural production of light and heavy hydrocarbons and seeps of brines and petroleum. The study of these ‘cold vents’ started about 40 years ago, and is still taking place. Judging from the rate of discovery so far, there must be hundreds of thousands of such seeps. All of them interact with the seawater, both chemically and thermally, and therefore also perturbing the local near-seafloor pH-value (Hovland et al., 2012).

Conclusions

We are just about to embark on understanding the interactions between the lower part of the ocean water column and the seafloor, including the Ocean Crust (OC). We know that such interaction is much more dynamic than previously thought, and we have to find out how these processes feed into the rest of the ocean, including its surface waters, and the general and global marine environment.

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Sub-aerial and submarine volcanic eruptions and climatic variability

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The study of observational records including satellites and media reports of ‘modern’ sub-aerial and submarine volcanic eruptions have provided insight on their role in regional climatic events. The two simplified models are shown in Fig. 1 and Fig. 2.

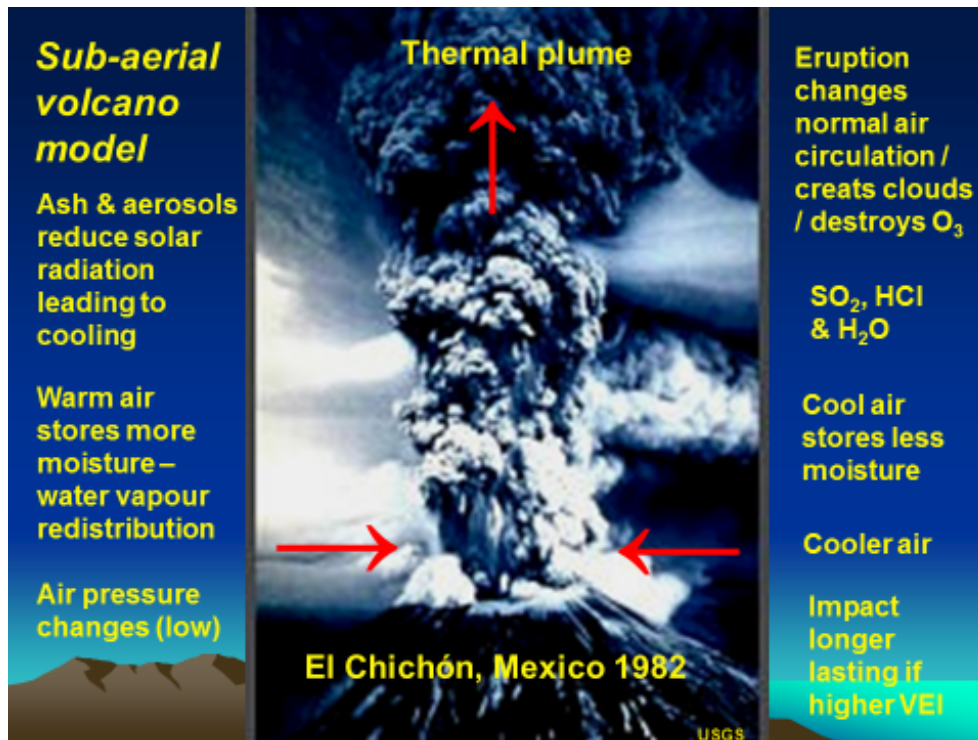


Fig. 1

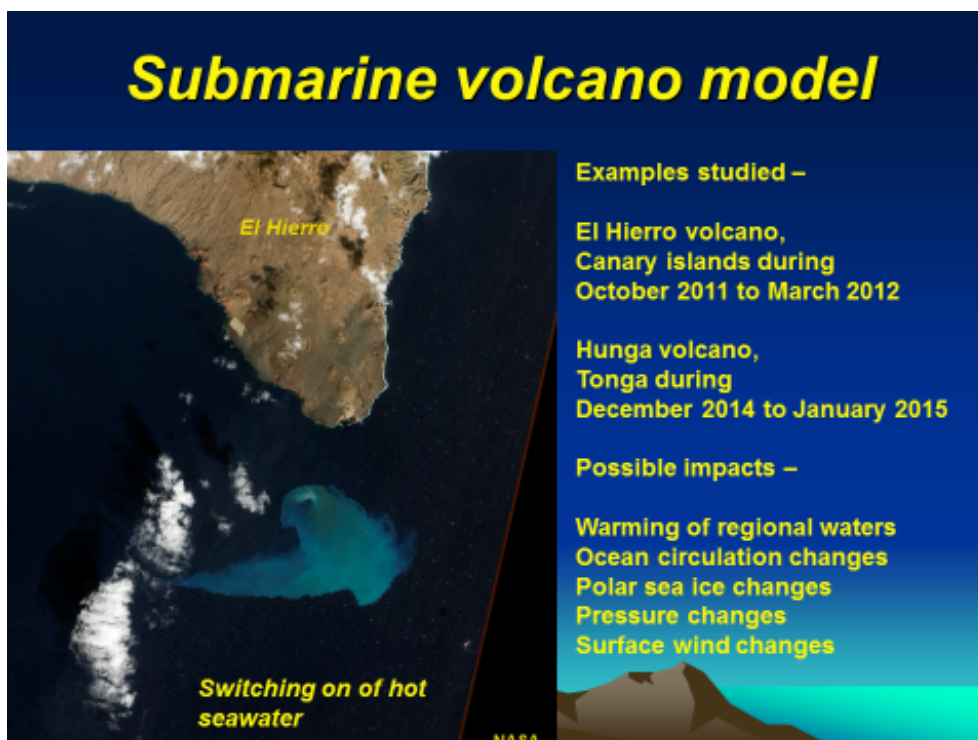


Fig. 2

Sub-aerial volcanic eruptions release hot air, gases and tephra which may enter both the troposphere and stratosphere. The Volcanic Explosivity Index (VEI) provides a relative measure of the explosiveness of the volcanic eruptions. For determination, the volume of products ejected, eruption cloud height, and qualitative observations are used.

No ranking exists for submarine volcanic activity, but basaltic magma, which dominates submarine eruptions, is hotter than their intermediate and acidic counterparts. The observational record of submarine volcanic eruptions at present is inadequate but sea-surface temperature anomalies provided by the National Oceanic and Atmospheric Administration are useful for tracking the warming of regional waters caused by the submarine eruptions as well as subsequent ocean circulation changes.

Examples of climatic impacts attributable to selected sub-aerial and submarine volcanic eruptions are shown in the table below.

Eruption	Date	VEI	Type	Climatic impact(s)
El Chichón Mexico	4/4/1982	5	Sub-aerial	Abnormally wet 1982 in southern China with severe floods and numerous landslides since the arrival of the eruption cloud in about 12 days; second wettest year in Hong Kong since record began in 1884
Pinatubo Philippines	15/6/1991	6	Sub-aerial	Global drought year in spite of the mid-June eruption date explained by the eruption timing during the passage of Typhoon Yunya over Luzon; global temperature fall
Chaitén Chile	2/5/2008	4	Sub-aerial	Wet May-June in South Africa; wet June in the Australian interior; wettest June in Hong Kong since record began in 1884, 7 th June rainstorm 35 days after eruption was the most severe in Hong Kong's history triggering ~24,000 landslides on Lantau Island
Soufrière Hills Montserrat	11/2/2010	3	Sub-aerial	Disastrous frontal activity storms in Madeira (20 th February) and France (26-28 th February) with 241 km/hour wind gust, severe floods and heavy death tolls
Eyjafjallajökull Iceland	14/4/2010	4	Sub-aerial	Moisture transfer into central Europe - wettest May and wettest year in Slovakia since record began in 1881, severe flooding also in Czech Republic, Poland and Germany
El Hierro Canary Islands	10/2011- 3/2012	n.c.	Submarine	Greenland ice sheet melting in July/record low Arctic sea ice; Hurricane Sandy; severe central North America drought; wettest English summer in 100 years with annual rainfall of 1331 mm (115% above average) and severe floods; hottest July in Virginia
Hunga Tonga	19/12/2014- 26/1/2015	2?	Submarine/ Sub-aerial	Possible initial trigger of the 2015 El Niño; severe tropical cyclone Pam hitting Vanuatu on 12-14 th March; three disastrous storms including hail inflicting severe damage to coastal New South Wales during April to May
Wolf Galapagos	25/5/2015	1?	Sub-aerial	Exacerbated warming of the East Pacific warm pool seen as an important 'late' contributor to the strong 2015 El Niño

The role of sub-aerial and submarine volcanic eruptions in natural climatic variability is underestimated by the scientific community. Investigation of such events should further our understanding on climatic variability and also provide clues for refining climate modelling.

Ozone depletion, not greenhouse warming, caused recent warming

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Annual average global temperatures remained relatively constant from 1945 to 1970, rose from 1970 to 1998, remained relatively constant from 1998 through 2013, known as the global warming hiatus, and rose sharply since 2014 (Fig. 1). Meanwhile CO₂ concentrations have risen at ever increasing rates, so that they are unable to explain the inflection points in temperature trends in 1970, 1998, and 2014.

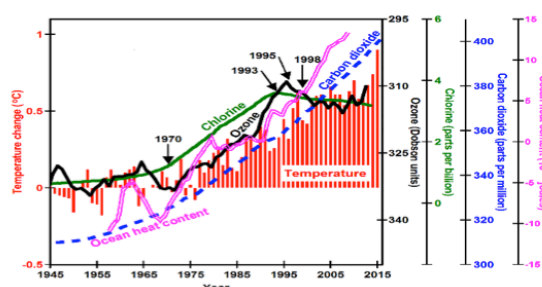


Fig. 1. Trends in temperature, tropospheric chlorine, ozone depletion, CO₂, and ocean heat content since 1945. Temperatures NOAA [2016a]. CO₂ NOAA [2016b]. Ocean heat content Levitus et al. [2012].

Chlorofluorocarbons (CFCs) became popular in the 1960s for use as spray-can propellants, refrigerants, solvents, etc. because they are so chemically inert. The green line shows the tropospheric chlorine available tied up in CFCs based on the amounts manufactured [Solomon, 1999]. By 1970, ozone depletion and temperatures began to rise. Molina and Rowland [1974] discovered that CFCs high in the stratosphere are broken down by ultraviolet-C solar radiation ultimately releasing chlorine atoms especially in the vicinity of polar stratospheric clouds (PSCs) in late winter. One atom of chlorine can destroy 100,000 molecules of ozone. With discovery of the ozone hole over Antarctica [Farman et al., 1985], scientists worked closely with politicians to pass the Montreal Protocol on Substances that Deplete the Ozone Layer, limiting manufacturing of CFCs effective January 1989. By 1993 tropospheric chlorine stopped increasing. By 1995 ozone depletion stopped increasing. By 1998 temperatures stopped increasing. Humans had accidentally caused warming by manufacturing CFCs and accidentally

stopped the warming by trying to reduce ozone depletion.

Ultraviolet-B is the highest energy solar radiation to reach the lower stratosphere where it is absorbed by ozone, causing dissociation in the Chapman cycle, warming the ozone layer. When ozone is depleted, less UV-B is absorbed by the ozone layer, causing it to cool, and more UV-B reaches Earth, causing it to warm. UV-B penetrates oceans tens of metres, directly and efficiently increasing ocean heat content, which continues to increase because ozone remains depleted relative to pre-1970 levels. A warmer ocean absorbs less CO₂, providing at least a partial explanation for continued rise in CO₂.

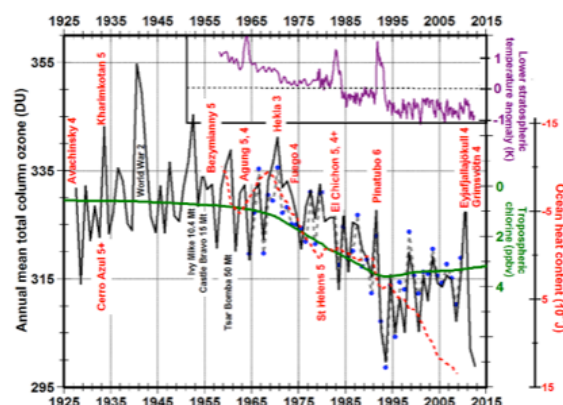


Fig. 2. Annual mean total column ozone measured at Arosa Switzerland (black line), chlorine (green) temperature lower stratosphere (purple), ocean heat content (dashed red). Volcanic eruptions (red lettering).

Chlorine and bromine from volcanic eruptions are also observed to deplete ozone (Fig. 2). The greatest depletion was in 1992 and 1993, following the 1991 eruption of Mt. Pinatubo, the most explosive volcanic eruption since 1912. A similar amount of depletion followed the much smaller

eruption of Eyjafjallajökull in 2010 that included a lava flow and was followed by the 2010 eruption of Grímsvötn. Sudden warming began again in 2014 with the

effusive eruption of Bárðarbunga in Iceland, which extruded 85 km² of lava, the highest rate of basalt extrusion in the world since 1783.

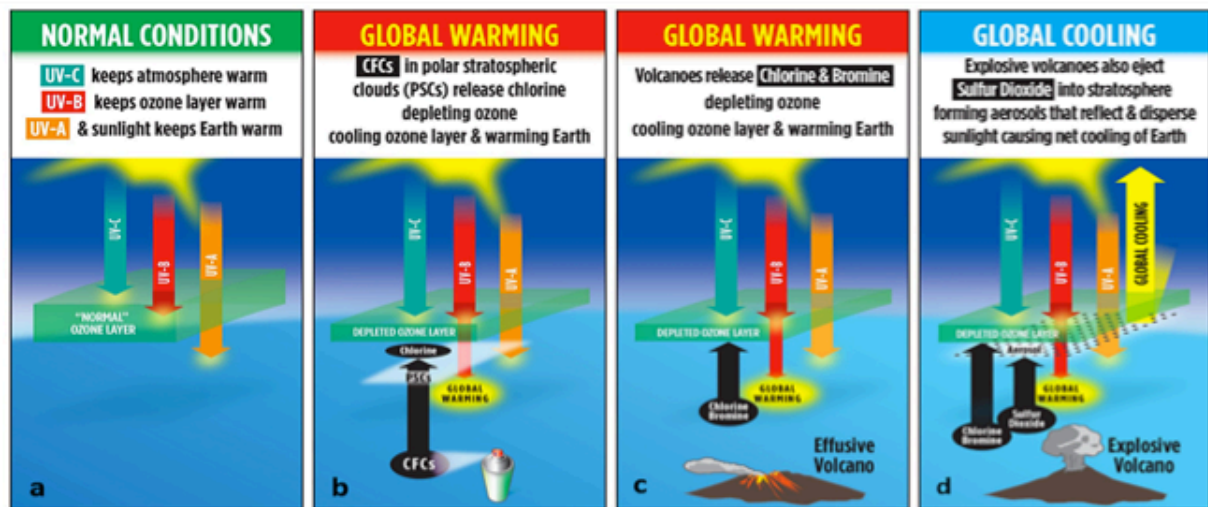


Fig. 3. CFCs and effusive basaltic eruptions deplete the ozone layer causing warming. Explosive volcanoes deplete the ozone layer but also form aerosols that reflect and scatter sunlight causing net cooling of 0.5°C for three years.

Climate change throughout geologic time appears to be controlled by the balance of volcanism determined by plate motions. Effusive volcanoes (Fig. 3c), common along subaerial spreading plate margins, deplete ozone for years to hundreds of thousands of years, warming Earth. Sequences of more than a few large explosive eruptions per century (Fig. 3d), common along convergent plate margins, increment Earth into ice ages over periods of 100,000 years (Fig. 4). The greatest known warming was 252 million years ago when basaltic lavas covered an area in Siberia as large as Europe and 96% of all marine species and 70% of all terrestrial vertebrates vanished.

From 110,000 to 10,000 years ago, Earth warmed suddenly out of the last ice age 25 times, typically within a few years, but then drifted back into ice age conditions within centuries to millennia (Fig. 4). In most of these cases, effusive basaltic volcanism in Iceland caused the sudden warming that did not last long enough to warm the ocean, which then cooled the world back into the ice age. Intensive volcanism from 11,750 to 9,375 years ago lasted long enough to warm the ocean out of the ice age. This type of rapid cycling between low and high

temperature periods as often as every 4000 years is well observed throughout Earth history and cannot be explained directly by greenhouse gases.

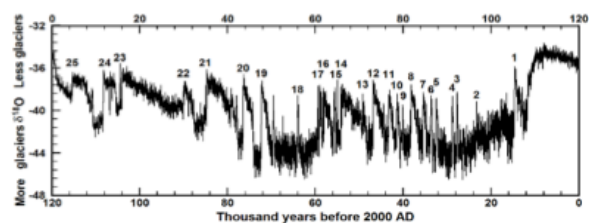


Fig. 4. Oxygen isotope proxy for temperature measured in drill holes near Summit Greenland

Volcanoes rule climate

Temperature in matter results from oscillation of all the microscopic bonds that hold matter together. Each normal mode of each degree of freedom, of each bond oscillates at some high frequency measured in trillions of cycles per second. Temperature is defined when these oscillations occur over a very broad range of frequencies described by Planck's law (Fig. 5). Planck's law defines a curve for each specific temperature that shows the natural amplitude of oscillation at that temperature for each frequency of oscillation. When you heat matter, the amplitude of oscillation at

each frequency of oscillation increases, and the greatest increases in amplitude are at the highest frequencies of oscillation. The higher the temperature, the higher the amplitude of oscillation at every frequency. The capacity of matter to store heat increases with the number of degrees of freedom of motion within the bonds.

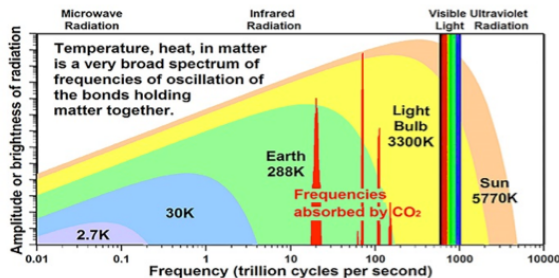


Fig. 5. Planck's law plots, for a body of matter at some absolute temperature, essentially the amplitude of oscillation at each frequency of

These oscillations on the surface of matter induce the same oscillations in an electromagnetic field whose frequencies do not interact and do not change with distance, while amplitudes decrease inversely with the square of distance traveled. Energy (E) of each of these atomic anharmonic oscillations equals the Planck constant (h) times frequency (ν): $E=h\nu$, the Planck-Einstein relation.

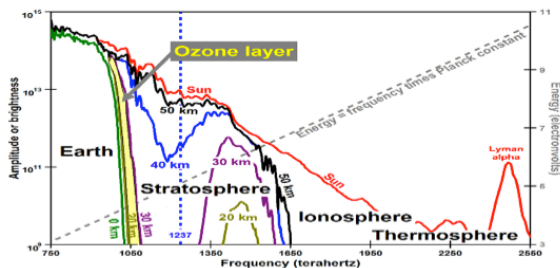


Fig. 6. Frequencies of radiation absorbed in the upper atmosphere before reaching the ozone layer (yellow) from Fig. 7 in DeMore et al. [1997].

The frequency content of solar radiation reaching the top of Earth's atmosphere is shown by the red line in Fig. 6. The highest energy radiation, with frequencies above 1650 THz, is absorbed above 50 km, ionizing nitrogen and oxygen, forming the ionosphere and thermosphere. Frequencies around 1237 THz (dashed blue line) are absorbed by oxygen, causing dissociation and the formation of ozone. There is more than enough oxygen to absorb all of these frequencies of radiation. The highest energy

radiation reaching the bottom of the ozone layer is typically small amounts of UV-B, with frequencies greater than 952 THz. When the ozone layer is depleted by 1%, more UV-B reaches Earth as calculated in Fig. 7 by Madronich [1987] (green shaded area).

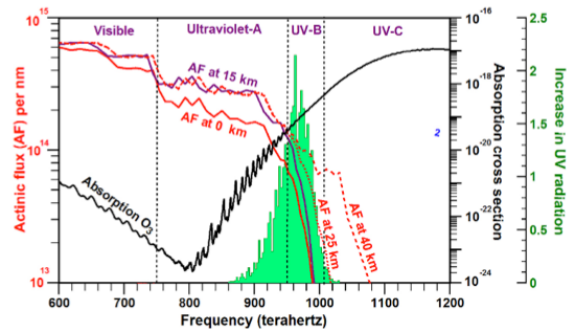


Fig. 7. Frequencies of ultraviolet radiation reaching Earth when ozone is depleted by 1%.

The greatest ozone depletion is located above Antarctica in late winter, as is the greatest warming anywhere in the world in the past 1800 years. Minimum monthly temperatures rose 6.7°C from 1951 to 2003 [Hughes et al., 2007]. Winter sea ice decreased 10% per decade [Clarke et al., 2007]. Summer surface temperatures of the Bellingshausen Sea rose 1°C [Meredith and King, 2005]. Ozone depletion also provides a direct explanation for widely observed Arctic amplification of warming.

Ozone depletion theory provides a clear, direct, and complete explanation for global warming since 1945 (Fig. 1) and throughout geologic time. When ozone is depleted, we measure more UV-B reaching Earth where it heats air primarily by dissociating ground-level ozone pollution, which occurs primarily in populated regions of the northern hemisphere, causing twice the warming as observed in the southern hemisphere. We observe the stratosphere getting cooler (Fig. 2) and oceans warming (Fig. 1) as expected.

Greenhouse warming theory, on the other hand, appears mistaken. Energy in radiation is clearly observed to be a function of frequency ($E=h\nu$). Climate models calculate radiative forcing assuming the energy is the same at all frequencies and that energy is additive. Frequency of an atomic oscillation is an intensive physical property of matter that is not additive. If $E=h\nu$, energy is not

additive because it makes no physical sense to add red light to blue light to get ultraviolet light. Red and blue light coexist, do not interact, and are therefore non-additive. Temperatures similarly are not additive. When you put one body at 30°C in thermal contact with another body at 40°C, the temperature will become between 30°C and 40°C, not 70°C.

It is physically impossible for radiation from Earth, no matter how efficiently it is reflected back, to warm Earth. Earth can only be warmed by radiation from a hotter body. It takes higher amplitudes at higher frequencies than exist in terrestrial radiation (Fig. 8).

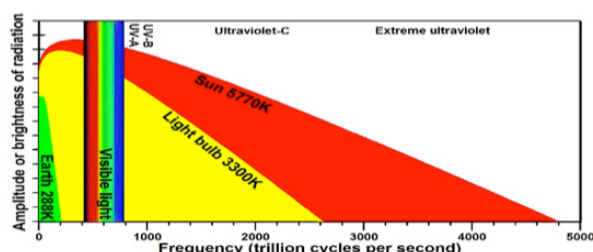


Fig. 8 It takes radiation with higher amplitudes of frequencies to warm a body of matter. Planck's law plotted with a linear frequency scale.

CO₂ does not absorb enough heat to play a major role in global warming. Temperature is defined by a very broad range of frequencies (Fig.5). The red vertical bars show the frequencies absorbing terrestrial infrared radiation, less than 10% of the frequencies required to define Earth temperature. The energy absorbed goes into the bonds holding the molecule together and does not warm the air. To warm air, you must increase the average translational velocity of all the molecules making up the gas. CO₂ makes up only 0.04% of the molecules. It has never been shown experimentally that increasing CO₂ concentration leads to warming air in any significant way.

The details are explained in my book [What Really Causes Global Warming? Greenhouse Gases or Ozone Depletion.](#)

Extensive web-pages, numerous scientific papers, and many videos explaining the details are found at: [WhyClimateChanges.com](#)

Also check out [ScienceIsNeverSettled.com](#).

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See also Commentary Note on p. 104-105.



Global Warming and global climate change

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Nobody can deny that climate is changing as it always has. Sometimes such changes have had disastrous effects on human civilizations leading to migration and wars. The impact of Climate Change (CC) affecting humans is always regional and hardly ever *global* as history and scientific evidence are showing. Global Warming (GW) on the other hand is a myth in the time scale of a couple of thousand years with no support in observations and should be treated as superstition or religious faith. By scaremongering and false reference to science politicians and economical interest have promoted GW and *global* CC to develop into the most extensive fraud that has ever been created. It might even deserve the title *global* fraud since it is created and strongly promoted by an international organization (IPCC). This short article is meant to highlight a few important observational evidences and logical reasoning that mainly concentrate on the meaning of the concept *global* and its logical implications relating to climate and climate politics. GW is a (statistical) model concept with little or none support in observational evidence over a time span covering the last 8000 years. No human has ever felt the impact of a *global* warming or a *global* climate change.

The concepts of climate and global.

Climate is a concept that is valid for people living in a certain region and whose lives might depend on the long term variations in sunshine, rain, flooding, storms etc. Regional climate is well described by the Köppen classification system. CC can be experienced by humans but since our life span is relatively short an extended experience of CC can never be achieved by an individual. The direct impact of CC on an individual is always of a regional type. If we investigate the concept *global* CC we have to rely on historical evidence or indirect evidence from scientific sources such as drill core data from Greenland, Antarctica, sea floors and from land areas that cover millions of years. The question if CC can be *global* is of great interest. Half a dozen disasters have happened to earth during the last billion years. Some of these are called extinction events. Since lifeforms still exist these were regional. The last 8 big ice ages might have had *global* consequences during the last million years but there is a huge difference in regional impact. The ocean surface temperature 25000 years ago along the equator was about 2-3°C lower than now. The ocean temperature at drill core site 607 (41N, 33W close to Azores Islands) has been between +2 and +20°C during the last million years. Nowadays the temperature at site 607 is around +15°C. These temperatures are averaged over about 1000 year intervals. 25000 BP the ice cover was 2-3 km deep where I live outside Stockholm but certainly there was no *global* ice cover then. *Global* CC is a bad concept since what is actually changing is always more regional than *global*.

What about GW? The climate optimum 4000-8000 years ago is estimated to have been 2C warmer than today. Then rivers were running in the Sahara region including an abundance of wild animals. What about short term GW? During the last 18 years there has been no *global* temperature increase at all according to satellite data. A *global* temperature has no physical meaning. It is just a mathematical model value. Let us assume that the temperature in the northern hemisphere (NH) increased 10°C and that the temperature in the southern one (SH) decreased with 10°C. The *global* temperature would still be the same and that value would say nothing about how people and animals would suffer from heat in the north and cold in the south.

To make this point very clear look at figure 1 below. It shows the sea ice surface extent in both polar areas during 1978-2015. It is reasonable to assume that sea ice is more wide spread during cold condition than during warm ones. The values are yearly values based on monthly data. As can be seen the sea ice cover has shrunk from about 12.5 to 10.5 million km² in NH

and has increased from about 11.8 to 12.8 in SH. The regional warming of Arctic is an observational fact and so is the regional cooling of Antarctica. This is a mystery for the scientific community and so are the prominent inter decadal sea ice variations, which can be seen in figure 1.

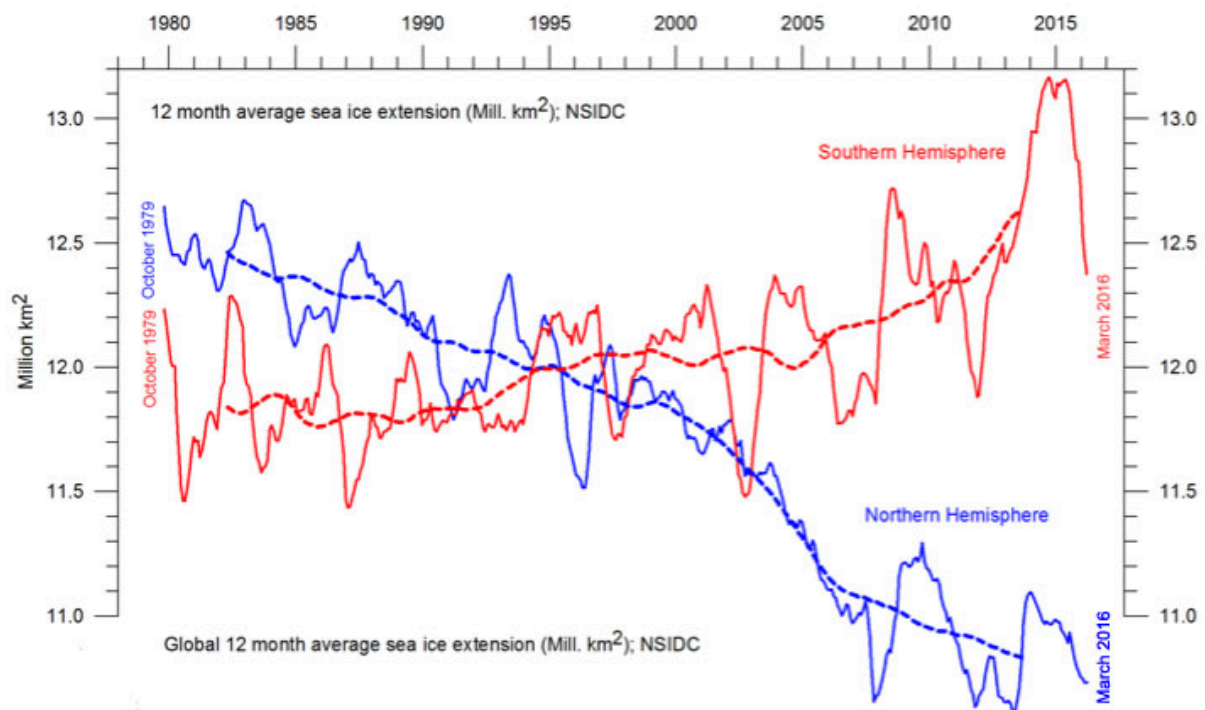


Figure 1. Sea-ice extension (from Humlum; Climate4you, May 2016).

Examples of CC based on observations

To increase the knowledge about CC information from several scientific disciplines are needed. The examples below are meant to give an expanded (but certainly not complete) understanding of what type of considerations that are appropriate to consider when trying to understand CC.

1. About 4000-8000 BP the average temperature of earth is estimated to have been about 2°C warmer in a period called the Holocene climate optimum. The temperature was about 3-9 °C warmer in Siberia but not much warmer at the equator giving a “global” increase around 2°C.
2. There have been at least 8 severe ice ages. Then the equatorial temperature was 2-3C cooler than nowadays and at latitude 50N it was 8-10C cooler. The average North Atlantic sea surface temperature west of Portugal could vary between 2-19 C during a specific ice age cycle. The today temperature at the same spot is 15C.
3. “The year without a summer” (1815) is well known among climatologists. There was a temperature depression over the North Atlantic, the US east coast and central Europe west of the Ural mountain range. The cold period developed successively and spanned about 5 years with the maximum impact 1815-1816. The cause of this cold period is often claimed to be the Tambora volcanic explosion which is a false claim since the cold period started years before the explosion occurred.
4. Advanced signal processing makes it possible to investigate and find periodic cycles in climate data. As an example Robert G. Curry found that the river Nile water level was correlated with both the 11-year sunspot cycle and the 18.6-year lunar cycle. The investigated time period ranged from 622-1962 A.D.

5. Orbital parameters cause a variable solar flux to earth. A problem is that long term temperature on earths polar areas should be out of phase with a cycle of 25000 years. This is not the case. The impact of ice ages is hitting both polar areas simultaneous which has been verified by George Denton.
6. The Gulf Stream is essential for the European and especially the Scandinavian Climate. Nils-Axel Mörner has shown that the path and intensity of the Gulf Stream is correlated with sunspot cycles and also with “Little Ice Ages”. Variations of climate data and solar activity is intimately related.
7. There are occasionally close to *global* storms on Mars. The remarkable fact is that these are not decided by variation in seasonal solar irradiation or Milankowitch variables. They occur about once a decade for unknown reasons.
8. I live close to on 160 km long eskar 20 km west of Stockholm central parts. About 12500 years ago the ice-front of the melting glacier was situated in Stockholm. 25000 years ago the ice cover above my home was about 2-3 km thick. That is what I call a severe climate change although it wasn’t global.
9. Professor Ole Humlum has published a graph that tells about the variation in ice sheets in both hemispheres at http://www.climate4you.com/Text/Climate4you_May_2016.pdf. See figure 1.
10. Professor Marcel Leroux investigated how cold polar air is moving from the polar areas towards the equator and sometimes reach the equatorial regions. He coined the term Mobile Polar Highs (MPH) for these cold air masses. These events are always combined with severe storms to the east of side of the cold air mass. The production frequency is changing for unknown reasons. The most famous MPH was probably the one in USA in 1899 when ice entered the Gulf of Mexico from the Mississippi river.
11. Aeolian sediments from Antarctic drill cores show that there is about 10 times more sea salt and dust during ice ages than nowadays. All types of winds were much stronger then. My dissertation “Wind Controlled Climate” got its name because high wind speed release much more energy from ocean surfaces than during no winds and are thus causing earth to cool. The cause of these strong polar winds is basically unknown.
12. Aurora Borealis is seen when the northern polar sky is clear and the atmosphere very cold. This observation raises the question if the solar wind is helping to create the cold MPHs that Marcel Leroux identified and investigated in a number of articles and books.

Comments based on logic and science

A hypothesis is a statement or is an assumption that has to be verified before it can be called a theory based on scientific methodology. Even a theory can be wrong. However, a theory can often be shown to either be correct at a certain confidence level such as 95%, 99%, or 99,9% relative to a chance result. A hypothesis that cannot be verified has no scientific value at all.

Scientists have a tendency to construct models based on statistics, mathematics and physics. The purpose of models is always to predict the outcome from a system. Models can be seen as hypotheses and need to be verified. If a model cannot be verified until data has been collected for let’s say 100 years it is of a minor interest as far as its scientific value is concerned.

There has been a tendency for scientists to accept (all types of) models without performing rigorous verifications or telling how unsure their outputs really are. This is certainly the case with climate models and especially the so called general circulation models that are claimed to “predict” climate 50-100 years in advance. Most of them have an inbuilt factor that predict warmer climate in the future if the emission of carbon dioxide in the atmosphere is increasing. None of these models have been verified and there is much evidence indicating that they

cannot be correct. The diverging polar ice sheet extent mentioned above is just one example. It is impossible that the same amount of carbon dioxide in both hemispheres would cause warming in one polar area and cooling in the other. This single observation is by itself a reason to abandon the assumption that humans are causing GW or *global* CC. The numbered topics above is further strengthening this opinion. Each of the 12 points should be treated at length but this is beyond the limited space at hand here. The simple truth is that the best scientists on earth today do not understand what is causing long term Climate Change. I spent 4 years producing my thesis without finding the answer. It seems as a bad joke to me to blame CC mostly on anthropogenic “greenhouse” gas emissions.

The recent anthropogenic monotonic carbon dioxide increase in our atmosphere cannot cause the diverging temperatures in the hemispheres shown in figure 1. There has simply not been any *global* GW during the last 37 years. Humans are not guilty of the blessing that Stockholm (59N) has gotten warmer during this period.

Comments about Swedish climate politics

Professor Bert Bolin, Stockholm University, became the first chairman of IPCC (International Panel of Climate Change) in 1988 and stayed in that position until 1998. This means that Swedish climate politics has influenced the international climate politics. By chance professor Bolin was my tutor in meteorology when studying to become a meteorologist in 1989. At no occasion during my 3 years of study any teacher informed me that carbon dioxide would affect long term climate change! At the same time Bert Bolin was the prime adviser to the Swedish government for allocating resources to climate research regardless of which party was ruling Sweden. It became well known among Swedish professors that if they wanted money for their research they should pay lip service to the impact of carbon dioxide on climate.

The strategic planning and introduction of GW and *global* CC among influential decision makers in Sweden was initially made by publishing a special Issue of AMBIO in 1997, a magazine published by the Royal Swedish Academy of Sciences (KVA) in English. Professor Henning Rodhe, dean of natural sciences at Stockholm University and also a former teacher of mine, was the guest editor. The front page of the special Issue is a copy of the first page of Svante Arrhenius’ “greenhouse” gas article in “Philosophical Magazine and Journal of Science” published in 1896.

Obviously, the aim of the Special Issue was to refer to authority reviving Svante Arrhenius’ idea about the potential impact of carbon dioxide. Arrhenius got his Noble Prize in chemistry and not for work in climatology. The special issue contains 12 articles aimed at honoring Arrhenius. This is shown by the titles of the articles found below which emphasize the concept GW. KVA has supported the idea of GW and *global* CC caused by human emission of carbon dioxide 30 years and still does so which is a great scandal in the Swedish scientific community. Bert Bolin was a prominent member of KVA and Henning Rodhe still is. KVA is selecting who gets the Nobel Prize and it should be able to judge what science is and what isn’t. Few, if any of the articles in the special Issue meets the required standard of a scientific article and they can hardly have been peer reviewed by independent scientists. They are all honoring Arrhenius unproven hypothesis that was questioned directly after he published his “greenhouse” paper.

The titles in AMBIO Special issue show how the Swedish state propaganda and scaremongering has changed from anthropogenic global warming a la Arrhenius to *global* CC between 1997 and nowadays. Still, both concept is meant to induce guilt in people when emitting carbon dioxide into the atmosphere. The former Swedish prime minister Göran Persson promised to make all high school pupils to see the infamous and unscientific Al Gore Move “An inconvenient truth”. This promise was fortunately broken by him.

IPPC is a political organization that uses consensus to decide what should be written in its reports. Consensus has nothing with scientific methods to do and it is clear that the major role

of IPCC is political. This reason alone is enough to disqualify IPCC as an objective organization regarding its selection of articles that is claimed to be of an acceptable scientific standard.

Conclusions about the causes of GW and CC

Earth's climate is a function of the difference between absorbed solar energy and outgoing longwave radiation. Sun itself deliver an approximate constant power to earth varying about 0.2%. Orbital elements introduce a 3,5% variation in solar irradiation reaching earth. Still, this amount is not dominating as a cause for the switches between glacials and inter glacials since the ice ages is approximately symmetric in the two hemispheres.

The variable wind-speeds on earth is a fact. Strong winds are cooling ocean waters during glaciation periods. The question arises of what is causing the changing wind speeds. The number of MPHs is varying might be part of the answer. What is then producing the cold MPHs? The works of Denton and Jelbring show that the Milankowich variables cannot be *dominating* as a cause. They are modulating CC. It seems that the dominant factor causing climate change is a variable output of infrared emission from polar areas. The large temperature amplitude of climate variations in polar areas points towards this factor as the major agent.

We also know that atmospheric mass motion (pressure variations) on earth is correlated with sunspot variations on scales from months to hundreds of years. It seems that we have three options. Either there is an extraterrestrial impact on the emission of infrared energy from earth or there is an extraterrestrial impact directly on mass fluxes in the atmosphere and oceans (which cannot be understood by Newton physics) or both. All these three alternatives points to an extraterrestrial impact on climate. There is much which is not known about CC. In my opinion the proven extraterrestrial impact on CC is overwhelming in scientific reports but ignored by GW promoters. NASA published data about such relations in "Sun, Weather and Climate" already in 1978. Finally, just think of the intermittent almost *global* dust storms that are hitting Mars. If unknown physical mechanisms are affecting the Martian climate the same factors will certainly also affect earth's climate.

References

There are no references in this article but the ones in the text. For further information contact the author.

Articles in AMBIO, Special issue, Vol. XXVI, Nr 1. February 1997.

Svante Arrhenius and the Greenhouse Effect, H. Rodhe, R. Charlson and E. Crawford

Arrhenius' 1896 model of the Greenhouse Effect, E. Crawford

A review of the Contemporary Global carbon Cycle and as seen a Century Ago by Arrhenius and Högbom, M. Heimann

Direct climate Forcing by anthropogenic Sulfate Aerosols: The Arrhenius Paradigm a Century later, R.J. Charlson

Palaeoclimate sensitivity to CO₂ and insolation, A. Berger and M.-F. Loutre

Greenhouse Effect, Atmospheric Solar Absorption and Earth's Radiation Budget: From the Arrhenius-Langley Era to the 1990s, V. Ramanathan and A. M. Vogelmann.

Early development in the Study of Greenhouse warming: The Emergence of Climate Models, S. Manabe

Assessing the Treatment in of Radiation in Climate Models, A. Slingo

A Numerical Simulation of anthropogenic Climate Change, L. Bengtsson

Climate Research: The Case for the Social Sciences, H. von Storch and N. Stehr

From Arrhenius to megascience: Interplay between Science and Public Decisionmaking, A. Elzinga

Ice on Land *(Pope's Climate Theory)*

Herman Alexander ("Alex") Pope
Houston, Texas, USA, retired NASA-JSC engineer

Historically, the earth's temperature and sea level have been regulated within narrow bounds. These narrow bounds changed over the last 50 million years. Data collected on the earth's temperature demonstrates increase then decrease in cycles that are bounded. The range of these cycles has changed over the 50 million years, but the range remained well bounded within narrow limits while the temperature levels decreased much more. In the 50 million year period, the warmest times were when there was, relatively, less ice on land and the coldest times were when there was, relatively, more ice on land. The Climate Scientists on all sides of this debate do acknowledge this, but most say the more and less ice is a result of warming and cooling. It is really the primary cause of warming and cooling. During the major warm periods and longer cold periods of the most recent 2 million years, the bounds of temperature and ice were further apart. This occurred because the oceans would get high and warm, with much warm thawed ocean water in Polar Regions and it snowed to remove that warm water from the oceans and dump it on land. This was followed by a prolonged cold period because it took a long time to thaw and remove that much ice.

Proxy data, especially the ice core data from Greenland and Antarctica, demonstrate the correlations between temperature and ice accumulation rates (measured), inferred radiation (IR), and albedo (calculated from temperature). IR is the radiation to space that is a function of a constant multiplied by temperature to the fourth power. It is powerful. Albedo is the proportion of the incident light or radiation that is reflected by a surface, in this case that of earth. The data demonstrates some correlation and some lack of correlation between CO₂ and temperature. The correlation is understandable because the vapor pressure of any gas that dissolves in water is a strong function

of temperature. Open a hot and a cold carbonated soft drink and see the difference. Data demonstrates excellent correlation with ice on earth and temperature. The extent of ice on earth increases when earth gets colder. Scientists on all sides of the debate acknowledge this. The ice advance or retreat on the earth's surface is labelled as positive feedback. Some climate theorists fear the ice will reach a "tipping point" or point of no return. In 50 million years, there has never been a tipping point from which there was no recovery. The cycle always recovers. The last ten thousand years has demonstrated tighter bounding. This tighter bound is the new normal.

Earth temperature is regulated by something that is abundant, not a trace gas. CO₂ has been arbitrarily assigned responsibility for climate change while the much more abundant greenhouse gas, "Water Vapor" has been ignored. Water, Ice, Water Vapor, Clouds are abundant and that regulates earth temperature. Earth is warmer when there is less ice on earth and earth is colder when there is more ice on earth. That is not a result, as the Climate Scientists always tell us, it is the cause. I repeat this because it is most important.

IR radiation in the tropics does provide most of the cooling of earth. It has a variable thermostat that increases cooling by a constant multiplied by the temperature to the fourth power. That is the most powerful cooling for earth, but it does not have a fixed thermostat.

In the Polar Regions, in the Northern Hemisphere and in the Southern Hemisphere, there are thermostats with fixed set points. The Polar Oceans freeze and thaw at the same temperature and that does turn cooling on and off. The cooling is provided by more snowfall when oceans are thawed and is turned off when the oceans get cold and freeze and cut off the source of moisture. This is the cooling that has

thermostats with a fixed set point that explains the amazing stability of earth temperature, and sea level.

Oceans warm, Polar Oceans Thaw, Snowfall increases. Ice is replenished on Antarctica, Greenland and Mountain Glaciers. Ice builds up and spreads out, reflecting more energy, dumping more ice and ice-cold water into the oceans and on land until earth cools. Polar oceans freeze

and the sun takes away ice every year until earth warms again.

About 2000 years ago, there was a Roman Warm Period and then it got cold. About 1000 years ago, there was a Medieval Warm Period and then it got cold. That was called the Little Ice Age. It is warm now because it is in the warm part of the natural cycle.

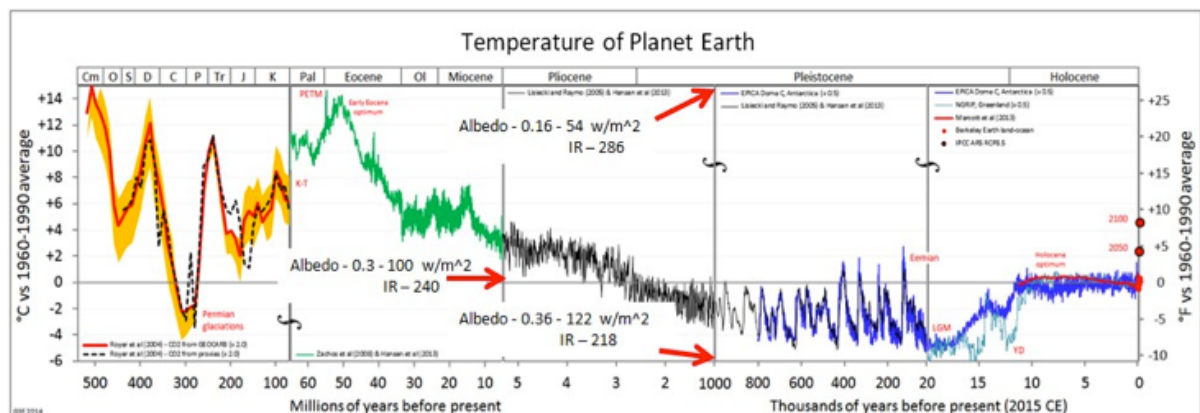
It is a natural cycle and we did not cause it.

CO2 just makes green things grow better, while using less water.

Biographical Information

Herman Alexander (Alex) Pope, a retired NASA-JSC engineer, began his career as a Co-op student at the Manned Spacecraft Center in Houston Texas in 1963 and concurrently earned a BS degree in Engineering Mechanics from Virginia Tech in 1967. Mr. Pope supplied computer analysis to the Gemini, Apollo, Space Shuttle, Space Station, X-38 and other missions and projects between 1963-2007.

In 2008, Mr. Pope attended a climate lecture on ice cycle theory, which included a historical review of original theories by Maurice Ewing and William Donn from the 1950's and 1960's. This experience inspired Mr. Pope to conduct his own independent study for over 8 years.



see: <http://popesclimatetheory.com/page81.html> and
<http://popesclimatetheory.com/page86.html>

*Catalogue of **Hot** Issues on Climate - The **CHIC** Project*

Fabio Pistella

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Leonello Serva

Member of the IGC Steering Committee. Rome.

Donatella Magri

Associate Professor of Palaeobotany, Sapienza University of Rome.

Donatella de Rita

Associate Professor at Roma 3 University of Rome.

Rosa Francaviglia

Senior Researcher at Research Centre for the Soil-Plant System, CREA-RPS, Rome.

CHIC (Catalogue of **Hot** Issues on Climate) is a simple digital tool presently in form of an hypertext based on an integrated collection of positions on hot issues of Climate Change Modelling and Forecasting. The audience addressed is primarily non-specialist opinion leaders but also public opinion in general.

The tool is not meant to be a model to perform simulations of Climate Change; the aim is simply to provide a structured catalogue of:

- key phenomena involved, represented in form of boxes in a flow diagram
- interconnections among the different phenomena and
- interconnections among these phenomena and the anticipated effects on climate.

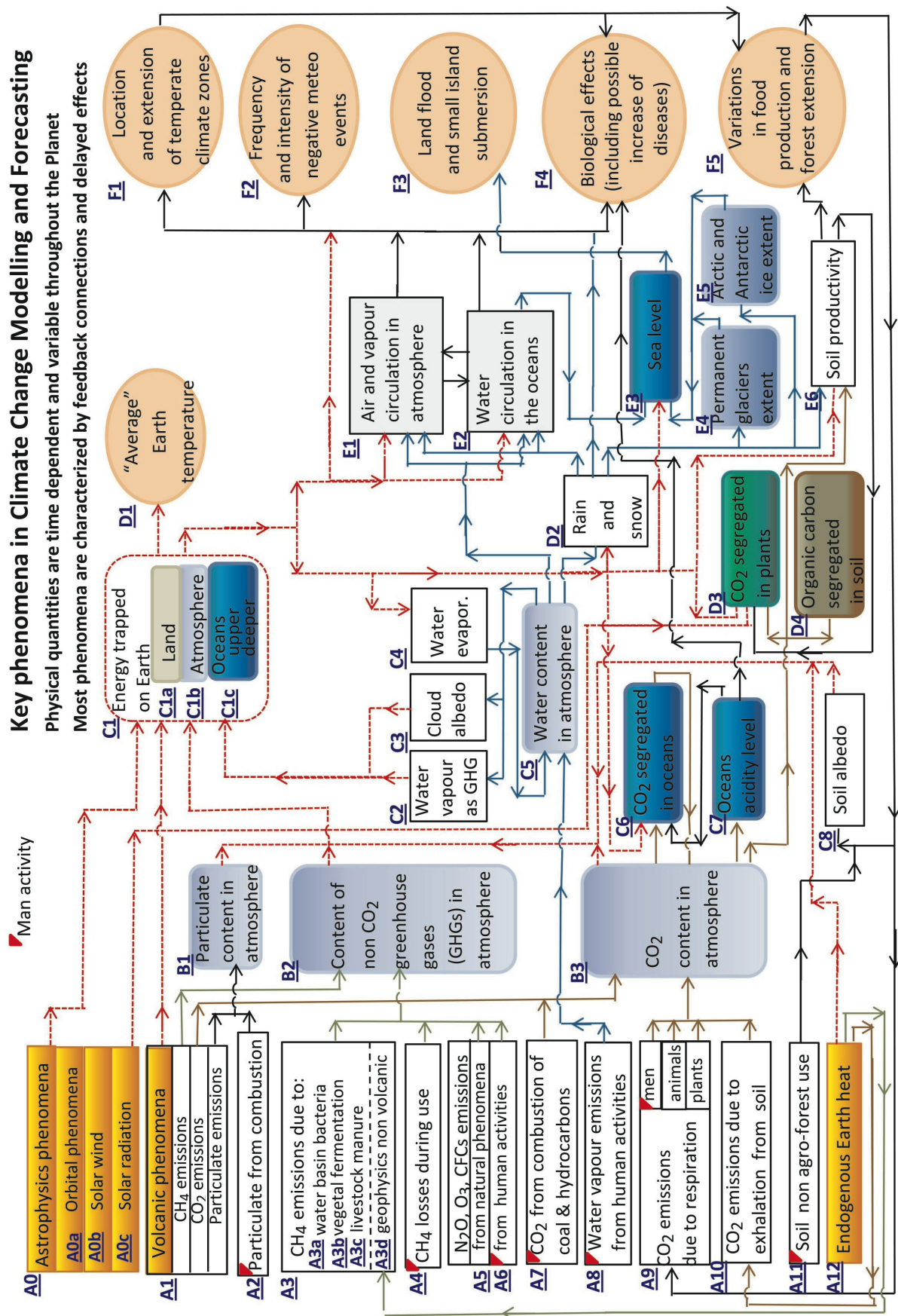
For each phenomenon basic information is collected - in a structured data base - about data published and about corresponding available evaluations, including a brief discussion of controversial issues. Also phenomena of relatively small impact are represented in order to avoid criticism for neglecting something of potential importance. Maximum attention is given to avoid any risk to be perceived as biased by “a priori” conflictual and polemical attitudes and a plain language is adopted to facilitate understanding of the issues also by non-experts.

The work of recognition and organization of data is to be completed and contributions by other researchers, in particular within the ICG community, are welcome. The outcome of work already performed indicates clearly that oversimplification, distortion, suppression of information and other serious bugs are unfortunately present in the conclusions on climate change diffused by IPCC and its supporters. The main outcomes are:

1. the issue of Climate Change is very complicate and the IPCC approach is a rough, coarse oversimplification
2. there are too many uncertainties even in decisive basic phenomena and at this stage it is unjustified to take for granted that every problem comes only from anthropic CO₂ emissions
3. IPCC conclusions rely upon too many interpretations, corrections and arbitrary selections of experimental data
4. it's not true that there is “general consensus” on IPCC conclusions within the scientific community
5. further investigations in particular in collecting experimental data are needed

Items 1, 2 and 3 demand an approach, which at the same time must be:

- deep enough to enter into key details of single phenomena and even parameters (which is typically done in specialized scientific papers)
- integrated and comprehensive such as to be useful to depict a global picture.



Proposed CHIC chart of interacting factors in climate change

It's not common to find contributions that fulfill both requisites. As a result of the effort of completing CHIC a large fraction of the scientific community might be stimulated to abandon their embarrassed silence (this was the case of SIF – Società Italiana di Fisica who refused to sign an adhesion document to IPCC supporters prepared by a bunch of other scientific associations).

CHIC is meant to be available in the web in a first phase to allow the interaction among the contributors and in a second phase to spread information on the results achieved possibly also inform of a blog to It could be used to define a communication plan, mostly through Internet, to spread this information including a blog analogue with an attitude different from the one adopted by existing similar blogs taking for granted that every problem comes only from anthropic CO₂ emissions, and often hosting contributions with an unacceptable flavor of attack and discredit of opinions non-conforming with the messages of IPCC and its supporters.






Information can be accessed clicking (hypertext) on the label identifying each box.

Even if the presence of many feedbacks jeopardizes a distinction between causes and effects, a lay-out is adopted which presents:

- on the left side phenomena usually considered as “cause type boxes” (rectangles); a small red triangle in the upper left corner of a cause type box indicates that human activities are significantly affecting this phenomenon; orange color indicates that the box depicts a source of energy
- on the right side phenomena usually considered as “consequence type” boxes (light red ellipses)
- in the central part “content type” boxes; the writings indicate what is the content (CO₂, particulate, ...) the color indicates what type of container matrix is involved (light blue for atmosphere, dark blue for oceans, green for plants and brown for soil)

The arrows interconnecting the boxes correspond to the following conventions:

- arrows entering a box indicate an action on the box, arrows leaving a box indicate an effect from the box
- color has a meaning:

red arrows indicate energy	
brown arrows indicate CO ₂	
green arrows indicate CH ₄ and other GHGs different from CO ₂	
blue arrows indicate water	
black arrows indicate an interaction without transfer of energy or specific matter	

Some hints to use CHIC

To operate CHIC it is suggested to open the window on the left side of the screen where a map of the content is shown.

The structure of CHIC consists of several layers to make it flexible and modular:

1. The overall scheme described above
- 2.a Remarks on the weakness from a scientific view point of IPCC methodology and conclusions
- 2.b Remarks of a more general nature on the behavior of IPCC and its supporters
3. Discussions of each box, which appears in the overall scheme (one section for each box)
4. Collection of scientific papers on which the considerations in each section of layer 3 are based (attention must be paid to copyright)

Through the technique of hypertext information in the different layers are interconnected so that the overall tool can be fully navigated. In particular:

- by clicking the label (top left) identifying each box in layer 1 the corresponding section in layer 3 is reached
- by clicking within each section (layer 3) the mention of a scientific paper, the file containing that paper in layer 4 is reached

CHIC is in form of a single hyper text file: its implementation is expected to take place through Windows, while its use is expected to take place through Acrobat Reader to make it faster and independent of license constraints. Layer 4 consists of a collection of folders, typically one for each section.

Contributions asked

Contributions of different nature are welcome on the different layers:

- a. general remarks on the scheme (layer 1) and suggestions for its improvement through integrations and modifications
- b. suggestions to modify content and structure of layer 2
- c. contributions to formulate one section of layer 3 (more likely a cluster of interrelated sections) according to specializations and preferences of single contributors;
- d. contributions to the content of layer 4 by suggesting the inclusion of additional papers, having in mind that the purpose is not completeness (overwhelming task) but only support to the message giving in the corresponding section on possible use diffusion targeting and so on of CHIC.

Methodology to interact

1. A dedicated central mail box is opened by the Secretariat
2. A community mailing list of the contributors to the task force is established and mails to and from the central mail box are shared in the community
3. A folder is established in Dropbox accessible for the community
4. Present Windows version of CHIC (release 01) is inserted the community folder
5. Layer 4 is made available in the community folder
6. Contributions of two types are expected in form of mails to the central mail box:
 - a. general remarks and suggestions in particular dealing with scheme structure
 - b. amendment proposed for single sections (i.e. content of each box) or clusters of them
7. Each mail sent to the Secretariat receives a commentary in three days' time and a conversation is opened
8. The content of the community Dropbox folder is updated every week.

An e-mail box is operating ad hoc for communications dealing with CHIC

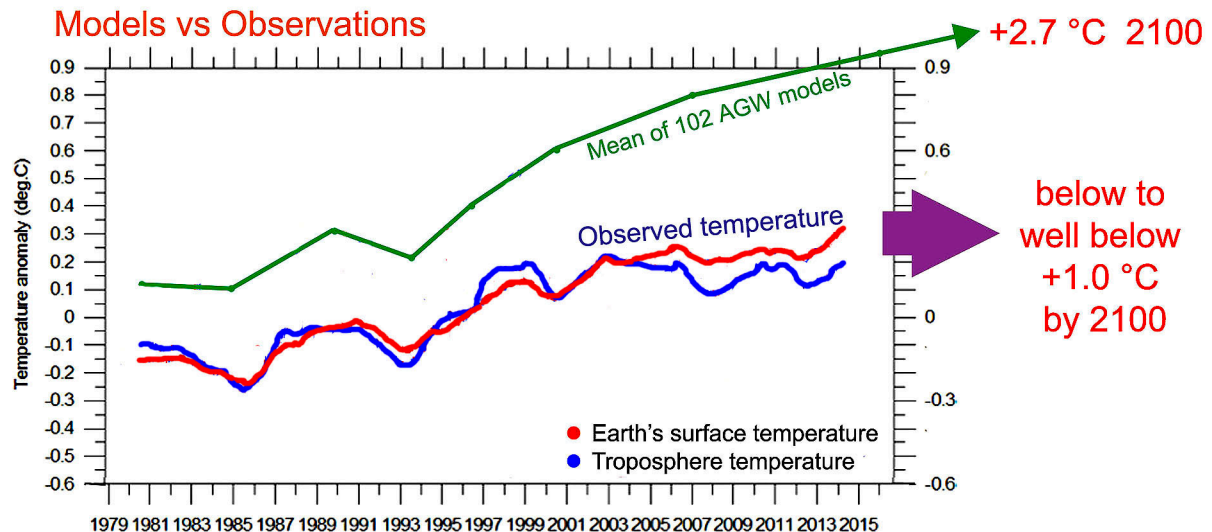
chicwg@tiscali.it

Day-2: September 9

The Temperature Plot and its Consequences

The Temperature “plot”

(see also the “Global Warming Speedometer on p. 6)



A case of Models vs Observations

The mean curve of 102 CO₂-driven (i.e. AGW) models (green) giving a rise of +2.7 °C (± 0.7) by year 2100 and the observational readings of true temperature changes on Earth's surface (red) and in the troposphere (blue) indicating a temperature below +1 °C by year 2100.

Obviously,
there is a significant disagreement between Models and Observations.

In Science,
we always have to prioritize observational facts.

At the COP21 agreement,
they prioritized models and ignored observations.

Therefore, it is an urgent need to go back to the primary facts:
i.e. “*ad fonts*”

Day 2: Friday 9 September 2016

(*Keynote presentations)

08.30 mingle and uploading of ppt-files

08.50 Welcome and information

Session 4: The greenhouse effect and anthropogenic global warming

09.00 Jan-Erik Solheim: *Result of a greenhouse experiment*

09.20 Francois Gervais: *Tiny CO2 warming challenged by Earth greening*

09.40 Piers Corbyn: *The total failure of the ManMade Climate Change story*

10.00 Discussion

10.10 Tea and coffee

10.30 Albrecht Glatzle: *Reconsidering livestock's role in climate change* *

10.50 Pamela Klein: *Is climate science serious?*

11.10 Benoît Rittaud: *Epistemology of Climate Change*

11.30 Thomas Wismüller: *Sea-level rise and CO2*

11.50 Discussion

12:00–13:00 Lunch

13.00 Maria Araujo: *Sea level data in the Iberian Peninsula*

13.20 Nils-Axel Mörner: *Modelled vs observed sea-level changes*

13.40 Discussion

Session 5: Implications of the catastrophist anthropogenic global warming hypothesis

13.50 Madhav Khadekar: *Climate change and extreme weather: projection, perception and reality* *

14.10 Philip Foster: *Climate policy, geoethics and the developing nations*

14.30 Christopher Monckton of Brenchley: *Genocidal climate science* *

14.50 Discussion

15.10 Tea and coffee

Session 6: General discussion

15.30 General discussion, conclusions and communiqué

17:00 End of Day-2 program, end of Conference

The Greenhouse effect – a high school experiment

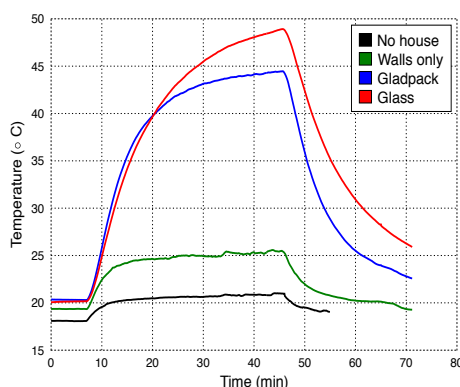
Jan-Erik Solheim, Thor Eriksen, and Yngvar Engebretsen
Oslo, Norway

No amount of experimentation can ever prove me right; a single experiment can prove me wrong. (Albert Einstein)

The planet Earth has an atmosphere, which keeps us warm. This simple fact is now replaced by the idea that we live in a greenhouse, and the so-called greenhouse-gases keep us warm. This is explained the following way: The Earth receives visible light from the Sun, which heats the surface, which then emits infrared radiation, which is absorbed and re-radiated by the greenhouse-gases in the atmosphere. The more CO₂ we emit - the more radiation is reemitted from the atmosphere, and we will experience a catastrophic warming of our planet.

An extreme and absurd demonstration of the warming effect of CO₂ is presented in a video called “Climate 101”, which was produced as part of Al Gore Climate Reality Project (1) and narrated by Bill Nye: *Here you’ll be schooled in the scientific fundamentals of climate change in under 5 minutes. The warming effect of CO₂ is demonstrated in a simple lab experiment, which every high school student can easily do: Have two identical glass jars, one with air and one filled with CO₂, each with a thermometer inside. Shine light from two identical infrared lamps on the top of both glass bottles, and within minutes you will see the temperature in the bottle with the carbon dioxide in it rising faster and higher.* In the video, the thermometer in the CO₂ bottle showed 1.2C warmer than the one in air. The experiment was repeated by Anthony Watts (2), with the same equipment. His conclusion is that the experiment is a hoax, it could never work as advertised, and the scene showing the temperature difference is fabricated.

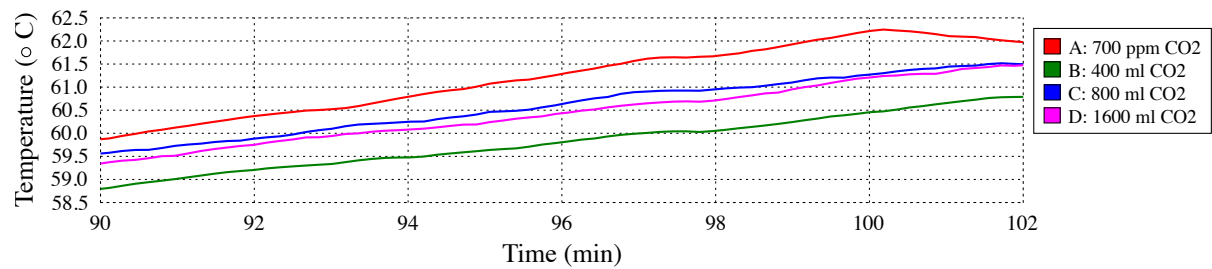
In order to do this experiment correctly one needs a daylight lamp or the Sun as a light-source, and a box with a glass roof that transmits visual light from the outside and stops IR-radiation from the inside as glass does. This should be compared with box with a roof that transmits IR-radiation. Already in 1909, professor Robert Wood (3) showed by experiment that the reason a greenhouse gets warmer, is that the air inside is trapped by the walls – *the loss of temperature of the ground by radiation is very small in comparison to the loss by convection, in other words that we gain very little from the circumstance that the radiation is trapped.*



We have done similar experiments at a school in Oslo, Norway. Here we built four small greenhouses as shown in the picture. As roof we used glass or gladpack, which transmits IR-radiation. The figure to the left shows some of our results. The greenhouse effect due to walls and roof that stop convection led to a temperature increase 6-7 times higher than the difference between roof that transmits or stops IR-radiation.

In another experiment we filled one greenhouse with CO₂ – and measured no warming.

Then we tried more realistic increases, from ambient (0.07%) to 4% amount of CO₂ using the Sun as a light source. In this case we observed that the greenhouses with increased CO₂ had less warming than the one with the ambient atmosphere.



In the figure 400 ml is approximately 1 per cent CO₂ by volume.

Our conclusion is that we were not able to prove that more CO₂ leads to a higher temperature in a greenhouse. The greenhouse effect is due to the air being trapped by the roof and the walls, inhibiting natural cooling by conduction, convection, and evaporation (4).

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Tiny CO₂ warming challenged by Earth greening

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Earth is growing greener. Carbon dioxide that increased from 0.03 % to 0.04 % by air volume since the beginning of the industrial era has helped boost green foliage, plankton, nutritive plants and crops yields.^{1,2} The greening over the past 33 years is equivalent to adding a green sixth continent of 18 million km²,³ viz. about more than four times the area of the European Community. The benefit for mankind has been estimated to \$3,200 billions since 1961.⁴ Figure 1 shows the increase of the amplitude of the CO₂ seasonal oscillations measured in 2013 compared to early measurements of 1969 at La Jolla, California.⁵

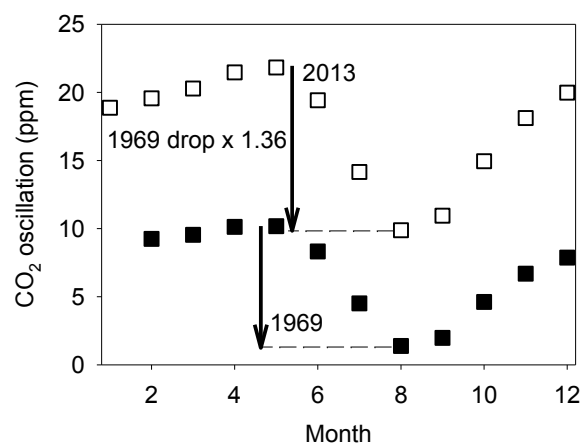


Fig. 1 – Increase by 36 % of the amplitude of the seasonal (northern-hemisphere) spring–summer drop of CO₂ atmospheric concentration measured at La Jolla, California. This enhancement is 71 % faster than the increase of atmospheric CO₂ concentration over the same period.⁶

The drop of CO₂ concentration experienced each year from May to August in the northern hemisphere (where the vegetation area is larger than in the southern hemisphere) is the signature of the amplitude of the spring–summer enhanced photosynthesis. The amplitude of the seasonal oscillation is found very small in Antarctica for lack of surrounding vegetation. It is medium at the observatory of Mauna Loa in the middle of the Pacific Ocean. It is larger in green areas. The increase of the amplitude observed in 2013 compared to 1969 in Fig. 1, is found up to 36 % larger. The CO₂ content measured at Mauna Loa increased by 21 % in the meantime. What seems to be of importance is that the ratio of both increases is $36/21 = 1.71$ with no precursor sign of saturation. The amplitude of the seasonal oscillation, therefore, increased 71 % *faster* than that of atmospheric CO₂. These numbers illustrates how much flora appreciates the food supplement.

Figure 2 reproduces the TLS channel temperature measured by Remote Sensing System in the low stratosphere (LS) together with data collected by UAH, plotted versus atmospheric

¹ Lu, X., Wang, L., McCabe, M.F., 2016. Elevated CO₂ as a driver of global dryland greening. *Scientific Reports* doi:10.1038/srep20716

² Donohue, R.J., Roderick, M.L., McVicar, T.R., Farquhar, G.D., 2013. Impact of CO₂ fertilization on maximum foliage cover across the globe's warm, arid environments. *Geophys. Res. Lett.* **40** 3031-3035.

³ Zhu, Z., et al., 2016. Greening of the Earth and its Drivers. *Nature Climate Change* doi:10.1038/nclimate3004

⁴ [www.co2science.org/education/reports/co2benefits/MonetaryBenefit of Rising CO₂ on Global Food Production.pdf](http://www.co2science.org/education/reports/co2benefits/MonetaryBenefit%20of%20RisingCO2onGlobalFoodProduction.pdf)

⁵ scrippsco2.ucsd.edu/graphics_gallery/other_stations/global_stations_co2_concentration_trends.html

⁶ Gervais, F., 2016. Anthropogenic CO₂ warming challenged by 60-year cycle. *Earth-Science Reviews* **155**, 129-135.

CO₂ concentration measured at Mauna Loa. The plot concentrates on the past 23 years because (i) the previous period displayed in the inset shows peaks related to major volcanic eruptions which complicate the analysis, (ii) 23 years correspond to not less than 50 % of the CO₂ increase since 1959 measured accurately at Mauna Loa and to ~ 40 % of the CO₂ increase estimated since the beginning of the industrial era. In spite of this large CO₂ increase, no temperature change is observed from 1993 to 2016, although it is measured near the altitude where the most marked signature of temperature change predicted by radiative–convective models is expected.

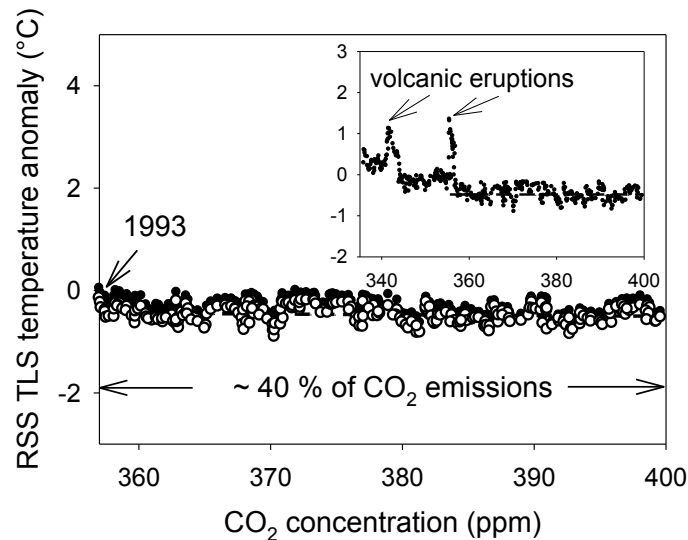


Fig. 2 – Plateau of both Remote Sensing System TLS (o) and UAH (●) temperatures independently measured by satellite in the low stratosphere from 1993 to 2016 plotted versus atmospheric CO₂ concentration measured at Mauna Loa showing the absence of discernible correlation in a period corresponding to not less than ~ 40 % of all the CO₂ emitted since the beginning of the industrial era (Ref. 6).

The hiatus is found to extend over 23 years, even longer than the hiatus at the surface of the Earth, questioning the amplitude of the greenhouse effect predicted by radiative–convective models. Climate does change with alternating periods of warming and cooling every 30 years as probed by climate sentinels: sea ice, sea level, global mean temperature measured since 1880 and more accurately by satellites since 1979. Once the natural 60-year cycle is subtracted from observations, the anthropogenic contribution to climate change appears well below dangerous levels consistent with infrared studies of greenhouse gas absorption and latest published climate sensitivity. The balance tilts in favor of the gas of life since moderate warming favors human wellbeing, growth and progress.⁷

Acknowledgement – The author gratefully acknowledges the support for the travel to the London Conference by the Association des Climato-réalistes.

7. Gervais, F., 2016. Tiny CO₂ warming challenged by Earth greening. Ed. Scholar's Press, Saarbrücken.

The total failure of the ManMade Climate Change story

Piers Corbyn
WeatherAction

Editor's note: By July 31, I had not yet received the Extended Abstract of this paper. When Piers will give his lecture on September the 9th, I am sure we will all be impressed by all the facts presented, and amused by all the humour with which they are presented. In the absence of a proper abstract, I extract some relevant material from the net (below).

On Mon 16th May at the annual Imperial College Lighthill Lecture – this year by Professor Sir Brian Hoskins on ‘Predicting Weather and Climate’ – WeatherAction astrophysicist Piers Corbyn, First class Physics graduate from Imperial College, challenged Sir Brian to produce observational evidence of CO2 driving changes in Climate.

“The problem you have is that there is no observational evidence that world temperatures follow CO2 levels but the relationship is the other way. The trace gas CO2 follows temperatures with delays of some centuries because the relative partition between CO2 in the air and in the sea – which holds 50 times more CO2 than the atmosphere – is controlled by Sea (surface) temperatures (under Henry’s Law) and I challenge you to provide evidence of your claims”

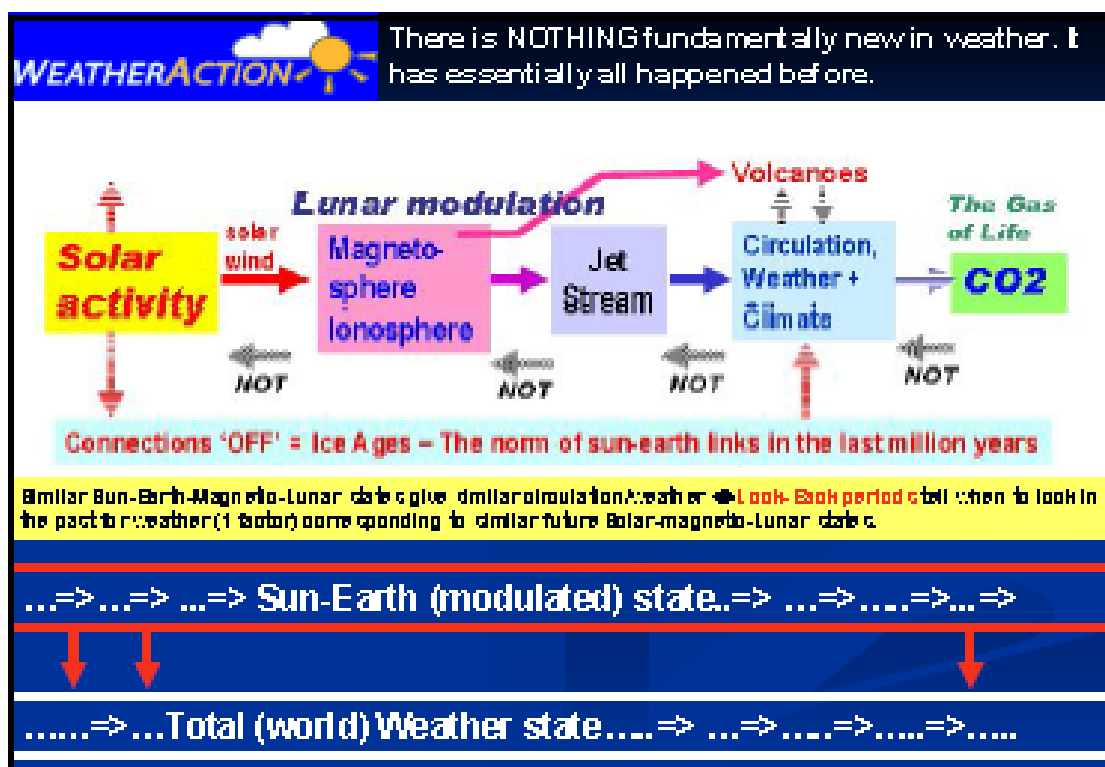
Sir Brian said there was evidence in the UN IPCC reports. Piers replied: “*No, there is no evidence in those reports only opinion. We must rely on evidence not opinion*”.

Sir Brian said he agreed evidence not opinion was required.

<https://weatheraction.wordpress.com/>

The lack of evidence will surely be a central theme in Piers lecture on September the 9th. Reference is also given to Don Easterbrook's statement (p. 119): *Because of the absence of physical evidence that CO2 causes global warming, the only argument for CO2 as the cause of warming rests entirely in computer modelling*, with the Editor's comment: This is precisely what we demonstrate at this conference in paper after paper.

This excellent image by Piers Corbyn is fundamental both for Day-1 and Day-2.



Reconsidering Livestock's and Agriculture's Role in Climate Change

Albrecht Glatzle
Asociación Rural del Paraguay

It is very old wisdom that climate dictates farm management strategies. Fairly new, however, is the idea that agriculture, livestock husbandry and food consumption habits are forcing supposedly the climate to change. This idea spread across the globe when thousands of media reports picked up the central message of the famous FAO report “Livestock’s Long Shadow” (Steinfeld *et al.* 2006), which blamed domestic livestock of causing serious environmental hazards such as climate change, through Greenhouse Gas (GHG) emissions. This alarmist message even triggered political action: There was a public hearing in the European Parliament in November 2009 about the topic “Less Meat = Less Heat”. A second FAO-report (Gerber *et al.* 2013) maintained the key criticism of high emission intensities from livestock. Therefore, reduction of livestock numbers and meat consumption was recommended, even in scientific literature (e.g. Ripple *et al.* 2014). In COP21 in Paris this topic also was raised.

What are the most important agricultural Greenhouse Gases (GHGs)?

1) CO₂ emitted as a result of human consumption of cereals, vegetables, meat and milk, or of livestock respiration and forage digestion does not increase atmospheric CO₂ levels, as this is part of the natural carbon cycle. The amount of CO₂ released annually by humans and livestock is offset by re-growing CO₂-assimilating forages and crops. Manmade CO₂ sources or sinks in agriculture and livestock husbandry, as taken into account in the National GHG Inventories, are: (1) fossil fuel consumption during production, processing and marketing and (2) the difference between eco-systemic carbon stocks before and after human intervention such as de- or reforestation, land degradation or soil organic matter buildup triggered by good practices such as zero tillage or mulching. Additional CO₂ in the atmosphere (0,04% instead of 0,03% 100 years ago) has been shown to be beneficial as it has been greening the earth (CSIRO 2013, Zhu *et al.* 2016 and NASA 2016) and boosting agricultural yields (e.g. Goklany 2015). CO₂ clearly is the most important nutrient of life, being the only carbon source of all live and dead biomass and improving Water Use Efficiency and drought resistance in plants (e.g. Deryng *et al.* 2016). The positive impact of human CO₂ emissions even for the survival of life on earth was shown by Moore (2016).

2) Other *natural* GHGs such as Methane (CH₄) and Nitrous Oxide (N₂O) also form part of *natural* cycles, just like CO₂, there is, however, some confusion in the quantification of the *manmade* part of the emissions. The Guidelines for National Greenhouse Gas Inventories (IPCC 2006) meticulously provide instructions, how to estimate *total* emissions from managed ecosystems. Baseline emissions from pristine ecosystems are explicitly not taken into account, as they are not manmade. However, in order to get the effective manmade part, the emissions from managed ecosystems have to be corrected for the baseline emissions of the respective native ecosystems, which sometimes might have emitted the same amount or even more CH₄ and/or N₂O per ha and year than they did after land reclamation and utilization. For example N₂O emissions (which occur as a tiny byproduct from (de)nitrification) from dung and urine are considered animal-born at a 100% level - to my knowledge in all pertinent scientific papers. This is, however, incorrect as all Nitrogen excreted by animals had been taken up from herbage, and all plant-N is also recycled (emitting N₂O), whether or not passing through livestock’s intestines. It is even likely that, at a global scale, N₂O emissions from livestock and agriculture only grow with an increasing amount of N in circulation (e.g. through fertilization). As the correction for baseline emissions is consistently omitted in scientific literature, farm-born CH₄ and N₂O emissions have been systematically over-estimated by IPCC (2006), FAO (Gerber *et al.* 2013) and by

hundreds of uncritical scientists ignoring the eco-systemic context of what they are measuring. These kind of serious methodological deficiencies might also explain why, contrary to what has been reported, we do not see any discernible livestock signal in the real world, neither in the geographical methane distribution pattern nor in the historical methane development (Glatzle 2014). Obviously, domestic livestock is a minor player in the global CH₄-budget.

The analysis of this topic would remain incomplete without addressing the alleged evil, human emissions of natural GHGs are accused of: Causing climate change through global warming. There is, however, room for considerable doubt in the warming potential of anthropogenic GHG-emissions in an extent claimed by the IPCC (2014): (1) As years pass by, there is a growing divergence between observed and published modeled temperatures (Christy 2016). (2) This is not surprising as most variables (forcing agents for global warming) used for modeling are poorly understood (as admitted in Tab. 2.11 in IPCC 2007), and published estimates of CO₂ climate sensitivity (temperature increase with doubling of CO₂) have been steadily declining since the turn of the millennium (Gervais 2016). (3) When looking into the past, an increasing number of peer-reviewed papers present evidence of pronounced warm periods during the Holocene (since the end of the latest ice age about 10.000 years ago), which were warmer than or at least as warm as the present age, in spite of the pre-industrial atmospheric CO₂ levels in those times. Patzelt (2015) who excavated ancient tree trunks well above the present days' tree lines in the Alps confirms the results from reconstructions of Greenland temperatures by ice core analysis (e.g. Alley 2000) that most of the Holocene has been warmer than present day temperatures.

Considering the striking deficiencies in the quantification of manmade GHG-emissions from agro-ecosystems and in the interpretation of their environmental relevance, GHG-mitigation efforts in farming systems are rather pointless, unless there are co-benefits, such as

- Cost savings through improved energy efficiency,
- Better soil properties through buildup of soil organic matter,
- Profitable and durable harvest products (such as timber or leather),
- Bio-energy to replace fossil energy, as long as it is competitive without subsidy,
- Payments for emission avoidance or carbon sequestration by somebody who keeps believing in CO₂ being detrimental for the planet (or is forced by law to do so).

However this last point involves some risks: False incentives could encourage farmers to reforest arable lands extensively, which could pose a serious problem for global food security.

In summary, no serious threat can be detected of any dangerous impact on climate arising from agriculture and livestock. Rather trying to combat climate change could turn into a problem for farmers and/or food security.

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Is Climate Science Serious?

Pamela Matlack Klein

We live in an upside down world, truth is irrelevant, perception rules. If enough people claim loudly and persistently that black is white, then black becomes white and that naked emperor strutting down the boulevard is clothed magnificently in silk and ermine. This explains perfectly the current belief that humans are destroying the earth by using fossil fuels to power the world. So-called Climate Science, an oxymoron of sorts, purports to prove this. But is their proof to be believed when it does not stand up to the stringent application of the scientific method?

We are told petroleum use is bad, it allows the most evil of greenhouse gases, carbon dioxide, to increase in our atmosphere thus causing soaring temperatures all over the world. But I know, and my distinguished audience knows, that carbon dioxide is the gas of life, it causes plants to grow, creating more food to feed hungry people. We also know that increases in atmospheric carbon dioxide *follow* a warming rather than precipitating it. We also know that carbon dioxide is essentially a trace gas in our atmosphere, clocking in at about 0.04% of the total. Water vapor, which really can cause temperatures to rise, is a very large component of our atmosphere. Where are the cries of alarm about water vapor? Why any climate scientists declared it a pollutant and called for a ban on its production? Yet carbon dioxide is still demonized in the press, by the Environmental Protection Agency, the United States Supreme Court, numerous climate scientists, the IPCC, and the former Vice President of the United States, Al Gore.

The media and countless governmental agencies, both domestic and international, insist that we must stop using petroleum products to power our vehicles. Instead they encourage the use of ethanol distilled from corn. The rush to make ethanol has caused corn prices to skyrocket, in turn causing the price of food to increase as well. Corn is a major component of livestock feeds and countless other food products. In 2014, National Geographic published an article about how the high cost of corn is causing widespread hunger in Mexico. Mexico imports most of its corn from the United States and it is a staple in their diet. The production of ethanol is not even cost-effective, if the governmental subsidies vanished overnight so would the production of corn-derived ethanol. But we are still told that ethanol is good for us and the planet.

Apparently the lack of temperature increase over the past decade has allowed the average human's fear of warming to somewhat abate. Sea levels are not increasing catastrophically either. Low-lying cities along world coastlines are not being inundated at high tide, as predicted by climate modelers. Archipelagos around the world have stubbornly refused to sink below the waves. The Greenland ice cap is not melting nor has the Canadian Arctic become temperate, allowing easy access for mining. And where is the fabled Northwest Passage? This was promised as well. I suggest booking a cruise through said passage is akin to booking a holiday cruise to Mars.

The latest scare tactics involve things that most people can't verify on their own but have to accept because they are coming from sources that have been reliable in the past. Ocean acidification is a big and scary new threat. Supposedly intelligent and well-educated people accept this as proven fact and will argue vehemently that is it true; the world's oceans are becoming acidic, coral reefs are dying, fisheries on the verge of extinction, and all because humans insist on getting energy from fossil fuels. We know this is a foolish idea. The ability of the oceans to buffer is truly amazing and they are in no danger of turning into vinegar. As a child in the '50s I was told coral reefs were dying from pollution, later on starfish were being blamed for the imminent demise of the Great Barrier Reef off the east coast of Australia. Despite these dire predictions, the coral reefs stubbornly refuse to perish.

Recently my husband found an article online that claimed the oceans are becoming oxygen

depleted, as if ocean acidification were not scary enough! I immediately checked out this most recent outrageous claim and discovered that it is emanating from National Center for Atmospheric Research in Boulder, Colorado, USA. NCAR is predicting “Noticeable effects of ocean deoxygenation to appear between 2030 and 2040,” conveniently far enough in the future to allow for face-saving admission of bad models. Another climate science organization, Ocean Scientists for Informed Policy is touting this idea as well. They devote an entire website to the deoxygenation of the world's oceans, ocean acidification, melting arctic ice, and the imminent failure of artisanal fisheries (apparently warm water prevents fish from growing....) OSIP is associated with Scripps Institute of Oceanography, UC San Diego. When such formerly respectable scientists pile on to the Warming Wagon, it frightens me a lot more than any fictitious danger from a slight increase in atmospheric carbon dioxide!

How is the average person with little or no scientific training to deal with such propaganda? Do many of them even grasp the magnitude of the lies they are being spoon-fed by the media, IPCC, Al Gore, Michael Mann, and others? When climate scientists present findings based on computer modeling, people tend to accept these findings at face value. After all, we all have computers and know how amazing they are. I am sure most of you are carrying a tiny computer in your pocket right now in the form of an I-phone or Android device. But what we here all know and the average person does not often grasp is that computers can only work with the data they are given. If garbage goes in, garbage will most assuredly come out! And when field data is cherry-picked to eliminate anything that might go counter to the climate scientist's preconceived idea of what is happening, it goes straight into the bin. But as long as you style yourself as a climate scientist, your ideas and predictions are sacrosanct and not subject to challenge.

When a complicated system, like our planet's weather, is reduced to handful of assumptions and fed into a climate modeling program, what comes out is unlikely to bear any resemblance to what actually goes on in real life. What generally does emerge is a scenario that supports the theory the climate scientist is trying to prove. This is especially true when embarrassing but real occurrences like the Little Ice Age and the Medieval Warming Period are not even considered but claimed to have never happened. Pretending these very real events did not exist is how we get the infamous Hockey Stick Curve.

My mentors firmly believed that our sun is the primary driver of our planetary weather. Fifty odd years of careful observation of weather and climate has done nothing to change my mind about this. But today's self-styled climate scientists must have been absent from classes on the days when the solar component of our planet's weather was discussed. The impact of the sun and sun spot cycles is conspicuously absent from their models and papers. Milankovich seems to have gone the way of the Little Ice Age, Maunder Minimum, and the Medieval Warming Period, written out of the record in a disturbingly Orwellian fashion.

So this is the task before us, to attempt to undo all the bad science that has been flying around since Roger Revelle mused that perhaps carbon dioxide was responsible for the planetary warming that occurred in the first half of the previous century. He was obviously not a geologist nor botanist! And was certainly unaware that the Little Ice Age was finally over. Instead of rejoicing in a slightly warmer and more clement planet, he decided it was change for the worst and planted the seeds of AGW in Al Gore's highly-susceptible brain. Long experience has taught us that science and politics are incompatible with the public good. Whenever a politician sniffs an opportunity to exploit science to his benefit the public suffers. In the case of climate science, the entire world is suffering, most especially the developing nations that are being denied access to inexpensive electricity in order to “save the Planet!”

Epistemology of Climate Change

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The birth of a pseudoscience

An important category of precedents for the issue of climate change is pseudosciences. A common view on pseudoscience is that it is bad answers to bad questions, made by poorly educated people. History easily shows that this view is just plain wrong. In particular, in most cases pseudosciences were first studied by people who can be also regarded as scientists, and even first-class ones: Isaac Newton (alchemy), Ptolemy (astrology), Pythagoras (numerology), Leonhard Euler (age of the Earth from the Bible), William Crookes (paraphysics)... Moreover, most often the birth of a scientific domain is *subsequent* to the birth of the corresponding pseudoscience.

Karl Popper, the famous philosopher of science, asserted that it is impossible to prove that something is right, only that it is wrong (if it is). But he did not apply this fundamental idea to its own famous criterion of scientificity, and I think that deserves to be done in the following way: instead of trying to define what science is, we may try to define pseudoscience first. Some attempts for that use considerations like the lack of peer-reviewed literature, or public institutions and laboratories, and so on. This provides rather weak definitions, since any such criterion can be easily imitated — indeed, it is, for several pseudosciences. Here is a different definition: *a pseudoscience is an alleged scientific domain that focuses on an object not for its own but as a medium designed to provide information on a subject*. For example, astrology use the sky (planets, stars) to tell things about our future.

Such a definition provide an explanation to the fact that to each science corresponds a pseudoscience (astronomy/astrology, arithmetics/numerology, chemistry/alchemy...): any given object (stars, numbers, matter) might be studied either for itself (science) or as a medium to inform on a subject (pseudoscience). And it can take a lot of time before the separation between scientific and non-scientific questions about a given field of investigation is identified.

To some extent, we can say that a scientific domain becomes a modern science when it gets rid of its corresponding pseudoscience. Before that, as interesting and useful as it may be, it remains archaic science. At now, climate science is an archaic science, since it is not able to distinguish itself clearly from its pseudoscience, *climatomaney*: method of divination aiming at deducing from human behaviour the future climate of the Earth, to make each of us repenting. As it was the case for astronomy/astrology before Galileo, or arithmetic/numerology before Archytas of Tarentum, the confusion between climatology and climatomaney is widespread among scientists, even for some of the best ones. It is true that most of them know the difference between studying climate for itself and “urging for action”, but this was true as well for Ptolemy as regards astrology: the point is not to be able to differentiate the two things, but to understand that the difference is in nature, not only in degree. The affirmation of the necessity of looking at phenomena as objects, without reference to any subject, appears in numerous foundational texts of science, from Claude Bernard’s *Introduction to the Study of Experimental Medicine* to Émile Durkheim’s *The Rules of Sociological Method*.

A postmodern point of view

The distinction between archaism and modernity for pseudoscience cannot share the same sense as for science. Nevertheless, there is still fundamental distinctions that are to be made between pseudosciences. As for me, a sensible way to do it consists in splitting

pseudosciences in three categories: archaic, modern and postmodern. Here, archaic refers to the idea that mankind is a small thing compared to nature. Astrology is typically an archaic pseudoscience. Modernity refers to the idea that mankind is powerful. The main example of modern pseudoscience (in this alternative sense of modernity) is parapsychics, founded on the supposition that human spirit is so strong that it can move objects on its own. Postmodernity consists in considering that mankind is still powerful, but also unworthy of its power. Climatomania is a perfect example of a postmodern pseudoscience.

The exponential fear

An interesting aspect of climatomania is that it relies on a new type of fear that appeared during the Cold War. I call it an *exponential fear*. It is a fear of a global apocalypse allegedly based on science, in which the growth of the exponential function frequently plays an important role because it helps to “prove” that our world is not only finite but narrow, and that our increasing growth will soon lead us to a final explosion. The famous book *The Limits to Growth* by Dennis Meadows *et al.* (imminent exhaustion of natural resources because of an exponential consumption) as well as Paul Ehrlich’s *The Population Bomb* (fear of an alleged long-term exponential growth of the world population) are some of the main exponential fears that emerged in the seventies. The exponential aspect of the climate fear appears for example in this quote of James Hansen, who wrote in 2007 that melting ice “*was small until the past few years, but it is has (sic) at least doubled in the past decade and is now close to 1 mm/year (...). As a quantitative example, let us say that the ice sheet contribution is 1 cm for the decade 2005-15 and that it doubles each decade until the West Antarctic ice sheet is largely depleted. That time constant yields a sea level rise of the order of 5 m this century.*”

The climate fear is the newest avatar of the irrational exponential fear, but probably not the last one. Hence, we should be concerned by the fact that, sooner or later, it could be replaced another one. May we be able to prevent the emergence of it.

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The Problematic Relationship Between Atmospheric Temperature, Sea-Level Rise, Weather Events, and CO2

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CO2 and sea-levels have tracked consistently for the past 5,000 years, with sea-levels exhibiting a slight but consistent linear rise. During the same period, atmospheric temperatures stayed within a $\pm 2^\circ\text{C}$ zone, but ranged up and down with wide swings. Recent examples include the $+0.6^\circ\text{C}$ Medieval Warm period (500-1100AD), and the -0.6°C Little Ice Age (1200-1800AD). At the same time, CO2 has been remarkably linear at 280 ppm, except for a spectacular 43% rise to 400ppm that began in the mid 1800s.

Local sea-level effects are dominated by tectonic influences, with uplift and subsidence factors the major long-term drivers; tides and ocean currents have the short-term effects. Tide Gauges have been reliable, but averaging them worldwide leads to bias, as many more are located in areas of subsidence than uplift. Renowned sea-level experts have made this abundantly clear [^{1,2}].

Satellites measuring sea-level have not performed as promised; resolution insufficiency and orbital tracking errors compelled adjustments, skewing mostly linear readings in an upward direction that taxed credibility. [³]. No recent projection (IPCC⁴, NOAA⁵, USNCA⁶) appears to have any chance of accuracy, and CO2's links to weather events are abundantly exaggerated while lacking in measurable substance.

The most recent upward spike (38%) in CO2 from 280ppm in 1880 to 400ppm at present (2016), has not had a validated measurable influence on Sea-Level Rise by any metric available, and provided a very uncomfortable inconvenience at last year's Paris COP21 Climate talks. It was this factor, more than any other, that led to provisions in the Paris Accord allowing nations to exit at will, without consequence. [⁷].

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- 7 Paris COP21/CMP11 [<http://www.cop21.gouv.fr/en>]

Biography

Tom Wismuller forecasted weather at Amsterdam's Royal Dutch Weather Bureau after studying meteorology at NYU and Stanford. Selected for a future executive NASA internship, he worked throughout NASA and its Directorates before, during, and after the Moon Landings. He became administration director of the government operations at Pratt & Whitney and held insurance industry executive and board positions. The Polynomial Regression mathematics, algorithms, or code he personally produced after leaving NASA, is used by almost all climate scientists on the planet for analytical and modeling. He lectures worldwide on the SCIENCE/DATA needed to understand climate.

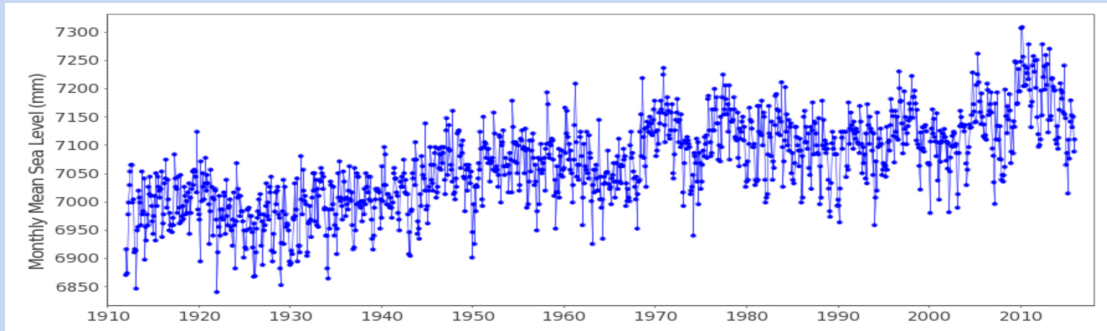
In 2008, Tom was highlighted in the "50th Anniversary of NASA" issue of AIAA's "Horizons" magazine. He was the meteorologist member of 2012's NASA 49 and NASA 41; Scientists, Astronauts, Engineers, and NASA Field Center Directors requesting improvements in NASA's handling of climate issues. He chaired "Water Day" in 2013 at UNESCO-IHE, the world's leading water research graduate center, and was the climate/sea-level speaker at the 10th International Water Conference (2015), in Varna, Bulgaria. In Nov. 2016, he'll be the featured Sea-Level speaker at the World Oceans Conference in Qingdao China.

His www.colderside.com/colderside/Temp_%26_CO2.html has gone viral.

Massive 38% CO₂ Increase Since 1880

Any sign of Sea-Level Rise Accelerating in
Tectonically Inert Areas?

Portland ME – **125 mm per Century** (& Linear!!!)



August 1912 = January 2015 **103 years to the millimeter**

Figure 1. The 103 sea-level records from Portland.

Sea-Level Rise & CO₂

Is There Cause and
Effect? **NO!!!**

Does a Rise/Fall in One
Increase or Decrease the
Other? **Absolutely NOT!!!**

Figure 2. The absence of any relations between CO₂ rise and sea-level changes.

Sea level data for the Iberian Peninsula

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Coastal erosion is a real problem along several stretches of the Portuguese coast. The causes are quite complex and the effects in the coastline are also differentiated. Some scientists (Dias *et al.*, 1997) insist that only 10% of coastal erosion in Portugal can be related to sea level changes. It is known (Ferreira *et al.*, 2008) that the most important cause has to do with the retention of sediments at the dams along the main rivers. Recent papers also conclude that the erosion areas are generally related to human intervention along the coastline (Lira *et al.* 2016).

However, most of the literature points out “sea level rise” as the primary reason for coastal erosion. Some of the recent papers on the subject don’t talk about sea level change but about sea level rise (SLR). Or even “ASLR” (Accelerated Sea Level Rise).

So, our first objective is to try to understand if this “acceleration” of sea level change really exists.

Unfortunately the Permanent Service for Mean Sea Level (PSMSL) has no recent data from Portuguese stations. So, it is quite hazardous, with the current available data, to evaluate the presence or absence of any recent acceleration on sea level evolution on Portuguese coast. Consequently, we tried to study all the PSMSL stations in Iberia (Table I).

	Trend	Years		Trend	Years
AVERAGE	1,03	31,11	HUELVA	2,98	18
PASAGES	4,39	16	BONANZA	4,72	22
BILBAO	2,98	22	CADIZ II	1,41	109
SANTANDER I	2,21	73	CADIZ III	3,74	55
SANTANDER II	-4,09	12	TARIFA	1,10	72
SANTANDER III	1,93	22	TARIFA 2	-11,84	5
GIJON II	1,14	19	ALGECIRAS	0,37	59
FERROL 2	10,69	8	ALGECIRAS 2	-7,48	5
LA CORUNA I	2,43	73	ALGECIRAS B	3,94	9
LA CORUNA II	0,72	43	GIBRALTAR	0,30	53
LA CORUNA III	3,43	22	MALAGA	0,78	70
VILLAGARCIA	4,97	18	MALAGA II	3,02	22
VIGO	2,18	73	MOTRIL 2	1,39	10
VIGO II	2,38	22	ALMERIA	0,32	20
PORTUGUESE STATIONS			ALMERIA 2	2,38	9
VIANA	5,11	7	CARTAGENA	-0,64	11
LEIXOES	0,52	40	ALICANTE I	-1,13	45
AVEIRO	-1,21	21	ALICANTE II	-0,10	38
CASCAIS	1,33	112	GANDIA	0,17	7
LISBON	0,56	14	VALENCIA	5,42	21
SETROIA	1,48	21	SAGUNTO	2,00	7
SINES	1,35	15	BARCELONA	6,61	22
LAGOS	1,59	91	L'ESTARTIT	4,12	25

Table 1: PSMSL stations in Iberia: calculated trends and length of series.

There are great discrepancies in Iberian stations. Some of them even show a lowering sea level. This must be related to:

- 1 - The length of the series.
- 2 - Possible problems in the acquisition of data in very short series: they are the most prone to show big oscillations in stations that are quite close and even carry the same name (e.g.: Tarifa, Algeciras, Almeria).
- 3 - The situation of the tide gauge stations: some of them are located near tectonically active areas (Cantabrian-Pyrenees), the Baetic System and the Iberian cordillera.

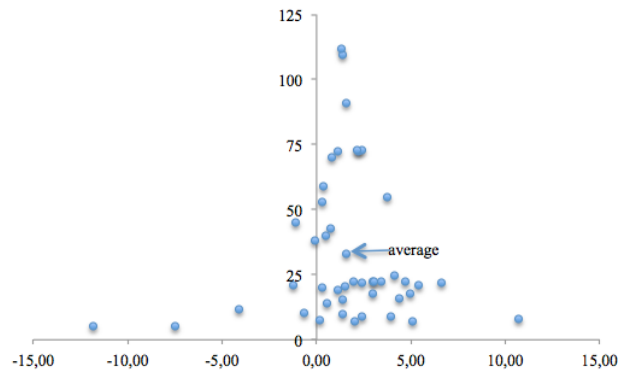


Figure 1: Relationship between trends (horizontal axis) and length of series (vertical axis).

Regardless of the tectonic situation of tide gauges, the length of the series seems to have great implications for the trends in Iberia. The series longer than the average (fig. 1) have smaller trends. The series less than 25 years long show a great irregularity in their calculated trends. In fact, we know that sea level trends are only valuable if they are longer than the lunar cycle of 18,6 yrs.

We calculated the averages of series longer than 18,6 and 60yrs. They are quite similar:

Mean Iberia stations, series>18 year	1,92
Mean Iberia stations, series>60 year	1,63
Atlantic Iberia stations, series>18 year	1,89

Only 3 stations (in 18) have trends above 3mm/yr. Most of them are quite near the average (*ca* 1,9mm/yr). The longest series in Iberia (8 series more than 60 years long) have an average of 1,63.

The main question subsists: is there acceleration in sea level change in recent years? As PSMSL doesn’t present recent data for Portuguese stations we have tried a further analysis with the Spanish ones.

Figure 3 shows that there are 5 Spanish stations with more than 70yrs long series. We divided the data at these 5 stations into 2 periods: till and after 1995. In the Atlantic coast, Vigo has a curious behavior: the trend after 1995 is negative. All the other stations have a greater trend in the last 20 years. The results for Tarifa and Malaga are a bit strange: before 1995 an apparent lowering of sea level, after 1995, a 4mm/yr positive trend. May be it is worthy to analyze a little deeper the Coruña data because it has a more “normal” behavior and it is situated in an area where recent tectonics is not indicated.

As we said before, Vigo station has quite “anomalous” results. However they cannot be forgotten because Vigo is very near to Portuguese coastline, where the data after 1993 are not available in PSMSL. The results can be seen on figure 4. What does it mean? Even if the last part of the data is difficult to compare with the beginning of the series, there is no acceleration of sea level change in Vigo, on the contrary.

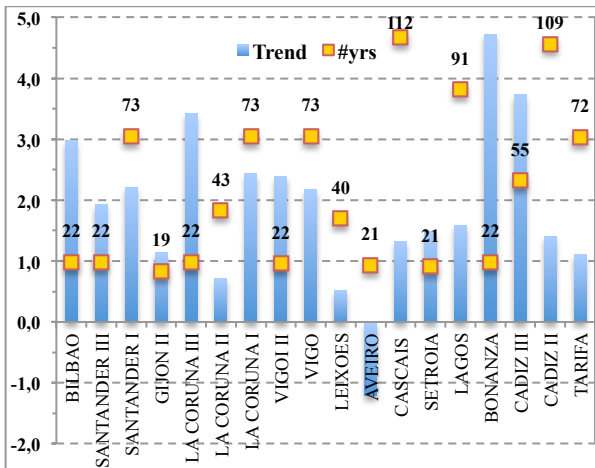


Figure 2: Atlantic stations: series longer than 18yrs.

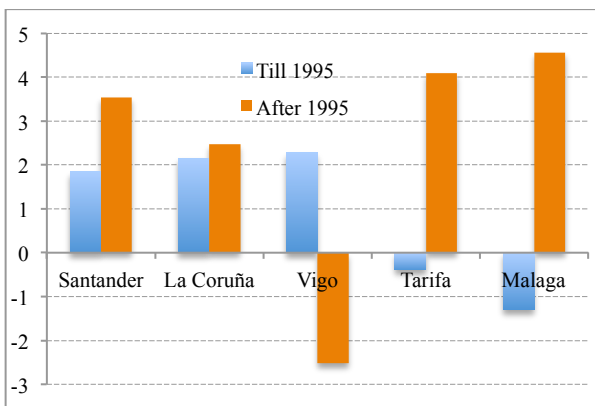


Figure 3: The Spanish stations with series longer than 70 years: trends before and after 1995.

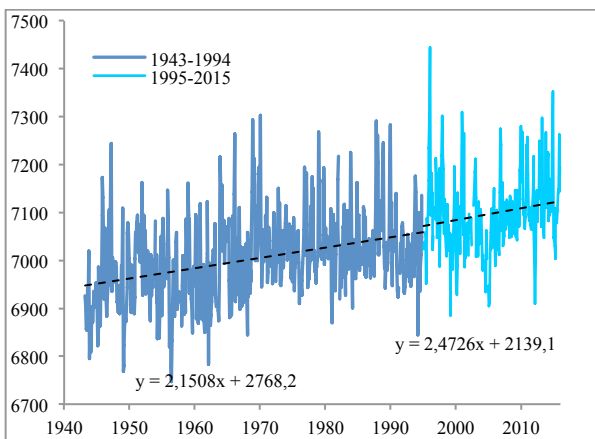


Figure 3: PSMSL for Coruña: trends before and after 1995. From 1943 till 2015=2.43

Some Portuguese stations have long series (Cascais, 112yrs and Lagos, 91yrs). However, in both cases, the PSMSL doesn't publish the most recent data, so we must rely only on the existing PSMSL data.

Cascais series is not continuous. There are several breaks in it. It seems that 1954 represented a change in the tide gauge conditions that may have affected the series after it (Silva *et al.*, 2008).

The observation of Cascais data shows clearly a low section around 1920. After 1960 and during 33 years, we have almost stability.

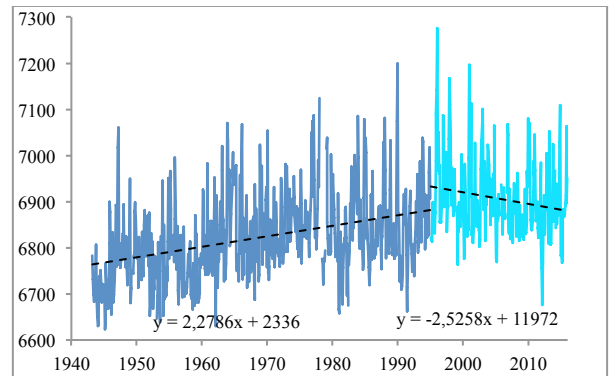


Figure 4: PSMSL for Vigo: trends before and after 1995. From 1943 till 2015=2.18

The data for Lagos is very discontinuous. So we will present only the Cascais data. This is the longest PSMSL series in Iberian Peninsula.

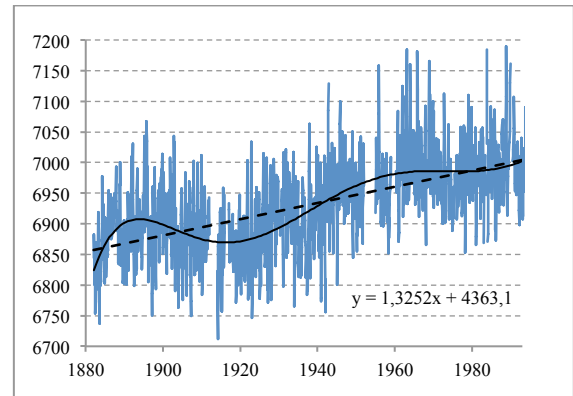


Figure 5: PSMSL for Cascais: for this long series a polynomial trend line (6th grade) is much more convenient to understand the cycles that are present in most sea level curves. From 1882 till 1993 the linear trend is 1,325.

The lack of post-1993 data of Portuguese stations in PSMSL could be partially solved with the appearance of another entity: Sea Level Station Monitoring Facility, that publishes the sea level data for 6 Portuguese stations: Cascais, Setúbal, Sagres, Lagos, Albufeira, and Ponta Delgada (Azores Islands). Figure 6 shows the kind of chart everyone can obtain for a maximum of 30 days at Albufeira, for example. The correspondent 30 days data are also available online. The data are very detailed: the database for Albufeira has the periodicity of 1 minute.

However, some of the stations are not working properly. For instance, Cascais station doesn't have data after 2015-09-16. It is also possible to ask for detailed data, longer than the fixed 30 days, for the available stations.

Figure 7 shows the best we could do with the 2-month of data from Cascais that we got. Their periodicity is 5 seconds. It includes more than a million points. It is a difficult file to manage. The picture shows numerous exceptionally high points that can contribute for an average of 0,193m. This represents the mean sea level for 2 month in Cascais. This is, of course, above the datum for Portugal, established in 1938, exactly from Cascais tide gauge (Silva *et al.*, 2008).

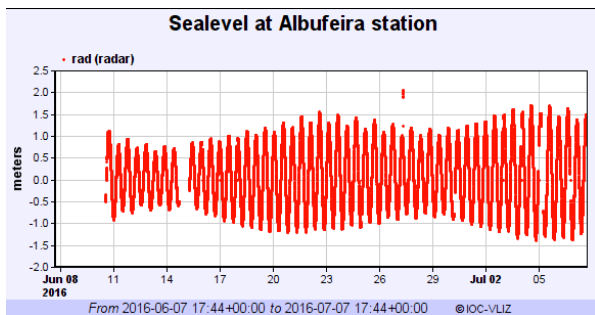


Figure 6: “Absolute Levels” (= as received) at Albufeira, from 2016-06-07 to 2016-07-07.

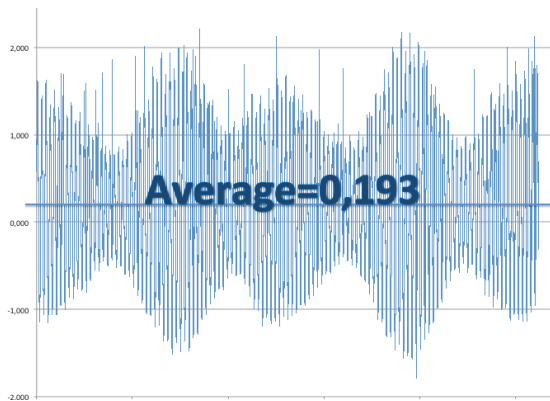


Figure 7: Detailed data for Cascais: 2015.07.17-2015.09.16. Data periodicity: 5 seconds

Of course it is possible to deal with this enormous amount of data, with special computer capacities. However, possibly the obtained data will not be fully compatible with the long tide gauges of PSMSL data. For some reason this most recent data are not yet published in PSMSL. Indeed, in a “disclaimer” at Sea Level Station Monitoring Facility we can read: “The data presented under this service has not undergone any quality control and data is provided as received”.

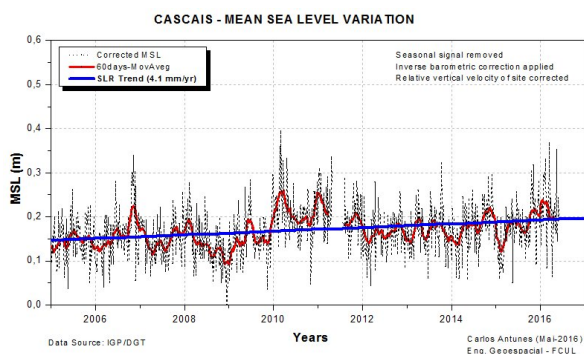


Figure 8: Mean sea level variation in Cascais according to Antunes:http://webpages.fc.ul.pt/~cmantunes/hidrografia/hidro_mares.html

The results presented in figure 8 and 9 were obtained from this kind of data (Antunes, 2011). Several corrections were applied. We can see in the top of fig. 8:

- Seasonal signal removed
- Inverse barometric correction applied
- Relative vertical velocity of site corrected

All these corrections make a comparison with other stations and data very difficult, if not impossible.

One of the most disputable ideas is the assumption that Cascais is uplifting. Antunes (2009) say it very clearly:

“We have compared the 20-year moving average of tide gauge data set of Cascais with the global SRL model for Jevreja *et al.* (2006). The comparison resulted in a trend difference rate of 0.5mm yr-1, which certainly must be related to a uplift of Cascais site”.

So, we consulted the available data for GPS of all the coastal places in Atlantic Europe. They are available in the SONEL site. There we can't see any tendency for an uplifting in Cascais (Fig. 10). On the contrary, there is a very small trend for subsiding.

Cascais recent tide gauge is a very short data series (about 11 years, fig. 9), with many disputable corrections. However, it is used to assume a sea level rise of 4,1mm/yr., about 3 times the linear trend of figure 5. This is the kind of thing that some media and most of the alarmists want to hear.

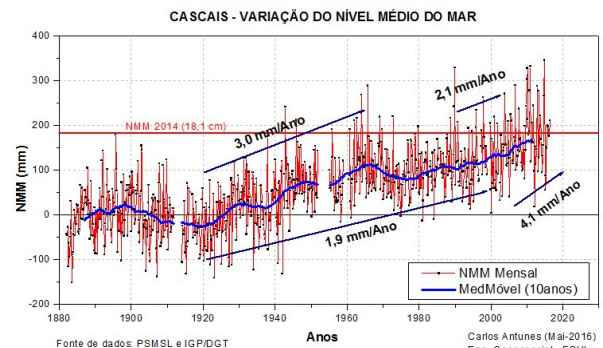


Figure 9: Sea level variation in Cascais from 1882 till 2016, according to Antunes:

http://webpages.fc.ul.pt/~cmantunes/hidrografia/hidro_mares.html

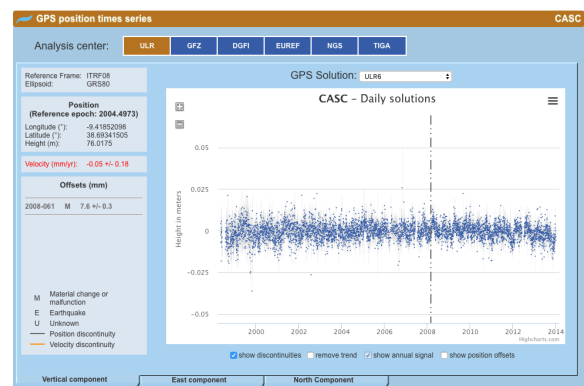


Figure 10: The SONEL vertical GPS data for Cascais doesn't confirm an uplifting situation: velocity (mm/yr) -0.05+/-0.18. The GPS is close (293m) to the tide gauge station.

Going a little further we consulted all the data for GPS vertical movements at SONEL site. We organized a spreadsheet with code, name, latitude, longitude, height, vertical velocity and error of the calculation.

In figure 11 the stations are sorted by their latitude in the Atlantic coast and in the direct sense in Iberia Mediterranean coastline. We used 2 different colors for positive (uplift) and negative (subsiding) stations. As expected, the northern stations

in the Scandinavian coastline are clearly uplifting. The forebulge area is subsiding. However, we had some surprises: the only place in the Atlantic coast of Iberia that is uplifting is Santander. All the other stations are subsiding. Some of them are apparently subsiding much more than Venice (last station in the chart, that is used as a comparison). It is the case of Coruña and Huelva. But Lagos, Cascais, Vigo and all the coastal area of Aquitaine, in France, between Arcachon and St Jean de Luz seem to be subsiding too.

The GPS near Brest harbor presents a 0,01mm/yr., very close to zero, vertical velocity.

The Mediterranean coast of Iberia seems to be mostly uplifting (Gibraltar, Almeria, Alacant and Valencia). The data for Malaga and Cadiz are not robust enough according to SONEL site. The data from Ceuta present 2 different trends - in a very short distance, but both negative.

Some conclusions:

Small series are more prone to give incorrect results. To be reliable they must be at least 18,6 yrs long because of the lunar cycle. It seem there are other cycles, e.g. a cycle of 60 years, so it is good to use series as long as possible.

Every sea level curve shows ups and downs. The polynomial curves seem to work better than linear regressions to understand the real dynamics of sea level (cf. fig. 5, Silva *et al.*, 2008). Due to this oscillatory nature, the use a small part of a curve to calculate a trend is not a correct approach and can give very strange results, like the proposed 4,1mm/yr proposed for Cascais (fig. 9).

Sea level variation at Brest, a series 208 years long, has a SL trend of 0,98mm/yr. Moreover, at the GPS station, 293m from the tide gauge, the vertical velocity is 0,11+/- 0,11 (fig. 11).

So, *ca* 1mm/yr must represent the “eustatic” component of relative sea level variation (Mörner, 2014). The proposed trends at Cascais (fig. 9) don’t seem plausible unless there is a very intense subsiding of the area - which doesn’t seem to be the case. Moreover, according to Antunes (2009) his eustatic curve has been corrected as if the place was uplifting (+0,5mm/yr).

Looking to fig. 11 there is no doubt that isostasy is not global, but regional (Mörner, 2015). It is also evident that many stations in Atlantic Europe, outside the forebulge area, have also an apparent subsiding trend.

The vertical velocity of very close stations (Ceuta: CEUT and CEU1, fig. 11) suggests the existence of differential tectonic movements. And so, the “absolute” sea level trends must be always calculated on the assumption of the possibility of vertical movements between tide gauge stations that seem to stay on similar geographical situations.

The study and comparison of GPS and tide gauge data may be a key tool to understand sea level changes issues.

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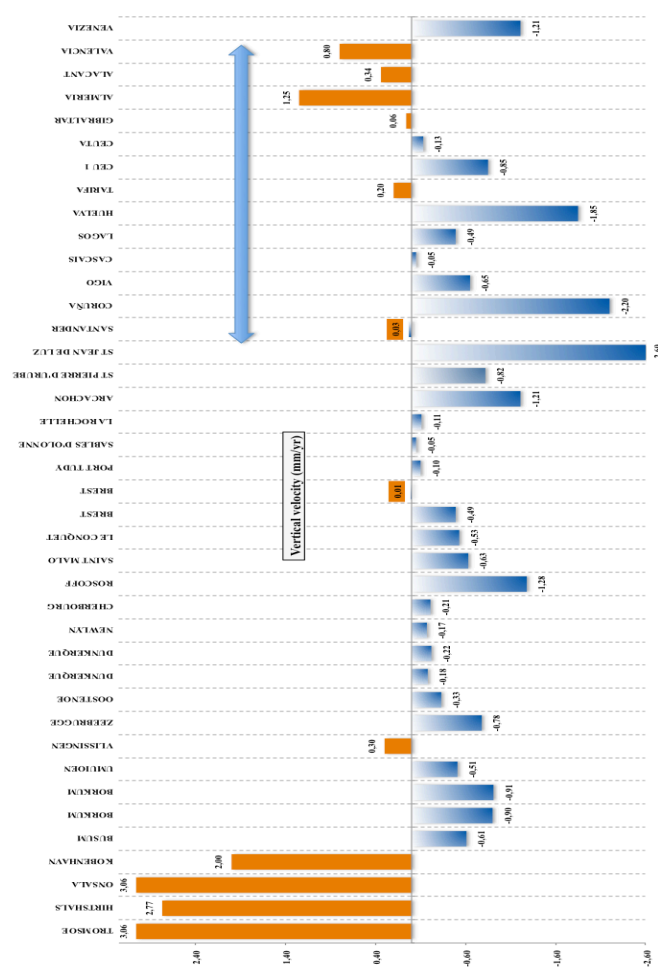
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<http://www.psmsl.org/data/>

SEA LEVEL STATION MONITORING FACILITY: <http://www.ioc-sealevelmonitoring.org/>

SONEL GPS: <http://www.sonel.org/?lang=en>

Figure 11 (below): Vertical velocities at European coastline from Scandinavia till Mediterranean Iberian Coast. Iberian stations are marked with a blue arrow.



Sea level changes in the real world

Models vs observational facts

Nils-Axel Mörner

Paleogeophysics & Geodynamics and Independent Committee on Geoethics

Sea level change is a science of its own including several different interacting subjects. In the centre lie geology, ocean sciences, geophysics and planetary-solar-terrestrial interaction. The driving forces and geodynamic processes involved are multiple and complicated (e.g. Mörner, 1976, 1987, 2013). There are no successful shortcuts in statistics or modelling. One simply has to be very well educated in geological history, has had a long and intensive background in field studies and has to understand physical laws and geodynamic processes.



“Give me a stable point and I will lift the Earth”,
Atlas, the Titan of strength, is supposed to have said.

In sea level research we don’t have any stable point – but we have observational records in time and space, documenting the effects of different processes involved, their amplitudes and rates.

The problem is that the true Science of Sea Level Changes (based on observational facts, long-term knowledge and physical laws) has become gravely vulgarized by modelling in recent years.

Future sea level changes

Many factors affect the level of the sea (Mörner, 2013), there are only 3 main variables driving short-term changes in the near future; viz.:

1. Changes in the ocean water volume (glacial eustasy) with an ultimate frame of 10 mm/year (Mörner, 2011).

2. Thermal expansion (steric eustasy) with an ultimate frame of <5 mm/year from short-term heating pulses. At shore it is always zero (± 0.0 mm/yr) as there is no water to expand.
3. Redistribution of water masses over the globe. This is an important factor, but it is regional to local, and always compensation on a global scale.

Glacial eustasy

We have frames to set at the maximum rate possible for a present rise in sea level. This is 10.0 ± 1.0 mm/yr rise. Any claim of higher rates can simply be dismissed as nonsense. The reasons for this are given in Mörner, 2011).

The melting of ice takes time (Mörner, 2011). When global temperature was about 1.5°C warmer than today at around 9000 BP, sea was at around -20 m. When sea peaked at 7800 BP (after a rapid rise) and temperature was about $+2.5^\circ\text{C}$ (according to the GISP2 core), sea was still at -10 m. The Minoan Warm period peaked at around 3300-3200 BP, but the corresponding sea level peak was displaced (due to delayed melting) to about 2900-2800 BP.

Therefore, it is absolutely impossible that present day changes in temperature ever could generate any rise in sea level in the order of a meter or more in a century. Such claims (coming from persons like Hansen, Rahmstorf, Levermann, Horton and others) represent lobbying statements from persons failing proper education in geology.

Thermal expansion

Thermal expansion is a function of the heating and the length of the heated column (Mörner, 1996, 2011). It means that the effect decreases with decreasing ocean depth, and that it at the shore is zero. The ocean surface is a dynamic surface so there will be no flush of water on to land (Fig. 2).

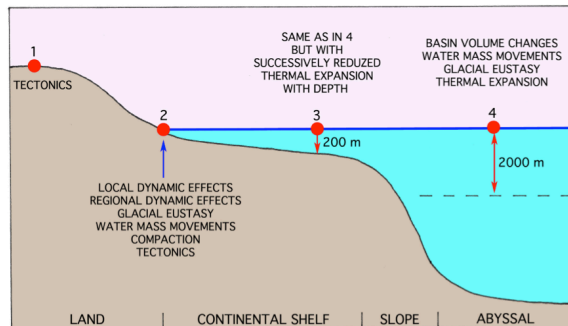


Fig. 2. At the shore (2), thermal expansion is always zero (± 0.0 mm/yr).

Redistribution of water

Water masses are always moving also in the horizontal dimension (Mörner, e.g. 1996). The volume of water remains the same. It is its spatial distribution that differs over the globe.

This is true for El Niño-ENSO events, Super ENSO events (Mörner, 1996b) and the decadal shifts between Grand Solar Minima and Maxima (Mörner, 2015).

At Solar Maxima, Earth's rotation slows down, heat is transported NW-wards via the Gulf Stream and the Kuroshio Current, sea level is rising in high latitudes and falling at the Equator (well recorded in the Indian Ocean).



Fig. 3. Situation at Grand Solar Maxima (from Mörner, 2013b)

At Solar Minima, Earth's rate of rotation speeds up, cold Arctic water is transported far to the south, Little Ice Age conditions

prevail, sea is falling in high latitudes and rising significantly in equatorial regions (well recorded in the Indian Ocean).

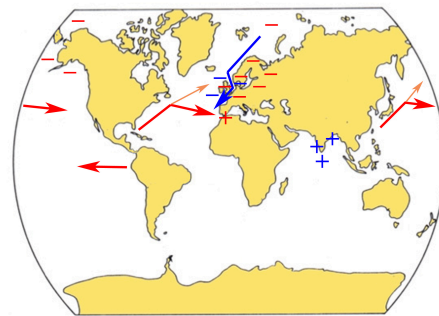


Fig. 4. Situation at Grand Solar Minima (from Mörner, 2013b)

Measuring recent sea level changes

Measuring on-going sea level change is performed via tide gauge measurements from stations scattered all over the world, from historical documentations and from coastal geomorphology and stratigraphy (Mörner, 2010). Erosion of a coastal segment is by no means a straightforward sign of a sea level rise; it may as well signify a sea level fall (Mörner, 2015b).

Tide gauges measure the relative sea level changes with respect to the instrument itself. The position of the instrument may not be fixed over time. There are 3 major problems; the site may be subjected to local crustal movements (subsidence or uplift), the instrument may be located at a harbour construction which undergoes site-specific compaction, and the site may occasionally be affected by damage due to storms.

The global tide gauge network consists of about 2300 stations scattered all over the globe (PSMSL, 2016). Out of those NOAA (2016) has selected 240 stations for their proposed representative cover of the global mean changes in sea level.

For a meaningful registration, the length of tide gauge recording must be at least >18,6 years (the lunar-tidal cycle) and even >60 years (the 60 year cycle observed in many Earth variables; e.g. Mörner, 2015a; Hansen, 2015). The PSMSL database includes 170 stations with a length of >60 years. The mean of those stations is a vague sea level rise of 0.25 ± 0.19 mm (Parker and Ollier, 2015; Parker, 2016).

Coastal geomorphology

Detailed documentation of changes in coastal geomorphology and stratigraphy is a powerful tool in the determination of true changes in sea level. We have exercised such studies in the Maldives (Mörner et al., 2004; Mörner, 2007), in Bangladesh (Mörner, 2010c), in Goa, India (Mörner, 2016) and in Qatar (Mörner, 2015b). In the last 40-50 years sea level has remained virtually stable (Fig. 4).

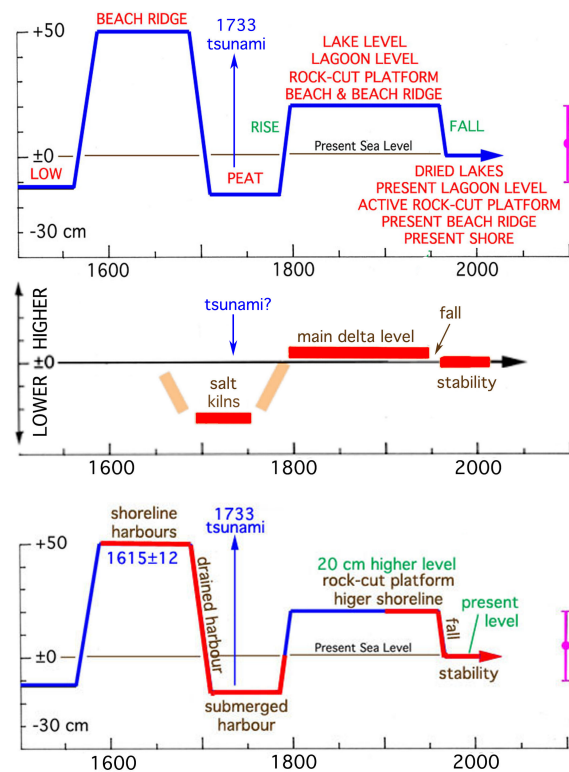


Fig. 4. Observed, documented and dated sea level changes during the last 500 years in the Indian Ocean. *Top*: the Maldives (Mörner, 2007). *Middle*: Bangladesh (Mörner, 2010c). *Bottom*: Goa, India (Mörner, 2016). The agreement is striking.

Eustatic test areas

The Kattegatt area, covering the margin of glacial isostatic uplift, is probably the world's number 1 test area of absolute sea level changes (Mörner 1973, 2014a, 2014b, 2016). Here, the eustatic component is closely fixed at +0.9 mm/yr in 125 years.

In the subsiding eastern coasts of the North Sea, absolute sea level can be fixed at +1.1 ± 0.05 mm/yr (Mörner, 2016).

Venice is another good test area. Here, the eustatic component can be fixed at +0.1 mm/yr in 140 years (Mörner, 2007b, 2016).

In Eastern United States, the sea level graph by van de Plassche (2000) can be used at a regional standard (Mörner, 2010x, 2013, 2016), invalidating all claims of a sudden recent acceleration in sea level rise.

The Indian Ocean provides quite solid records of virtually zero (±0.0 mm/yr) sea level changes in the last 50 years (Fig. 4).

Satellite altimetry

The first satellite record from October 1992 to April 2000 (Menard, 2000; Mörner, 2004) gave a flat line within a zone of ±10.0 mm/yr, and an ENSO signal in 1997-1998. The same sequence was in 2003 assigned a rising trend of 2.3 mm/yr. This was, of course, quite chocking and revealed a purposely “adjustment” of the records so that the impression of a rapidly rising sea level trend was established (Mörner, 2007b, 2011b, 2011c, 2013, 2015c).

The satellite altimetry records simply have to be turned back into their original reading values (Mörner, 2011b, 2015c). Doing so, the NOAA (2015) record becomes +0.45 mm/yr (instead of +2.9 mm/yr) and the UC (2015) record becomes +0.65 mm/yr (instead of +3.3 mm/yr). By this, all the various sea level records agree fairly well within ±0.0 to +1.0 mm/yr.

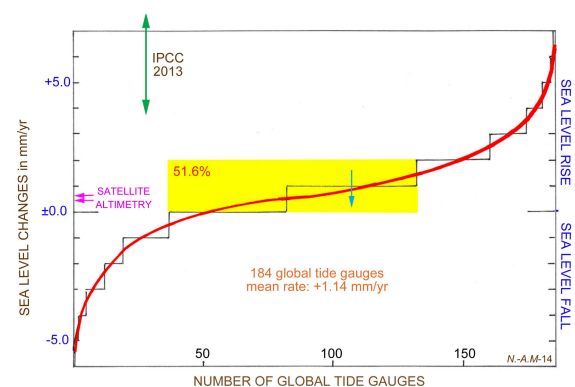


Fig. 5. The new spectrum of sea level changes after removal of erroneous “corrections” applied to the satellite altimetry records. Yellow zone gives the peak values of re-recorded tide gauge rates. Blue arrow indicates that several of those sites refer to subsiding sites overestimating the eustatic factor. Now the different records of sea level changes (i.e. tide gauges, coastal morphology and satellite altimetry) give a congruent picture of a mean global sea level rise within the zone ranging from ±0.0 to +1.0 mm/yr; only the IPCC estimates hanging above “in the air”. (from Mörner, 2015c).

Observations vs models

In Fig. 6 (Mörner, 2015d), we compare sea level data as observed in the field with model out-puts (i.e. not observed model-values). The differences are striking with model values lying very far above actually observed values. By year 2100, the observational facts suggest a sea level position of $+5 \pm 15$ cm.

We, of course, insist that only actual facts from the field itself and documented by sea level specialists should provide meaningful forecasts of possible future changes in sea level.

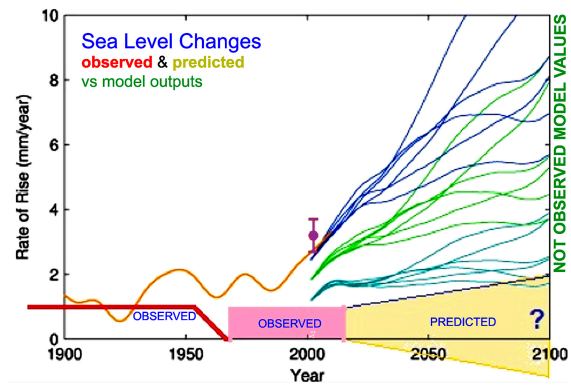


Fig. 6. Sea level changes as observed in the field (red-purple-yellow) and obtained by modelling (orange-blue-green). (from Mörner, 2015d).

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Climate change and extreme weather: Perception, projection and reality

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Expert Reviewer IPCC 2007 Climate Change Documents: Toronto Canada

Introduction

The debate on the link between warming of the earth's climate (GW) and extreme weather (EW) worldwide continues unabated. The debate gets 'louder' whenever there is an extreme weather event like a heat wave or flood, which is then linked by the media and environmentalists to GW caused by human-CO₂ emissions. Two recent examples illustrate the point: 1): In the first week of May 2016, wildfires in western Canada led to the evacuation of several thousand people and inflicted economic losses of several billion dollars. 2): Late May 2016, saw extensive flooding in parts of Germany and France. Both these events were linked by the media to the warming of the earth's climate and calls for reducing atmospheric CO₂ were once again issued by environmentalists and politicians. There was no critical assessment whether such events could be part of natural climate variability and/or whether reducing atmospheric CO₂ now would help reduce such events in future. Similar other recent events (e.g., pre-monsoon heat wave in India during May 2015; 2013 summer heat wave in parts of China) have fueled such commentaries and we have at present a general perception that a warmer present climate is spawning more EW events which may continue to increase in future.

Are Extreme Weather Events On The Rise?

It is important to realize here that EW is an integral part of the earth's climate system and is triggered by large-scale atmosphere-ocean circulation systems and their complex interaction with local and regional weather patterns. EW events (hot or cold weather extremes) have always occurred throughout the recorded history of the earth's climate. An analysis of EW events of the last ten to twenty-five years (Khandekar 2013) suggests NO increasing trend in such events in recent years. It is a perception fostered primarily by increasing attention to such events by the media and also by scientists and popular magazine articles which often refer to such events as a consequence of human-CO₂ induced warming of the earth's climate.

Are Tropical Cyclones Increasing In Strength And Frequency?

The debate re; intensification of tropical cyclones and hurricanes due to GW came to head soon after a powerful (category 5) hurricane named Katrina, slammed the US Gulf Coast on August 30, 2005, which killed over 1000 people and inflicted staggering economic losses to the tune of more than 175 billion dollars. This event was widely commented in the media with several prominent scientists and environmentalists *pointing to such events as a proof of human-induced climate change!* Two papers (Emanuel 2005; Webster 2005) published about the same time also suggested intensification of tropical cyclones due to the warming of the earth's climate. In reality, hurricanes and tropical cyclones in the last ten years have decreased in frequency and also in intensity according to a paper by Maue (2011). Maue uses a parameter ACE (Accumulated Cyclone Energy) to show that hurricane activity at present is at a worldwide low in the last 40 years and further there has been NO hurricane of category 3 or higher making landfall in the conterminous US, since hurricane Katrina. In the western Pacific, typhoons are not increasing in strength or frequency according to a paper by Chan (2008). Tropical cyclones elsewhere are not increasing in frequency or in strength.

Are Tropical Regions Subject To More Ew Events?

No! A careful analysis of EW events in the tropical regions (between 20N -20S) shows no increasing trend in EW events in any specific region of the tropical belt. In the monsoonal climate of south Asia (which impacts over 2.5 billion people), major droughts and floods in

the monsoon have occurred irregularly and without being impacted by the feeble forcing of human-CO₂ emissions (Khandekar 2014).

Are Cold Weather Extremes On The Rise?

Since the new millennium, Cold Weather Extremes appear to be on the rise worldwide. Winter severity has increased over many regions of the Northern Hemisphere and in particular over Europe which has witnessed four severely cold winters (2002/03, 2005/06, 2009/10 and 2011/12) since the millennium. The winter of 2013/14 was one of the longest, coldest and snowiest over most of North America in 40 years. Also winter of 2014/15 was very cold and snowy in parts of eastern North America, with heavy snow accumulation and extreme cold recorded at many locales: 1) Boston US; over 300cm of snow 2) New Brunswick, Canada; several snowfalls of 75cm and higher 3) Toronto (Canada's largest city) and parts of southern Ontario witnessed coldest February 2015, with minimum temperature at -35C for several days in February 2015. Elsewhere, in the Panjshir Valley in Afghanistan heavy snow avalanches killed over 250 people in February 2015. February 2014 saw very heavy snowfalls in parts of Japan, leading to traffic chaos and death of several people. Winter severity has also increased in parts of North India, where several hundred people, living in poorly built houses have died of long exposure to cold weather in last six years. In South America, snow fell in Buenos Aires Argentina, in July 2007, for the first time since 1918. Also, parts of Chile recorded much colder winters in July 2007 and 2010, with low temperatures plunging to -25C leading to several dozen deaths. It is of interest to note that the above narrative is completely at odds with the IPCC (2007) projection that "*A warmer climate will lead to milder future winters and depleting snowfall from the land-areas*"

What Is In Store For Future?

As the SUN enters into a grand solar minimum in the next decade or about, many scientists believe that this may usher in much colder climate and in particular colder winters (Abdussamatov 2012; Benestad 2010; de Jager and Duhau 2012). It is quite possible that we may see more cold weather extremes by about 2025 and beyond as the impact of "low sun" may start to influence future winters.

A Final Comment

There will always be EW events (Cold or Warm) in future climate, notwithstanding increase or decrease in atmospheric CO₂ levels, either at present or in future. The best way to cope with such events in future is to develop early warning system by improving short-range (three weeks to three months) forecasting capability so as to minimize impacts of such events in future.

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Climate policy, geoethics and the developing nations

Philip Foster

Affiliation

The paper will deal with:

Reasoning in a reasonable universe: the basis of all scientific enquiry.

Why Greek science was a dead end.

Newton versus Descartes: is Cartesian “science” back in fashion?

Good science and good scientific ethics go hand in hand.

Can there be “pure” science?

Handling the human factor.

Philip Foster was the organizer of the Paris Climate Challenge Conference



in association with the

Independent Committee on Geoethics www.geoethic.com

and with the

Collectif des Climato Réalistes www.skyfall.fr

The following *Summary Statement* was agreed upon per December 10, 2015:

Over thirty years of intense (and extremely expensive) research has totally failed to produce any evidence that human emissions of CO₂ are driving climate. CO₂ is not a danger to but a benefit for all life on our planet.

We call on governments, NGOs and universities to stop pursuing policy and dogma based 'evidence' gathering.

- That they stop scaremongering.
- That they dissolve the IPCC and the UNFCCC.
- That governments focus instead on encouraging means of ensuring that under-developed and developing nations have full access to the cheapest reliable energy (particularly electricity), regardless of whether fossil fuels are used, so as to improve their access to clean water, low pollution cooking facilities and good medical services.
- That once respected academic institutions and scientific publications put their own houses in order and once again allow the free exchange of scientific ideas and results without prejudice.
- That those involved in alleged cases of scientific fraud, which have resulted in huge financial costs, causing greater poverty and many deaths among the poorest, be brought before the relevant Court of Law.

Further information available on the website: www.pcc15.org

Genocidal climate science

*Christopher Monckton of Brenchley*⁸

Though annual CO₂ emissions are above business-as-usual prediction owing to fast-growing fossil-fuel consumption in India and China, global temperature is visibly rising at a rate well below official predictions, even though most datasets have been altered *ex post facto* with the effect of increasing the rate of global warming above what was originally measured.

Mainstream climate science has been compelled to repudiate earlier extreme predictions, such as that there would be 50 million “climate refugees” by 2010 or (when that prediction failed, 2020), or that Himalayan ice would vanish by 2035, or that global sea ice would decline or hurricanes or droughts or precipitation or extreme-weather deaths would increase.

Why were so many environmental predictions so flagrantly exaggerated? Nearly all models have over-predicted surface warming over the past quarter-century. All of 73 climate models over-predicted the rate of global warming in the crucial tropical mid-troposphere, where the “hot-spot” in global warming that they predicted is absent in all but one suspect observational dataset. This failure of prediction by all models arises because water vapor has not reached the predicted mid-tropospheric concentration and, on some datasets, has declined.

Models also take insufficient account of the thermostatic tendency of the climate. Surface temperature has varied by little more than 3 K either side of the period mean in 810 ka. Models underestimate the strong, close and apparently causative correlation in many (though not all) datasets between changes in solar activity and in mean surface temperature. They have also insufficiently adjusted to the inexorable decline in climate sensitivity estimates in refereed scientific papers.

A further incentive to exaggeration in climate science lies in the false but very often recited mantra that 97% of climate scientists agree that recent warming was mostly manmade. The literature-survey paper that published that conclusion was accompanied by a data-file showing that the authors had in fact found just 0.5% support among refereed papers over a 21-year period for the notion that recent warming was mostly manmade.

An atmosphere of official condonation of exaggeration has removed from climate scientists all sense of obligation to produce scientifically-correct as opposed to politically correct data and results. The principal conclusion in each of the five *Assessment Reports* published between 1990 and 2013 by the Intergovernmental Panel on Climate Change (IPCC), a political body, has proven exaggerated, and IPCC’s secretariat has proven sullenly resistant to correcting even the most serious errors.

IPCC set the tone in its *First Assessment Report* by greatly over-predicting the medium-term global warming rate. The actual warming rate in the quarter-century since 1990, on all datasets even after temperature tampering to bring reality closer to prediction, is appreciably below IPCC’s least medium-term prediction made that year, even though IPCC supported that exaggeration – unjustifiably – with a declaration of “substantial confidence” that the models on which it chose to rely had captured all essential features of the climate.

Though the final draft of the *Second Assessment Report* (1995) had stated five times that there was little justification for attributing observed 20th-century warming chiefly or at all to Man, a single contributor, with the connivance of the secretariat, removed all five statements, made some 200 consequential amendments none of which was sent to expert reviewers, and replaced the deleted statements with a single statement, false then as now, that “the body of ... evidence now points to a discernible human influence on global climate”. The vaunted climate “consensus” is accordingly a consensus of just one unprincipled man.

⁸ Science and Public Policy Institute, Washington DC

The chief conclusion in the *Third Assessment Report* (2001) was that the late-20th-century rate of global warming in the northern hemisphere had left global mean surface temperature higher than for at least 1400 years, a result directly contradictory to the findings of the *First Assessment Report* only 11 years previously. Subsequently-published reconstructions of sea-level change over the past millennium have established definitively that the graph in IPCC (1990) was correct and the revised graph published in 2001 incorrect: yet, for some years, IPCC adopted the defective graph as its official symbol. In fact, good evidence exists that the the Egyptian Old Kingdom, Minoan, Roman and Mediaeval climate optima were all warmer than the present, as was each of the four interglacial climate optima over the past 450,000 years. Manmade emissions of greenhouse gases cannot have been the cause of these earlier periods of warming.

The principal conclusion in the *Fourth Assessment Report* (2007) was that the rate of global warming had accelerated over the preceding quarter-century and that Man was to blame. The conclusion was supported by a widely-published graph that deployed a deliberate statistical falsehood to lend credence to IPCC's false and wildly exaggerated conclusion. Attempts by an expert reviewer to persuade the IPCC secretariat to correct the defective graph proved ineffective. The *Bureau de l'Escroquerie* in Switzerland was unable to intervene. IPCC, though headquartered there, falls under no national jurisdiction and, it seems, can with impunity perpetrated profitable deceptions – in plain English, frauds.

The principal conclusion in the *Fifth Assessment Report* was that climate sensitivity to a doubled atmospheric partial pressure of CO₂ was no less high than in previous reports, even though the models on which the latest report relied had appreciably reduced their estimates of the temperature-feedback sum that, in IPCC's understanding, contributes two-thirds of all manmade global warming. Since all other elements in the sensitivity equation were unchanged between the *Fourth* and *Fifth Assessment Reports*, IPCC should have reduced equilibrium climate sensitivity as drastically as it had been compelled by events to reduce medium-term sensitivity; however, instead, the equilibrium sensitivity interval that had prevailed since 1969 was unjustifiably retained and the upper bound inexplicably increased.

In the modelling of any sufficiently complex object, the witting or unwitting introduction of multiple smallish exaggerations may have the effect of greatly exaggerating an output of interest. The effect of such a compounding of comparatively minor exaggerations is evident in the *Fifth Assessment Report*, in which the case for climate action now rests solely on a single extreme scenario included against my advice as an expert reviewer. Under that bizarre "RCP8.5" scenario, world population growth would exceed the UN's wildest estimate, CO₂ concentration in the air would impossibly quintuple to 2 parts per 1000 in the next 85 years and global temperature would be as much as 3.7 degrees warmer in 2100 than today.

Removing that first exaggeration, the less unrealistic RCP6 scenario IPCC predicts 2.2 degrees' warming by 2100. Even that is an exaggeration, because the full temperature response to the 21st-century radiative forcing predicted by the RCP6 scenario would only be 1.6 degrees, of which only two-thirds, or 1.0 degree, could arise by 2100, and only then if all the extra radiation had arisen by now. In fact it will arise gradually over the century, causing just 0.7 degrees' warming by 2100.

Even that is an exaggeration, for climate modellers trying to predict how much extra radiation our sins of emission might cause had borrowed two crucial line-shape equations – the Lorentzian and the Voigt – from optical physics without understanding them. These two borrowed equations assume for simplicity that heat-emitting collisions between photons and CO₂ molecules occur instantaneously, when in reality there is a delay of a few picoseconds. On this ground alone, models are exaggerating the CO₂ radiative forcing and consequently all climate sensitivity by 40%, bringing the mainstream central scientific estimate of 21st-century global warming down from 0.7 to 0.5 degrees.

The removal of successive exaggerations from IPCC's analysis brings the likely manmade 21st-century warming down from 3.7 via 2.2, 1.6, 1.0 and 0.7 degrees to just 0.5. Every step is mainstream climate science.

The models also assume that temperature feedbacks such as extra water vapour (a greenhouse gas) in the air as it warms may double or even triple the direct warming caused by CO₂. A growing body of peer-reviewed science, however, confirms suggestions made since the late 1930s that such feedbacks might be negative, reducing net warming. Manmade 21st-century warming could thus be even less than 0.5 degrees.

The economic question is whether it is cheaper to mitigate today or adapt the day after tomorrow. Taking the example of an offshore wind farm under a known subsidy regime, it would be 45-450 times costlier to adapt than to mitigate. Nearly all peer-reviewed papers in mitigation economics agree that policies inexpensive enough to be affordable will be ineffective, while policies costly enough to be effective will be unaffordable. Again, that is the mainstream view in the journals of mitigation economics.

It is often said that climate mitigation is a "no-regrets" policy. That, however, is far from the case. In a recent cold British winter, there were 24,000 excess deaths, of which 7000 were above the usual excess winter mortality. These winter deaths occur more often in Britain than in other countries. The chief reason is that the British establishment, which is overwhelmingly totalitarian, brooks no dissent from what I shall call the climate-Communist Party Line. As witness, consider that this blameless conference of eminent scientists and diligent researchers was turned away from University College, London, after a member of the faculty had viciously threatened one of our number with adverse consequences if he proceeded with our booking there.

One consequence of the totalitarian intolerance of the scientific method not only in the groves of academe but also in the corridors of political impotence in this country is that the cost of electricity, for domestic as well as industrial users, is among the highest in the world. People are dying in larger numbers in Britain than in most European countries not because the winters are colder – they are not – but because people's homes are colder, for, thanks to excessive electricity prices to pay for overpriced 13th-century technology to solve an overstated 21st-century non-problem, they can no longer afford to heat them.

Internationally, the damage caused by the diversion of at least \$1 billion of taxpayers' money every day into the pockets of the profiteers of doom is on a scale that has now become genocidal. Some two million die annually in Africa and Asia through inhaling smoke from cooking fires because they do not have access to electricity.

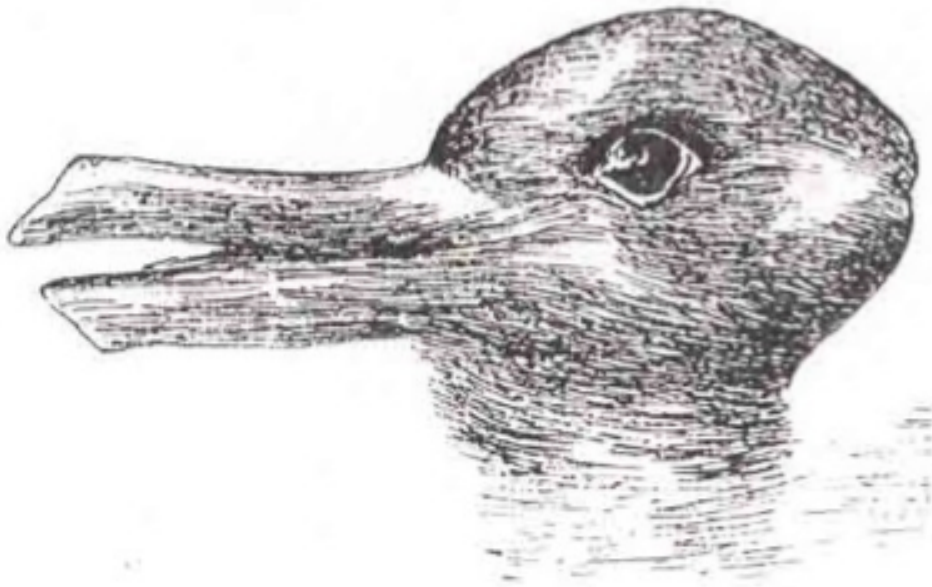
If in 1990, when IPCC first reported, the international community had decided to give everyone coal-fired electricity, these and countless tens of millions of other tragic deaths arising directly from the wilful non-availability of affordable, high-efficiency, low-maintenance, continuous, base-load coal-fired power would have been prevented. A recent estimate by the World Bank is that, if all of the 1.2 billion people not connected to the grid were given that connection and if the additional power were coal-fired, the greenhouse effect would be enhanced by just 1%. But the totalitarians would rather let poor people die in their millions every year for want of electricity than admit that, on climate as on eugenics or on compulsory collectivism, they were murderously wrong.

In this century, as in the last, hundreds of millions will die not because of global warming, for there will be little of that and what there is will be net-beneficial, but because anti-intellectual totalitarians flying profitably in the face as much of economics as of science do not care for an instant how many they or their policies will kill.

The wages of environmental socialist totalitarianism in this century, no less than of national or of international socialist totalitarianism in the last, is death.

Commentary Notes

intended to add relevant complementary comments and data
for the discussions on the topics of the conference.



In true science we may debate even the interpretations of observational facts:
The interpretation of a duck is as true as the interpretation of a rabbit (above).
It is all a matter how you look upon the image.

But if someone comes and claims
that their models indicate that it is a rat,
it is surely totally wrong

*Even so,
truth has a way of accumulating over time
until even the best-crafted untruths cannot be maintained*

(Walter Starck, 2016)

Predicting Earth's temperature in 2050 or 2100

A Commentary Note by the Editor and Jan-Erik Solheim

The key to meaningful predictions for the future is the re-appearance of past changes and events. We successfully applied this methodology to sea level research (Mörner, 2004), and this is the only meaningful way of assessing future changes in climate. There are no successful shortcuts to be offered.

Future changes in mean global temperature

We have previously shown that we – in the middle of this century – will be in a new Grand Solar Minimum (Mörner, 2011; Mörner et al. 2013a), which “*sheds serious doubts on the issue of a continual, even accelerated, warming as proposed by the IPCC*” (Mörner et. al., 2013b). The situation was further reviewed and summarized in Mörner (2015).

The IPCC have 102 models, all of which depart significantly from the observed changes in temperature (see image on p. 51).

Three lines of prediction

The prevailing climatic conditions in the middle of this century (i.e. ~2050) have been addressed by several persons and several organizations with highly variable results; ranging from catastrophic warming (the IPCC) to cooling of Little Ice Age type (Mörner, 2015). In all those statements, there must be quality differences. In this case, quality means firm anchoring in observational facts and physical laws. There are 3 options:

- Measured changes in mean global temperature show an oscillatory trend, which is likely to continue (B in Fig. 1).
- The solar variability of the last 600 years, records alternations between Grand Solar Maxima with warm climatic conditions and Grand Solar Minima (the Spörer, Maunder and Dalton minima) with Little Ice Age climatic conditions. A new Grand Solar Minimum is due at around 2030-2040 (e.g. Mörner, 2015), implying cold climatic conditions C in Fig. 1).
- The IPCC models based on a linear CO₂ forcing of temperature predict quite high temperature in 2050 (A in Fig. 1).

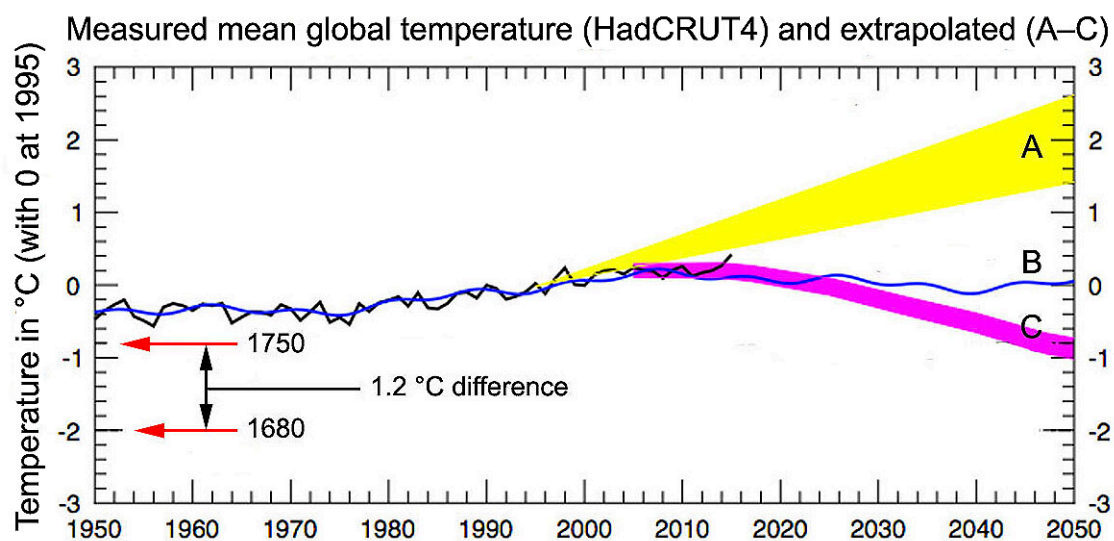


Fig. 1. (by Solheim et al., 2016) Measured and extrapolated temperature. A as given in the IPCC RCP8.5 model, B as extended from the observed oscillatory trend, and C as predicted when including the centennial solar variability (Abdussamatov, 2013; Mörner 2015). Temperature at the solar maximum in 1750 and at the solar minimum in 1680 are marked for comparison.

Fig. 1 (Solheim et al., 2016) gives an excellent illustration and summary of the situation.

The IPCC model RCP8.5 suggest a temperature of $+2.0 \pm 0.3$ °C in year 2015 (A). The oscillatory trend in observed temperature gives an extrapolated trend value of ± 0.0 °C by 2050 (B). Considering the long-term alternations between grand solar maxima (as in 1750) and grand solar minima (as in 1680) and the fact that we by about 2030-2040 will be in a new grand solar minimum, a temperature of about $-0.8-1.0$ °C by 2050 is predicted (C).

These 3 options or scenario (Fig. 1) differs by 3 °C, which is far too much to be realistic. Scenario A is model based and must hence be regarded as weak to misleading. Scenario B is observationally based, but the time factor is too short. Scenario C provides a combination of short-term trends and long-term observations. Therefore, it is likely to give the most reliable prediction; i.e. a lowering in temperature of about 1 °C.

This is, of course, quite sensational because it implies a completely different prediction as the one setting the goals of the COP21 agreement in Paris 2015.

Conclusions

The prediction of global temperature by year 2050 by the IPCC is simply based models, and must hence be considered as quite unreliable, if not directly misleading.

The observationally based prediction of mean global temperature by year 2050 varies between ± 0.0 and -1.0 °C. Whilst the higher value refers to the extrapolation of short-term changes in temperature, the lower value also consider the long-term alternations between grand solar maxima and minima. Therefore, the best estimate of global mean temperature by year 2050 seems to be a lowering to -0.9 ± 0.1 °C.

A future lowering of global temperature should, therefore, lead out socio-economical preparatory activity of environmental concern and sustainability; not a temperature rise as has up to now been the leading factor (as for COP21).

Acknowledgements

Fig. 1 was composed by Jan-Erik Solheim, and all credit for this wonderful picture should go to him. As a matter of fact, it was this figure that inspired this commentary note.

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- Solheim, J.-E. et al., 2016. Fig. 1 prepared for an entry by the Climate Realists in Norway (*Klimatrealisterna*) on “Nature – not Man – drives Earth’s climate”.

See also the “global warming speedometer” of Christopher Monckton (p. 6-7).

Cause of Global Climate Changes: Correlation of global temperature, sunspots, solar irradiance, cosmic rays, and radiocarbon and beryllium production rates

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Global temperature changes show excellent correlations with sunspots, total solar irradiance, ^{14}C and ^{10}Be production in the upper atmosphere, and cosmic ray incidence. Periods of global cooling coincided with these changes during the Oort, Wolf, Maunder, Dalton, 1880–1915, and 1945–1977 Solar Minima. Increased ^{14}C and ^{10}Be production during times of increased cosmic radiation serve as a proxy for solar activity.

Increased cloudiness, produced by ionization of aerosols in the atmosphere by cosmic rays, causes increased reflection of incoming solar irradiance results in cooling of the atmosphere. The amount of cosmic radiation is greatly affected by the sun's magnetic field, so during times of weak solar magnetic field, more cosmic radiation reaches the Earth, creating more cloudiness and cooling the atmosphere.

This mechanism accounts for the global synchronicity of climate changes, abrupt climate reversals, and climate changes on all time scales. Thus, cloud-generating cosmic rays provide a satisfactory explanation for both long term and short term climate changes.

Excellent correlations can be made between global temperature change, sunspots, total solar irradiance, ^{14}C and ^{10}Be production in the upper atmosphere, cosmic ray incidence, and albedo from cloud generation. Global cooling coincided with changes in sunspot activity, total solar irradiance, solar flux, cosmic ray incidence, and rates of production of ^{14}C and ^{10}Be in the upper atmosphere during the Oort, Wolf, Maunder, Dalton, 1880–1915, and 1945–1977 Solar Minima. Increased ^{14}C and ^{10}Be production during times of increased cosmic radiation serve as a proxy for solar activity.

Ionization in the atmosphere caused by cosmic rays causes increased cloudiness that reflect incoming sunlight and cool the Earth. The amount of cosmic radiation is greatly affected by the sun's magnetic field, so during times of weak solar magnetic field, more cosmic radiation reaches the Earth, creating more cloudiness and cooling the atmosphere. This mechanism accounts for the global synchronicity of climate changes, abrupt climate reversals, and climate changes on all time scales. Thus, cloud-generating cosmic rays provide a satisfactory explanation for both long term and short term climate changes. Figure 1 shows changes in radiocarbon production rates ($\delta^{14}\text{C}$) since 1600 AD. $\delta^{14}\text{C}$ was higher in both the Maunder and Dalton Solar Minima.

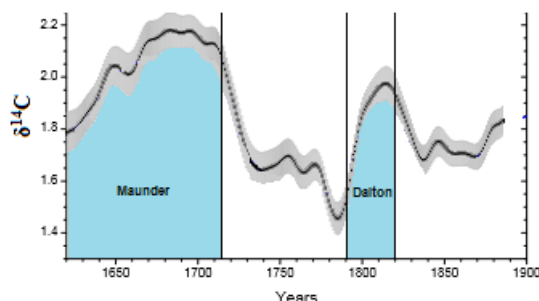


Figure 1. $\delta^{14}\text{C}$ changes since 1600 AD. Note the high values during the Maunder and Dalton Solar Minima.

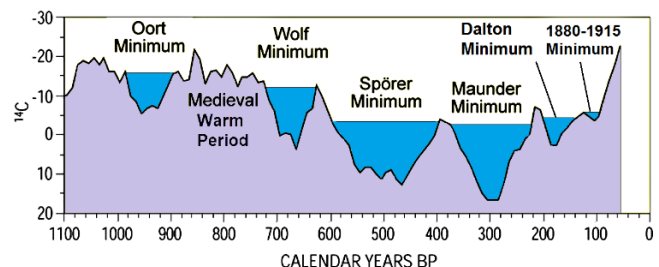


Figure 2. Correlation of ^{14}C with Oort, Wolf, Spörer, Maunder, Dalton, and 1880-1915 Solar Minima. Each minimum was a period of high ^{14}C production and each corresponded to a cold climate.

Figures 2 and 3 show the correlation of radiocarbon production rates and temperature. Note how closely temperatures follow radiocarbon production rates and that the Wolf, Spörer, Maunder, and Dalton Solar Minima are all characterized by high radiocarbon production rates, i.e., higher incoming cosmic radiation.

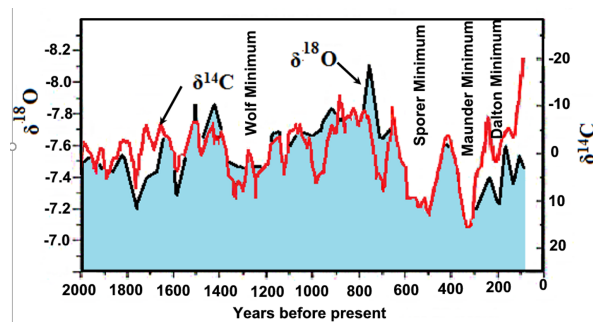


Figure 3. Correlation of temperature ($\delta^{18}\text{O}$) and radiocarbon production rates ($\delta^{14}\text{C}$). Temperature closely follows radiocarbon production rates ($\delta^{14}\text{C}$).

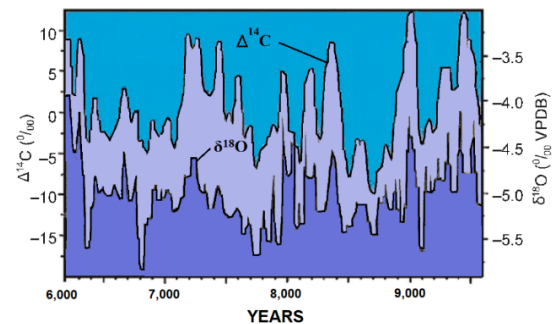


Figure 4 Close correlation of radiocarbon production ($\delta^{14}\text{C}$) and temperature ($\delta^{18}\text{O}$) from a stalagmite in Oman. (Matter et al., 2001).

Beryllium-10 ($^{10}\text{Be}_4$) production rates

$^{10}\text{Be}_4$ is a radioactive isotope of the most common beryllium, $^9\text{Be}_4$, formed by cosmic ray spallation of oxygen in the atmosphere. Because ^{10}Be is produced in the atmosphere by cosmic radiation, it can also be used to measure the incidence of cosmic radiation. ^{10}Be is soluble in atmospheric precipitation and accumulates in glacial ice where it is preserved and can be measured and dated by counting annual ice layers. Good correlation between ^{14}C and ^{10}Be fluxes indicates that both are a result of changes in cosmic radiation since their transport processes to their place of accumulation are so different— ^{14}C is measured from tree rings and ^{10}Be is measured from glacial ice cores. The relationship of ^{10}Be to cosmic radiation is confirmed by the correlation of ^{10}Be and solar magnetic flux.

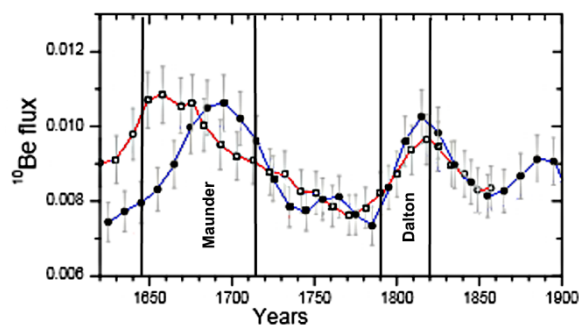


Figure 5. Depositional flux of ^{10}Be in ice cores in Greenland (red) and Antarctica (blue). Note the high ^{10}Be values during the Maunder and Dalton Solar Minima. (Modified from Usoskin et al., 2015).

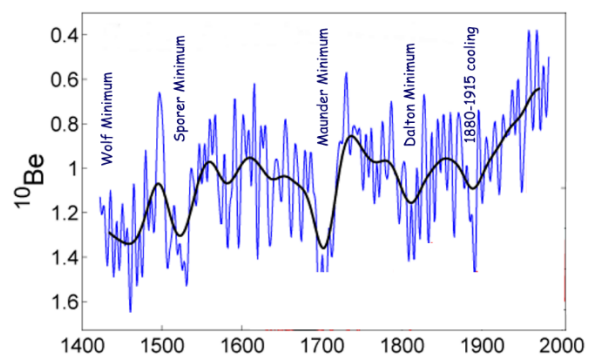


Figure 6. Fluctuation of ^{10}Be as a measure of cosmic ray incidence. Note that ^{10}Be production rates were high for the Wolf, Spörer, Maunder, Dalton, and 1880-1915 solar minima.

The production rates of ^{10}Be and ^{14}C by cosmic radiation have been almost identical over the past 2000 years (Fig. 6).

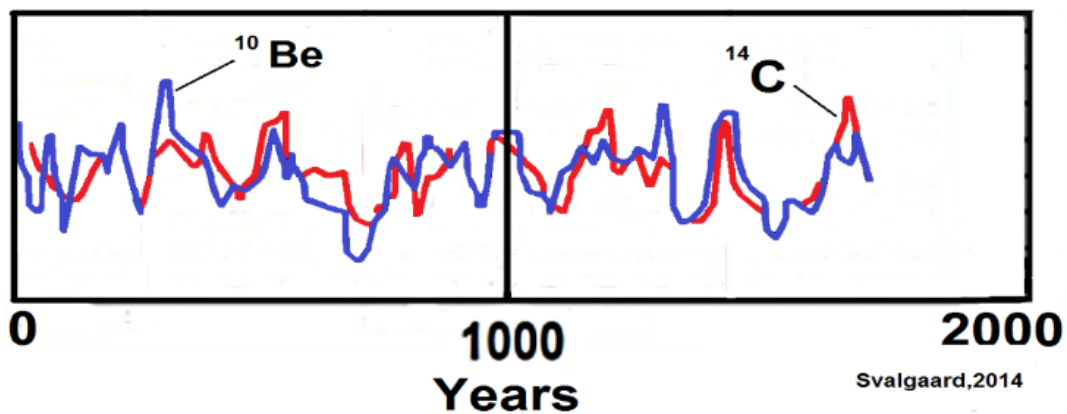


Figure 6. Production rates of ^{10}Be and ^{14}C over the past 2000 years.

Beryllium-10 (^{10}Be) and sunspots (SSN)

Both ^{10}Be and sun spot number (SSN) are directly related to solar magnetism so it is not surprising that ^{10}Be correlates well with sunspots.

Beryllium-10 (^{10}Be) production and temperature

Figure 7 shows that high production rates of ^{10}Be occurred during the Maunder, Dalton, 1880–1915, and 1945–1977 cold periods, indicating higher incidence of cosmic rays during the cold episodes.

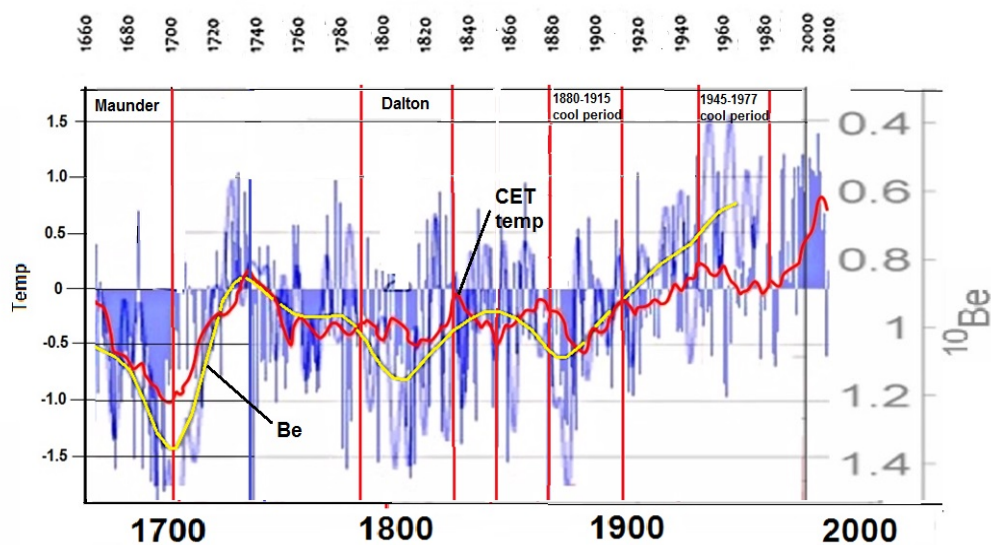


Figure 7. Correlation of Beryllium-10 (^{10}Be) and temperature. Note that the Maunder, Dalton, 1880–1915, and 1945–1977 cold periods were all characterized by high rates of ^{10}Be production, indicating increased incidence of cosmic rays.

Cosmic ray incidence and climate

Cosmic rays consist of two types of high-energy radiation—Galactic Cosmic Rays (GCR), high-energy particles originating outside the solar system, and high energy particles (mostly protons) emitted by the sun during solar events. They may produce showers of secondary particles that penetrate and impact the Earth's atmosphere. About 99% of primary cosmic rays entering the Earth's atmosphere are nuclei of atoms, about 90% simple protons and 9% alpha particles. About 1% consists of electrons.

High energy protons passing through the atmosphere cause ionization and produce nuclei for condensation of water droplets. Condensation tends to occur readily in the atmosphere because it is often supersaturated with water vapor. Clouds reflect incoming solar irradiance, which result in atmospheric cooling. Clouds account for about 28 Wm^{-2} of global cooling, so even small changes in

cloud cover can have a significant effect on climate. Low altitude, layered clouds covering large areas are most effective in reflecting incoming solar radiation and make the greatest contribution to atmospheric cooling. Cosmic-ray-produced clouds may provide the key to understanding global climate. Increased cosmic ray flux creates clouds, which increase albedo and results in global cooling (Fig. 9). This mechanism explains the observed synchronicity of global climate changes, abrupt climate reversals, and climate changes on all time scales. Thus, cloud-generating cosmic rays provide a satisfactory explanation for both long term and short term climate changes.

As discussed above, cosmic rays produce radiocarbon and beryllium-10 isotopes in the upper atmosphere in amounts proportional to the incidence of incoming radiation. This is reflected in the coincidence of ^{14}C and ^{10}Be production rates (Fig. 8).

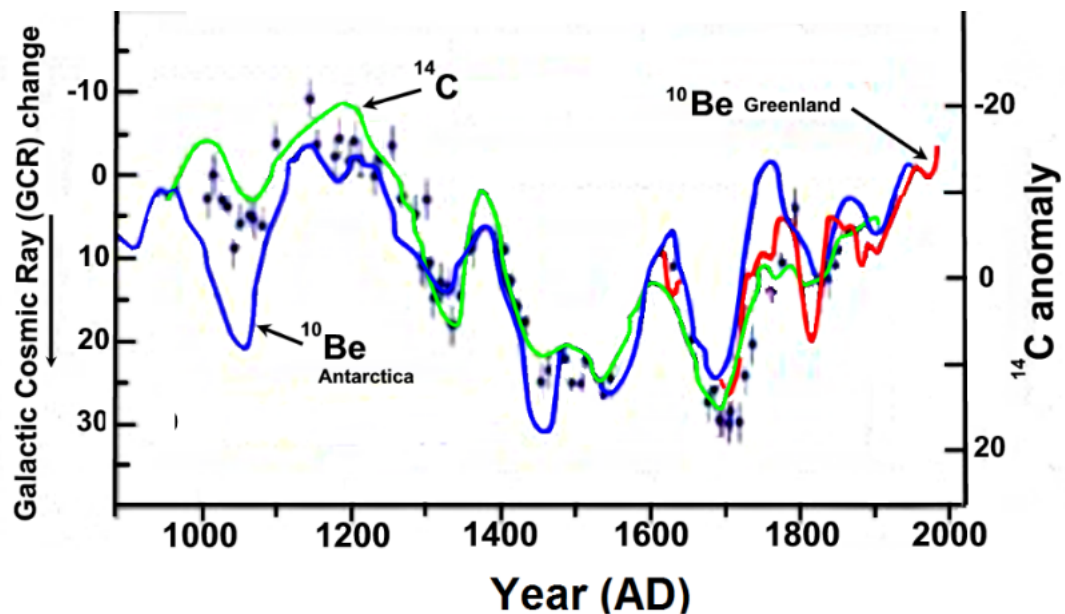


Figure 8. Correlation of ^{14}C and ^{10}Be production rates for the past 1000 years.
(Modified from Kirkby, 2008)

Figure 9 summarizes the relationships between low solar magnetic field, sunspots, galactic cosmic rays, cloud formation, albedo, and global cooling.

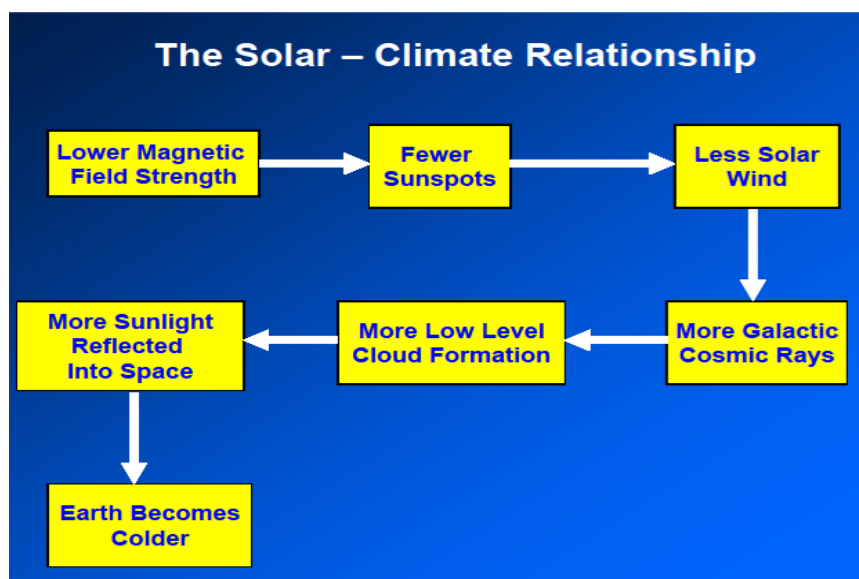


Figure 9. Relationship of low solar magnetic field, sunspots, galactic cosmic rays, cloud formation, and albedo in causing global cooling.

The endogenous energy and the magnetic field of planetary objects and the Pluto/Charon binary system

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A paper to appear in *NCGT Journal*, 2016 (www.ncgt.org)

This paper includes material of fundamental importance for the question of planetary-solar interaction and terrestrial changes in climate. A short resume by Nils-Axel Mörner is here included with the permission and endorsement by the author Giovanni P. Gregori.

The title of the present resume is:

Endogenous Energy, Tidal Dynamos and Planetary–Solar Interaction

The Editor’s selected resume of the paper by Giovanni Gregori (2016).

The binary system Pluto/Charon is a unique case history in the Solar System, and it results to be a natural laboratory suited to test the hypotheses on the origin of the magnetic field **B** and of the endogenous energy of all planets and satellites, including the implications for Earth’s paleoclimatology and climate change.

The information provided by the *NASA* probe *New Horizons* results to be of paramount importance, although it performed no magnetic measurements. Compared to every previous expectation, the observed morphological features of both Pluto and Charon appear astonishing and unexplainable. A straightforward interpretation is here proposed. All observed features can be simply explained in terms of the singular tidal action between Pluto and Charon. But, a final test of the correctness of this explanation ought to require measurements of the magnetic field within some close environment of this binary system.

The *TD* dynamo and “magpol” state

The *TD* dynamo (i.e. the tidal dynamo supplied by the tidal relative displacement of different conducting parts inside the Earth) generates electric currents that finally decay by Joule heat, being the almost exclusive huge source of endogenous energy. The Earth behaves like a battery where energy is stored, being generated and released at different times with relevant and often almost cyclic features on the geological time scale.

The Earth’s **B**, however, is the result of the sum of an internal inner core (*IC*) composed of magnetically locked and polarized nuclear moments (“magpol” state, for “magnetic polarization”) that cause a poloidal **B**, plus a toroidal **B** originated by the *TD* dynamo.

The same *TD* and/or “magpol” mechanisms can be promptly applied to every other planet or satellite.

Some kind of “score” can be indicatively evaluated for every respective planetary object in order to assess whether and what given planetary object can be reasonably expected to be suited for eventually having a *TD* dynamo to operate inside it.

The criterion is to consider the spatial gradient of the gravitational action that determines the tidal pull inside every given object, times its diameter. The result is shown in Tables 1 and 2.

Symbols and entries are as follows. *TD* is a unique symbol expressing tidal deformation, *S* is for Sun, *s* for satellite, *p* for planet, *O* for orbital object, *C* for central object, *RO* is for radius of the orbiting object, *r* is for mean radius of the object, *F* for gravitation force

experienced by O due to the presence of C (or vice versa, due to action-reaction).

The definition of $TDCO$ depends on the diameter of O , and it implies that $TDCO$ is the tidal deformation exerted by C over O . Analogously, $TDOC$ is the corresponding feedback reaction, i.e. the tidal deformation exerted by O over C . Units are $km\ kg\ sec^{-2}$. The more relevant values are highlighted by bold character.

Table 1 contains the TD exerted: in the 2nd column by the Sun on every planet, in the 4th column by every planet on its respective satellite, in the 5th column by the Sun on every satellite (which is supposed to share the same mean solar distance of its respective planet), while the 6th column contains the resulting total TD exerted on the satellite.

Table 1. Intensity of the differential tidal pull acting on differential objects in the Solar System (I).

planet	TDS_p ($\times 10^{15}$)	satellite	TD_{ps}	TD_{ss}	$TD_{ps} + TD_{ss}$
Mercury	2.2011				
Venus	12.349				
Earth	6.0328				
		Moon	3.5960×10^{21}	2.0255×10^{13}	3.5960×10^{21}
Mars	0.097556				
		Phobos	2.7910×10^{10}	5.3227×10^3	2.7910×10^{10}
		Deimos	0.0196×10^{10}	0.6235×10^3	0.0196×10^{10}
Jupiter	149.44				
		Amalthea	1.4760×10^{13}	1.9432×10^5	1.4760×10^{13}
		Io	1.0979×10^{18}	1.8319×10^{11}	1.0979×10^{18}
		Europa	1.2575×10^{17}	8.4348×10^{10}	1.2575×10^{17}
		Ganymede	1.6141×10^{17}	4.3899×10^{11}	1.6141×10^{17}
		Callisto	1.9698×10^{16}	2.9198×10^{11}	1.9698×10^{16}
Saturn	6.0172				
		Mimas	1.7881×10^{14}	1.3796×10^6	1.7881×10^{14}
		Enceladus	2.9212×10^{14}	4.7219×10^6	2.9212×10^{14}
		Thetys	1.9326×10^{15}	5.9488×10^7	1.9326×10^{15}
		Dione	1.7331×10^{15}	1.1135×10^8	1.7331×10^{15}
		Rhea	1.8334×10^{15}	3.2174×10^8	1.8334×10^{15}
		Titan	2.8784×10^{16}	6.2979×10^{10}	2.8784×10^{16}
		Hyperion	6.6977×10^{10}	2.6087×10^5	6.6978×10^{10}
		Iapetus	4.6841×10^{12}	2.5361×10^8	4.6843×10^{12}
		Phoebe	5.5212×10^7	1.4384×10^5	5.5356×10^7
Uranus	0.049403				
		Ariel	2.6048×10^{15}	1.7575×10^7	2.6048×10^{15}
		Umbriel	8.4348×10^{14}	1.5372×10^7	8.4348×10^{14}
		Titania	7.7761×10^{14}	6.2408×10^7	7.7761×10^{14}
		Oberon	2.6829×10^{14}	5.1478×10^7	2.6829×10^{14}
		Miranda	1.6396×10^{14}	3.4882×10^5	1.6396×10^{14}
Neptune	0.014653				
		Triton	1.7624×10^{16}	1.6824×10^8	1.7624×10^{16}
		Nereid	8.5273×10^8	3.0488×10^4	8.5276×10^8
Pluto (aph.)	0.560×10^{-9}				
(perih.)	1.208×10^{-9}				
		Charon (aph.)	2.2214×10^{14}	0.286×10^6	2.2214×10^{14}
		(perih.)	2.2214×10^{14}	0.617×10^6	2.2214×10^{14}

Table 2 contains the TD exerted (in the 2nd column) by every satellite on its planet, while the 3rd column is the total TD acting on the planet (by Sun and satellites). The last column contains the inference, derived by the rationale here proposed, where Y for "yes" (and N for "no", respectively) denotes that the surface morphology of the object appears consistent (or non-consistent) with the expectation of a TD dynamo being operative within its interior

(either in the past, or at present). The values for the mean radius and the mean density of every object are only indicative.

Table 2. Intensity of the differential tidal pull acting on differential objects in the Solar System (II).

<i>planet or satellite</i>	TD_{sp}	ΣTD_{Sp} + TD_{sp}	B (Gauss) (<i>surface</i>)	<i>mean radius</i> (km)	<i>mean density</i> (g cm ⁻³)	<i>D y n</i>
Mercury		$2.2011 \cdot 10^{15}$	0.002	2440	5.43	?
Venus		1.2349		6052	5.24	Y
Earth	$1.3182 \cdot 10^{16}$	$1.9215 \cdot 10^{16}$	0.5	6378	5.52	Y
Moon				1737.5 ± 0.1	3.344 ± 0.005	Y
Mars		$1.0619 \cdot 10^{14}$		3397	3.93	Y
Phobos	$8.5238 \cdot 10^{12}$			11.1 ± 0.15	1.867 ± 0.076	N
Deimos	$0.1071 \cdot 10^{12}$			6.2 ± 0.18	2.247 ± 0.251	N
Jupiter		$5.2791 \cdot 10^{19}$	4.2	71492	1.33	Y
Amalthea	$1.2365 \cdot 10^{16}$			83.45 ± 2.4	0.849 ± 0.199	N
				[135 • 84 • 75]		
Io	$4.2137 \cdot 10^{19}$			1821.6 ± 0.5	3.528 ± 0.006	Y
Europa	$5.6327 \cdot 10^{18}$			1560.8 ± 0.5	3.013 ± 0.005	N
Ganymede	$4.2885 \cdot 10^{18}$		0.02	2631.2 ± 1.7	1.942 ± 0.005	Y
Callisto	$5.7133 \cdot 10^{17}$			2410.3 ± 1.5	1.834 ± 0.004	Y
	$5.2642 \cdot 10^{19}$					
Saturn		$1.3107 \cdot 10^{18}$	0.2	60268	0.69	Y
Mimas	$5.2429 \cdot 10^{16}$			198.6 ± 0.6	1.165 ± 0.023	N
Enceladus	$6.8206 \cdot 10^{16}$			249.4 ± 0.2	1.603 ± 0.345	Y
Thetys	$2.1238 \cdot 10^{17}$			529.9 ± 1.5	0.991 ± 0.009	Y
Dione	$1.8054 \cdot 10^{17}$			$559. \pm 5.$	1.490 ± 0.040	?
Rhea	$1.3974 \cdot 10^{17}$			$764. \pm 4.$	1.240 ± 0.044	Y
Titan	$6.5094 \cdot 10^{17}$			$2575. \pm 2.$	1.881 ± 0.005	Y
Hyperion	$2.9325 \cdot 10^{13}$			$133. \pm 8.$	1.1 ± 0.6	N
Iapetus	$3.7989 \cdot 10^{14}$			$718. \pm 8.$	1.253 ± 0.168	?
Phoebe	$2.9228 \cdot 10^{10}$			$110. \pm 10.$	1.3 ± 0.7	N
	$1.3046 \cdot 10^{18}$					
Uranus		$2.0232 \cdot 10^{17}$	~ 0.4	25559	1.32	Y
Ariel	$1.1412 \cdot 10^{17}$			578.9 ± 0.6	1.665 ± 0.147	Y
Umbriel	$3.6587 \cdot 10^{16}$			584.7 ± 2.8	1.400 ± 0.163	?
Titania	$2.4999 \cdot 10^{16}$			788.9 ± 1.8	1.715 ± 0.044	Y
Oberon	$8.9365 \cdot 10^{15}$			761.4 ± 2.6	1.630 ± 0.043	Y
Miranda	$1.7635 \cdot 10^{16}$			235.8 ± 0.7	1.201 ± 0.137	Y
	$2.0228 \cdot 10^{17}$					
Neptune		$3.2066 \cdot 10^{17}$	~ 0.4	24766	1.64	Y
Triton	$3.2065 \cdot 10^{17}$			1353.4 ± 0.9	2.061 ± 0.007	Y
Nereid	$1.2352 \cdot 10^{11}$			$170. \pm 25.$	1.5	N
	$3.2065 \cdot 10^{17}$					
Pluto		$4.3511 \cdot 10^{11}$	yes (?)	1187	1.86	Y
Charon	$4.3511 \cdot 10^{11}$		yes (?)	606	1.7	Y

Extensive discussion - published in 2002 - of the case history of the Earth showed the capability to explain galaxy-Sun-Earth relations including the whole palaeoclimatic evidence and the present climate change. The case history of other plants and satellites can be evaluated by making reference to the aforementioned “score”, and as far as possible also to the state of matter in their interior.

Several morphological features display the correct expected correlation between an endogenous **B** (either at present or in the past) and tectonism, volcanism, and cryovolcanism.

The Pluto/Charon system is unique as its two objects of comparable size cause a violent reciprocal tidal action and their surfaces appear tidally locked each other. On the one hand, the strong tide ought thus to originate an extremely violent **B**. On the other, their tidal locking ought to forbid any *TD* dynamo.

However, Pluto and Charon show impressive tectonism, and a layered atmosphere. Hence, they ought to have a fluid interior where the *TD* dynamo can be quite effective.

In fact, similarly to what happened and is still happening for the Earth's atmosphere, the large atmosphere observed on Pluto is the result of a balance between soil exhalation and protection against spoiling by solar wind by the natural shield which is the magnetosphere. Tectonism and atmosphere envisage therefore the likely presence of a substantial joint magnetosphere shared by Pluto and Charon.

The **B** of the Pluto/Charon system ought to be the sum of several different components, everyone either **B**-poloidal or **B**-toroidal, and their relative intensity ought to change during their year (~ 248 Earth's years) due to the substantial change of the solar wind intensity along their eccentric orbit (spanning ~ 3 -5 AU).

In fact, as far as the "score" is concerned, Earth and Jupiter have "scores" $\sim 10^{16}$ and $\sim 10^{19}$, respectively, and **B** dipole moments $\sim 7.84 \times 10^{22}$ and $\sim 1.55 \times 10^{27} A m^2$, respectively. Pluto and Charon have "scores" $\sim 10^{11}$ and $\sim 10^{14}$, respectively. Hence, their tectonism and atmosphere envisage the presence of a **B**, and of a joint magnetosphere, originated by a **B** resulting from the contribution by different temporary sources. Direct **B** measurements by space probes ought to be needed to clarify this whole concern.

Therefore, according to the wonderful images and observations carried out by the *NASA* probe *New Horizons*, the Pluto/Charon binary system appears to be an incredibly suited natural laboratory for a test of the mechanism envisaged by the *TD* dynamo and by the "magpol" core mechanism for the generation of the endogenous **B** of planetary objects.

Consider also the very interesting implications for the explanation of the origin, persistence, and balance of the atmosphere. This appears to be an aspect of secondary scientific concern, while, in reality, this is really fundamental for understanding the process of the climate change on the Earth, both in the past and at present.

Hence, the *New Horizons* mission is not a curiosity of a restricted number of planetary specialists. Rather it is a paramount importance experiment, suited to test our understanding of paleoclimatic phenomena and of the present on-going climate challenge.

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Ocean Circulation Changes

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The ocean surface circulation can be simplified in 8 dominant systems and their directions of motions (Fig. 1). The ocean surface circulation system is super-sensitive to changes in Earth's rate of rotation in a feedback coupling and interchange of angular momentum (Mörner, 1984, 1985, 1987, 1988, 1989, 1993, 2010, 2011, 2012, 2015).

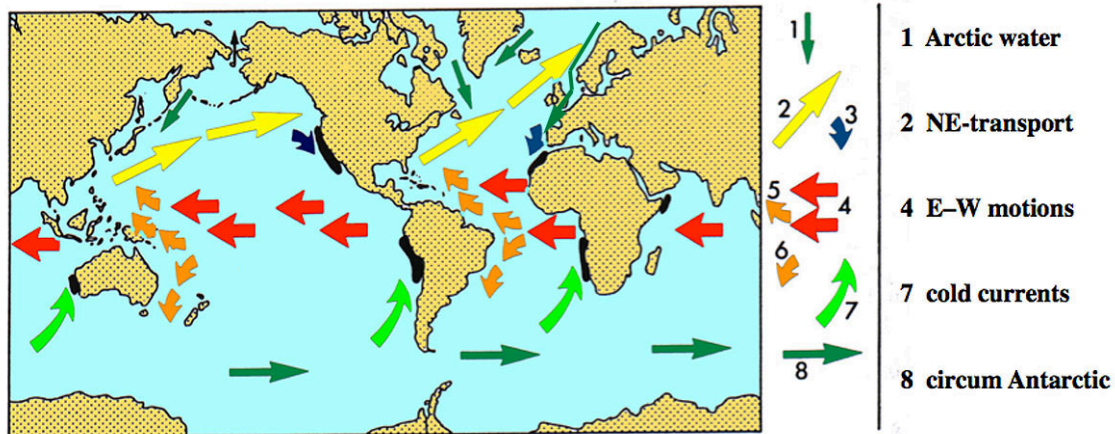


Fig. 1. Main global ocean surface circulation patterns: the main equatorial currents (4) lagging behind the Earth's rotation, the Kuroshio and Gulf Stream systems bringing warm equatorial to mid and high latitudes (2), the Southern Hemisphere currents bringing cold Antarctic water to low latitudes and being responsible for significant coastal upwelling (7), the southward flow of Arctic water (1) cooling Atlantic mid-latitudes, the Circum-Antarctic current (8) sealing off a cold Antarctica. (from Mörner, 1987, 1988, 1989, 2011, 2012).

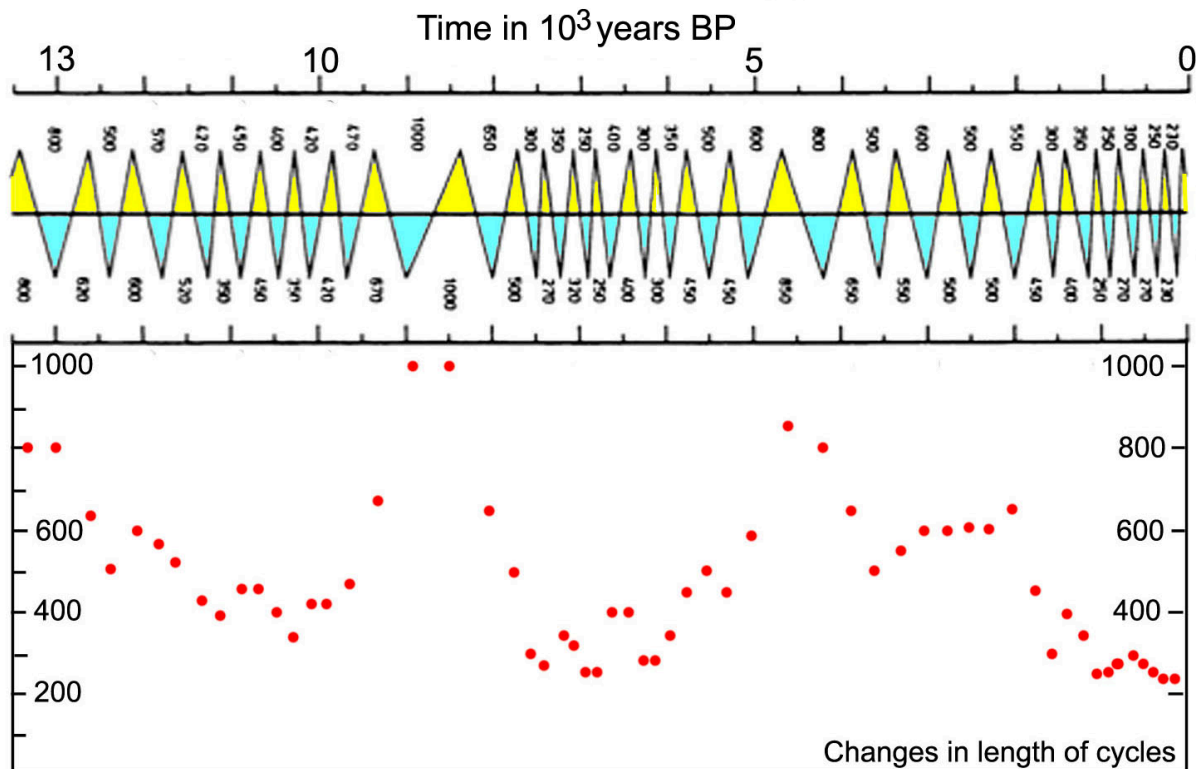


Fig. 2. Cyclic changes in sea level and temperature in the North Atlantic indicating a frequency-changing rhythmicity ranging between 230 and 1000 years (Mörner, 1973, 1995).

Gulf Stream Beating

The Gulf Stream brings large quantities of water from low latitudes to middle and high latitudes. Any irregularity in this transport must immediately be compensated in a change of the Earth's rate of rotation. There must be a delicate feedback coupling in the balance between redistribution of water masses and changes in rotation. This theory was first presented at the Second Nordic Conference on Climate Change and Related Problems in Stockholm in 1983 (published as: Mörrner, 1984). A sequence of 16 main pulses in the Gulf Stream beat was recorded during the Holocene (*op. cit.*, Fig. 6).

Trangressions/regressiones in the regional northeast European eustatic curve and warm/cold changes in six Atlantic high-sedimentation rate cores provide very similar records with 30 cycles in 13,500 years as shown in Fig. 2 (Mörner, 1973, 1995). The length of the cycles varies in a rhythmic pattern between 230 and 1000 years. It indicates a frequency changing rhythmic beat in the northeastward transport of warm water-masses by the Gulf Stream.

Because the Kuroshio Current in the Pacific seems to beat in a similar way as the Gulf Stream, the driving factor was found to be changes in the Earth's rate of rotation (Mörner, 1984, 1988, 1996b).

El Niño – ENSO events

Fig. 3 illustrated the changes in sea level along the American west coast during an ENSO (El Niño) year (A) and during a non-ENSO (La Niña) year (B). During the ENSO year (1958), ocean water is pushing on towards the coast and the tide gauges record rising sea level all the way up to Alaska and down to Patagonia with a maximum +30 cm rise in the equatorial area. Obviously, the hydrosphere is pushing on to a decelerating solid Earth (lower graph). During the non-ENSO year (1964), ocean water is lagging behind an acceleration solid Earth (lower graph), and sea level falls all along the American west coast with a maximum lowering of -30 cm in the equatorial region.

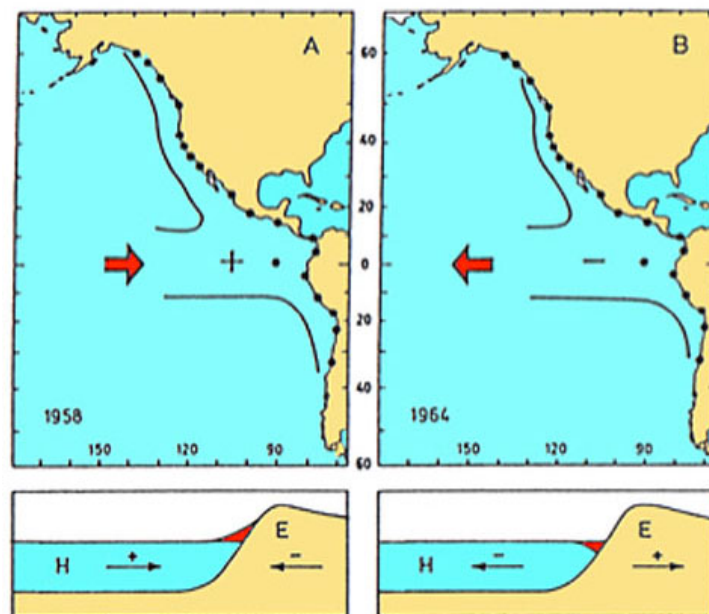


Fig. 3. Sea level rise along the American west coast at ENSO events (A: rising sea level) and non-ENSO events (B: falling sea level) in response to deceleration and acceleration of the solid Earth's rate of rotation (lower graphs). (from Mörrner, 1988, Fig. 13).

The El Niño event in 1982/83 was covered by detailed measurements of the changes in rotation (LOD). It provides a perfect record of the interchange of angular momentum with a transfer of 0.4 ms (LOD) from the solid Earth in mid-1982 to the hydrosphere, and then light at the peak of the El Niño event in early-1983 a transfer back again (Mörner, 1989). This is illustrated in Fig. 4 (originally from Mörrner, 1989, Fig. 2).

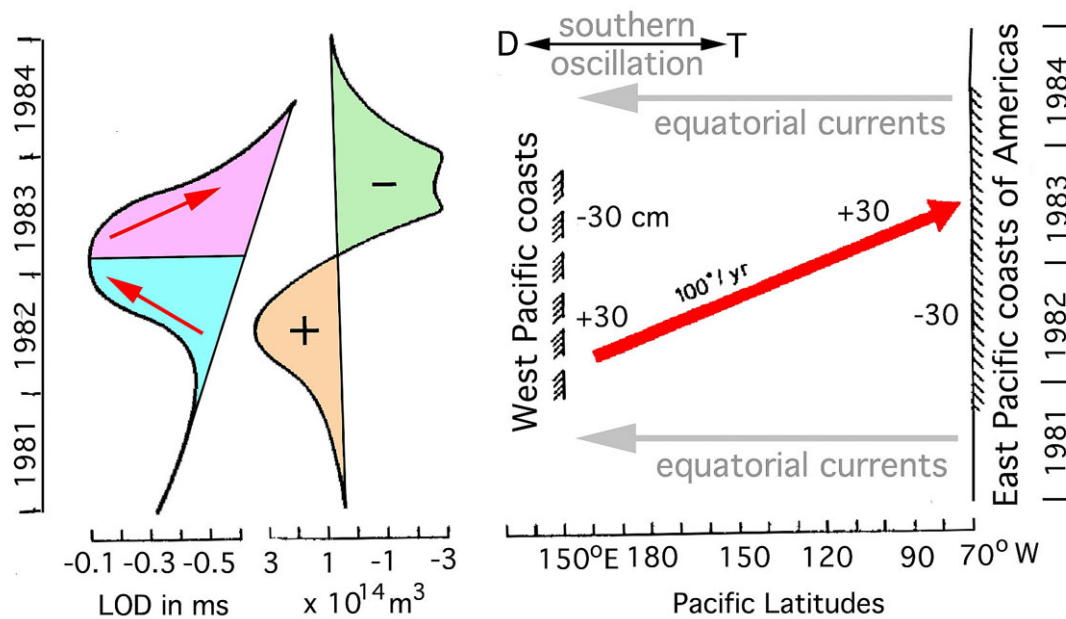


Fig. 4. The 1982/83 El Niño event (Mörner, 2013a, modified from Mörner, 1989). Column 1: changes in LOD in ms, recording an 0.4-0.5 ms transfer to the hydrosphere (blue) and then a return (purple) in 1983. Column 2: changes in water volume of the hot bulge outside the west Pacific coasts. Column 3: changes in W-E motions of hot equatorial water; when LOD in mid-1982 is transferred to the hydrosphere, hot water masses start to be transported eastwards at a rate of 100° Long per years, and when they hit the American coast in early 1983, LOD starts to be transferred back. The sea level effects are ± 30 cm.

Super-ENSO events

The Gulf Stream beating (Mörner, 1988, 1996) was – via the rotational component – also linked to other systems in the global circulation systems (Fig. 1). The pulses were, therefore, termed *Super-ENSO events* (Mörner, 1985, 1988, 1989, 1993, 1996). In meteorological/-oceanographic vocabulary, they are termed *oscillations* (e.g. PDO, NOA, AMO, etc.).

Fig. 5 gives the decadal rotational changes in Length of the Day (LOD) and its relation to cyclic alternations between warm and cold phases and high and low sea level phases in the Northeast Atlantic region. The cycles have a periodicity in the order of 60 years (cf. Mörner, 2013b, 2015; Hansen, 2015).

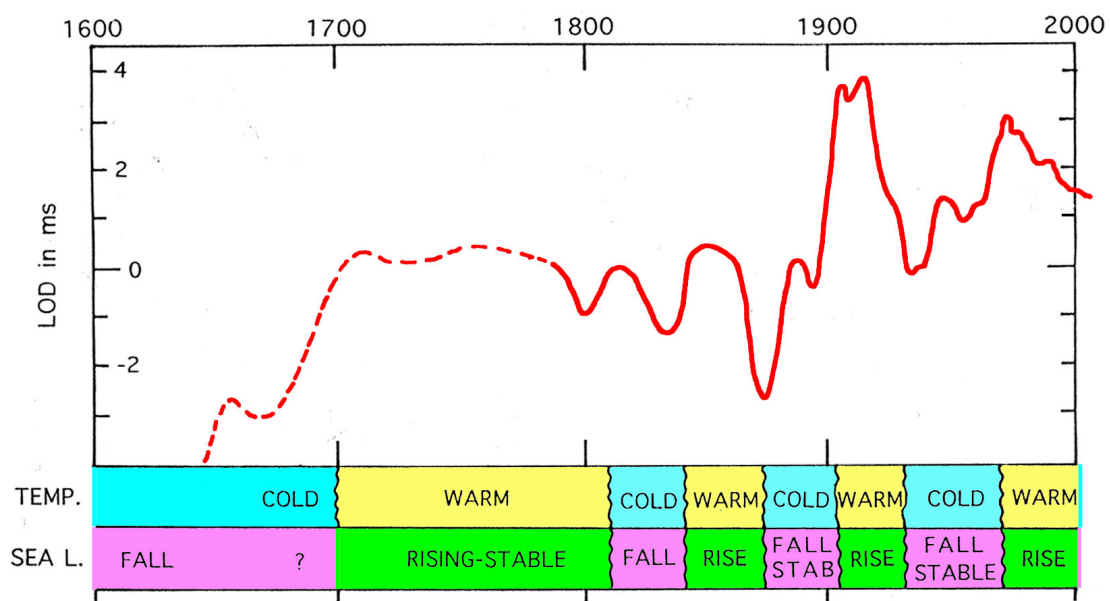


Fig. 5. The changes in LOD (down implies acceleration and up deceleration) and corresponding changes in temperature and sea level in the Northwest European region (from Mörner, 1996). The correlations seem good and lend support to the rotational/circulation theory proposed (Mörner, 1988, 1989a)

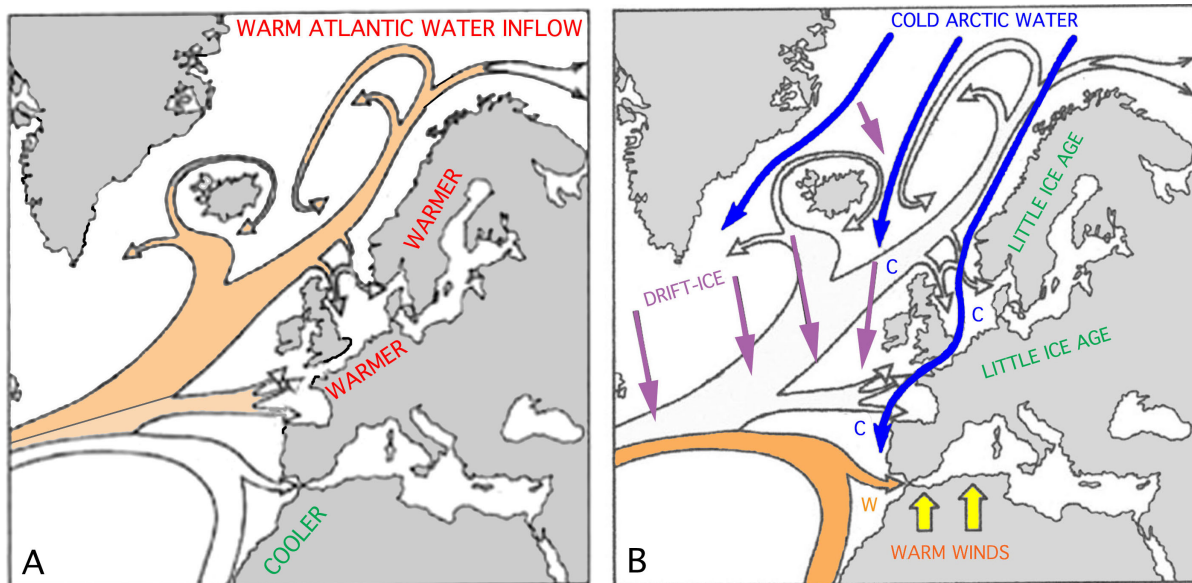


Fig. 6. The Gulf Stream and its changes in distribution of water masses at Grand Solar Maxima (A) and Grand Solar Minima (B). During the Spörer, Maunder and Dalton Solar Minima (B) Little Ice Age conditions prevailed in northwest Europe (Mörner, 2010, 2011, 2013a). The next Grand Solar Minimum is due at around 2030-2040 (Mörner, 2015b).

Grand Solar Maxima/Minima

During the Spörer, Maunder and Dalton Grand Solar Minima, Earth's rate of rotation accelerated, most of the Gulf Stream transport was confined to its southern branch (Fig. 6B) and Arctic water penetrated all the way down to mid Portugal (Mörner, 2010, 2011, 2013a). During Grand Solar Maxima, the situation was the reversed (Fig. 6A).

By around 2030-2040, we will be in a New Grand Solar Minimum, and – by analogy with previous events – it seems highly likely that we will also imply the return to cold climate conditions (as further discussed in Mörner, 2015b).

Planetary-Solar interaction

The driving forces from planetary-solar signals are further discussed in Mörner (2013a, 2015). The planetary beat on the Sun and the Earth-Moon system is illustrated in Fig. 7 with direct application to the 60 yr cycle (as well as to the 208 yr cycle).

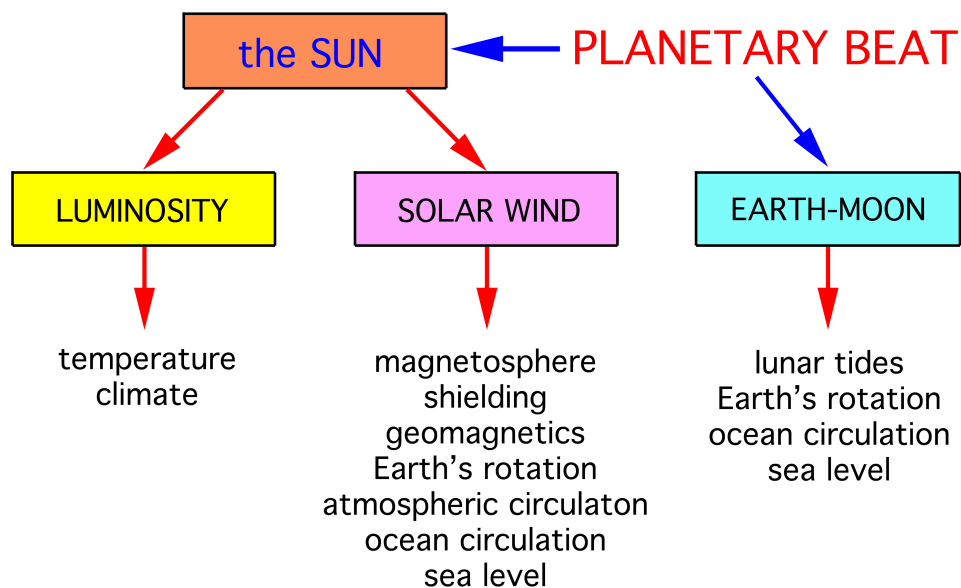


Fig. 7. The triple lines of effects on terrestrial variables from the planetary beat with a periodicity of about 60 years (it also applies for the 208 yr de Vries cycle). (from Mörner, 2015).

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Are the ocean currents affecting our climate?

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The climate on Earth has over millions of years always been changing and when we say climate we mean the average global temperature. This temperature is very difficult to measure for many reasons, one is that 90% of the temperature stations are based on land and land is only 30% of the Earth surface. Only since we have had satellites in space 1979 we have a fairly accurate temperature record. See Fig. 1 below.

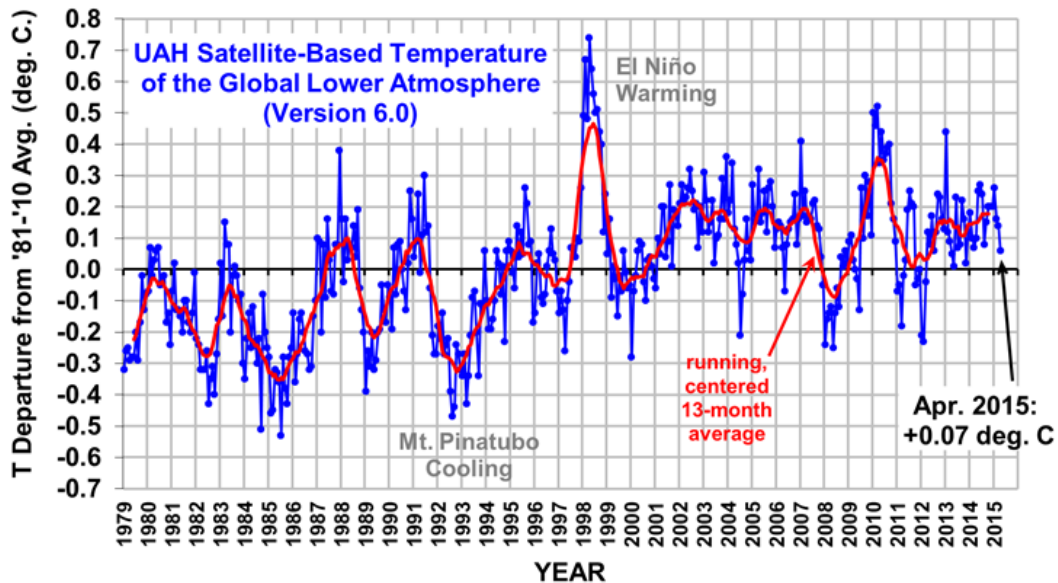


Fig. 1. Satellite-based global mean temperature 1979–2015.

During the last 5000 years we had had a very stable climate with small temperature variations. 8000 yaers ago there were dramatic changes in the climate with an 8° C change in global temperature over a 50 year period. This has been measured from ice cores from Greenland.

As discussed in my previous paper at this conference *Do humans emissions change the climate?* we can rule out climate changes caused by CO₂.

What are the main factors changing our climate?

It is self-evident that our Sun is the main factor but its effect on our climate is through a complex series of events involving exploding stars in our galaxy the Milky Way and even further away. The main cooling or warming is caused by the amount of cloud-cover on Earth. The solar intensity changes in cycles but also the frequency of sunspots is important. When we had a period at the end of the 17th century without any sunspots we had a Little Ice Age (LIA). During the last 100 years we have had a continuous increase of solar intensity which peaked 2002 at the peak of the 23rd sunspot cycle. This led to warming of the oceans of about 1° C which in turn increased the CO₂ content in our atmosphere 30%. The solar cycles can be regarded as long-term changes. The oceans also have an effect on our climate, specifically on the Northern Hemisphere. The ocean cycles are less than 100 years.

Pacific Decadal Oscillation – PDO

In the Northern Pacific Ocean there is a current called PDO. See Fig. 2 below.

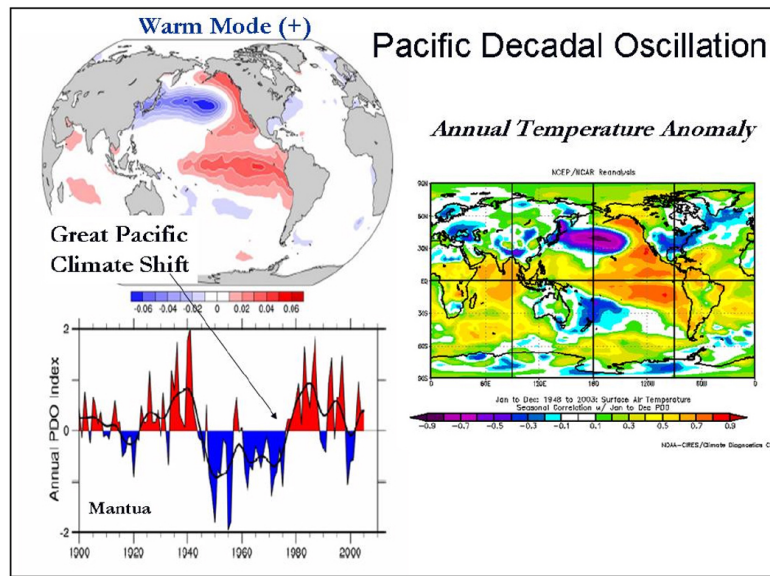


Fig. 2. Pacific Decadal Oscillations (PDO).

When this current is moving anticlockwise it is defined as positive and warm water is flowing along the coast of North America and up through Bering Strait also having an effect on the amount of ice pack in the Arctic Ocean. When the current is negative cold water is flowing from Asia to the American continent and little warm water is flowing up into the Arctic Ocean and the amount of pack ice is then increasing.

When studying a global temperature diagram over the last 150 years a clear zig-zag pattern show up and at the same time there is an upward trend. The upward trend is caused by the sun cycles and the zig-zag pattern is caused by the PDO switching direction every 30 year (60-year cycle). Fig. 3 below shows the exact correlation between PDO and the temperature changes.

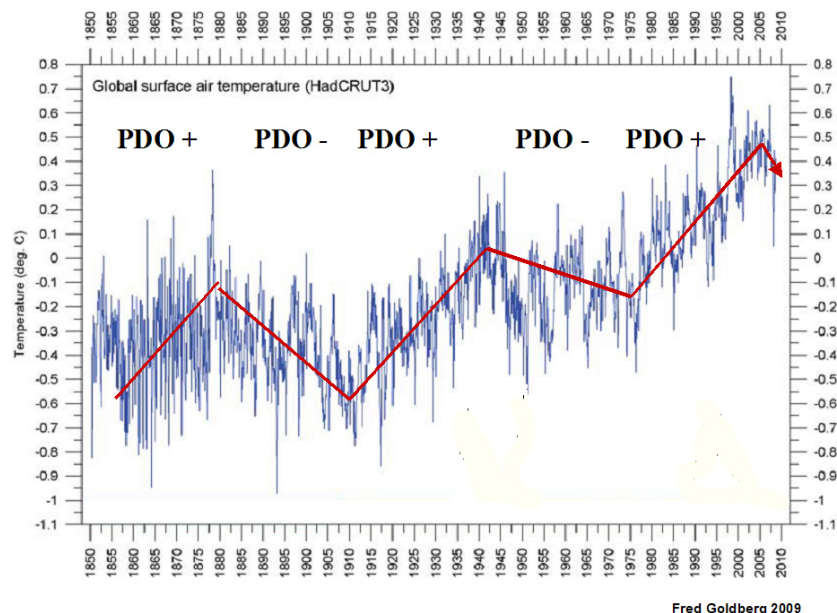


Fig. 3. The zig-zag pattern of PDO-/Pdo+ changes as recorded in the global mean temperature pattern.

What causes this 60 year cycle is being discussed. In my opinion it is caused by the fact that the planet Jupiter has a 60 year perihelion cycle with the Sun, which leads to a series of events.

The Great Barrier Reef

A Commentary Note by the Editor and Walter Starck

On March 29, 2016, Dane Wigington cried out “Nearly half of the Great Barrier Reef to die in the next month – Abrupt Climate Shift is Now” (in *GeoEngineering Watch*, March 29, 2016: <http://www.geoengineeringwatch.org/nearly-half-of-the-great-barrier-reef-to-die-in-the-next-month-abrupt-climate-shift-is-now/>)

Two months have now passed and the Great Barrier Reef still remains in its entirety, so we can happily discard the statement by Wigington as totally unfounded.

Walter Starck has recently addressed the issue in a very balanced and enlightening way; i.e. just as true scientist should do. I think it merits a short resumé (from Quadrant, June 17, 2016: <https://quadrant.org.au/opinion/doomed-planet/2016/06/reefs-self-serving-saviours/>).

Quotes from Walter Starck in Quadrant (2016) *“The Reef’s Self-Serving Saviours”*

All the many and varied claims of threats are based on speculation and the flat-out fabrications of researchers, bureaucrats and activists seeking grants and donations. Let us hope that a political leader emerges to decry and defund the gold-plated alarmists and the immense harm they are doing.

Virtually every year for the past half-century news reports have bannered dire proclamations by “reef experts” on imminent “threats” to **the Great Barrier Reef (GBR)**. This has sustained an on-going, ever-growing charade of “research” and “management” aimed at saving the reef from a litany of hypothetical threats conjured up by a salvation industry which now costs taxpayers over \$100 million annually. Although none of these “threats” have ever proven to be anything other than hypothetical possibilities or temporary fluctuations of nature, the doomsters never cease to rummage through their litany of concerns to find something they can present as urgent in order to keep the funding flowing.

For a time in the 1970s and ’80s genuine basic research was beginning to reveal a fascinating range of new understanding about the reef. Sadly, this all too brief golden age of discovery faded away when researchers found that the surest path to funding was to go with the flow and float their careers on the rising tide of environmentalism. We now have a whole generation of researchers whose entire involvement has been in the context of investigating various environmental concerns. Understandably, they perceive and/or present every fluctuation of nature as evidence of some threat.

In this process the open, sceptical, inquiring approach of science has been displaced by what has become the environmental facet of political correctness.

As the dive-boat captains and tour operators know from their own direct and daily experience, the reef remains healthy and vibrant. **It is not dying.**

The reef itself is out there, over the horizon and beneath the sea, where the truth and evidence of its on-going good health is safely inaccessible.... **Even so, truth has a way of accumulating over time until even the best-crafted untruths cannot be maintained.**

The available sea surface temperature data from the GBR shows no statistically significant trend over the past three decades.

In addition

<http://newsweekly.com.au/issue.php?id=400> – It’s the science, not the reef, that is being polluted. News Weekly, September 27, 2014.

<http://quadrant.org.au/opinion/doomed-planet/2014/10/time-put-warmists-oath/> – Time to Put Warmists Under Oath. Quadrant Online, October 26, 2014.

<http://quadrant.org.au/opinion/doomed-planet/2015/06/ignore-dismiss-excuse-deny/> – Ignore, Dismiss, Excuse, Deny. Quadrant Online, June 21, 2015.

<http://quadrant.org.au/opinion/doomed-planet/2014/03/academics-law/> – Are Academics Above the Law? Quadrant Online, March 21, 2014.

Hong Kong's sea-level record

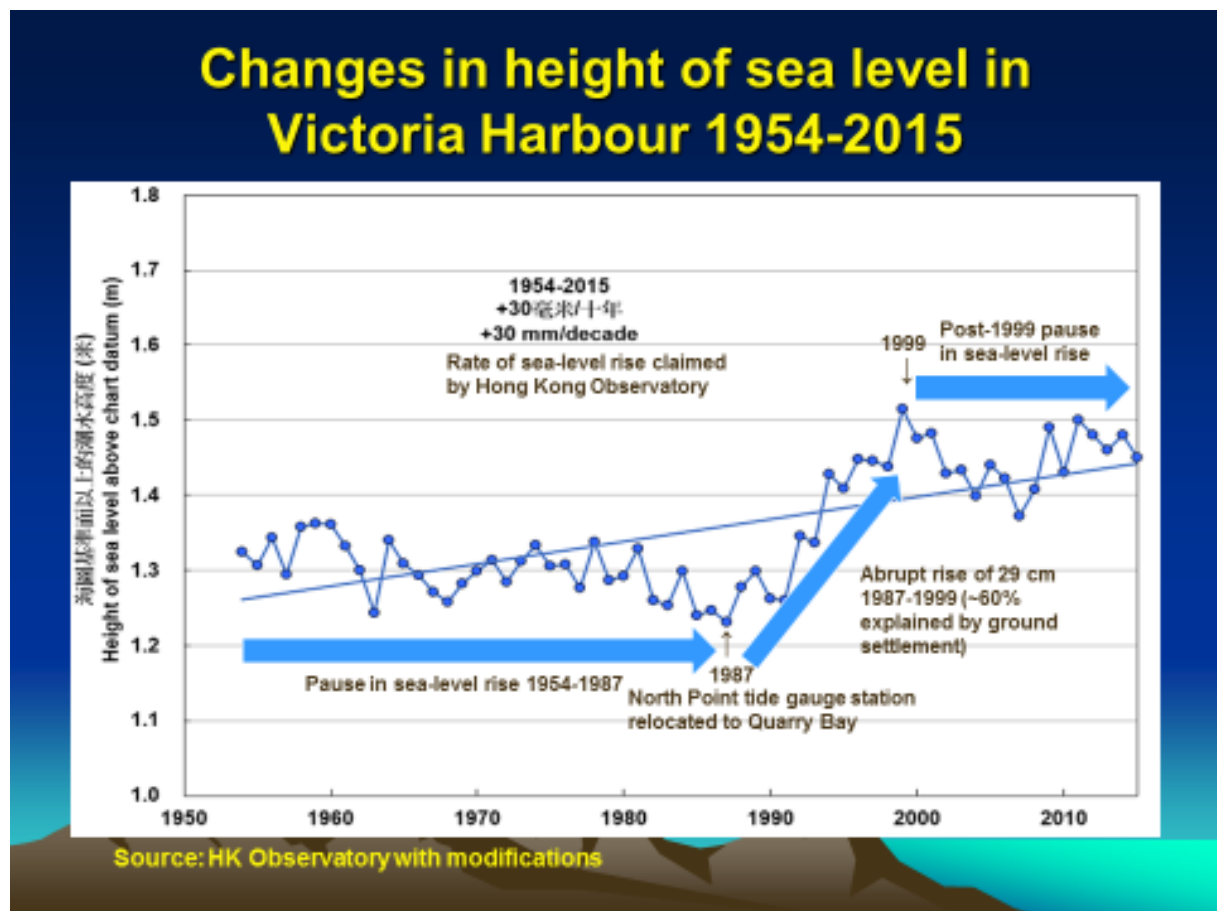
Wyss Yim

Association for Geoconservation, Hong Kong / ISEIS, Chinese University of Hong Kong

Hong Kong has extensive densely populated low-lying land threatened by short-term typhoon-induced storm surges and long-term future sea-level rise. It is therefore important to study past records for risk assessment.

Based on tide gauge records in Victoria Harbour from 1954 to 2015, sea-level rising at an average rate of 30 mm/decade was claimed by the Hong Kong Observatory. The projected rate of 25.5 cm by the year 2100 is below the lower end of the predictions of the Intergovernmental Panel on Climate Change.

An interpretation of the tide gauge record is shown below.



Two periods with pauses in sea-level rise can be identified from the record during 1954 to 1987 and 1999 to 2015. Because both tide gauges are not located on bedrock sites but on coastal land reclamations, the influence of ground settlement on the measurements cannot be ruled out.

Both the tide gauge record and the satellite altimetry record (available since 1993) are too short at present for drawing reliable conclusions on the projected sea-level rise. Further study on the stability of all the tide gauges in Hong Kong using state-of-the-art surveying methods including interferometric synthetic aperture radar (INSAR) is recommended.

Reference

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Plenty of time for today's Aussie Noahs to build the Ark, we may put one more sausage on the barbecue

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As many possibly remember from their early day (today's kids learn about gay marriage, transex and global warming and do not certainly know what the "Genesis" could be), God was disappointed with humans because they were having a lot of fun and therefore decided for a new world order through a flood. [God](#) only spared from the flood [Noah](#), his family, and a remnant of all the world's animals. The poor Noah only had a limited time to build the ark, but God gave Noah all the instructions for building the ark, and 7 days before the deluge, Noah entered the ark with his household and the animals as told by God. Today the story goes little bit different. Humans are now guilty of burning the fossil fuels, and because of that the IPCC has stated they will be submerged by the waters. The science is settled. Every sausage an Aussie cooks on the barbecue, then there is a sizeable sea level rise from thermal expansion and mass addition because of the warming and the melting of ices. So, if the science is settled, it may be of interest to know how much the sea levels rose during this century that at the end should experiences sea level rises of 1 meter, 2 meters or even much more than 2 meters according to the flavors. We may then consider the measurements available worldwide of how much the sea levels are rising vs. the measuring instrument. This is certainly not the absolute global sea level, but considering what is interesting is how the sea level rise vs. the land, because otherwise there is no flood, the tide gauge results where they are collected are the best indication of sea level rise. We may thus consider all the tide gauges in the latest PSMSL survey of relative mean sea level secular trends (<http://www.psmsl.org/products/trends/trends.txt>). The population of the PSMSL surceys changes year after year, and since 2015, also the method to compute the rates of rise has changed. As PSMSL says *"Please note that we changed the method of calculating relative sea level trends in 2015. The trends displayed here are not directly comparable with any calculated before that date."* So, as we do not want to compare apples with cherries (we leave this opportunity to the IPCC scientists), we will focus only on the result of this survey.



Image from <http://216.150.3.251/uploads/noahs-ark-zoom.jpg>

We may consider all the tide gauges in the latest PSMSL survey of relative mean sea level secular trends (<http://www.psmsl.org/products/trends/trends.txt>). The population changes year after year, and since 2015, also the method to compute the rates of rise has changed. As PSMSL says *“Please note that we changed the method of calculating relative sea level trends in 2015. The trends displayed here are not directly comparable with any calculated before that date.”* So, we focus on this survey as a standalone result

The survey includes 722 tide gauges, some of them having not enough data to infer any reliable trend. The global data set has a naïve average rate of rise of +1.39 mm/year, maximum value of +10.25 mm/year and minimum value of -17.63 mm/year. As we know the short and incomplete records overrate the relative rate of rise of sea levels, we may then consider subsets of this data set, as some numbers are everything but reliable.

If we consider all the tide gauges that started recording before 1934 (S1) this subset of 158 tide gauges has a naïve average relative rate of rise of +0.03 mm/year, maximum +6.75 mm/year, minimum -8.09 mm/year. Figure 1 below is the histogram of this S1 data set. There are 54 tide gauges with negative rates of rise and 104 tide gauges with positive rates of rise. The number of tide gauges with a “relative” rate of rise exceeding the alleged global “absolute” rate of rise of +3.25 mm/year are 7 of 158. The most common relative sea level rate of rise is +1.25 mm/year in 27 tide gauges.

If we consider all the tide gauges with at least 70 years of recorded data in 2014 (S2) this subset of 157 tide gauges has a naïve average relative rate of rise of +0.08 mm/year, maximum +6.75 mm/year, minimum -13.22 mm/year. Figure 2 below is the histogram of this S2 data set. There are 50 tide gauges with negative rates of rise and 107 tide gauges with positive rates of rise. The number of tide gauges with a “relative” rate of rise exceeding the alleged global “absolute” rate of rise of +3.25 mm/year are 8 of 157. The most common relative sea level rate of rise is +1.25 mm/year in 29 tide gauges.

If we finally consider all the tide gauges with at least 60 years of recorded data in 2014 (S3), this subset of 212 tide gauges has a naïve average relative rate of rise of +0.41 mm/year, maximum +9.41 mm/year, minimum -13.22 mm/year. Figure 3 below is the histogram of this S3 data set. There are 64 tide gauges with negative rates of rise and 148 tide gauges with positive rates of rise. The number of tide gauges with a “relative” rate of rise exceeding the alleged global “absolute” rate of rise of +3.25 mm/year are 16 of 212. The most common relative sea level rate of rise is +1.25 mm/year in 37 tide gauges.

The different values of the naïve averages only reflect the different populations, with more tide gauges recently being established in areas subject to subsidence rather than uplift, as the subsidence of the instrument is still the most relevant component to sea level rise.

So, what we learn from this survey?

The sea levels are not rising sharply and sharply accelerating, but rising and falling, and in the best “spots” along the world coastlines where the sea level rises are measured and not computed, the naïve average rate of rise is both a pretty constant value and a quite small value.

These naïve average relative rate of rise translate in a naïve average sea level rise over the first 15 years of this century of a little bit less than half a millimetre to little bit more than one millimetre in the 158 or the 157 long term tide gauge locations S1 and S2, or, at the most, in 6 millimetres in the 212 tide gauge locations S3 satisfying the minimum requirement of 60 years.

How much time has today’s Noah to build the Ark?

Certainly none of us within his/her lifetime and the lifetime of the sons, the sons of the sons, the sons of the sons of the sons, etc etc etc will have to be involved in the building of the ark and the collection of all the animals.

We may put one more sausage on the barbecue.

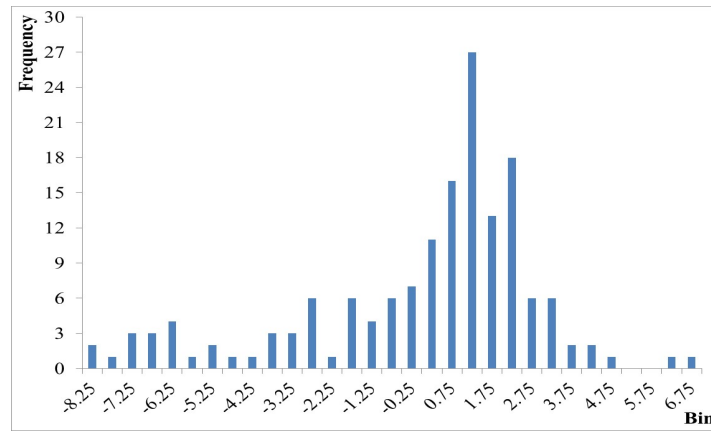


Fig.1 – Frequency vs. bin of relative rate of rise of sea levels for the S1 data set (158 tide gauges with start of record before 1934).

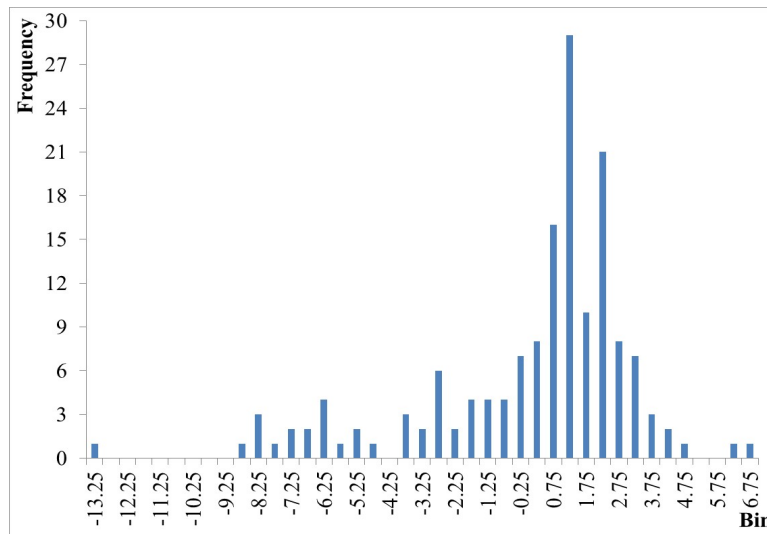


Fig.2 – Frequency vs. bin of relative rate of rise of sea levels for the S2 data set (157 tide gauges with at least 70 years of recorded data in 2014).

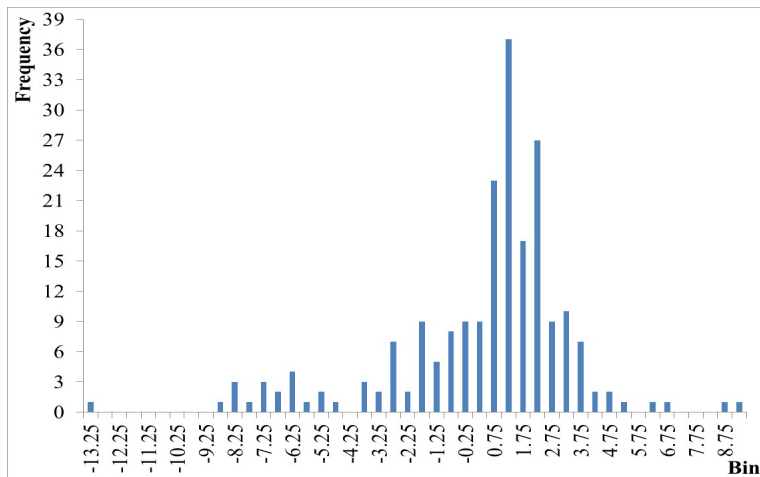


Fig.3 – Frequency vs. bin of relative rate of rise of sea levels for the S3 data set (212 tide gauges with at least 60 years of recorded data in 2014).

Global temperatures rise one degree per 40 DU decrease in ozone

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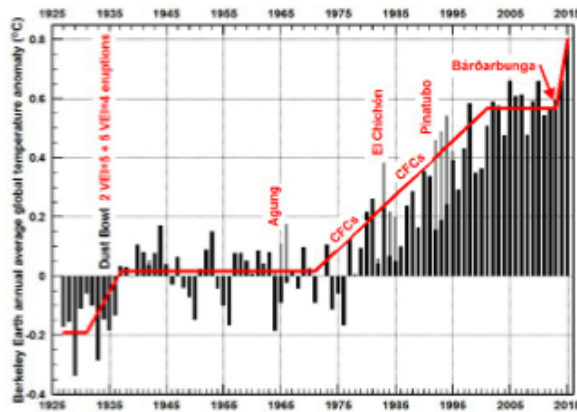


Fig. 1. Berkeley Earth annual average temperature anomalies (black bars), corrections for cooling by aerosols following explosive eruptions (gray bars), and trend lines (red) for comparison with Fig. 3. Largest volcanic eruptions labeled in red. The major Dust Bowl droughts peaked in 1934, 1936, and 1939-1940 after a highly unusual sequence of 2 VEI=5 and 6 VEI=4 eruptions around the Pacific Ocean in 1931 through 1937.

Annual average global temperatures (Fig. 1) remained relatively constant from 1927 to 1931, rose from 1931 to 1937, the Dust Bowl drought years, remained relatively constant from 1938 to 1971, rose sharply from 1971 to 2001, remained relatively constant from 2001 through 2013, the global warming hiatus, and rose suddenly during and since the 6-month eruption of Bárðarbunga beginning in August 2014, the highest rate of basaltic lava extrusion since 1783, the cause of the current heat wave.

Annual average total column ozone measured at Arosa, Switzerland since 1927 (Fig. 2) rose from 1927 to 1937, remained relatively constant from 1937 to 1976, decreased from 1976 to 1991 most likely because of emissions of CFC gases, suddenly decreased following the eruption of Mt. Pinatubo in 1991, the largest volcanic eruption since 1912, and then slowly recovered over the next decade. A similar amount of depletion followed the eruption of Eyjafjallajökull volcano in 2010, a much smaller volcano but more effusive.

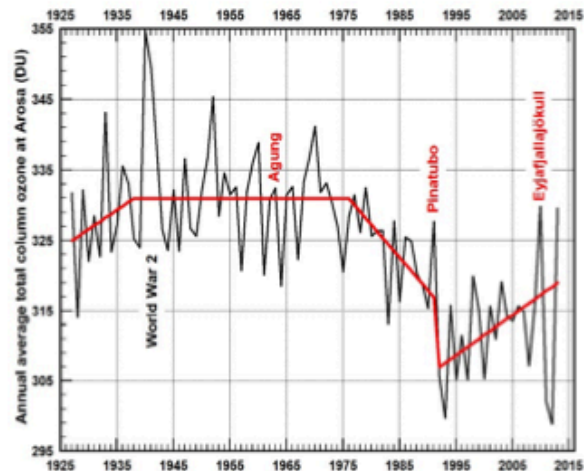


Fig. 2. Annual average total column ozone measured at Arosa, Switzerland since 1927. Red trend lines are for comparison with Fig. 3. The largest volcanic eruptions are labeled in red.

Fig. 3 shows the temperature data plotted as a function of the ozone data where the numbers are the year of each data point and the red line represents the trends shown in Figs. 1 and 2. Note the general trend of the data with temperatures increasing at a rate of 1.0°C per 40 DU decrease in ozone. The scatter in data is dominated by the effects of 7 eruptions with VEI=5 and more than 50 eruptions with VEI=4 during this period that caused changes similar to, but much smaller than, Mt. Pinatubo. There were also major increases in ozone in the early years of World War 2 (letters w) and at the times of some other major explosive events.

There is typically a peak in ozone the year of each volcanic eruption. In the case of the Eyjafjallajökull eruption in 2010, a major emission of ozone occurred on February 19 (Fig. 4), just as magma at depth began moving toward the surface (Fig. 5).

There is much to learn and discuss about how ozone depletion appears to be the primary cause of global warming throughout Earth history.

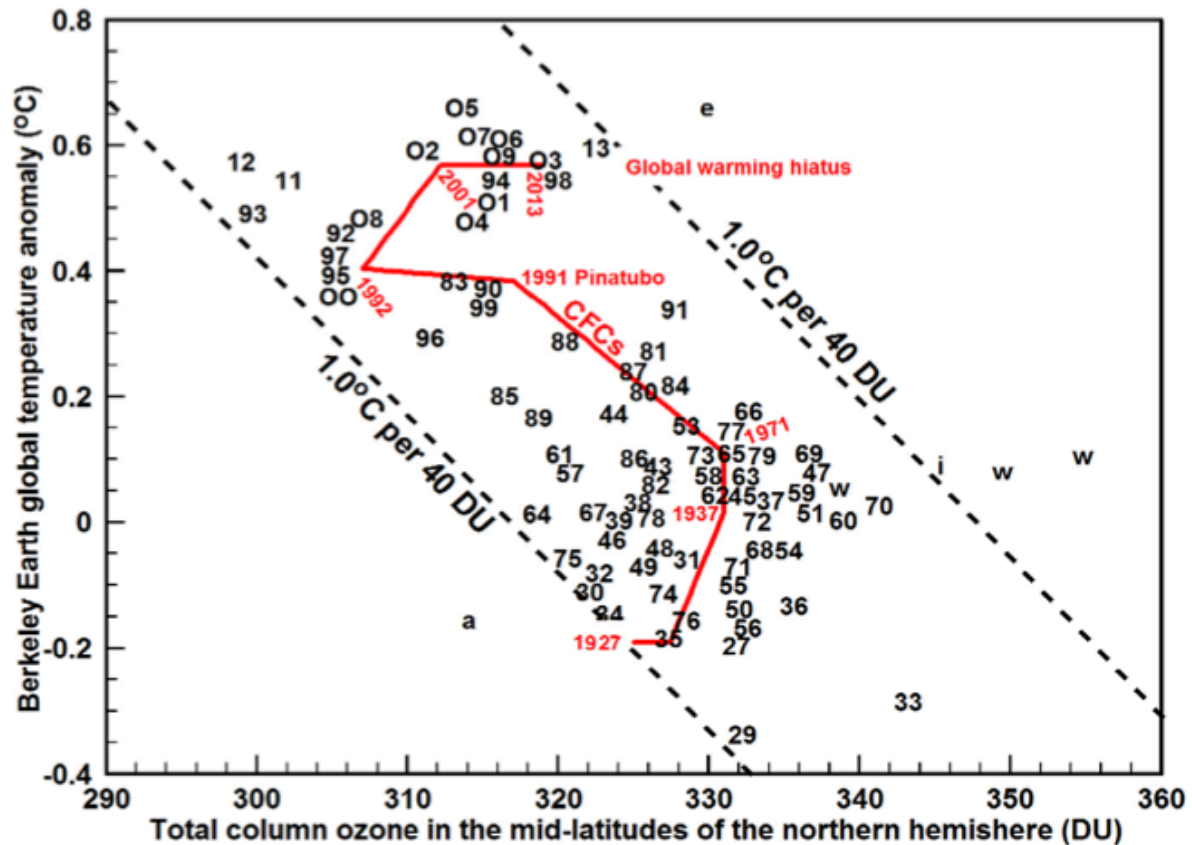


Fig. 3. For every 40 Dobson Units (DU) of depletion of ozone, annual global average temperature anomalies appear to increase approximately 1.0°C shown most clearly from 1971 to 1991 when ozone depletion was caused primarily by CFC gases. Numbers are the years of the data points. The red line shows the trends in temperature (Fig.1) plotted as a function of the trends in ozone (Fig.2) to aid in comparison of the data in these different forms. The largest volcanic eruption since 1912 was Mt. Pinatubo (VEI=6) in 1991, causing major ozone depletion by 1992 and 1993, with a slow recovery to 2001. There were also 7 eruptions with VEI=5 and more than 50 eruptions with VEI=4 during this period that caused similar but smaller changes explaining much of the scatter in data points. The global warming hiatus then lasted from 2001 through 2013. Major warming since 2014 is not shown because the ozone data are not yet available. The letter “e” is for 2010 when Eyjafjallajökull erupted and ozone was emitted (Fig.4).

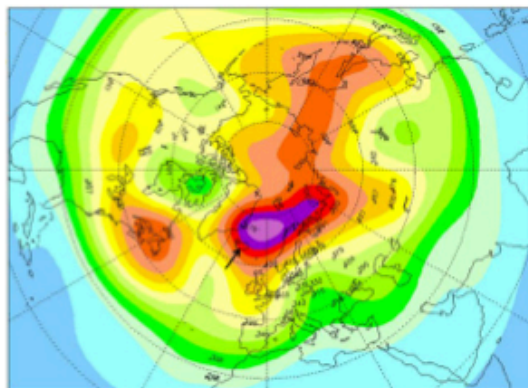


Fig. 4. Total column ozone northeast of Iceland increased to more than 550 DU on February 19, 2010, over a background of ~325 DU, an increase of ~70%. Arrow shows location of the volcano Eyjafjallajökull.

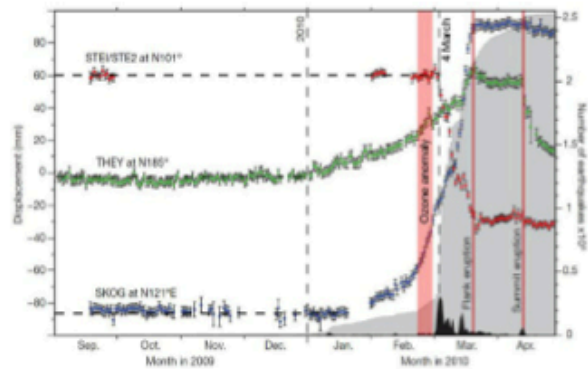


Fig. 5. Ground displacement and numbers of earthquakes shows that ozone emission from Eyjafjallajökull occurred just as magma began breaking to the surface (red region) from a dike at a depth of around 5.5 km (Sigmundsson et al., 2010).

Regional Greenhouse Effect – Based on Observational Evidence

Hans R. Jelbring

Abstract: Any solar system planet or satellite with a thick atmosphere shows a positive Greenhouse Effect (GE) according to NASA. The average planetary surface temperature and the average longwave radiation flux seen from space has both been measured extensively. This information provides a basis to calculate the planetary (global) GE. Hence, the NASA planetary GE values for Venus, Earth, Mars and Titan are 510, 34, 0 and 10 degrees Kelvin (NASA 2016). It can and should be questioned why the GE differs so much on different planets. A way to come closer to an answer is to calculate a number of regional GEs (RGE) on earth and study their variations. This is possible since the outgoing longwave radiation (OLR) has been measured carefully during many years by several spacecrafts. It is possible to calculate an average emission temperature for any specific region on earth. Gridded monthly data of both OLR and surface temperature for selected regions averaged over many years were provided by www.cdc.noaa.gov (2009), data which have been used in this study. It turns out that the RGE values on earth varies between about minus 10 to plus 52 Kelvin depending on a number of physical factors. The RGE value was highest in Amazonas and lowest at the South Pole. The RGE values were above the average of 34K over the oceans and in equatorial regions strongly suggesting an impact of water vapor concentration as an important factor. Which physical mechanism that probably is dominating the GE value on earth and any planet with a dense atmosphere is discussed.

Introduction

It is a physical fact that the surface of either Venus, Earth and Titan is warmer than the atmosphere at an elevation where the bulk (in the troposphere) of the absorbed solar radiation is leaving the planet as longwave electromagnetic radiation. This temperature difference constitutes the true definition of the Greenhouse Effect. Such a definition is solely based on observations and do not indicate the cause of why a GE on Venus is 510K, why it is 34K on earth and 10K on Titan. Hence, the name Greenhouse Effect is a misnomer as long as it is interpreted that “greenhouse gases” solely are responsible for the observed planetary GE.

The solar energy flux reaching earth is 1361 W/m² according to NASA planetary fact sheets (2016). 30.6% of that flux is directly reflected back to space. The incoming absorbed as seen from Sun where R is the radius of Earth. If the atmosphere succeeds in distributing the incoming absorbed solar energy *evenly* around all the surface of earth the energy emission $R/2$. Hence, an averaged assumed constant OLR (over any long time period) would then be 236 (W/m²). All regions of Earth certainly doesn't send a constant amount of longwave energy flux back to space from everywhere which is clearly shown by space craft data and table 1. This simple model has produced rather crude planetary GE values. Still, this NASA model does not lack merits.

To calculate RGEs over all areas of earth would thus be an improvement relative the calculation of a global GE. This is not done in this work but the maximum and minimum monthly OLR values at 15 specific regions have been collected. These regions should be seen as representative samples where different physical conditions are producing RGE values that substantially differ from the crude 34K global value. These RGE values certainly indicate a number of physical factors that are important for the variability of RGE values on earth and it follows that these factors also have to influence the global GE. Each RGE value calculated in this work way is more accurate than the global one calculated by NASA as described above. The NASA global planetary values rest on the assumption that the received solar energy can be equally distributed to all part of the surface of earth. An atmosphere has to be relatively thick if this should be a fair approximation. This condition is not met in the Martian atmosphere but is well met in the Venusian and in Titan's atmospheres.

Method

Approximately the same solar energy flux that each planet receives have to leave the planet over a longer time period. Daily and yearly variations can be filtered out by choosing to investigate a time period which is long relative to a day and short relative to a year. The choice here is to select a month as a suitable time period for investigating the variability of the RGE values. The chosen regions span the most extreme regions of earth as well as sea, continental and high altitude regions and are found in table 1. There was an option in the cdc.noaa (2009) data to select any area of earth to get the monthly OLR for the selected region (averaged over several years) and also the monthly temperature for the same region. For each region, a summer month and a winter month were chosen showing the highest and lowest OLR values. These were mostly found in January and July and are listed in table 1.

The RGE values are calculated by 1) using the OLR value to calculate the regional average longwave emission temperature by the aid of Stefan Boltzmann law just as NASA does for planets and 2) to subtract the average regional surface temperature given by the gridded cdc.noaa data (2009).

The observed range of flux is surprisingly “narrow” and vary from about 160 W/m² (North Pole during mid-winter) to 350 W/m² (summer in Sahara). This lends support to the way NASA calculates global GE values on planets. The energy flux to space during the winter darkness in the Arctic region is thus an amazing 160 W/m² while the average global long wave emission flux to space is 236 W/m².

Result

The selected regions are ranked by the highest RGE value during summer. To get an impression of seasonal impact a ratio called OLR ratio has also been calculated. It is simply the maximum monthly summer OLR divided by the minimum monthly winter OLR.

Table 1. Regional Greenhouse Effect, averaged monthly values over several years (Kelvin)

<i>Region</i>	<i>sum/win (K)</i>		<i>OLR (W/m²)</i>		<i>OLR ratio</i>	<i>region</i>	
Amazonas	52.1	46.8	202	223	0.90	0-7S	290-360E
Hawaii	41.2	36.8	230	223	1.03	27-45N	180-200E
Equatorial Pacific	40.6	39.4	256	253	1.01	5S-5N	180-240E
North Pacific	37.7	36.5	230	222	1.04	27-45N	220-240E
Australia	37.5	24.3	285	271	1.05	20-30S	120-140E
North Atlantic	36.5	31.9	270	236	1.14	27-45N	320-340E
US plain	34.6	21.9	270	215	1.26	35-45N	255-265E
Siberia	34.1	16.9	233	158	1.48	60-70N	80-120E
Sahara	30.5	27.3	320	260	1.23	20-30N	0-30E
Tibet	29.4	17.0	247	205	1.20	27-45N	80-100E
Barents Sea	26.3	25.2	227	179	1.27	70-80N	30-50E
Antarctic Sea	25.2	22.8	212	171	1.24	64-66N	0-360E
North Pole	24.2	12.6	221	160	1.38	80-90N	0-360E
Greenland	19.7	11.2	221	157	1.41	70-80N	310-330E
Vostok (South Pole)	-1.0	-10	208	129	1.61	75-85S	0-360E

Discussion

The high spread of RGE values from 52.1K to -10K is quite remarkable. These values can and should be treated in detail but such a treatment will be left out in this short presentation. Some remarks are made below about the RGE variability. The following statements seem to be supported by the RGE values in Table 1.

- The RGE values are highest during summer months indicating a dependence on solar irradiation.
- The RGE values are high along the equator.
- The RGE values are high over oceans.
- The seasonal variation of RGE values over oceans is small.
- The seasonal variation of RGE values is large over big land masses such as Siberia, US Plain, Tibet and Barents Sea. The latter one should be regarded as land since it is ice covered much of the year.
- The lowest RGE values are found at the poles and on Greenland.
- High altitude seems to diminish the RGE value.

The physical mechanisms influencing RGE values will only be discussed for Vostok, which has a negative RGE value. This value depends on a combination of several physical factors. 1) The atmospheric mass per area unit is low, 2) there is little moisture in the atmosphere preventing longwave radiation to quickly reach space, 3) the high altitude makes it easier for infrared radiation to reach space, 4) the great inversion (several km thick) makes the air above the surface warmer than the surface itself and 5) the cold air moving downslope creates an adiabatic heating when air is subsiding towards to the polar surface. South Polar region is unique. A complex combination of physical mechanisms is at work preventing a normal positive RGE at the South Pole.

Jelbring has claimed that the major reason for the development of a planetary GE is the atmospheric mass. This work and earlier result (Jelbring 2003) has not changed the opinion of the author. The major reason why Venus has a GE of 510K is strongly suggested to depend on the fact that its atmospheric mass is 90 times the one on earth. The reason why Mars has a GE of zero K is that its atmosphere is less 1/100 of earth's atmosphere. Its thin atmosphere lacks the ability to transfer solar energy around the planet to any large extent making the NASA model very inaccurate for Mars. The chemical composition of any atmosphere is suggesting to be much less important than the its mass per surface area as a cause for a GE.

Conclusions

Without doubt water vapor and high temperature affect the RGE values. It is hard to find a more humid area on earth than Amazonas, which has the highest RGE value. A high moisture content over oceans are also increasing and stabilizing RGE values over the season as can be seen in Table 1. Another important mechanism is the global atmospheric circulation making air to rise at the equatorial area (Intertropical Convergence Zone, ITCZ) and to release condensation energy in high altitude clouds.

It is also obvious that RGE values are higher than 20K in most regions except in the polar ones. This should be the case since in a hypothetical insulated static atmosphere gravity will induce an adiabatic temperature lapse rate in the troposphere according to first principle physics (Jelbring 2003). The only region outside polar areas that has a RGE value below 20K is Tibet during winter. Then the atmosphere is thin and cold carrying little water vapor, factors that are diminishing the RGE values.

RGE values do vary because of a number of physical reasons also meaning that the temperature lapse rate on earth deviates from the theoretical (a static atmosphere) value of -9.8 K/km. The observed value according to the 1976 U.S. Standard Atmosphere is -6.5K/km. On Venus, on the other hand the temperature lapse rate is following the theoretical one almost exactly from the surface to an altitude around 40 km.

The result from this work and Jelbring (2003) strongly supports the opinion that the dominating physical process causing GE on planets is the energetic equilibrium state that an atmosphere would tend to reach if it would be totally insulated from its surroundings. This situation is close to persist in Venus' troposphere. Very little solar irradiation is reaching the surface of Venus. If earth's atmosphere were 90 times as massive it would also have a GE around 400-500 K. Water vapor has an influence on earth in a similar way as methane has on Titan since both these gases condense and produce clouds which affect the energy fluxes and consequently also the RGE values.

Acknowledgment: The author thanks the few scientists that have reacted in a proper way to my 2003 paper instead of ignoring it for 13 years. No scientist has yet proven its conclusions to be wrong and the author is looking forward to discuss the paper in a serious way also with established climatologists.

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Does human CO2 emissions change the climate? Faith vs. Facts

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It is a common opinion that human emissions of CO₂ (anthropogenic CO₂) will change the climate by heating up the atmosphere and that a catastrophe is lurking ahead. How has this opinion come about? It might have started already when the former Swedish Prime Minister Olof Palme was interviewed in 1974 by the leading Swedish newspaper *Svenska Dagbladet* and asked how the world would look like 25 years later. He said the greatest threat would be climate change meaning global warming due to CO₂ emissions. This is a very strange comment because at this time the “climate experts” alarmed that we were heading into a new ice age. There were several articles in Time magazine and a book published on the subject. In my opinion this reveals that the global warming idea has been a carefully orchestrated campaign with the aim to collect more taxes – CO₂ – taxes. The idea to put a tax on CO₂ came from the founder of IPCC Professor Bert Bolin, who also was Palme’s tennis partner.

What are the scientific facts concerning CO₂. It is the gas of life necessary for all plant-life on Earth, despite the fact that there is only 400 ppm of it. Within chemistry this small amount of gas is called trace gas.

We often hear about the greenhouse effect. This is a very complicated mix of energy absorption and direction of radiation and varies in intensity depending on molecule configuration. When asking politicians and bureaucrats which is the dominating greenhouse gas in the atmosphere, the answer is always CO₂. The scientific fact is that the greenhouse effect from CO₂ is somewhere between 1–1,5%. Water vapor dominates with 95%.

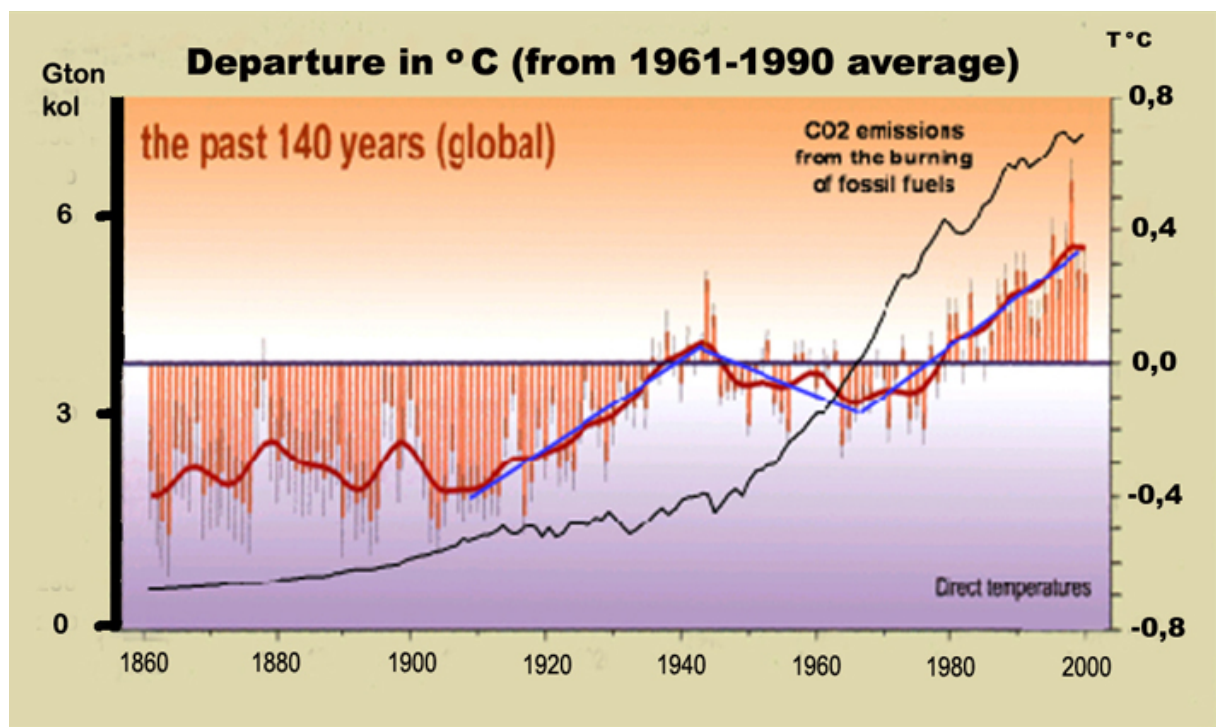


Fig. 1. Changes in mean global temperature 1860–2000 (main graph and right hand scale) and increase in emission of carbon (thin curve and left hand scale).

What is the human contribution to “climate change = global warming”. The human emissions of CO₂ in the atmosphere is only 4%. 96% is natural CO₂ from the global carbon cycle. This means that the human contribution to climate change is $1,5\% \times 4\% = 0,06\%$ This is such a small effect that it can not be measured.

What evidence do we have that CO₂-emissions have not changed the climate.

At a conference in Stockholm 2009 I asked a panel of 5 distinguished “climate scientists” why there had been no global warming since 2002 despite the fact that humans had emitted more than 500 Billion tons of CO₂. None of the Professors were keen to answer but one finally said *that it was something wrong with the logic in my head*. The next day I meet another professor and asked him what he thought about the answer I got. He said it was a most relevant answer.

During the period 1910 – 1940 there was a 20% increase of human emissions of CO₂ but at the same time it was a relatively sharp increase of the global temperature. See diagram below. From 1940 to 1977, in connection with WWII the emissions rose dramatically and tripled but the global temperature dropped 0,3 C. This shows that there is no connection between CO₂ emission and temperature changes.

Our politicians without any scientific education only listen to the activists who want to destroy our democracy and wellbeing by throwing hundreds of Billions of dollars into useless projects, solar cells and windmills. The evidence of what is going on can be focused in one short statement by NASA climate scientists James Hansen: **We must scrap capitalism to save the climate.**

How high a price are our politicians willing to pay before they understand what is going on, and were is the scientific evidence that human emissions of CO₂ will cause global warming?

Environmental concern and illusive threats

Nils-Axel Mörner

Paleogeophysics & Geodynamics and Independent Geoethics Committee

Everyone on Planet Earth should exercise deep environmental concerns. Of course, this refers to real problems and real threats in the real world. Illusive threats are directly contradictory to true and constructive environmental concern.

The danger of ruling models

The ever first model produced was that of Aristotle's, when he claimed that the Earth was in the centre with all the celestial bodies (the Moon, the Sun, the planets, the stars) moving around it in 56 fixed circular paths (Mörner, 2006). A model totally wrong; still it fooled the western world for 1800 year until Copernicus, in 1543, demonstrated that the Sun is in the centre.

In 1988 the Intergovernmental Panel on Climate Change (IPCC) was launched with the mission to prove the existence of an anthropogenic global warming (AGW) driven by the increase in atmospheric CO₂. This hypothesis – as non-geological as the geocentric concept of Aristotle's and Ptolemaist – has now grown into a ruling model of direct religious dimensions (Lovelock, 2014; Mörner, 2015a, 2015b). It is now directly contra productive.

Normal scientific understanding

We know that climate – on the global, regional and local scale – is always changing; in the long-term perspective generating alternations between Ice Ages and Interglacial, and in the decadal scale generating alternations between warm phases (like the Medieval Warm Optimum) and cold phases (known as Little Ice Ages).

A recent warming of about +0.5 °C is recorded from ~1970 to ~2000 (e.g. Humlum, 2014; Scafetta, 2016). This temperature rise was predominantly driven by solar variability (Mörner et al., 2013). If there is any CO₂ driven warming, it must be low, and with a logarithmic function, it would **only amount to some +0.3 ± 0.1 °C by year 2100** (Mörner, 2015b). This should be compared with the proposed temperature rise of +2.7 ± 0.7 °C by 2100 (COP21).

As to the future of the late 20th century warming, we can be quite sure that it will soon change into a cooling trend (Mörner and 18 others, 2013; Mörner and 18 others, 2015). We are simply approaching a new Grand Solar Minimum (peaking around 2030-2040), which in analogy with previous minima (Spörer, Maunder, Dalton) is likely to imply the return to cold climate conditions of Little Ice Age type (Mörner, 2015c).

The idea of a catastrophic rise in sea level is a lobbyist scary story, not founded in facts. Global tide gauges and coastal geomorphology provide firm evidence of a sea level change in the order of ±0.0 to 1.0 mm/yr (Mörner, 2014). Satellite altimetry does not give a mean global rise of about 3.2 mm/yr; it has to be re-adjusted back to uncorrected original reading, which means +0.55 ± 0.1 mm/yr (Mörner, 2015d). So, the fear of flooding is simply gone.

Another misconception is that of ocean acidification. Moore (2015) has convincingly shown that it is a major misunderstanding. Our oceans are in good health with respect to pH (Hovland, this volume).

Finally, **CO₂ is the gas of life**, essential for life on Earth. This issue has been masterly addressed by Patrick Moore (2016), and will be addressed by several speakers at this conference, too. Moore's exposé covers the entire geological spectrum up to the Holocene (his Fig. 9 where the mean temperature lowering is directly opposed to the slow rise in CO₂) and the present period of additional human-based CO₂ emission. He summarizes: *Human emissions of CO₂ have restored a balance to the global carbon cycle, thereby ensuring the long-term continuation of life on Earth. This extremely positive aspect of*

human CO₂ emissions must be weighed against the unproven hypothesis that human emissions cause a catastrophic warming of the climate to come.

The socio-economical effects of the CO₂ hysteria of the COP21 agreement are very far reaching; for the developing countries very negative (Khandekar, this volume; Foster, this volume), maybe even directly “genocidal” as claimed by Monckton (this volume).

In conclusions, The AGW concept with all its proposed disastrous effects on climate, sea level, ocean acidification, etc simply doesn’t agree with observational facts and physical laws. Therefore, it must – the sooner the better – be dismissed. This is a matter not only about science but also on geoethics (Mörner, 2015d).

In Fig. 1, illustrates the collapsing idea of negative effects of an increasing amount of CO₂ in the atmosphere, and the positive (beneficial) effects – global greening – in a continually rising or flattening out manner with increasing ppm CO₂ in the atmosphere.

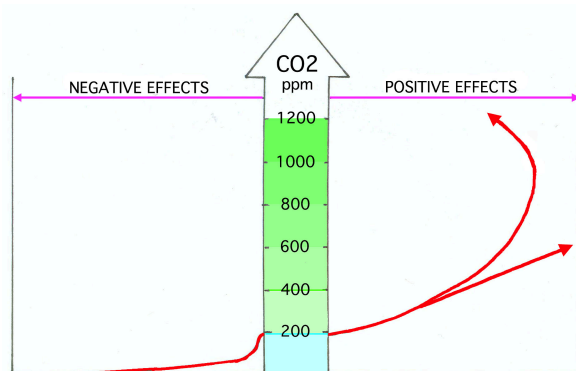


Fig. 1. Negative (there are no) and positive (increasingly beneficial) with rising atmospheric CO₂ content in ppm.

How can things have gone so wrong?

It seems very hard, if at all possible, to understand why and how things have gone so wrong. The preparation, launching and implementation of the IGCP project by Bolin (basic idea), Palme (top-politician with strong autocratic will) and Brundtland (head of the Brundtland Commission which proposed the project in 1988) were skilfully organized, and the mission – a priori – was to demonstrate the anthropogenic origin of global warming; i.e. the goal was set before the project started.

Many converging interest must have carried the project to its general COP21 agreement in Paris in 2016. Obviously, the project surfed on the general need of transforming our energy system. The promotion of nuclear power was another force. No doubt, however, there was a also way of escaping from urgent problems in the real world; war, conflicts, hunger, draughts, population growth, besides all natural disasters. A man like Ban Ki-Moon did very little for those urgent issues around the world, still he was celebrated as a winner at the COP21 agreement. For many people, the illusion of “saving the world” became central.

The task of understanding how and why is surely both large and complicated, maybe impossible to grasp in its entirety. **But it all went so utterly wrong.**

Threats on Earth

Life on Planet Earth is constantly being threatened by different types of disastrous events; some are natural, some are man-made and some are just imagined (Mörner, 2015e). This is illustrated in Fig. 2; CO₂ driven global warming, disastrous sea level rise and ocean acidification, all represent “imagined disasters”.

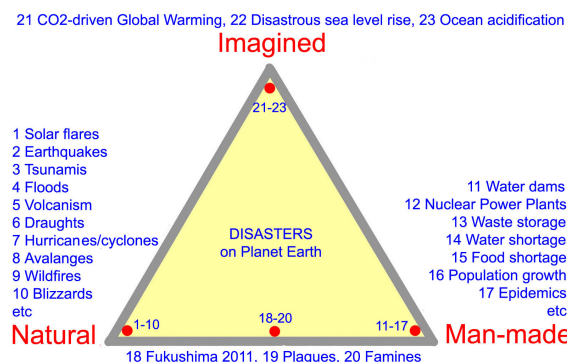


Fig. 2. Different potential disaster in a triangle diagram bounded by natural, man-made and imagined events (from Mörner, 2015e).

We are today living in a world where it has become customary to obtain awareness by threats. Neither a CO₂-driven global warming nor a disastrous sea level rise – as proposed by the IPCC and being the central issue in the COP21 negotiation – are based on scientific facts. In both cases, the negative to disastrous effects come from

model out-puts, which are in deep contrast to observational facts (Mörner, 2015f).

Naturally observational facts must outdo data obtained from computer modelling.

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To all editors acting as gatekeepers

Pamela Matlack-Klein

Reprinted from: <https://geoethic.com/2015/11/03/to-all-editors-acting-as-gatekeepers/>

Over the past several years I have noticed a distressing tendency of highly respected scientific journals to avoid publishing papers that disagree with the IPCC's concept of Anthropogenic Global Warming/Climate Change. As this notion has been arrived at with very little actual field work, rather relying heavily on computer modelling, I find it difficult to accept as "fact," most especially in light of the findings of scientists working in the field, observing and collecting real data. To date, the majority of predictions of these models have failed to come to pass.

The Maldives stubbornly refuse to sink under the waves, (N.A. Morner), the ice pack and glaciers in the Arctic and Antarctica are not shrinking, (Nicola Scafetta and Adriano Mazzarella: "The Arctic and Antarctic Sea-Ice Area Index Records versus Measured and Modeled Temperature Data". Advances in Meteorology, Volume 2015) and, quite contrary to public opinion (hardly acceptable scientific method), the temperature of the Earth has not risen in any statistically significant way in over a decade (Fig. 1).

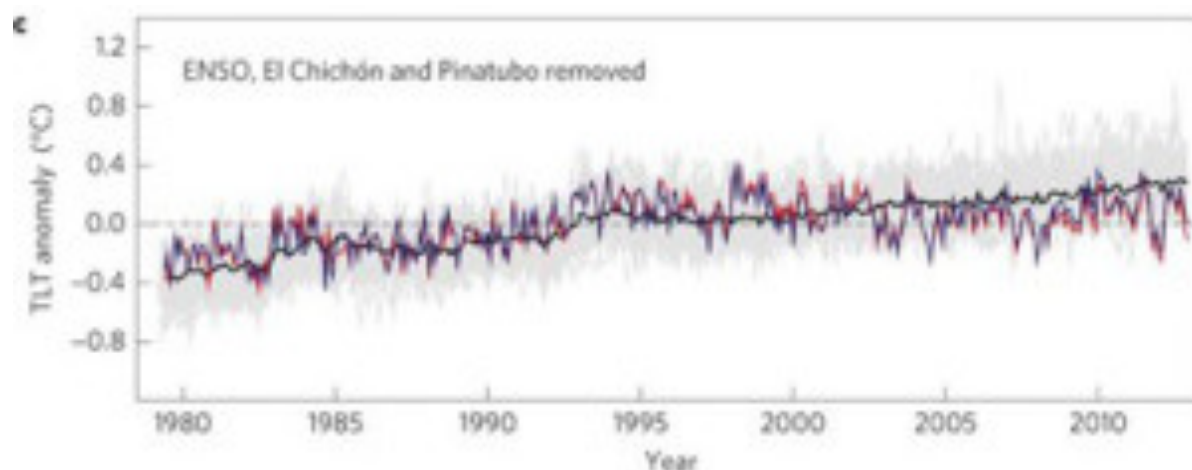


Fig. 1. Mean global temperature 1980-2015.

Even [this Ben Santer study](#) shows no significant warming trend for the two decades since 1995, as shown by this graph.

In the past, when this sort of bias had been allowed to creep into our lives we persecuted Galileo, condemned Darwin, and fell into the basest of errors by embracing the tenets of Eugenics! Science is defined as the free exchange of ideas, theories and hypotheses. We should not be silencing voices that question the validity of computer models based on numerous assumptions of the natural world. Have we become prescient? Are we now so good at modeling that we can predict with perfect accuracy what will happen on our Earth in ten, twenty, or fifty years in the future? I think not!

In fact, we can't say with perfect certainty if it will be fine or rainy in the next few days. If we can't get simple local weather conditions right using computer models, how can we hope to accurately predict the Earth's temperature 50 or 100 years from now?

Politics and Science are poor bedfellows at best. It is time we stopped doing Science by Consensus and returned to the time-honored process of collecting data, discussing our findings with peers, and eventually proving or disproving our hypotheses and theories. Computers are extremely useful tools in our quest for knowledge of our world but they are only tools, not crystal balls!

Science and Geoethics hand by hand

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Independent Committee on Geoethics, <https://geoethic.com/>

The Independent Committee on Geoethics (ICG) was founded in 2015 in order to “*promote ethical principles in the Earth and planetary sciences and their correct reflection in social and political life*” (Mörner, 2015a).



We will speak up and “use the sword of truth” when scientific facts, observational evidence and physical laws are being set aside, and when geoethical principles are violated.

The IPCC project – A card house of models

An idea is just an idea, and must be backed up by facts to become meaningful. A model is just a model, and must be checked and verified against observational facts. Einstein spelled it out very well: “*A model or hypothesis cannot ‘prove’ anything. But data can invalidate a hypothesis or model*” (as addressed in Mörner, 2015b).

What is the IPCC project, but a card house of models?

What is science but the manifestation of physical laws and true observational facts?

From a military perversity to a UN way of action (*modus operandi*)

An old and utterly perverse order in the Swedish army said: *If nature does not agree with the map, it is the map that applies*. We all held it as a most stupid and illogical regulation.

Now the IPCC and their proponents have elevated the same type of regulation to a common UN intergovernmental decision (COP21): because

- when temperature models do not agree with observations, it is the models that they claim to represent true future changes, and
- when sea level modelling does not agree with field observations, it is the models that they claim to represent true trends into the future.

All this is, of course, deeply unscientific and a case for speaking up and use the sword of truth. As a matter of fact it is directly un-understandable how scientific bodies and academies can go along with these illusions. We simply are in urgent need of *A New Dawn of Truth* in climate science and related questions (a core issue in geoethics).

If there were “A Hall of Shame”

If there were a *Hall of Shame in Global Climatology and Related Sciences*, the Independent Committee on Geoethics would have liked to nominate a number of highly qualified persons and organizations for such a position.

Let me just take one example; Professor James Hansen, one of the true leaders of the IPCC scenario of a CO₂-driven global warming. He is “a wild exaggerator” (to say the least) in view of his firm statements about future changes in temperature and sea level that totally ignore available observational facts. This is illustrated by two figures; one from Solheim et al, 2015 (their Fig. 3) and one from Mörner, 2011 (his Fig. 7).

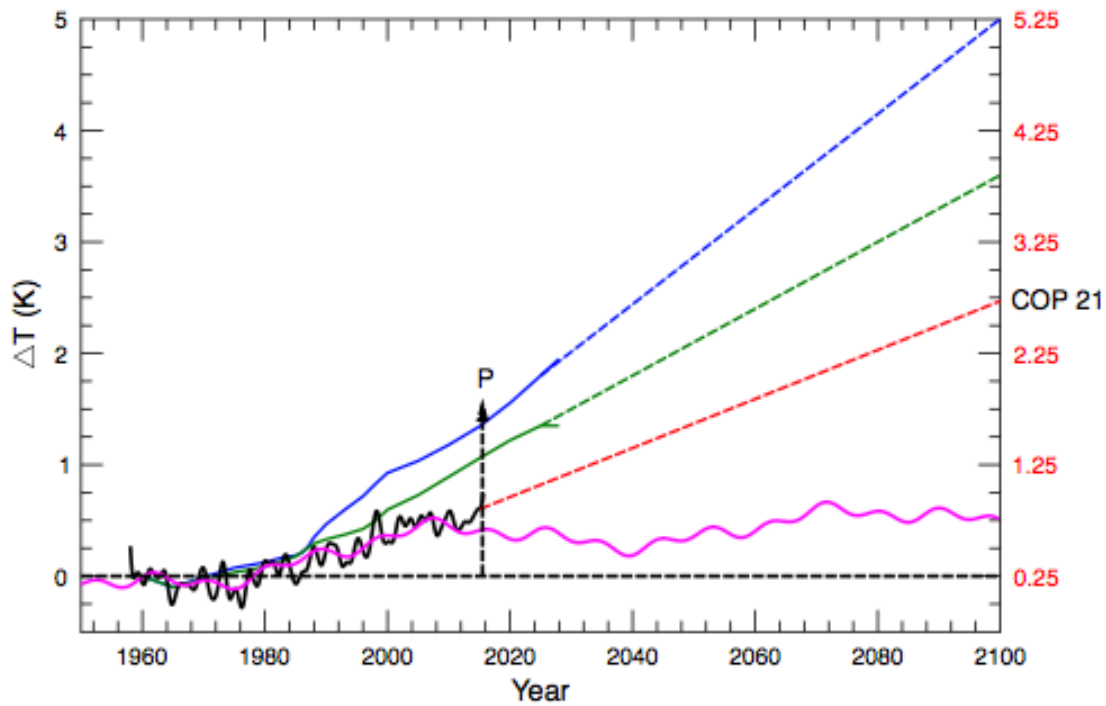


Figure 3. Extrapolation of the Hansen et al. scenarios A (blue) and B (green) until the year 2100, compared with the COP 21 goal of 2.7 K increase (red). Estimated temperature increases since 1750 is shown as the red scale on the right. HadCRUT4 observations (black) are shown with extrapolations based on a simple model with a trend and periodic variations (magenta). (from Solheim et al., 2015). See also Fig. 1 on p. 82.

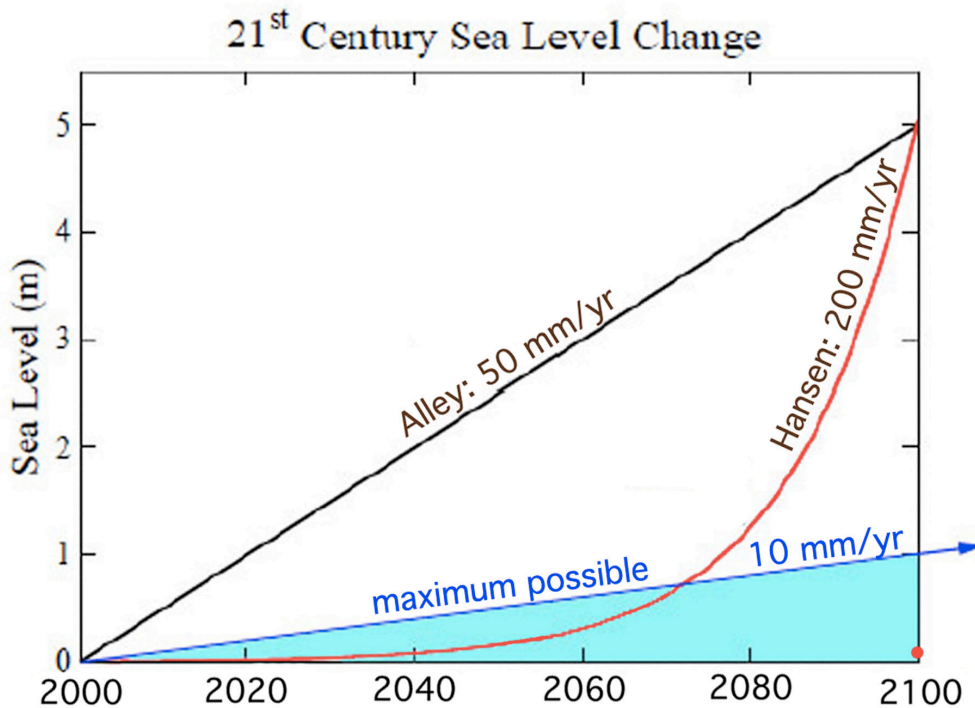


Figure 7. The sea level changes within this century according to Hansen and Sato (2011). A rise to +5 m by year 2100 is totally out of the question. The maximum possible rise allowed for from geology and physics is 10 mm yr⁻¹ (or 1 m cy⁻¹) as given in Fig. 5 of Mörner (2011). The probable change by 2100 is marked by a red dot. The claim by Hansen and Sato is sheer disinformation without any relation to present-day knowledge in the science of sea level change. (from Mörner, 2011).

“Hot air” and “The Greatest Lie Ever Told”

Michael Crichton (2005) stated: “After 3 years of painstaking research, I came to the chocking conclusion: Global Warming is hot air”. Mörner (2007) addressed the IPCC issue with special reference to sea level changes in a booklet termed “The Greatest Lie Ever Told”.

“Hot air” and “The Greatest Lie Ever Told” seem quite relevant judgements of “the card house” of the IPCC.

The step from science to misguiding models and unfounded conclusions

In Science, an idea has to be tested against observational facts, accumulated scientific knowledge and physical laws. If it does not pass this test, it has to be abandoned (or at least set aside for the time being). This is also the means by which a hypothesis will be elevated to a theory or dismissed as unfounded.

In the IPCC project, things proceed quite differently, however. The step of testing is omitted. Weird, extreme and even directly wrong data are allowed to be included in the models and scenario only because they seem to back up the story wanted; a CO₂ driven global warming with disastrous effects.

Let me give one example. Professor Schellnhuber, Director and founder of *Potsdam Institute for Climate Impact Research*, gave a lecture in Stockholm on “the nonlinearity of climate change”. He began by lining up basic physical laws and mathematical equations – all this was perfectly fine and correct. Then came the second step, the application of facts from measurements and field observations. Here entered very strange data – “weird, extreme and even directly wrong” (on the expense of firm data collected and controlled by true subject-specialists) – and, of course, the out-put data becomes not only wrong and incorrect, but also directly misleading.

There is a whole line of IPCC proponents (like Hansen, Rahmstorf, Levermann, Horton, and lots of others) producing these extreme values that corrupt science but provide a false image of glorifying the IPCC scenario. Therefore, Schellshuber and colleagues could arrive at a so utterly wrong and unfounded idea as the one in Ganopolski et al. (2016).

Unfortunately, this is typical the entire *modus operandi* of the IPCC project, and its promotion up to the COP21 agreement (Mörner, 2015c) – and so things become twisted:

- CO₂ becomes a global warming driver, instead of solar variability
- Global temperature is claimed to rise by several degrees in opposition to observations
- Sea level is claimed to rise disastrous in total opposition to observations and physics

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An additional note on actions of the “*Thermageddon Cult*”

On p. 5, I reviewed what happened with our original booking of the Pearson lecture-room at UCL. It was cancelled after a very “strange” (to say the least) letter by Jonathan Butterworth, head of Physics & Astronomy at UCL. In 2014, a similar action took place.

In 2013, we published a *Special Issue of Pattern Recognition in Physics* (Mörner, Tattersall and Solheim, 2013) on “Pattern in solar variability, their planetary origin and terrestrial impacts”. In the concluding chapter: “General conclusions regarding the planetary-solar-terrestrial interaction”, 19 eminent scientists joined in stating: “*Obviously, we are on our way into a new grand solar minimum. This sheds serious doubts on the issue of a continual, even accelerated, warming as proposed by the IPCC project*”.

The last sentence was enough; The Thermageddon Cult struck, and the publisher Martin Rasmussen of Copernicus closed down the whole scientific journal (on January 17, 2014). “By this decision, we were suddenly thrown back in the evolution of humanism and culture to the stage of inquisition and book-burning” (p. xiv and 124 in the Nova book).

Out of this dreadful action came the 2015 Nova book as given below.

Planetary Influence on the Sun and the Earth, and a Modern Book-Burning

Nils-Axel Mörner (Editor), Nova Science Publishers, 2015

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Evidence-Based Climate Science

A Commentary Note by the Editor and Don Easterbrook

This conference is strongly centred on observational facts, physical laws and accumulated scientific knowledge. This is also the central theme of Easterbrook's two books entitled "Evidence-Based Climate Change" (1st ed. in 2011, 2nd ed. in 2016).

In 2011, Elsevier published the First Edition by Don Easterbrook; a 15 chapter book on 400 pages. The Preface by Easterbrook paints the picture very cleverly. Below follows a few selected paragraphs of deep relevance to our conference, too.

The climate changes that the Earth has experienced in the past several decades have led to an intense interest in their causes, with contentions by the IPCC (Intergovernmental Panel on Climate Change) that catastrophic global warming and sea level rise due to increased atmospheric CO₂ will occur by the end of the century or before. However, many scientists point to data strongly suggesting that climate changes are a result of natural cycles, which have been occurring for thousands of years. Unfortunately, many non-scientist activists and the news media have entered the debate and the arguments have taken on political aspects with little or no scientific basis.

So what is the physical evidence for the cause of global warming and cooling? This is what his book was about and this is what conference is about. Easterbrook summarizes:

Because of the absence of physical evidence that CO₂ causes global warming, the only argument for CO₂ as the cause of warming rests entirely in computer modelling. This is precisely what we demonstrate at this conference in paper after paper.

Wisely, Easterbrook concludes: ***Time and nature will be the final judge of the cause of global warming.***

The Second Edition – as a matter of fact a whole new book – is just printed and exhibited at the conference. Originally, it was intended that Easterbrook should hold a book release party with us at the conference.

The Publisher writes: *Elsevier has just published the 2nd edition of "Evidence-based Climate Science" with all new papers written by some of the world's most prestigious scientists. The book covers the major issues of the global warming debate, focusing on the most recent scientific data.*

This book adds excellent material to our conference. Buy it and become enlightened.



by **Professor Don Easterbrook** (Bellingham, USA) 2016

Easterbrook's new book, at display at the conference, includes 21 chapters in 9 themes:

Climate perspectives

Climate Perspectives: D.J. Easterbrook

Temperature measurement

A Critical Look at Surface Temperature Records: J. D'Aleo

Is the NASA Surface Temperature Record an Accurate Representative?: T. Heller

In the Climate Debate, Hear Both Sides: C. Monckton

Southeast Australian Maximum Temperature Trends, 1887-2013: An Evidence Based Reappraisal. J. Marohasy & J. Abbot

Extreme weather events

Weather Extremes: J. D'Aleo and Madjav

Polar ice

Evidence That Antarctica is Cooling, Not Warming: D.J. Easterbrook

Temperature Fluctuations in Greenland and the Arctic: D.J. Easterbrook

Carbon dioxide

Greenhouse Gases: D.J. Easterbrook

Is CO2 Mitigation Cost Effect?: C. Monckton

Oceans

Relationship of Multidecadal Global Temperatures to Multidecadal Oceanic Oscillations:
J. D'Aleo & D.J. Easterbrook

Sea Level Changes as Observed in Nature: N.A. Mörner

Ocean Acidification Alarmism in Perspective: P. Moore

Solar influence on climate

Cause of Global Climate Changes: Correlation of Global Temperature, Sunspots, Solar Irradiance, Cosmic Rays, and Radiocarbon and Beryllium Production Rates: D.J. Easterbrook

Solar Changes and the Climate: J. D'Aleo

The Sun's Role in Climate: S. Luning.

The Little Ice Age Has Started: H.I. Abdjussamatov

Aspects of Solar Variability and Response: D. Archibald

The Notch-Delay Solar Hypothesis: D. Evans

Climate models

Correcting Problems With the Conventional Basic Calculation of Climate Sensitivity:
D. Evans

Climate predictions

Using Patterns of Recurring Climate Cycles to Predict Future Climate Changes: D. J. Easterbrook

after Brexit – CLEXIT

Costly, unscientific climate treaties should be torn up

A new international organisation aims to prevent ratification of the costly and dangerous Paris global warming accord, which is being promoted heavily by the EU and the US Obama administration. “CLEXIT” (CLimate Exit) was inspired by the Brexit decision of the British people to withdraw from the increasingly dictatorial EU bureaucracy.

An international committee has been formed to guide and support the campaign. The founding leaders are Christopher Monckton (UK), Marc Marano (USA) and Viv Forbes (Australia).

The CLEXIT (Climate Exit) Campaign aims to prevent ratification or local enforcement of the UN climate treaty. Nations do not need UN and EU bureaucrats manipulating science in order to justify their dreams to redistribute wealth and revert to the central planning that enslaved and impoverished the old communist economies.

This vicious and relentless war on carbon dioxide will be seen by future generations as the most misguided mass delusion that the world has ever seen.

Carbon dioxide is NOT a dangerous pollutant – it is a natural, non-toxic and beneficial gas which feeds all life on earth. Its increasing concentration is improving the environment not harming it.

Carbon dioxide is also an insignificant player in global warming – it was unable to prevent the big ice ages or the Little Ice Age, and there was no human industry to create the Medieval Warming. Man-made carbon dioxide did not cause the heat waves of the 1930’s or the fears of global cooling in the 1970’s. It plays no part in creating our short-term weather. It does not drive ocean currents, El Nino, the Milankovitch cycles, the sun spot cycles or the eras of volcanism. In the big climate picture, carbon dioxide hardly registers, except in discredited UN/IPCC computer models.

The world must abandon this suicidal Global Warming crusade. Man does not and cannot control the climate. Climate and weather are always changing. It would be far better to spend some of the billions spent on the climate crusade to ensure that our infrastructure can cope with whatever weather extremes do occur; or tackle some real problems such as terrorism and displaced people, urban pollution or weather-proof infrastructure.

The EU is a driving force promoting green energy, environmental extremism, world carbon taxes and global control by unelected bureaucrats. BREXIT was Britain’s answer to the growing EU over-reach. If the UN/EU persists in this climate mania, the rest of the world must support “CLEXIT”.

Further information from
Viv Forbes: forbes@carbon-sense.com

www.clexit.net

<http://clexit.net/wp-content/uploads/2016/07/clexit.pdf>

<http://clexit.net/wp-content/uploads/2016/07/clexit-members.pdf>

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New Dawn of Truth

the London Conference, September 8-9, 2016
on Climate Change: Science & Geoethics.

The Conference Volume:

Extended Abstracts & Commentary Notes

N.-A. Mörrner, Editor, *ResearchGate*, August 2016