



## Central Coast Climate Science Education

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### Justified Anger at Climate Change Inaction: A Movie, an Editorial and three Books

Dr. Ray Weymann, January 16, 2022, Atascadero, CA

Who is the intended audience for this post? *Everyone*

What are the objectives of this post?

*To call your attention to an interesting movie about (allegorically) climate change denial, an excellent recent editorial appearing in the Los Angeles Times, and three books, expressing anger and frustration at inadequate progress in dealing with climate change. At the end I summarize my recommended response to this inaction.*

We heard some positive news resulting from the recent COP26 (Conference of Parties) meeting in Glasgow. The hard truth though, is that the actual trajectory of global carbon dioxide and other greenhouse gas emissions is far short of what is needed to avoid very damaging further climate change. The woefully inadequate response to the peril of climate change by those holding the levers of power has resulted in anger and frustration on the part of many, especially the young. I want to call the attention of readers to three examples dealing with this anger and frustration which I hope is being channeled into constructive action.

### A movie

One of the most authoritative sources of climate science information I know of is <http://realclimate.org/>. So, when I saw a post which was a movie review<sup>1</sup>, I was surprised but intrigued. The title of the movie is “*Don’t Look Up*”. The author of that review is Dr. Gavin Schmidt, a renowned climate scientist and, since 2014, Director of the NASA-Goddard Institute for Space Studies in New York.

The movie features several well-known actors, including Leonardo DiCaprio, Jennifer Lawrence, Merrill Streep, and Cate Blanchett, so readers may want to watch on that account alone. But a warning before you watch it if you have young children: The movie is laced with profanity and a bit of sex (naturally) so vet it before you have your young children watch it.

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<sup>1</sup> <https://www.realclimate.org/index.php/archives/2022/01/dont-look-up/>

Here is another review besides the one by Gavin Schmidt that expresses my own view of the movie more closely, and if readers take a look at this review, be aware of the ‘spoiler alert’ at the top.<sup>2</sup> I especially agree with this point that the author of this review, (an expert in climate change communication) makes: *“It’s hard not to feel like there are some obvious missing links here — namely our own agency as free people in a democracy — as well as a more robust analysis of exactly who is blocking climate action right now: namely every national-level Republican, Joe Manchin, and the handful of fossil fuel holdouts in the Biden administration who are continuing to kick the can down the road on oil and gas projects.”*

The movie shows the anger and frustration of the two astronomer protagonists at the cynicism and ignorance of politicians, the vapid trivialization of the situation by two radio hosts and the obsession with media and pop culture stars which even one of the protagonists partially succumbs to. The movie is of course a satire with humor with thinly veiled references to Trump and Trump junior.

Personally, I think it is a bit overdone and perhaps obscures the main message: the extreme peril of ignoring effective action to deal with climate change, which scientists have repeatedly warned us about.

But perhaps I am wrong: another world-class climate scientist, as well as a superb climate science communicator, Dr. Michael Mann, makes the point in an excellent Boston Globe editorial (unfortunately behind a paywall) that research has shown that humor and satire are very effective in, as he puts, being the “spoonful of sugar that helps the medicine go down.” Think of the huge following that someone like Jon Stewart had with his satire and humor.

By the way, Mann practices what he advocates by joining with famed Washington Post political cartoonist Tom Toles (known for his biting satire on climate change denialism) in writing a book “The Madhouse Effect”, one of the three books I will comment on below.

But research has shown that *anger* can also be effective in mobilizing public opinion. Which brings me to a recent excellent editorial in the Los Angeles Times.

### **An editorial**

The editorial is by Tony Barboza, a member of the Editorial Board of the Los Angeles Times. It appeared in the January 2<sup>nd</sup>, 2022 issue of the Los Angeles Times, but it too unfortunately requires a subscription, so I will summarize it as best I can.

Here are the first two sentences: *Will 2022 be the year world leaders finally accept the science and act on the biggest threat to our collective existence? It’s an infuriating question that arises every year, while the inaction of politicians on climate change keeps steering our planet closer to an unacceptable fate.”*

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<sup>2</sup> <https://www.aaronhuertas.com/review-dont-look-up-is-the-science-communication-film-we-deserve/>

And a little further on: *“To move forward we should set aside both despair and hope in favor of something more constructive: anger.”* Some readers might object that the world is already too full of anger and that what we need is “love”. Perhaps. But what Barboza is advocating is not blind, uninformed, anger, but collective anger directed non-destructively toward achieving needed action.

Barboza cites a recent scholarly study<sup>3</sup> which makes the case that such anger can, as well as satire and humor, be a very effective way of achieving urgently needed societal change in general, and specifically regarding action on climate change. The research article is couched in “academicese”, but a popular account by the authors<sup>4</sup> is well worth reading.

Here is how Barboza summarizes some of their results: *“Anger is what social scientists call a ‘motivating emotion’, because of its capacity to provoke action by others... when participants **across the political spectrum** [boldface mine] were told that growing numbers of people are angry about climate change, they were more inclined to express their own outrage and support taking action”.* The research suggests *“that messages on social media, television and news reports about collective anger over climate inaction are more empowering than ones about scientific consensus or public concern.”*

Barboza observes that *anger often fuels good journalism* and feels that *escalating public anger can make people in positions of power uncomfortable, both those who act blatantly at the behest of fossil fuel interests and those who are trying to address climate change but doing far too little to avoid catastrophic warming.*

Just when the perception of growing public anger has risen to the point government leaders will actually take action remains to be seen. But it should also be noted that *destructive* collective anger is counter- productive. It can be taken advantage of and fostered by leaders as well, as we learned just a year ago.

A final very important point Barboza makes (and which I certainly feel angry about) deserves his full paragraph: *Without anger flowing outward, it is too easy to blame only yourself. Should I drive an electric car, travel less or eat less meat? Should I install solar panels or an energy-efficient heat pump instead of burning methane gas to heat my home? The fossil fuel industry has promoted the idea of personal responsibility for reducing pollution, and the ongoing guilt that creates, as a core of its decade-long campaign<sup>5</sup> to deceive and confuse the public about climate change. Oil companies want us preoccupied with our carbon footprints when our outrage should be directed at them and the politicians that do their bidding.*

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<sup>3</sup> <https://www.sciencedirect.com/science/article/abs/pii/S0272494421000931?via=ihub>

<sup>4</sup> <https://grist.org/fix/angry-about-the-climate-crisis-research-shows-that-could-be-a-good-thing/>

<sup>5</sup> <https://www.rollingstone.com/politics/politics-news/climate-change-exxonmobil-harvard-study-1169682/>

This does not mean, of course, that we should not all try, by our individual actions, to do some of the things enumerated by Barboza. We should, and they can make a difference. But we are kidding ourselves if we think that without political action by government leaders, the problem will be solved.

### Three books

Readers sometimes send me suggestions for resources to include in the Resources sections of my website. Recently, reader Jessica Dubois suggested some books she thought were worthwhile. I will briefly mention one of them and more extensively comment on another. But first I want to comment on a third book, namely the one mentioned above, with authors climate scientist Michael Mann and political cartoonist Tom Toles:

#### The first book: **The Madhouse Effect**<sup>6</sup>

The first three chapters comprise a wonderful exposition of (1) What science is, and is not; (2) A concise and readable account of the very basics of climate science, the evidence that the earth is rapidly warming and that fossil fuel consumption is responsible; and (3), what the wide ranging and serious impacts a changing climate is having on humanity and the entire living planet.

If you have friends who are open-minded, but not informed, about these topics, this would be an excellent book to have them read on this account. But if you happen to have friends or relatives like the proverbial grumpy Uncle who is a confirmed science denier, don't waste your time.

A friend who had already read this book did, however, make the following criticism/suggestion which I commend to the authors to consider should they contemplate a new edition: A few brief explanations of some results along with some figures would be helpful. For example, while Mann provides references supporting his original work on the "Hockey Stick", many readers (my friend included) were not clear on what this had to do with an actual hockey stick, and a graph would have been helpful. Also, a graph of the actual Keeling curve (the direct measurement, since 1958, showing the inexorable growth in the amount of atmospheric carbon dioxide) would have been a nice complement to one of Toles' cartoons where it is alluded to.

The next three chapters document the long history of specious arguments denying the reality of human kind, most of it with the deliberate strategy of creating doubt about this reality. This was a strategy employed by the tobacco industry regarding the compelling evidence connecting smoking (including 2<sup>nd</sup>-hand smoke), the coal industry when combating the dangers of acid rain, and of course the entire fossil fuel industry when it comes to curtailing use of fossil fuels.

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<sup>6</sup> <http://tinyurl.com/yysrt8d9> I advise getting the paperback 2018 edition to bring the book up to the start of the Trump era. If you get an edition, you might want to have a magnifying glass handy if you can't enlarge Toles' cartoons so that you can read his little 'tag lines'.

Regrettably, some prominent scientists were enlisted in this effort, motivated, as is documented, by financial support from these industries and by ideological opposition to any kind of ‘government regulations’.

A more insidious campaign to discredit climate science are the personal attacks and harassment of climate scientists, including Mann himself.

Another reader thought this chapter was overdone. Perhaps, but serious subversion of science for monetary gain or ideological reasons is reprehensible in the extreme. And if I were a recipient of threats and smears myself, I wonder if I would feel differently. One episode Mann did not describe was directed against a climate scientist who, after receiving threats, opened his door one morning to find a dead rat on his doorstep, an incident which traumatized his young child. We should all be angry--very angry-- at this.

Incidentally, some of this harassment requires legal defense, which imposes financial burdens on the scientists. If you would like to contribute to their defense, please see the Climate Science Legal Defense fund below<sup>7</sup>.

The next chapter deals with various aspects of ‘geo-engineering’, artificially introducing substances or actions which are intended to cool the planet. The problem is that all of these may have serious adverse ramifications, both physical and political, which are not understood. While I personally do not oppose research into investigating these ramifications, I worry that some of the geoengineering proponents are too enthralled with its prospects and will push for larger and larger scale deployment. There is also additional concern that this endeavor, along with other hoped-for technological advances will be used to avoid needed greenhouse reductions.

The next to last chapter of the book sounds a hopeful note, but one I don’t fully share. It is true that actions by several states and cities are steps in the right direction, and the current California climate budget is encouraging. But this chapter was written at the close of the Obama administration.

The 2<sup>nd</sup> edition, containing the addition of the last chapter, chapter 9, was written during the first years of the Trump administration when denialism again reigned in the Congress and Administration. And readers will find it ironic that one of the ‘hopeful’ notes sounded in this final chapter was that “pro-science, pro-environment moderates” like three Republican Senators—John McCain (now deceased), Susan Collins, (!) and Lindsey Graham (!!!) will prevail. And since then, despite the Biden Administration and a razor thin Congressional Democratic majority, we are still gridlocked, and the allowable ‘carbon budget’, described below in the review of the third book, has shrunk further.

**The second book: All We Can Save**<sup>8</sup>

This is one of the two books suggested to me by reader DuBois. It is a collection of essays, all written by women, and concerns many aspects of sustainable actions for preserving a livable planet. “I” highly recommend it, but with the following important caveat: The introductory essay

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<sup>7</sup> <https://www.csldf.org/>

<sup>8</sup> <https://tinyurl.com/2wtwj6xa>

is written by the two editors of this collection. I found that essay too strident and I am concerned that, like me, others, both men and women, will be “put off” by it. So, I have not yet read further, and for this reason I cannot myself give an extensive review. But “I” still recommend it highly, because I have asked someone<sup>9</sup> in whom I have the highest regard for her judgment and fairness to read it. She too was somewhat “put off” by the introductory chapter but thought that almost all of the subsequent chapters were truly excellent, and found some of them very moving, especially the essay “Indigenous Prophecy and Mother Earth.”

**The third book:<sup>10</sup> No one is too small to make a difference**

This book is the other one suggested by reader DuBois. The author is Greta-Thunberg. I have used rather small font for the author’s name, because I know from experience that many will immediately dismiss it. Please look at it anyway. At least read the two chapters that I will recommend.

What are the reasons why this book makes some people so dismissive and derisive? Because it is written by a child who “doesn’t know what she is talking about”; who is “mentally unstable”, who ought to “go back to school and let adults handle the situation”; who is a pawn of--who knows; perhaps George Soros (!); who just wants to call attention to herself; who is an extreme “alarmist”.

Well, actually she *does* know what she is talking about, since she is simply repeating over and over what the climate scientists themselves have also been telling us over and over. And is she an alarmist? You bet, because we should be alarmed. Paul Revere sounded the alarm but now we honor him for it. And is she angry? Yes, and she has every right to be, especially because her generation and subsequent ones, including my two great-grandsons, will be the ones who will experience the most severe consequences of climate change. Not the present older generation that mocks her.

I suggest you read just the following two chapters: (1) “I’m Too Young to Do This” (Facebook entry February 2, 2019) and especially (2) “Wherever I Go I Seem to Be Surrounded by Fairy Tales” (address to the U.S. Congress, September 18, 2019.)

A comment about the concept of “carbon budgets” before you read the 2<sup>nd</sup> chapter above. Climate scientists have established that a quite good indicator of the temperature that the earth is headed for is not the *current rate* of carbon dioxide emissions, but the cumulative amount emitted since the start of the industrial revolution, most of which has occurred during the last few decades. So, if you have a goal of limiting the temperature rise to a definite amount, this implies that there is a carbon emissions budget that we cannot exceed. If, as the Paris Accord, (the agreement which the U.S. has now rejoined) recommends we try to limit that rise to 1.5 °C (or, 2.7 °F) The latest “Assessment Review” (AR6) by the IPCC panel of climate experts have analyzed what this budget is: As of January 1, 2020 it was that to have a 67 percent change of

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<sup>9</sup> Namely, my wife of 65 years, Barbara Weymann. Lest you question her credentials for women’s rights she was the first woman ever elected to the Tucson City Council, where she also served as vice-Mayor, established the Tucson Women’s Commission among many other accomplishments and is honored in the Women’s Plaza of Honor: read more about her accomplishments here: <https://plaza.sbs.arizona.edu/516>

<sup>10</sup> <https://tinyurl.com/yc3bvmjm>

limiting the temperature rise to 1.5 °C, the rapidly shrinking budget was 400 gigatonnes of carbon dioxide.<sup>11</sup> If the goal is instead 2.0 °C the budget is of course larger by about 3 times, *but the consequences are far more severe*<sup>12</sup>. Please see the Appendix for an elaboration on this point in case you doubt the ‘far more severe’.

The covid pandemic caused a temporary drop in 2020 (remember the nice clean air) but is project to have fully rebounded to its 2019 peak of about 33 gigatonnes, or higher.<sup>13</sup> And it is increasing. *At this rate we will have exhausted this budget in 12 years.* Can you understand why the author of this book is angry? As a parent, grandparent and great-grandparent, I am angry too.

### Concluding comments

The obvious question is: what should we, and can we do about all this? I have no pat answer any more than I have a simple answer to getting the anti-vaccine people to pay attention to what the virologists and immunologists have, like the climate scientists, been telling us.

But in the U.S. the problem is further complicated by the breakdown of our political system. On this website I try to avoid overt mention of politics.

But I submit the following “facts to a candid world:”

There is one Democratic Senator (West Virginia’s Joe Manchin, who benefits financially from the coal industry<sup>14</sup>) who is, at the time of this writing, blocking the “Build Back Better” legislation which contains important steps to deal with climate change. But there are 50 Republican Senators, not one of whom will support that legislation.

But the problem is worse than this: One can urge, like Mann does in his book, for voters to ‘vote climate’. But Republican-controlled State Legislatures have enacted laws which suppress the ease of those likely to vote Democratic. They have additionally gerrymandered Congressional districts to practically guarantee Republican seats in Congress. Worse, they have installed partisans to certify the results and given themselves the power to override the results they do not like.

The Democrats have introduced legislation to set minimum standards of fairness in elections. No Republican Senators will support it, and have filibustered it. Two Democratic Senators (Manchin again, and Kristen Sinema from Arizona) have refused to allow any change in Senate Rules to overcome the filibuster. **We need to get rid of both of them.**

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<sup>11</sup> <https://tinyurl.com/y6a4cmct>

<sup>12</sup> <https://www.ipcc.ch/sr15/chapter/spm/> In the IPCC’s guarded language: “Future climate-related risks depend on the rate, peak and duration of warming... if global warming exceeds 1.5°... especially if the peak temperature is high (e.g., about 2°C) (*high confidence*)... some impacts may be long-lasting or irreversible...”)

<sup>13</sup> <https://www.iea.org/reports/global-energy-review-2021/co2-emissions>

<sup>14</sup> <https://www.cnn.com/2021/10/27/politics/joe-manchin-coal-interests/index.html>

*What to do?* We need to take the long view, since these problems will take a long time to overcome. I am no social psychologist or political scientist, but I offer the following comments: Write letters to papers expressing your anger, but civilly. If there are public demonstrations which express anger, join them if you can. The larger the groups, the more likely they will get media coverage. Contribute money to campaigns of candidates who will put the welfare of humans over their own political futures. Join and support environmental and scientific organizations supporting action against fossil fuel interests (the Union of Concerned Scientists, the Environmental Defense Fund, the American Association for the Advancement of Science, just to name a few.)

Contact your own representatives about climate action, but don't waste your time contacting out-of-state representatives; they will pay no attention to this. Instead, contact out of state friends or relatives and ask them to express their anger at lack of action. Politicians pay attention to reasoned anger from their own constituents. If enough people from any state realize how climate change adversely affects their lives and are mobilized to support candidates who will take action on climate change, it will ultimately work, in spite of the voter suppression laws.

Skeptical about this: Well, I don't want to end on a gloomy note so here is one bit of good news: An ongoing survey of attitudes about climate change finds a strong trend towards awareness of climate change and the need to act on it<sup>15</sup>.

So, above all, stay constructively angry. But also, be kind to yourself. The Navajo culture has the concept of Hozho—keeping peace, balance and beauty in your life. Take a walk in beautiful surroundings or listen to music that has meaning for you. Stay engaged and determined.

### **Appendix: What are the consequences of a 2 °C world compared to a 1.5 °C world?**

A summary of the essence of the conclusions described in footnote 12 may be found here: <https://yaleclimateconnections.org/2021/08/1-5-or-2-degrees-celsius-of-additional-global-warming-does-it-make-a-difference/> This is a link to an article by environmental journalist Bruce Lieberman. I give just three highlights. Please read the full article if you are not convinced that there is a serious difference between the 1.5 °C and 2.0 °C targets.

*Extreme Heat:* With a 1.5 °C increase, extreme hot days in the mid-latitudes will be 3 °C hotter (5.4°F) than pre-industrial levels. With a 2 °C increase, extreme hot days in the mid-latitudes will be about 4° C hotter (7.2 °F) than pre-industrial levels.

*Melting Arctic sea ice* With a 1.5 °C increase, scientists project that the Arctic Ocean will become ice-free in the summer about once every 100 years. With a 2 °C increase, the Arctic

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<sup>15</sup> <https://climatecommunication.yale.edu/publications/global-warnings-six-americas-september-2021/> A significant aspect of this survey (which is not reported in this version of the link) is that this change is being driven to a large extent by young people.



Ocean could become ice-free in the summer once every 10 years. An ice free arctic would have profound impacts on the entire global climate.

*Rising poverty* Particular populations around the world are especially vulnerable to the consequences of continued warming. These include some indigenous peoples, local communities dependent on agriculture, and those dependent on coastal resources for their livelihoods. Especially vulnerable places include Arctic ecosystems, dryland regions, small island developing states, and the world's least developed nations. Limiting warming to 1.5°C could reduce the number of people worldwide who are exposed to climate-related risks and resulting poverty by hundreds of millions of people – compared with a rise of 2°C.