

The Week That Was: 2019-04-20 (April 20, 2019)
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The Science and Environmental Policy Project

Quote of the Week: *“I do not feel obliged to believe that the same God who has endowed us with sense, reason and intellect has intended us to forgo their use.”* – Galileo

Number of the Week: 4,300 premature deaths annually in the United States from maize (corn)

THIS WEEK:

By Ken Haapala, President, Science and Environmental Policy Project (SEPP)

Clash of Ideas: The Great Barrier Reef is a cultural icon for Australia. The world’s largest coral reef system stretches over 2300 km (1400 mi) and is home to a great diversity of sea life. Academics and scientific organizations have claimed that the reef is dying from global warming / climate change and ocean acidification (lowering of pH).

Physics professor Peter Ridd of James Cook University challenged much of the dramatic pictorial evidence as misleading, claiming the living reef recovers from such stresses. The reef has experienced warmer and colder periods than today, and coral grows faster in warmer areas such as Papua New Guinea. Life is resilient. The University dismissed him unceremoniously. Ridd sued for unlawful termination of employment using crowd sourcing to raise the necessary funds. On April 16, the Federal Circuit Court of Australia in Brisbane found completely in favor of Ridd, though it is not clear if he will get his job back.

What is remarkable is the reasoning by the court, particularly on the concept of intellectual freedom. The Australian magazine Quadrant posted this reasoning but without a link, and it is reproduced below from the finding (paragraphs 6 through 11).

“The Concept of Intellectual Freedom

“Intellectual freedom is also known as academic freedom. It is a concept that underpins universities and institutions devoted to higher learning. Obviously, such institutions must have administrators that care for the governance and proper direction of the institution. However, the mission of these institutions must undoubtedly be the search for knowledge which leads to a quest for truth. In reality, intellectual freedom is the cornerstone of this core mission of all institutions of higher learning.

“This is so because it allows ideas to conflict with each other; to battle and test each other. It is within this “battle” that the strengths and weaknesses of ideas are found out. In this process, there comes “learning”. And with learning comes discovery.

“At its core, intellectual freedom mandates that academics should express their opinions openly and honestly, while inviting scrutiny and debate about those ideas. Unless opinions are expressed in this way, the growth and expression of ideas will be stifled, and new realms of thinking will

cease to be explored. That will lead to intellectual and social stagnation and a uniformity of thought which is an anathema to the concept of higher learning and social progress.

“Intellectual freedom allows academics to challenge the status quo and encourage critical analysis. History tells of many people who did so.

“During the last 160 years, arguably the two most prominent scientists/academics to challenge the status quo have been Charles Darwin and Albert Einstein. The ideas brought forth by both of these men were extremely controversial and offended several of their academic peers as well as many others in the greater society. That is how it should be and without intellectual freedom, the world would have been denied the benefit of ground-breaking thought and intellectual risk taking of the sort that encourages innovation and other scholastic enquiries.

“There is great power in intellectual freedom. But with great power there must also come great responsibility. There must, at times, be some degree of restraint so that there is no descent into anarchy. That is a fine balance and one that has challenged legal thinkers both past and present. And that, in turn, is why there is often an uneasy tension between those responsible for the administration of an institution of higher learning and those responsible for promulgating the ideas that give the institution their raison d’etre.

Clearly, Judge Vasta finds that consensus, groupthink, leads to intellectual stagnation and the clash of ideas is necessary for science to advance. As Jo Nova points out, James Cook University tried to suppress the work of the late professor Robert Carter, an editor of the reports by the Nongovernmental International Panel on Climate Change (NIPCC). See links under Censorship and Suppressing Scientific Inquiry.

Corals Adjusting pH: Last week’s TWTW discussed a review of recent research actually measuring the biologic process of corals adjusting pH to promote calcification, growing their shells. The study was published in January, but TWTW saw no mention of it until it was reviewed by Craig Idso of CO2 Science. Corals evolved over 500 million years ago, when the concentration of CO2 was many times that of today. At various times concentrations may have been over 2000 parts per million (ppm) compared to 400 ppm today. Yet corals continued with calcification, leaving great deposits of carbonate materials in limestone and chalk, such as the White Cliffs of Dover.

The Great Barrier Reef Marine Park Authority may need to change its view that the greatest threat to the reef is climate change, causing coral bleaching. The link to the full paper on corals adjusting pH in sea water in Science Advances is found under "Challenging the Orthodoxy"; and see the link on questionable reports from the “Australian Research Council for Excellence for Coral Reef Studies" under "Below Bottom Line."

Testing – Black Hole Image: The creation of an image of a black hole outline from data was an exacting effort. Last week’s TWTW carried an essay by Ray Jayawardhana, astrophysicist and dean of arts and sciences at Cornell, on how exciting it was:

“The transformation of the black hole from a mathematical oddity, emerging from Einstein’s theory of general relativity, to an observable fixture of the cosmos is a testament to humanity’s collective intellectual prowess, relentless curiosity and dogged perseverance.”

An article by Sam Walker, a former reporter, in the Wall Street Journal describes what an exacting process it was trying to develop algorithms, the processes for calculations, to mathematically describe the data from eight different telescopes from Chile to Hawaii and convert them to an image, a shadow of the black hole. The team eventually grew to 200 scientists who repeatedly tested different concepts.

Several important characteristics of the successful team emerge: the willingness to sacrifice personal issues to the team effort; the willingness to argue and constantly test concepts; and the desire to eliminate human bias and group think. The account is similar to accounts of the Apollo science team and their willingness to argue over what is the best way to land man on the moon and safely return him to earth. See Article # 1.

The Greenhouse Effect – Criticism: Physicist Donald Rapp took exception to a statement in last week's TWTW: *“The fear of CO2 is built on long-term forecasts / projections / predictions from global climate models that cannot describe what is occurring in the atmosphere today, where the greenhouse effect occurs.”* Rapp is the author of a variety of books on the subject of climate change including the soon to be released 3rd edition of “Ice Ages and Interglacials: Measurements, Interpretation, and Models.” Rapp wrote TWTW:

“Not true!

“The fear of CO2 is based on the knowledge of the basic physics of IR [Infrared Radiation] transfer through the atmosphere, the measurements at the top of the atmosphere that show the earth is out of balance with more energy coming in than going out, the observation that over hundreds of millions of years, at least some of the extensive global climate changes of the past can be attributed to changes in CO2, and the simple observation that the rate of global warming over the past 140 years exceeds anything we could possibly expect from “natural” causes. The fact that global climate models lack numerical credibility, mostly because they cannot account for future changes in clouds and other factors as the earth warms, does not mean they are totally worthless as to the direction of future change. Don't throw the baby out with the bathwater.

“The fact that the specifics of future climate change are uncertain and the putative impacts of any level of climate change on human life (e.g. sea level, storms, floods, drought...) are even more difficult to predict, does not mean that we know nothing at all. A problem for climate change is that it is slowly evolving, and therefore it requires a very long-term point of view, which is contrary to most people's ability to think. But the biggest problem is that neither side (alarmists and deniers) seem to be able to live with, and work within uncertainty. Both sides are sure they are right, with rigid assertions and pronouncements of things that are highly uncertain, and in many cases, likely not to be true.

“The climate is changing. CO2 is one of several important factors in that change. There is uncertainty as to how far these changes will propagate if we continue to add CO2 to the atmosphere, but the direction is clear. There is also uncertainty as to the impacts on human life, but the evidence is that the negatives outweigh the positives. The more the world can shift to renewable energy, the safer we will be. But this requires world cooperation, especially from China, and the small efforts made by the State of California are an effort in futility as long as China is allowed to run amok.”

He later added:

“However, the measurements at the TOA [Top of the Atmosphere] involve subtracting one large number from another. Estimating the earth’s imbalance is very inaccurate.”

Largely, TWTW agrees with Rapp, especially the need to measure the energy flow from the earth through the atmosphere to space, yielding the extent greenhouse gases interfere with the heat transfer process. IR cannot be measured from the surface. It must be done from space. We now have the ability to measure it. As importantly, we are measuring the actual temperature trends in the bulk atmosphere. We do not need to be handicapped by models based on assumptions made 40 years ago when this ability to measure did not exist.

Imagine the earth as a perfectly conducting body that has an absorptivity of 70% and an emissivity of 100%. It absorbs exactly as much light from the sun and emits exactly as much IR to outer space as does the earth itself. To the point, it absorbs exactly as much energy as it emits, as does the earth!!! Yet the temperature of the earth’s surface is 288 K (15 °C), while that of the hypothetical body would be 255 K (–33 °C). The rise or fall of the earth’s lower-tropospheric temperature is only vaguely related (if at all) to any imbalance in the absorbed-vs-emitted radiation. It all has to do with the heat-transfer processes in the atmosphere and, to some, extent the oceans.

Changes in the albedo of the earth, reflection of solar rays, can affect how much solar radiation is absorbed, and changes in evaporation, CO₂ concentration, emissivity, and all sorts of terrestrial things can affect how much heat is retained, but the imbalance in radiation is quite ephemeral, temporary. A long-term imbalance could easily lead to temperatures of either infinity or absolute zero. The temporary imbalance, which is difficult to measure, positive or negative, is not as important as understanding what is occurring in the atmosphere.

Unfortunately, according to reports, climate modelers preparing for the next assessment report of the Intergovernmental Panel on Climate Change (IPCC AR6, due 2021) are being requested to make the sensitivities of surface temperatures to a doubling of carbon dioxide even greater than they do now. The modelers have been asked to raise “equilibrium climate sensitivity” for a doubling of CO₂, now between 2°C and 4.5°C, to 5°C (9F) or warmer. As John Christy and his team have shown repeatedly, already US climate models greatly overestimate the warming of the atmosphere – more of a bad estimate is a good estimate? Accepting this political demand is science?

If agencies of the US government such as NASA, especially NASA-GISS and NOAA’s Geophysical Fluid Dynamics Laboratory (GFDL), were truly interested in calculating the greenhouse effect and how the greenhouse effect is changing with increasing atmospheric carbon dioxide, they would be focusing on refining measurements of what is occurring in the atmosphere, and not using outdated surface temperature data, which are a poor proxy for what occurs in the atmosphere. They certainly would not obey political demands from the IPCC. If the agencies follow the political “science guidelines” of the IPCC, these agencies no longer deserve the protection they have been given by politicians. See links under Models v. Observations.

A Glimmer of Hope? Cliff Mass, who is not a “climate denier” as if there is such a thing, writes on the efforts being made by NOAA to upgrade their standard weather model. Such upgrades are much needed. Based on the data Mass gives of the global skill of the 5-day forecasts, the US models trail behind the European Center, UKMET, and Canada. Unfortunately, NOAA’s latest

version was released too early, it has bugs, and there are too few people who actually understand the model. Fortunately, a few key administrators appear to understand the problems and are working to solve them.

The problem raises a broader issue, why are glorified weather models, which cannot forecast beyond 14 days, being used to calculate the greenhouse effect? Why are these calculations used to make projections over hundreds years? Though crude now, direct measurement of the greenhouse effect can be refined. See link under Change in US Administrations.

An Actual Debate: SEPP board member Craig Idso of CO2 Science was tasked with debating Jeffrey Bennett, who has a Ph.D. in Astrophysical, Planetary, and Atmospheric Sciences from the University of Colorado and has extensive publications, including NASA publications. According to Francis Menton, “The official resolution for the debate was Resolved: *There is little or no rigorous evidence that rising concentrations of carbon dioxide are causing dangerous global warming and threatening life on the planet.*”

It is refreshing that such a constructive debate is taking place. See link under Seeking a Common Ground.

Absurdity: The absurdity of using wind and solar for base-load electricity in Germany is exposed by German journalist Holger Douglas, translated by GWPF.

“The guaranteed output of PV is nevertheless 0%; for onshore wind it is only 1% and for offshore wind it’s 2%. In plain language, the 120 GW of renewables that we have built up over the last 15 years make almost no contribution to the secured output. We will never build a secure power supply with wind and PV alone. Ten years ago, we had around 100 GW of power from secure energy sources at our disposal – coal, gas, nuclear, biomass and hydroelectric plants.”

These forms of electricity generation cannot be relied upon to supply heat in the winter or refrigerate food in the summer. When timely electricity is needed, they have little value regardless of price. Using gas turbines to back-up these forms of generation is as efficient as driving an auto in stop-and-go traffic. Under current policies, in five years Germany will be experiencing significant problems. See links under Problems in the Orthodoxy.

SEPP’S APRIL FOOLS AWARD THE JACKSON

SEPP is conducting its annual vote for the recipient of the coveted trophy, The Jackson, a lump of coal. Readers are asked to nominate and vote for who they think is most deserving, following these criteria:

- The nominee has advanced, or proposes to advance, significant expansion of governmental power, regulation, or control over the public or significant sections of the general economy.
- The nominee does so by declaring such measures are necessary to protect public health, welfare, or the environment.
- The nominee declares that physical science supports such measures.
- The physical science supporting the measures is flimsy at best, and possibly non-existent.

The seven past recipients, Lisa Jackson, Barrack Obama, John Kerry, Ernest Moniz, John Holdren, Gena McCarthy and Jerry Brown are not eligible. Generally, the committee that makes the selection prefers a candidate with a national or international presence. The voting will close on June 30. Please send your nominee and a brief reason why the person is qualified for the honor to Ken@SEPP.org. Thank you.

Number of the Week: 4,300 premature deaths annually in the United States from maize (corn). Ridiculous studies using EPA's standards for statistics have been all too common – such as dental caries in infants from second-hand smoke. Now comes an estimate of 4,300 premature deaths annually in the US from increased fine particulate matter (PM2.5) from increased emissions of ammonia from increased use of nitrogen fertilizer. Where are the bodies? See links under Agriculture Issues & Fear of Famine.

NEWS YOU CAN USE:

Censorship

Victory for Peter Ridd & Academic Freedom: 'Sacking Ruled Unlawful'

By Staff Writers, The Australian, Via GWPF, Apr 16, 2019

<https://www.thegwpf.com/victory-for-peter-ridd-scientific-freedom-sacking-unlawful/>

“The Court rules that the 17 findings made by the University, the two speech directions, the five confidentiality directions, the no satire direction, the censure and the final censure given by the University and the termination of employment of Professor Ridd by the University were all unlawful,” Judge Vasta said.”

Peter Ridd has defeated the Climate Inquisition thanks to you

By Jennifer Marohasy, Spectator, Australia, Apr 16, 2019

<https://www.spectator.com.au/2019/04/peter-ridd-has-defeated-the-climate-inquisition-thanks-to-you/>

Justice! Prof Peter Ridd wins on all counts against James Cook Uni

By Jo Nova, Her Blog, Apr 16, 2019

<http://joannenova.com.au/2019/04/peter-ridd-wins-on-all-counts-against-james-cook-uni/>

“UPDATE: In reply, the Provost of James Cook Uni says Ridd was never gagged or silenced, nor sacked for his scientific views. Which would be great if it were so. But there's a pattern here — how many skeptical scientists do they employ? Is that zero? We all know they went to great lengths to blackball, evict, and practically erase skeptical Prof Bob Carter too.”

Suppressing Scientific Inquiry

Ridd v James Cook University [2019] FCCA 997 (16 April 2019)

Federal Circuit Court of Australia, Brisbane, Apr 16, 2019 [H/t Quadrant]

http://www.austlii.edu.au/cgi-bin/viewdoc/au/cases/cth/FCCA/2019/997.html?context=1;query=ridd;mask_path=au/cases/cth/FCCA+au/cases/cth/FMCA+au/cases/cth/FMCAfam

Challenging the Orthodoxy -- NIPCC

Climate Change Reconsidered II: Physical Science

Idso, Carter, and Singer, Lead Authors/Editors, 2013

<https://www.heartland.org/media-library/pdfs/CCR-II/CCR-II-Full.pdf>

Summary: <http://www.nipccreport.org/reports/ccr2a/pdf/Summary-for-Policymakers.pdf>

Climate Change Reconsidered II: Biological Impacts

Idso, Idso, Carter, and Singer, Lead Authors/Editors, 2014

<http://climatechangereconsidered.org/climate-change-reconsidered-ii-biological-impacts/>

Summary: <https://www.heartland.org/media-library/pdfs/CCR-IIb/Summary-for-Policymakers.pdf>

Climate Change Reconsidered II: Fossil Fuels

By Multiple Authors, Bezdek, Idso, Legates, and Singer eds., Nongovernmental International Panel on Climate Change, April 2019

<http://store.heartland.org/shop/ccr-ii-fossil-fuels/>

Why Scientists Disagree About Global Warming

The NIPCC Report on the Scientific Consensus

By Craig D. Idso, Robert M. Carter, and S. Fred Singer, NIPCC, Nov 23, 2015

<http://climatechangereconsidered.org/>

Download with no charge

<https://www.heartland.org/policy-documents/why-scientists-disagree-about-global-warming>

Nature, Not Human Activity, Rules the Climate

S. Fred Singer, Editor, NIPCC, 2008

http://www.sepp.org/publications/nipcc_final.pdf

Challenging the Orthodoxy

Hijacking Successful Walrus Conservation

By Jim Steele, Landscapes and Cycles, Accessed Apr 19, 2019 [H/t Paul Homewood]

<http://landscapesandcycles.net/hijacking-successful-walrus-conservation.html>

“A beach packed with walruses is evidence of better conservation, not global warming doom.”

40-Year Meteorologist Says Public “Being Fed Bill Of Goods” By Climate Alarmists On Hurricanes, Tornadoes

By P Gosselin, No Tricks Zone, Apr 14, 2019

<https://notrickszone.com/2019/04/14/40-year-meteorologist-says-public-being-fed-bill-of-goods-by-climate-alarmists-concerning-hurricanes-tornadoes/>

Climate Change and the Ten Warning Signs for Cults

By Will, Medium, Feb 23, 2019 [H/t GWPF]

<https://medium.com/@hwater84/climate-change-and-the-ten-warning-signs-for-cults-56c181db82c1>

Dr. Patrick Speaks Out on Environmental Extremism

By Patrick Moore, Ecosense, The Sensible Environmentalist, Dec 30, 2012 [H/t ICECAP]

<http://ecosense.me/2012/12/30/key-environmental-issues-4/>

Full in vivo characterization of carbonate chemistry at the site of calcification in corals

By Duygu S. Sevilgen, et al. Science Advances, Jan 16, 2019

<https://advances.sciencemag.org/content/5/1/eaau7447.full>

Defending the Orthodoxy

NYC passes sweeping climate bill likened to 'Green New Deal'

By Miranda Green, The Hill, Apr 18, 2019

<https://thehill.com/policy/energy-environment/439602-new-york-city-passes-own-green-new-deal>

“In a 45-2 vote, the city legislature passed the Climate Mobilization Act, which aims to enact the largest carbon reduction measures of any city globally.”

Questioning the Orthodoxy

Leading German Meteorologist Tells Audience “Dangerous” To Declare Climate Debate Ended...Too Much Uncertainty

By P Gosselin, No Tricks Zone, Apr 13, 2019

<https://notrickszone.com/2019/04/13/leading-german-meteorologist-tells-audience-dangerous-to-declare-climate-debate-ended-too-much-uncertainty/>

Questioning Global Warming

By Todd Royal, American Thinker, Apr 13, 2019

https://www.americanthinker.com/articles/2019/04/questioning_global_warming.html

Beyond atmospheric angst

By Anthony J. Sadar, Washington Times, Apr 15, 2019

<https://www.washingtontimes.com/news/2019/apr/15/how-the-climate-change-climate-is-warming/>

Massie vs Kerry: a tense exchange on the climate

By Luboš Motl, The Reference Frame, Apr 15, 2019

<https://motls.blogspot.com/2019/04/massie-vs-kerry-tense-exchange-on.html>

“As you can see, a serious discussion between the rational people like [Rep.] Massie and the likes of John Kerry isn't really possible. Massie talks about things that are relevant, from an impartial perspective, he always analyzes arguments, what is their purpose, whether they're not cherry-picked, whether there aren't more important things that you should actually start with if you analyze a certain broader question generally.”

CO2's Influence Was 0.006 W/m² Per Decade During The Last Deglaciation. And This Melted Ice Sheets How?

By Kenneth Richard, No Tricks Zone, Apr 18, 2019

<https://notrickszone.com/2019/04/18/co2s-influence-was-0-006-wm%C2%B2-per-decade-during-the-last-deglaciation-and-this-melted-ice-sheets-how/>

Bogus Greenpeace claim that lost Russian polar bear is evidence of climate change

By Susan Crockford, Polar Bear Science, Apr 18, 2019

<https://polarbearscience.com/2019/04/18/bogus-greenpeace-claim-that-lost-russian-polar-bear-is-evidence-of-climate-change/>

After Paris!

Trump IS right to try to end the WAR ON COAL

By Jay Lehr & Tom Harris, The Australian Climate Sceptics Blog, Apr 17, 2019

<http://theclimatescepticsparty.blogspot.com/2019/04/trump-is-right-to-try-to-end-war-on-coal.html>

Change in US Administrations

U.S. Numerical Weather Prediction: Darkest Before the Dawn?

By Cliff Mass, Weather and Climate Blog, Apr 17, 2019

<https://cliffmass.blogspot.com/search?updated-max=2019-04-19T21:48:00-07:00&max-results=1>

[SEPP Comment: The text contains a typo: “To illustrate the problems, here are the latest comparative statistics (anomaly correlations!) for the global skill of the 5-day forecast at 500 hPa (about 18,000 ft up) for a variety of models. 1 represents a perfect forecast. The best forecast is the European Center (average of .915), next is the UKMET office (the British folks with a .897), third is the Canadians (CMC, ~~.773~~ .873), and FOURTH is the U.S. GFS (.869).”]

Social Benefits of Carbon Dioxide

Burn oil so we can eat more chocolate

The fake scare of the season — “climate change is impacting chocolate production”.

By Jo Nova, Her Blog, Apr 20, 2019

<http://joannenova.com.au/2019/04/burn-oil-so-we-can-eat-more-chocolate/>

Problems in the Orthodoxy

No More Electricity for Germany

By Holger Douglas, Tichys Einblick, Via GWPF, Apr 19, 2019

<https://www.thegwpf.com/no-more-electricity-for-germany/>

Seeking a Common Ground

The Soho Forum Global Warming Debate, And The Impact Of Scientific Arguments

By Francis Menton, Manhattan Contrarian, Apr 17, 2019

<https://www.manhattancontrarian.com/blog/2019-4-16-the-soho-forum-global-warming-debate-and-the-impact-of-scientific-arguments>

“At its most fundamental, the scientific method is just an exercise in rigorous logic.”

[SEPP Comment: *Rigorous logic supported by hard evidence – from observations.*]

What Will It Take To End Anti-Greenhouse Gas Insanity?

By Francis Menton, Manhattan Contrarian, Apr 15, 2019

<https://www.manhattancontrarian.com/blog/2019-4-15-what-will-it-take-to-end-anti-greenhouse-gas-insanity>

“Extremely weak or completely negative empirical evidence for the hypothesis only made the advocates more and more extreme in their demands for immediate transformation of the world economy to ‘save the planet.’”

Review of Recent Scientific Articles by CO2 Science

The Absolute Resilience of French Polynesian Reefs to Environmental Disturbances

Vercelloni, J., Kayal, M., Chancerelle, Y. and Planes, S. 2019. Exposure, vulnerability, and resiliency of French Polynesian coral reefs to environmental disturbances. *Scientific Reports* 9: 1027, doi:10.1038/s41598-018-38228-5. Apr 19, 2019

<http://www.co2science.org/articles/V22/apr/a12.php>

Responses of Two Red Macroalgae to Ocean Acidification

van der Loos, L.M., Schmid, M., Leal, P.P., McGraw, C.M., Britton, D., Revill, A.T., Virtue, P., Nichols, P.D. and Hurd, C.L. 2019. Responses of macroalgae to CO2 enrichment cannot be inferred solely from their inorganic carbon uptake strategy. *Ecology and Evolution* 9: 125-140. Apr 18, 2019

<http://www.co2science.org/articles/V22/apr/a11.php>

Projecting Future Rice Yields in the Mekong River Delta

Kontgis, C., Schneider, A., Ozdogan, M., Kucharik, C., Tri, V.P.D., Duc, N.H. and Schatz, J. 2019. Climate change impacts on rice productivity in the Mekong River Delta. *Applied Geography* 102: 71-83. Apr 17, 2019

<http://www.co2science.org/articles/V22/apr/a10.php>

Interactive Effects of CO₂, Salinity and Water Level on the Growth of a Coastal Halophyte

Pérez-Romero, J.A., Duarte, B., Barcia-Piedras, J.-M., Matos, A.R., Redondo-Gómez, S., Cacador, I. and Mateos-Naranjo, E. 2019. Investigating the physiological mechanisms underlying *Salicornia ramosissima* response to atmospheric CO₂ enrichment under coexistence of prolonged soil flooding and saline excess. *Plant Physiology and Biochemistry* 135: 149-159. April 16, 2019

<http://www.co2science.org/articles/V22/apr/a9.php>

Models v. Observations

Climate Modellers Waiting for Observations to Catch Up with Their Predictions

Guest essay by Eric Worrall, WUWT, Apr 20, 2019

<https://wattsupwiththat.com/2019/04/20/climate-modellers-waiting-for-observations-to-catch-up-with-their-predictions/>

Link to article: New climate models predict a warming surge

By Paul Voosen, Science, Apr 16, 2019

<https://www.sciencemag.org/news/2019/04/new-climate-models-predict-warming-surge>

“It’s maddening, because it feels like writing a sci-fi story as the first-order draft.”

[SEPP Comment: *Adjusting for fantasy? Similar to the dramatic rise in sea levels that Jim Hansen predicts will occur at the end of the century?*]

Changing Weather

Predictability limit: Scientists find bounds of weather forecasting – it’s 2 weeks

By Anthony Watts, WUWT, Apr 16, 2019

<https://wattsupwiththat.com/2019/04/16/predictability-limit-scientists-find-bounds-of-weather-forecasting/>

Link to paper: What Is the Predictability Limit of Midlatitude Weather?

By Fuqing Zhang and Y. Qiang Sun, AMS, Apr 10, 2019

<https://journals.ametsoc.org/doi/10.1175/JAS-D-18-0269.1>

NoHype Weather -April Snowstorms: The Rule, Not the Exception

By Chris Martz, WUWT, Apr 16, 2019

<https://wattsupwiththat.com/2019/04/16/nohype-weather-april-snowstorms-the-rule-not-the-exception/>

Changing Climate – Cultures & Civilizations

Native American Wisdom on Polar bears and Kappiananngittuq:

By Jim Steele, WUWT, Apr 19, 2019

<https://wattsupwiththat.com/2019/04/19/native-american-wisdom-and-kappiananngittuq/>

Changing Seas

Scientists Discover Evidence of Long “Ocean Memory”

Measurements from a 19th century scientific expedition have revealed that the deep Pacific waters are cooling from lower global temperatures centuries ago.

By Jenessa Duncombe, EOS, Feb 7, 2019 [H/t Climate Etc.]

<https://eos.org/articles/scientists-discover-evidence-of-long-ocean-memory>

[SEPP Comment: “Ocean Memory” is a poor term for recognizing that deep oceans change slowly.]

Changing Cryosphere – Land / Sea Ice

Subglacial Water Can Accelerate East Antarctic Glacier Flow

Airborne radar from the Recovery Glacier system demonstrates the importance of characterizing the underlying causes of ice flow speedup to understand how glacial discharge could change in the future.

By Terri Cook, EOS, Apr 3, 2019 [H/t Climate Etc.]

<https://eos.org/research-spotlights/subglacial-water-can-accelerate-east-antarctic-glacier-flow>

Link to paper: Patchy Lakes and Topographic Origin for Fast Flow in the Recovery Glacier System, East Antarctica

By Anja Diez, et al. Journal of Geophysical Research: Earth Surface, Jan 18, 2019

<https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2018JF004799>

Backward and forward drift trajectories of sea ice in the northwestern Arctic Ocean in response to changing atmospheric circulation

By Ruibo Lei, et al. International Journal of Climatology, Mar 28, 2019 [H/t Climate Etc.]

<https://rmets.onlinelibrary.wiley.com/doi/full/10.1002/joc.6080>

Fat polar bears causing trouble onshore in Labrador plus sightings in Newfoundland

By Susan Crockford, Polar Bear Science, Apr 17, 2019

<https://polarbearscience.com/2019/04/17/fat-polar-bears-causing-trouble-onshore-in-labrador-plus-sightings-in-newfoundland/>

“And I tell you, he wasn’t a very nice bear,” she said.”

Interruption of two decades of Jakobshavn Isbrae acceleration and thinning as regional ocean cools

By Ala Khazendar, et al. Nature Geoscience, Mar 25, 2019 [H/t Climate Etc]

<https://www.nature.com/articles/s41561-019-0329-3>

“Jakobshavn Isbrae has been the single largest source of mass loss from the Greenland Ice Sheet over the last 20 years.”

We now know how insects and bacteria control ice

By Staff Writers, Salt Lake City UT (SPX), Apr 16, 2019

http://www.terraily.com/reports/We_now_know_how_insects_and_bacteria_control_ice_999.html

Link to paper: How Do Size and Aggregation of Ice-binding Proteins Control their Ice Nucleation Efficiency

By Yuqing Qiu, Arpa Hudait, and Valeria Molinero, Journal of the American Chemical Society, Apr 12, 2019

<https://pubs.acs.org/doi/10.1021/jacs.9b01854>

From the abstract: “Organisms that thrive at cold temperatures produce ice-binding proteins to manage the nucleation and growth of ice.”

[SEPP Comment: “Control ice” is a poor choice of words, influence ice formation would be better.]

Driving a wedge into historic gaps of climate science

By Staff Writers, Sapporo, Japan (SPX), Apr 17, 2019

http://www.terraily.com/reports/Driving_a_wedge_into_historic_gaps_of_climate_science_999.html

Ion concentrations in ice wedges: An innovative approach to reconstruct past climate variability

By Yoshinori Iizuka, et al. Earth and Planetary Science Letters, June 1, 2019,

<https://www.sciencedirect.com/science/article/pii/S0012821X1930161X?via%3Dihub>

Changing Earth

New evidence suggests volcanoes caused biggest mass extinction ever

By Anthony Watts, WUWT, Apr 16, 2019

<https://wattsupwiththat.com/2019/04/16/new-evidence-suggests-volcanoes-caused-biggest-mass-extinction-ever/>

Link to paper: Evidence for a prolonged Permian–Triassic extinction interval from global marine mercury records

By Jun Shen, et al, Nature, Communications, Apr 5, 2019

<https://www.nature.com/articles/s41467-019-09620-0>

Earthquakes of the 20th Century

By Charles the moderator, WUWT, Apr 18, 2019

<https://wattsupwiththat.com/2019/04/18/earthquakes-of-the-20th-century/>

Ice Ages occur when tropical islands and continents collide

Collisions in tropics expose rocks that take up carbon dioxide, cooling normally balmy Earth

By Staff Writers, Science Daily, Apr 11, 2019

<https://www.sciencedaily.com/releases/2019/04/190411115221.htm>

Link to paper: Arc-continent collisions in the tropics set Earth's climate state

By Francis A. Macdonald, et al. Science, Apr 12, 2019

<https://science.sciencemag.org/content/364/6436/181>

Agriculture Issues & Fear of Famine

Air pollution from corn production might contribute to thousands of deaths each year

The effects of agricultural practices on human health shouldn't be overlooked.

By Alex Schwartz, Popular Science, Apr 4, 2019

<https://www.popsci.com/air-pollution-corn-production-premature-deaths?src=syn>

Link to paper: Air-quality-related health damages of maize

By Jason Hill, et al. Nature, Sustainability, Apr 1, 2019

<https://www.nature.com/articles/s41893-019-0261-y>

Lowering Standards

2019 Pulitzer Prize Goes to an Inaccurate Anti-Fracking Book

By Nicole Jacobs, Master Resource, Apr 18, 2019

<https://www.masterresource.org/fractionation-water-issues/2019-pulitzer-griswald/>

[SEPP Comment: Accusation is not hard evidence.]

Facebook finds truth by “Groupthink” — may the deepest pockets win the info war

By Jo Nova, Her Blog, Apr 18, 2019

<http://joannenova.com.au/2019/04/facebook-finds-truth-by-groupthink-may-the-deepest-pockets-win-the-info-war/>

Communicating Better to the Public – Exaggerate, or be Vague?

Lead kills 1st Yellowstone golden eagle fitted with tracker

First golden eagle in Yellowstone National Park to be fitted with a tracking device died of lead poisoning

By Mead Gruver, AP, Apr 15, 2019

<https://abcnews.go.com/US/wireStory/lead-kills-1st-yellowstone-golden-eagle-fitted-tracker-62415701>

[SEPP Comment: No mention of evidence of cause.]

Communicating Better to the Public – Make things up.

Netflix getting in ever deeper water over David Attenborough Walrus death documentary

By Andrew Montford, Reaction, Apr 18, 2019

<https://reaction.life/netflix-getting-ever-deeper-water-david-attenborough-walrus-death-documentary/>

Attenborough’s “Climate Change–The Facts

By Paul Homewood, Not a Lot of People Know That, Apr 19, 2019

<https://notalotofpeopleknowthat.wordpress.com/2019/04/19/attenboroughs-climate-change-the-facts/>

Climate Change- The Facts Part II

By Paul Homewood, Not a Lot of People Know That, Apr 19, 2019

<https://notalotofpeopleknowthat.wordpress.com/2019/04/19/climate-change-the-facts-part-ii/>

“In Part II, we look at the second half of the [Attenborough] programme, which concerns itself with predictions of the future and what we should all do about it.

“It starts with a rather pathetic section about how fossil fuel companies are subsidising “deniers”, which is apparently making politicians reluctant to do anything. Seriously?”

Did ‘Our Planet’ Lie to Viewers When It Claimed Climate Change Drove Walruses Off a Cliff?

By Michael Bastasch, Daily Caller, Apr 15, 2019

<https://dailycaller.com/2019/04/15/netflix-our-planet-walruses/>

Communicating Better to the Public – Use Propaganda

Scientists make unsettling new discovery about Earth's glaciers

By Chaffin Mitchell, AccuWeather staff writer, April 19, 2019

<https://www.accuweather.com/en/weather-news/scientists-make-unsettling-new-discovery-about-earths-glaciers/70008017>

[SEPP Comment posted in AccuWeather: “If you do the arithmetic, you’ll discover that the ice melt from the glaciers totals 2 inches per century. According to the paper, total ice melt will cause sea levels to rise about 7 to 8 inches per century. This is about the rate seas have been rising for the past several thousand years.”]

Expanding the Orthodoxy

Money Managers Colluding to Fix Markets

By Donn Dears, Power For USA, Apr 16, 2019

<https://ddears.com/2019/04/16/money-managers-colluding-to-fix-markets/>

Bank Of England Banging The Climate Change Drum Again!

By Paul Homewood, Not a Lot of People Know That, Apr 16, 2019

<https://notalotofpeopleknowthat.wordpress.com/2019/04/16/bank-of-england-banging-the-climate-change-drum-again/>

Questioning European Green

Finland: first elections co-decided by the climate hysteria

The fight against the panic may lift the Finns Party to 15-20 percent

By Luboš Motl, The Reference Frame, Apr 14, 2019

<https://motls.blogspot.com/2019/04/finland-first-elections-co-decided-by.html>

Climate Sceptics Now Second Largest Party in Finland

By Staff Writers, NYT, Via GWPF, Apr 15, 2019

<https://www.thegwpf.com/climate-sceptics-now-second-largest-party-in-finland/>

German Power Prices Set To Keep Skyrocketing In 2019 Due To 50 Billion Euros Annually In Grid And Feed-In Levies

By P Gosselin, No Tricks Zone, Apr 16, 2019

<https://notrickszone.com/2019/04/16/german-power-prices-set-to-keep-skyrocketing-in-2019-due-to-50-billion-euros-annually-in-grid-and-feed-in-levies/>

Questioning Green Elsewhere

Hypothesis: Radical Greens are the Great Killers of Our Age

By Allan M.R. MacRae, B.A.Sc., M.Eng., WUWT, Apr 14, 2019

<https://wattsupwiththat.com/2019/04/14/hypothesis-radical-greens-are-the-great-killers-of-our-age/>

An Age of Insanity When an Ex-Barmaid Has a National Voice.

By Tim Ball, His Blog, Apr 15, 2019

<https://drtimball.ca/2019/an-age-of-insanity-when-an-ex-barmaid-has-a-national-voice/>

Winning: Another Carbon Tax Defeat

Editorial, WSJ, Via GWPF, Apr 18, 2019

<https://www.thegwpf.com/winning-another-carbon-tax-defeat/>

Farm safety laws, carbon tax on the block as Alberta's UCP elected

By Jeremy Sims, The Western Producer, Apr 16, 2019

<https://www.producer.com/2019/04/farm-safety-laws-carbon-tax-on-the-block-as-alberta-upc-elected/>

Kenney wins landslide in Alberta against carbon tax: vows War Room against energy activists

By Jo Nova, Her Blog, Apr 19, 2019

<http://joannenova.com.au/2019/04/kenney-wins-landslide-in-alberta-against-carbon-tax-vows-war-room-against-energy-activists/#more-63714>

Funding Issues

The World Bank Must Change Course

By Bjørn Lomborg, Project Syndicate, Apr 11, 2019

<https://www.project-syndicate.org/commentary/world-bank-president-climate-change-poverty-by-bjorn-lomborg-2019-04>

“The World Bank does a lot of important and effective work, especially in health and education, but its climate policies are poorly considered. The Bank’s new president, David Malpass, should refocus the institution on its core mission of eradicating poverty – including the energy poverty that wrecks so many lives.”

Sanity and Humanity Return to the World Bank?

By Paul Driessen, Townhall, Apr 13, 2019

<https://townhall.com/columnists/pauldriessen/2019/04/13/sanity-and-humanity-return-to-the-world-bank-n2544709>

The World Bank's Misguided Green Energy Policies To Persist

By Tilak Doshi, Forbes, Apr 12, 2019

<https://www.forbes.com/sites/tilakdoshi/2019/04/12/the-world-banks-misguided-green-energy-policies-to-persist/#70b4fe1d50f1>

The Political Games Continue

Australia to pay \$25b to foreigners so we get better weather

By Jo Nova, Her Blog, Apr 18, 2019

<http://joannenova.com.au/2019/04/australia-to-pay-25b-to-foreigners-so-we-get-better-weather/>

Litigation Issues

Federal Court Vacates Parts of Obama EPA’s ELG Rule

By Sonal Patel, Power Mag, Apr 18, 2019

https://www.powermag.com/federal-court-vacates-parts-of-obama-epas-elg-rule/?mkt_tok=eyJpIjoiTkdhE5HUmpaakk1T1RVMiIsInQiOiJmb1ZVVUZ0bkJQQ0Q5amJ0XC8xanBncWg4QmVaZm00ZCtTSCtLzdzQkdvRytmTndzbTQzd0FyTjFTV2ZXcVwvMDdKMkRueGxoVWdLQnJob0tEM3JtR1JMRFDY2ZGN0VYSmpxdVwvdm10cFZLQ2IFS2VaTDRhb3I0NUpuZXRYXC8zamRLIn0%3D

Subsidies and Mandates Forever

Projected and Implied US Decarbonization Rates

By Roger Pielke Jr. His Blog, Apr 15, 2019

<https://rogerpielkejr.com/2019/04/15/projected-and-implied-us-decarbonization-rates/>

Matt Ridley: A Costly Temper Tantrum

By Matt Ridley, The Times, Apr 16, 2019

<https://www.thegwpf.com/matt-ridley-a-costly-temper-tantrum/>

EPA and other Regulators on the March

EPA official says agency may ban asbestos

By Rebecca Beitsch, The Hill, Apr 18, 2019

<https://thehill.com/policy/energy-environment/439611-epa-official-says-agency-may-still-ban-asbestos>

[SEPP Comment: Does the EPA know the difference in physical properties in different types of asbestos? Does it have studies based on physical evidence demonstrating adverse health effects from the type common in North America?]

Energy Issues – Australia

Solar Power hits the death spiral vertical rise in Australia

By Jo Nova, Her Blog, Apr 15, 2019

<http://joannenova.com.au/2019/04/solar-power-hits-the-death-spiral-vertical-rise-in-australia/>

Oil and Natural Gas – the Future or the Past?

Everything Has Changed, Part 4 - The Frac Sand Revolution

By Taylor Robinson, RBN Energy, Apr 16, 2019

<https://rbnenergy.com/everything-has-changed-part-4-the-frac-sand-revolution>

[SEPP Comment: Not sure if readers can open this.]

Alternative, Green (“Clean”) Solar and Wind

US Renewable Statistics: Real vs. Potential Output

By Stanislav Jakuba, Master Resource, Apr 16, 2019

<https://www.masterresource.org/renewable-energy/us-renewables-real-vs-potential-output/>

[SEPP Comment; Wind and solar are booming; hydro, wood waste & geothermal are not. How much wind and solar can we rely on to keep homes heated on cold, still winter nights? Will cloud computer centers generate their own electricity?]

Crete Is Home To 1000 Endangered Griffon Vultures. Wind Turbines Are Projected To Kill 84 Of Them Per Year.

By Kenneth Richard, No Tricks Zone, Apr 15, 2019

<https://notrickszone.com/2019/04/15/crete-is-home-to-1000-endangered-griffon-vultures-wind-turbines-are-projected-to-kill-84-of-them-per-year/>

Scandal: Windpark Company Uses Loudspeaker Of Barking Dogs To Chase Off Nesting Eagles Blocking Project

By P Gosselin, No Tricks Zone, Apr 17, 2019

<https://notrickszone.com/2019/04/17/scandal-windpark-company-uses-loudspeaker-of-barking-dogs-to-chase-off-nesting-eagles-blocking-project/>

Alternative, Green (“Clean”) Energy -- Storage

Challenging three battery investment ‘myths’

We challenge three ‘myths’ on battery load shifting, battery margin breakdowns and the current bankability of battery projects.

By Staff Writers, Timera Energy “provides senior consulting expertise on value and risk in European energy markets. We are experts in the analysis of flexible energy assets, contracts and portfolios and the markets in which they operate.” April 15, 2019 [H/t Paul Homewood]

<https://timera-energy.com/challenging-three-myths-on-battery-investment/>

[SEPP Comment: Myth one is the more significant.]

Alternative, Green (“Clean”) Vehicles

New German Study Shocks Electric Cars: “Considerably” Worse For Climate Than Diesel Cars, Up To 25% More CO2!

By P Gosselin, No Tricks Zone, Apr 19, 2019

<https://notrickszone.com/2019/04/19/new-german-study-shocks-electric-cars-considerably-worse-for-climate-than-diesel-cars-up-to-25-more-co2/>

Health, Energy, and Climate

We need to protect our health system from Climate-change-doctors

By Jo Nova, Her Blog, Apr 16, 2019

<http://joannenova.com.au/2019/04/we-need-to-protect-our-health-system-from-climate-change-doctors/>

Climate change bad: causes “longer growing seasons” but blamed for allergies

By Jo Nova, Her Blog, Apr 13, 2019

<http://joannenova.com.au/2019/04/climate-change-causes-longer-growing-seasons-but-is-blamed-for-allergies/>

Mice, Medical Research & the Media

By Donna Laframboise, Big Picture News, Apr 17, 2019

<https://nofrackingconsensus.com/2019/04/17/mice-medical-research-the-media/>

“Reporting pre-clinical research as something that’s directly relevant to people in the here and now is like pointing at a pile of two-by-fours and a bag of tenpenny nails and calling it a cottage.”

Oh Mann!

Ocasio-Cortez’s Climatology Lacks Historical Context

By Gregory Wrightstone, Townhall, Apr 12, 2019 [H/t A Reed Gibby]

<https://townhall.com/columnists/gregorywrightstone/2019/04/12/ocasiocortezs-climatology-lacks-historical-context-n2544630>

“Last year, while Scott Pruitt was still the administrator of the EPA, he posed the question of how anyone could know what the ideal temperature of the Earth should be. Well known climate scientist Dr. Michael Mann of Penn State responded to Pruitt’s question by stating that the ideal temperature would be that which pre-dated the burning of fossil fuels. That temperature would put us squarely in the middle of the Little Ice Age’s devastating cold and history tells us that it turned out quite poorly.”

Environmental Industry

Big Green, Inc.: The Money Fueling the Environmental Left

By Staff Writers, GWPF, Apr 16, 2019

<https://www.thegwpf.com/big-green-inc-the-money-fuelling-the-environmental-left/>

Link to report: Big Green, Inc.: The Money Fueling the Environmental Left

By Staff Writers, Institute for Energy Research, April 2019

<https://www.instituteforenergyresearch.org/wp-content/uploads/2019/04/BigGreenInc.pdf>

Revealed: How Business Minister held meetings with the radical far-Left eco-rabble plotting to bring Britain to its knees and paralyse the Capital with human barricades

By David Rose, Glen Owen, and Holly Bancroft, Sunday Mail, UK, Apr 13, 2019

<https://www.dailymail.co.uk/news/article-6919593/Ministers-meeting-eco-rabble-plotting-bring-London-halt-tomorrow.html>

Sadiq Khan [London Mayor] accused by rank and file police of 'aggravating' Extinction Rebellion protests

Editorial, Daily Telegraph, UK, Via GWPF, Apr 18, 2019

<https://www.thegwpf.com/london-major-accused-by-rank-and-file-police-of-aggravating-climate-protests/>

The Only Consistency About the Climate Change Protesters Is That They Are Completely Wrong

Editorial, Daily Telegraph, UK, Via GWPF, Apr 17, 2019

<https://www.thegwpf.com/the-only-consistency-about-the-climate-change-protesters-is-that-they-are-completely-wrong/>

The brain-dead eco snobs causing mayhem on our streets are beyond parody

By Leo McKinstry, Telegraph, UK, Via GWPF, Apr 18, 2019

<https://www.telegraph.co.uk/politics/2019/04/18/brain-dead-eco-snobs-causing-mayhem-streets-beyond-parody/>

Environmentalists see victory with Green New Deal blitz

By Miranda Green, The Hill, Apr 19, 2019

<https://thehill.com/policy/energy-environment/439605-climate-change-finds-new-momentum-with-voters>

Other Scientific News

Bones discovered in Philippines may have belonged to new human species

By Gigi Sukin, Axios, Apr 10, 2019 [H/t Climate Etc.]

https://www.axios.com/scientists-conclude-bones-discovered-philippines-belong-new-human-species-bdccadd1-8021-41e4-8d16-d9a9c7570f41.html?utm_source=twitter&utm_medium=social&utm_campaign=organic&utm_content=1100

Link to paper: A new species of Homo from the Late Pleistocene of the Philippines

By Florent Détroit, et al. Nature, Apr 10, 2019

<https://www.nature.com/articles/s41586-019-1067-9>

[SEPP Comment: How much of a skeleton is needed to claim a new species?]

Other News that May Be of Interest

Earliest life may have arisen in ponds, not oceans

By Jennifer Chu, MIT News Office, Boston MA (SPX) Apr 15, 2019

http://www.terraily.com/reports/Earliest_life_may_have_arisen_in_ponds_not_oceans_999.html

1

Trees release flammable methane—here's what that means for climate

There are more reasons than ever to conserve forests, but the surprising role of trees as a methane source adds a complication.

By Andrew Revkin, National Geographic, Mar 25, 2019

<https://www.nationalgeographic.com/environment/2019/03/trees-release-methane-what-it-means-climate-change/>

“Andrew Revkin is the Strategic Adviser for Environmental and Science Journalism at the National Geographic Society.”

[SEPP Comment: Recognition that Volatile Organic Compounds (VOCs), including methane, are natural?]

World's largest plane makes first test flight

By Staff Writers, Washington (AFP), April 13, 2019

http://www.spacedaily.com/reports/Worlds_largest_plane_makes_first_test_flight_999.html

BELOW THE BOTTOM LINE:

Climate Activists Glue Themselves to Radical Green British Labour Leader's Private Home

Guest essay by Eric Worrall, WUWT, Apr 19, 2019

<https://wattsupwiththat.com/2019/04/19/climate-activists-glue-themselves-to-radical-green-british-labour-leaders-private-home/>

Could climate change cause infertility?

By Staff Writer, EurekAlert, Apr 15, 2019 H/t WUWT

https://www.eurekalert.org/pub_releases/2019-04/uol-ccc041519.php

Link to paper: Temperature-induced developmental plasticity in *Plodia interpunctella*: Reproductive behaviour and sperm length.

By Iossa, Maury, Flichter and Eaddy, Trends in Ecology & Evolution, Mar 27, 2019

<https://www.ncbi.nlm.nih.gov/pubmed/30916425>

[SEPP Comment: For a species that originated in tropical Africa?]

New planet!

By Staff Writers, Climate Change Predictions.org, Apr 18, 2019

<http://climatechangepredictions.org/uncategorized/5651>

“Our children and grandchildren will live on a ‘fundamentally different planet’” by the end of this century unless people all over the world convince their governments and industries to stop global warming, warned Dr Michael Mann, one of the nation’s leading experts on climate change.

“How will the Earth be different in just 87 years? Mann predicted record heat waves, record crop destroying droughts, record wildfires – and not just in the West. Expanding deserts, storms producing more flooding, rising ocean levels, and more diseases because fewer frosts will [not] kill disease carrying mosquitoes and ticks.

“WFMZ-TV News, 1 May 2013. ‘Dr Mann warns global warming will create a fundamentally different planet’”

No more reef

By Staff Writers, Climate Change Predictions.org, Apr 16, 2019

<http://climatechangepredictions.org/uncategorized/10441>

“The Great Barrier Reef could be dead in 20 years unless there is a drastic reduction in greenhouse gas emissions, a marine biology expert said on Friday.

“Rising sea temperatures were bleaching the coral and causing it to die, said Professor Ove Hoegh-Guldberg of the Australian Research Council for Excellence for Coral Reef Studies.

“At the same time, increasing levels of carbon dioxide in the atmosphere were turning the world’s oceans more acidic and preventing corals from forming their limestone skeletons, he said.

“Sydney Morning Herald, 6 Apr 2007”

ARTICLES:

1. Behind the Black-Hole Image: One Giant Leap for Teamwork

How a global team of scientists used relentless bias-testing to produce the black-hole image

By Sam Walker, WSJ, Apr 20, 2019

https://www.wsj.com/articles/behind-the-black-hole-image-one-giant-leap-for-teamwork-11555732805?mod=hp_lead_pos8

After an introduction of when Sheperd Doeleman began to think about the problem in the mid-90s, the former reporter and editor at the Wall Street Journal writes:

“For years, Dr. Doeleman struggled to raise funds for his long-shot project. In 2008, a small technical breakthrough tipped the scales. The idea, he told me, ‘went from being impossible to improbable to having real potential.’

“The project, which calls itself Event Horizon Telescope, would ultimately raise more than \$40 million and convince 60 institutes in 20 nations to offer resources, including eight of the world’s most expensive telescopes. Before all of that, however, Dr. Doeleman needed a team.

“Persuading scientists to join him was a tall order. ‘People have careers to think about,’ he says. His comrades had to be both obsessive and unfazed by the prospect of failure; self-starters who could operate independently in a startup environment with no assumptions or precedents. Above all, he says, they had to embrace a culture of trust, ‘one in which we can disagree but remain open to being convinced.’

“As determined as he was, Dr. Doeleman knew he was wading into the deep end. In business, any leader who bets audaciously on a new product or market position knows their work will be judged by the money it makes. In research, where the only currency is knowledge, experiments only succeed if the scientific community accepts the findings.

“Astronomers didn’t really know how black holes worked and had only indirect evidence they exist. In theory, they should look like dark rings. But whether Dr. Doeleman’s team produced a picture of a ring, an elephant or just an indeterminate blob, it was likely to be picked apart mercilessly.

“Put simply, Dr. Doleman, now an astronomer at the Harvard-Smithsonian Center for Astrophysics, was about to gamble his career on a plan he was not certain he could execute and whose findings could be discarded over a single misstep. ‘It was like jumping off a cliff and building a parachute on the way down,’ he says.

“The only way to ‘see’ a black hole is to capture an image of its shadow. Rather than building one massive telescope, the EHT team wanted to combine the perspectives of many existing ones. ‘Instead of taking pictures, they would capture signals from electromagnetic waves tumbling around the black hole’s invisible contours. By feeding that data through an imaging algorithm, they hoped to construct a virtual rendering.

“Dr. Doeleman’s small team slowly grew to an army of 200 ranging from veterans like Sera Markoff, a theoretical astrophysicist at the University of Amsterdam, to postdoctoral fellows like Kazunori Akiyama, who co-led the imaging group. As they puzzled over how to retrofit telescopes with atomic clocks or ship frozen hard drives from the South Pole, Dr. Doeleman gave them wide latitude to improvise.

“In April 2017, eight telescopes from Chile to Hawaii simultaneously focused on the same supermassive black hole, collecting five petabytes of wave-signal data. Once the data had been processed, the team held four exhaustive all-hands meetings to review it. The next step—reducing it all down to a single image—was the trickiest. This was where human bias might creep in.

“Analysts working in fields like intelligence or meteorology often make predictions that impact millions of lives. The persistent danger is that whatever they want to believe, or assume to be true, will override their objectivity. In his 2011 book ‘Reducing Uncertainty,’ former intelligence analyst Thomas Fingar wrote: ‘The line between analysis produced to inform and analysis produced to influence can be very vague.’

“On business teams, the central enemy is groupthink, which occurs when a group’s natural urge to seek agreement leads to catastrophically ill-advised decisions.

“The chief threat to the EHT imaging team was the consensus that black holes look like rings. To build an algorithm that predicts what data might ‘look’ like, they would have to make hundreds of assumptions. If they harbored any prejudice, even subconsciously, they might corrupt the formulas to produce nothing but rings.

“To test their algorithms for bias, the imaging team generated ‘fake’ data designed to evoke other shapes; a shadow, a crescent, even a snowman. If the algorithms still spit out rings, they were clearly biased.

“After clearing that bar, the team split into four groups. They were given separate algorithms and sent to four distinct locations to run the real telescope data. In July 2018, the four groups reconvened in a seminar room in Cambridge, Mass. to reveal their images. Although they used different algorithms and didn’t compare notes, a similar-size ring appeared in each of them, always brighter in the south. ‘That’s when we knew we had something,’ Dr. Doeleman says.

“In a final bias test, the team used real telescopes to collect data from oddly shaped celestial objects to make sure the algorithms translated those correctly. After scrutinizing their work again in two more teamwide reviews, they decided to accept three of the black-hole images and combine them into one.

“The last hurdle was to write six academic papers, submit them to journals for peer review and wait for them to be accepted.

“Finally, at a news conference on April 10, Dr. Doeleman unveiled the final image—a dark circular void surrounded by flares of orange and yellow. ‘We have seen what we thought was unseeable,’ he said. ‘We have seen and taken a picture of a black hole.’

“Some prominent skeptics weren’t so sure. George Capline, a physicist at Lawrence Livermore National Laboratories, says it’s ‘way premature’ for the team to claim it ‘saw’ a black hole. Nevertheless, he said the team’s findings seem both solid and significant. ‘The technical accomplishment was quite amazing.’

“In science, ‘not everyone needs to be convinced,’ Dr. Doeleman says. ‘I fully expect there could be questions asked and points raised—and we welcome that.’ As far as he’s concerned, he says, ‘I’m more certain about this than just about anything.’ He considers the image ‘the biggest return on an investment in the history of astronomy.’

“If there’s a lesson to draw here, it’s about setting the bar high, distributing authority, encouraging collaboration across disciplines and, most of all, being relentlessly self-critical. ‘At

every point we encouraged dissent and debate, looked at different viewpoints and interrogated the algorithms,' Dr. Doeleman says. 'We had done so much work that when nature smiled on us, we were ready.'

"In the torrent of post announcement coverage, Katie Bouman, a 29-year-old computer scientist, was anointed by the media as the team's chief algorithmic architect. Her response said a lot about the nature of the group. 'I don't know why I'm getting so much press,' she told PBS. 'Lots of people processing those petabytes of data—that's what made it possible.'

"For Dr. Doeleman, the long pursuit of an image yielded something else he hadn't expected. The more time passes, he says, 'the more I'm just proud of the team. I think of the team as the thing that was built here.'
