FRIENDS OF SCIENCE SOCIETY
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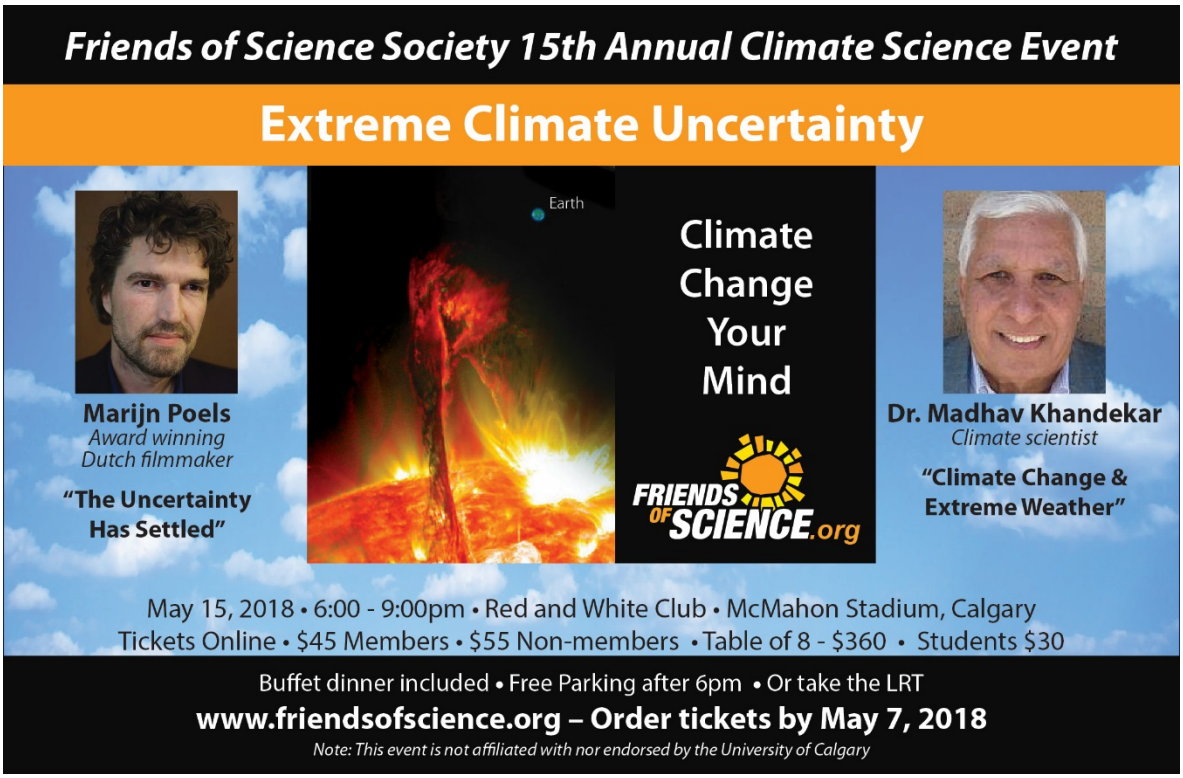
March 2018

FOS MEMBERSHIP QUARTERLY NEWSLETTER

No. 57

"FoS is dedicated to providing the public with insight into Climate Science"

SAVE THE DATE – May 15th!



Click HERE or on this ad to order your tickets today!

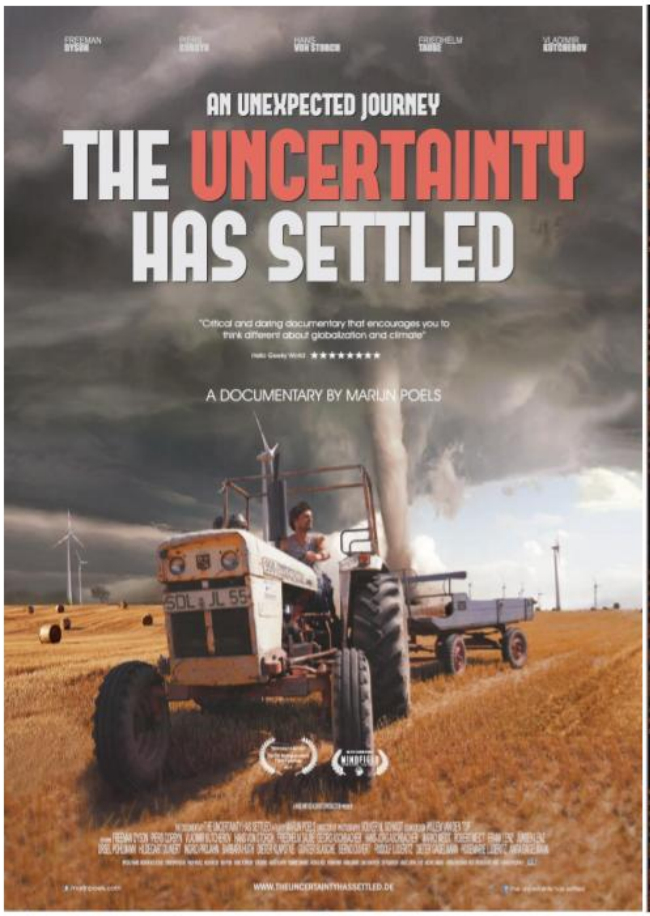
Corporate Sponsorship for Spring Event – May 15th! You can help.

Our annual event coming up on May 15th at the Red and White Club in Calgary from 6 – 9pm costs us more than we make - we have always used it as a platform to share our scientific and economic policy messages with the public. Corporate sponsorship can help us to break even. Our big expenses are the facility rental, catering, speaker costs and advertising.

We have 3 levels of Sponsorship this year.

- Bronze sponsors at $2500 receive tickets for 2 guests.
- Silver sponsors at $5000 receive tickets for 8 guests (1 table).
- Gold sponsors at $10,000 receive tickets for 16 guests (2 tables).
- All levels get sponsorship recognition at the event and in the program. Smaller donations are gratefully accepted.

Please contact us at 1-888-789-9597 Ext 2 or email at contact@friendsofscience.org for more information. Thank you for your continued support.



NEW Event!

Friends of Science is pleased to announce public screenings of the award-winning film - ***"The Uncertainty Has Settled."***

Dutch filmmaker Marjin Poels will be on hand for Q and A after the screening.

ONE NIGHT ONLY IN EACH CITY - Tickets $10 online or at the door

CALGARY:
Globe Cinema
May 14, 2018 7pm
617 8 Ave SW, Calgary
T2P 1H1

Tickets:
https://uncertainty-has-settled.eventbrite.ca

EDMONTON:
Garneau Theatre
(courtesy Metro Cinema)
May 17, 2018 7pm
South end of High Level Bridge:
8712 109 ST NW
Edmonton, AB T6G 1E9

Tickets:
www.metrocinema.org -coming soon

For more info: www.friendsofscience.org

Click HERE to order tickets to the Calgary film showing

PRESIDENT'S MESSAGE

I have participated in three ski trips since December with my seniors ski club, the most recent to Marmot at Jasper. Contrary to the prediction of March 20, 2000 by Dr David Viner, a senior research scientist at the UK's Climatic Research Unit, who said within a few years winter snowfall will become "a very rare and exciting event. Children just aren't going to know what snow is."; I can report excellent snow depths and conditions on our ski hills. Don't trust climate predictions from self-proclaimed experts!

Despite all the international ballyhoo about the Paris Agreement, global CO_2 emissions have increased by 1.4 percent in 2017 to a record-setting 32.5 gigatonnes, according to a report by the International Energy Agency (IEA). Emissions rose because the world economy grew 3.7 percent last year, while global energy demand increased by 2.1 percent. The world's largest emissions decline was in the U.S. where emissions fell by 0.5% (25 $MtCO_2$), the third consecutive decline, but European Union emissions grew 1.5 percent last year (50 $MtCO_2$).

In March, Friends of Science Society ran a small billboard campaign in Edmonton to welcome the IPCC Cities Conference. We were pleased that Outfront Media could find us a spot on Jasper Avenue, right between the event location at the Shaw Conference Center and the Westin Hotel (where many conference attendees stayed). That billboard said "Science is about inquiry, not compliance." It caught the eye of Dr. Katharine Hayhoe who took a selfie with it while attending the conference. She later came to Calgary as part of a parallel City of Calgary Climate Symposium where, as guest lecturer at the University of Calgary, she mocked Friends of Science. Later that day, in an evening event at Telus SPARK, she and "Climate George" Marshall told attendees to abandon facts and evidence and argue how climate change has personally affected their lives to better convince family and friends to comply with the 'consensus' view. Watts Up with That covered the story: Dr. Katharine Hayhoe tries to scare Canadians with threats of warmer temperatures IPCC Chair Hoesung Lee was quoted in the Calgary Sun as saying that instead of putting up billboards, we should publish in peer-reviewed journals. As Canadian members of Friends of Science know,

Canada is presently having difficulty in getting pipelines built to get our oil products to market; interesting to note that Hoesung Lee is from the tiny country of the Republic of Korea/South Korea, which has almost no fossil fuels, is a higher emitter than vast, cold, Canada and imports all of its fossil fuels (excepting ~$1 billion in coal) from competitor nations to Canada. Friends of Science did a short rebuttal video to Lee's comments. Responding to Comments by IPCC Chair about our Edmonton Billboard Campaign

Friends of Science Society also had a "geofence" set up in a 12km radius of the IPCC event which featured a 'pop-up' ad on anyone's cell phone in that region when they opened an app. The message said "Climate - Change your Mind" and linked to our bilingual, plain language website and twitter feeds: Join the Debate! @joignezledebat and @cc101_

Our blog has been very active with 15 blog posts so far this year! Andrew Bonvicini presents a long-term perspective on climate change. Robert Lyman examines the false claim that renewables will soon replace fossil fuels. Michelle Stirling in Climate of Unaccountability discusses the role of ENGOs pushing a "green agenda" on governments, the IPCC Cities 2018 Conference in Edmonton and the Calgary Climate Symposium. Our Facebook page continues to feature many interesting climate stories. Please share these blog and Facebook posts with politicians, the news media and friends. We have issued 10 press releases and posted 14 videos on our YouTube channel so far this year.

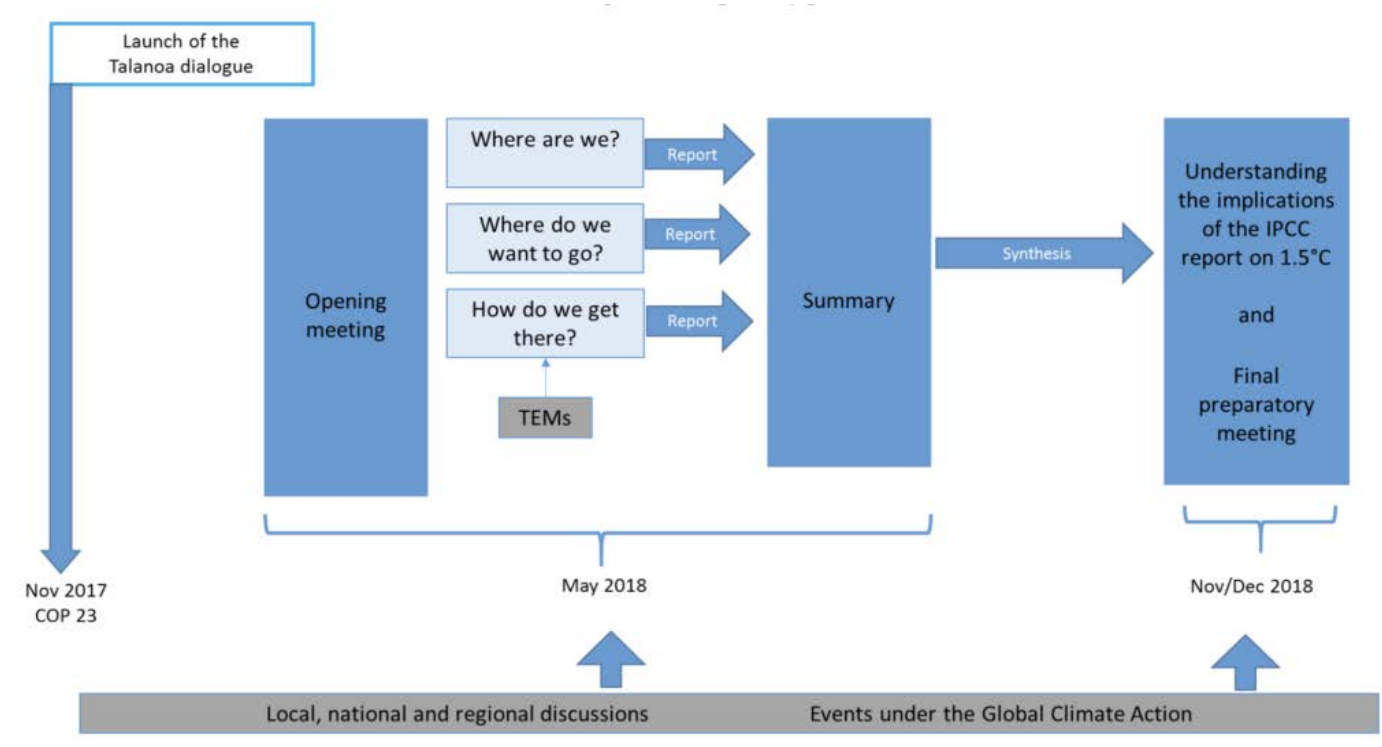
I am pleased to announce that the Friends of Science Society present our fifteen annual climate science and policy event at the Red and White Club, McMahon Stadium, Calgary on May 15, featuring Dr. Madhav Khandekar, a climate scientist specializing in monsoons and extreme weather, and Marijn Poels, director of the new film "The Uncertainty Has Settled". We will be showing the film in Calgary on May 14 and in Edmonton on May 17. Mark your calendars!

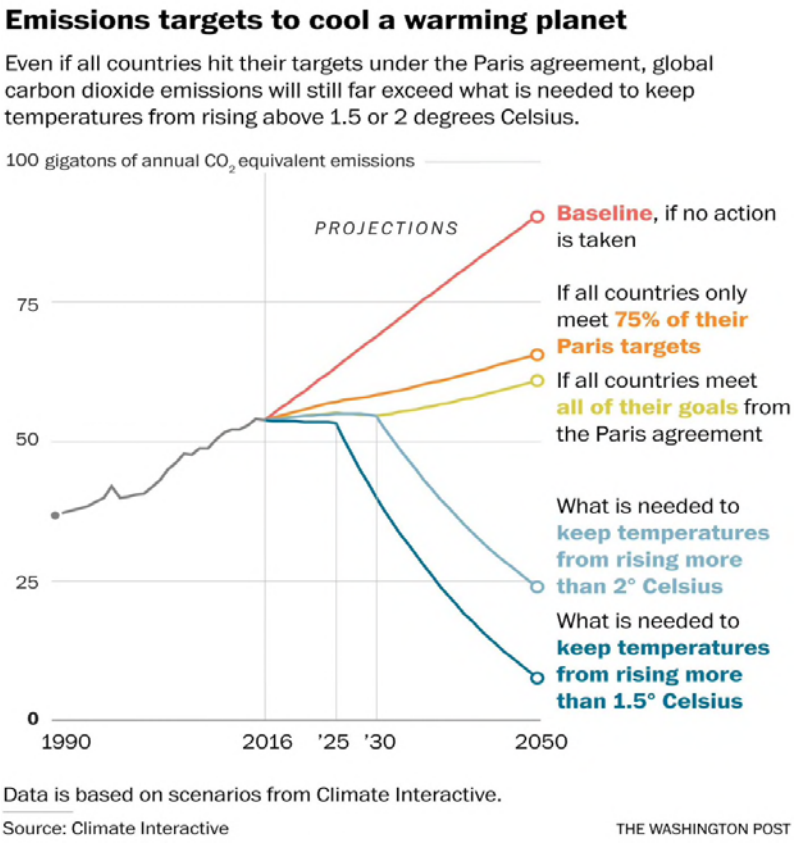
Ken Gregory
President, Friends of Science

POLITICAL DEVELOPMENTS

Paris Agreement Already Falling Short

The main goal of the 2015 Paris Agreement (Article 2) is: "Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change …" Also at COP 21 in Paris the IPCC was "invited" to prepare a special report on the impacts of warming to 1.5°C. This report, known by the acronym SR15, is to be released in September 2018 so that it can form part of the Talanoa Dialog (a process of inclusive, participatory and transparent dialog to build empathy and make wise decisions for the common good, with no finger-pointing or laying blame.) The figure below shows the process taking place this year.





The hope is that, by COP 24 next December in Katowice, Poland, the dialog will impress upon world leaders how much global emissions have to be cut so that they will ramp up their countries' promises ("enhanced ambition" in UN-speak) for the next round of pledging under the Paris Agreement in 2020. The figure opposite, taken from a *Washington Post* article, shows what the climate modellers think is needed to achieve the 1.5°C and 2°C goals, compared to what was pledged in the Paris Agreement.

Alas, as the *WaPo* article points out, world leaders are already falling short of the modest promises they made in Paris. Global emissions of CO_2 are rising after remaining flat for several years. The US, having announced its withdrawal from the agreement and after three years of declining emissions, will see them rise 1.8% this year. Brazil struggles to rein in deforestation. Countries with growing economies, like Turkey and Indonesia, are planning new coal plants. Even Germany, with a goal of cutting emissions by 40% below 1990 levels by 2030, saw them rise in 2015 and 2016. The EU as a whole, with the same 2030 goal, is on track to fall well short (30%-32%, compared to 40%).

As part of the effort leading up to COP 24 the UN Environment Program, issued its 2017 emissions gap report and found that a large number of G20 countries would require further steps to meet their Paris pledges. Some findings:

- Chapter 2 deals with pre-2020 pledges by G20 countries made in Cancun (COP 16 in 2010). Five countries (Canada, Mexico, Republic of Korea, South Africa and the US) are likely to require further action and/or purchase offsets in order to meet their pledges (p. 8). Indeed, Canada's 2020 emissions are expected to reach 732 $MtCO_2e$/year, compared to a pledge of 620 $MtCO_2e$/year.
- Chapter 3 examines the emissions gap for 2030 and its implications. Canada committed to achieve 523 $MtCO_2e$/year by 2030, but emissions are projected to reach 742 $MtCO_2e$/year instead, this according to a Canadian government submission last year (p. 24). But Canada has company: Argentina, Australia, Indonesia, Mexico, Republic of Korea, Saudi Arabia, South Africa and Turkey are projected to fall short, too.
- The UN is counting on commitments and actions by subnational and non-state actors, even if parties to the Paris Agreement, such as the US, withdraw (pp. 25-26).
- Avoiding building new coal-fired power plants and phasing out existing ones is crucial to closing the emissions gap (p. xxi) but lifetime emissions from coal power are forecasted to increase by 74% (331.97/190.44-1.0, see p. 40, Table 5-1), due to construction of new plants.

It will be interesting at to see how the desperate reports urging immediate action and the empathy-building Talanoa Dialog will clash with hard political reality next December. Likely, the *WaPo* will be able to write another finger-pointing tale of failed effort to "hold off the most devastating effects of climate change."

Ian Cameron
Director, Friends of Science

SCIENCE NEWS

A Geological Perspective of the Greenland Ice Sheet

Greenland's ice cap has been extensively studied to determine the extent that human caused climate change will cause melting of the ice cap and contribute to sea level rise. David Middleton wrote an informative article on WUWT giving his geological perspective on the Greenland ice sheet (GrIS). The article quotes a NASA statement that says observation from the "Gravity Recovery and Climate Experiment (GRACE) satellites indicates that between 2002 and 2016, Greenland shed approximately 280 gigatons of ice per year, causing global sea level to rise by 0.8 mm per year." The Skeptical Science website compares the Empire State Building to a gigatonne of ice. But Greenland is huge, and Middleton wonders why the ice melt volume is compared to man-made objects rather than the ice sheet itself. The volume of the GrIS ice melt since 1900 is estimated at only 0.42%. A graph of GrIS volume based on an ice sheet model shows that "the GrIS may have actually been smaller than it currently is from 35 ka to 15 ka." The volume increases from 2.8 million km^3 at 18,000 BC to 3.2 million km^3 BC, then decreased to about 3.0 million km^3 today. Ice-penetrating radar shows that most of the ice was deposited since the end of the last ice age. A reconstruction of elevations of two ice core sites in the central portion of the GrIS show that these sites have lost only 2.7% and 3.9% of their elevation since 12,000 years ago. The IPCC's fifth assessment report estimates that the GrIS (including its glaciers) contribute 0.33 mm/yr to sea level rise from 1993 to 2010, which is 10% of the observed 3.2 mm/yr sea level rise. Assuming a climate sensitivity of 1.0°C for a doubling of CO_2, the FUND integrated assessment model estimates sea level rise will reduce global wealth by only 0.013%.

Implications of a Grand Solar Minimum for the Ozone Layer and Climate

A study published this month used a chemistry-climate model to investigate the impact of a 21st century grand solar minimum on atmospheric chemistry, primarily the ozone, and climate. The model study used the greenhouse gas emissions scenario RCP4.5, which assumes CO_2 levels will increase from 400 ppm in 2015 to 538 ppm in 2100. The model suggests the decrease solar activity by 6.5 W/m2 would cause a doubling of the GHG-induced stratospheric cooling. Tropospheric temperatures are projected to decrease compared to the reference case of repetition of solar cycle 23. This study did not include any effect of increased cosmic rays on cloud cover. On a global basis, the study found that reduced solar radiation offsets up to 15% of the expected GHG warming by 2100, and 25% by 2200. The regional effects, particularly in the northern high latitude winter, are expected to be significantly greater than the global average. In the stratosphere, the 15% reduction in ultraviolet radiation leads to a decrease in ozone production by up to 8%.

Twenty-One Bad Things About Wind Energy — and Three Reasons Why

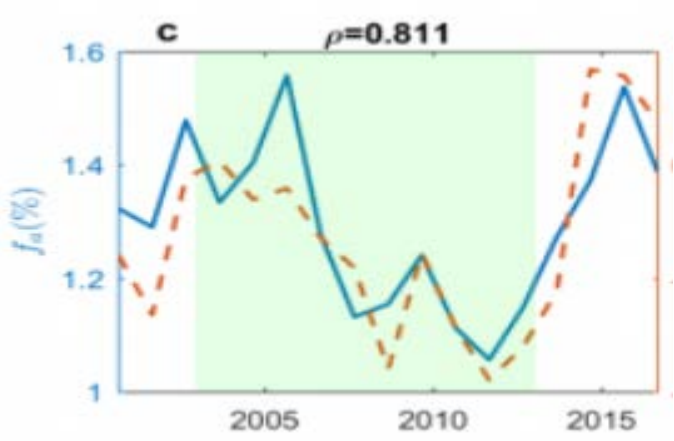
Dr. John Droz, Jr. published an article on MasterResource that discusses 21 bad things about wind energy. He writes "Wind energy was abandoned for most commercial and industrial applications, well over a hundred years ago." Wind energy by itself cannot provide reliable energy. Wind lobbyists made the case that adding wind turbines to the grid would significantly reduce CO_2 emissions from fossil fuel electrical sources to help avoid a climate catastrophe. However, the wind industry provided no evidence that wind energy reduces CO_2 emissions. Energy experts calculated that actual CO_2 saving were miniscule (if any) and in the case of Ontario, wind energy causes an increase in CO_2 emissions. The wind industry claims that wind is low cost, but this ignores large subsidies, costs imposed on other generators that are forced to offset the wind variability, and transmission costs. Additional costs are required to deal with performance factors such as voltage transients, voltage variations and frequency variations. When all costs are included, wind energy is much more expensive than conventional sources. Wind energy can function on the grid only by having it continuously augmented by a fast responding power source, usually natural gas. The generator of a wind turbine uses about 2000 pounds of rear earth elements per MW. The mining and processing of these metals has horrific environmental consequences. Studies by medical professionals have concluded that nearby citizens will experience adverse health effects from infrasound, which is more problematic than audible sound. The turbines cause numerous bird and bat deaths. Bat deaths and changes to local weather due to wind farms can reduce agricultural income.

John Droz, Jr. writes "Again, our modern society is based on abundant, reliable, affordable electric power. All these specious claims for wind energy are simply part of a long line of snake oil sales spiels – intended to

fool the public, and to enable politicians to justify favouring special interests by enriching various rent-seekers (which will then return the favour *via* campaign contributions and other re-election support)."

Cooling Cloud Cycle Caused Global Warming Hiatus

A study by Princeton University scientists has confirm that the daily cloud cycle is strongly linked to the Pacific Decadal Oscillation (PDO) and that its decadal variation had an cooling effect, which partly or largely caused the climate hiatus from 2002 to 2014. The PDO is a recurring pattern of sea surface temperature variability over the mid-latitude Pacific Ocean. The PDO index is strongly linked to Earth's mean surface temperature.



Comparison of global cloud daily amplitude (solid line) to the PDO index (dashed line). The correlation coefficient is 0.811. The shaded area divides the early 21st century into pre/mid/post-hiatus periods.

Enhanced ocean heat uptake is regarded as a major cause of the hiatus, but NOAA ocean heat data to a depth of 2000 m shown no increase in ocean heat uptake during the hiatus period. Variations in the daily cycle of clouds (DCC) have the potential to affect the Earth's energy balance and contribute to the climate variability. The figure on the right shows a high correlation between global cloud daily amplitude and the PDO index. The authors used satellite observations from two satellite systems for long-term cloud trend analysis. Daytime clouds reflect solar radiation and cool the Earth while night-time clouds absorb and re-emit longwave radiation and warm the Earth. The night-time cloud fraction was found to decrease during the mid-hiatus period, partially cancelling the greenhouse effect, causing cooling. The amplitude combines the effects of daytime and night-time clouds. The paper concludes "The daily cycle of cloud fraction with the pacific decadal oscillation may play a strong role in adjusting the Earth's energy budget and global mean surface temperature."

Ken Gregory
President, Friends of Science

VICE PRESIDENT'S CORNER

Should we expect a warming or a cooling?

What have temperatures done in the past? What is the Holocene? How reasonable are the IPCC's warming predictions? For answers to these questions I refer you to my blog post:

Interglacial, or not interglacial? That is the question.

Spoiler alert, we might be wearing furs more than swimsuits.

Andrew Bonvicini, P.Geoph.

Vice President, Friends of Science

FUNDRAISING COMMITTEE: MEMBERSHIPS AND DONATIONS

In our last newsletter we introduced our Operational funds fuel gauge to quickly describe where we stand. As you can see we have about five months of funding.

We do have the funds to plan our popular annual spring speaker event. The event is not a fund raiser and traditionally we run it at breakeven so that everyone has the opportunity to hear our speakers. With this in mind

it is critical for us to find sponsors so that the event does not cut into our operational funds. To all of you that donated in past we thank you for your generous support. We still need your ongoing support to refill the coffers.

As you are all aware we function purely from your donations. We do not represent any industry or political party. We are a Society that was started in 2002 to provide climate science and policy insights to the public and policy-makers. Our founders saw climate science as a complex, interdisciplinary issue that was being reduced to a mantra of carbon dioxide and carbon taxes – and that real problems related to environment and climate change were being ignored. Real, destructive implications of these policies were lost in the rhetoric of 'saving the planet' – while devastating the people and the economy. We are a small group primarily of volunteers that works with an operational budget that is a fraction of the governments' or NGO budgets that disseminate the fear mongering of human induced climate change. We are committed to maintaining free delivery of our information to the public.

Please remember that to maintain our spokesperson Michelle and our contracted administration and sub-contracted services through all of next year we will need more donations. Every dollar counts towards keeping us focused on the task of bringing you the latest climate information. Battling deep pocketed misinformation machines that misuse science to create faulty public policy does not happen without spending.

So as we are not fully funded for 2018 we appeal to you to please continue to make donations to Friends of Science. Share our materials by email, tweet, Facebook or any way you can. We can be a voice for your climate change issues – and we thank all of you who have given us tips on the misinformation they see in the marketplace. We have made aggressive outreach efforts with short, current commentaries on video, through our blogs and billboards.

This debate matters, you are making a difference.

You can also help us expand our pool of members and donors. If every person brought us five new people, it would make a huge difference to our ability to get out the message. Do you have a local Chamber of Commerce or service club? Invite one of our speakers or ask for one of our presentations and present it yourself (or perhaps do your own version if you feel up to it).

For us to make sure our voice is heard, we will need much more support - personal, financial, and through your networks of friends and colleagues. Thank you for your continued support.

Contributions can be made at friendsofscience.org by clicking on "Become a Member/DONATE" in the upper right of the home page. The PayPal donation link will allow you to pay with your credit card even if you do not have a PayPal account. If you prefer, you may phone us at 1-888-789-9597 Ext 2 to pay by credit card. Alternately, you can mail donations to Friends of Science at the following address:

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