

Analysis of the Moreno et al. (2022) Publication on EIKE Using Peter Gleick’s Toolbox

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Influential environmental scientist and climate activist Peter Gleick provided groundbreaking testimony to the U.S. Senate Committee on Commerce, Science, and Transportation in the hearing “Climate Change Research and Scientific Integrity” on “Threats to the Integrity of Science,” which includes a summary on “Deceitful Tactics and Abuse of the Scientific Process.” Here, this so-called Gleick’s toolbox is used to analyze the recent publication by Moreno, Kinn, and Narberhaus, entitled “A Stronghold of Climate Change Denialism in Germany: Case Study of the Output and Press Representation of the Think Tank EIKE,” which proves to be a negative example of the misuse of science and scientific process. This analysis focuses on the most important aspects.

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The paper, by Moreno, Kinn, and Narberhaus (2022), was published in the *International Journal of Communication* and discriminates against the board members Holger Thuss (president) and Michael Limburg (vice president), and the spokespersons Horst-Joachim Lüdecke and Klaus Eckart Puls of the German think tank the Europäisches Institut für Klima und Energie (EIKE), or, in English, the European Institute for Climate and Energy (EIKE, 2022b). This discrimination does not respect the facts, but prefers an unscientific, strongly pejorative, malicious “denial” and “denier” framework. Moreover, Moreno and colleagues (2022) attempt to bolster their denial allegations by using a second and third subcategory of ad hominem attacks summarized by Peter Gleick (2007) in the Senate hearing as guilty by association and imputation of motives such as greed and funding.

The Maxims of Gleick

The main point in Gleick’s (2007) argument is the preservation of “scientific integrity” in scientific publications and in all public institutions dealing with science, such as think tanks, advisory boards, universities, and even the media. Gleick’s (2007) basis is the Pacific Institute’s “integrity of Science Program,” which has cataloged threats to scientific integrity and evaluated them in the areas of environment, energy policy, human health, and national security (p. 2). Gleick (2007) summarizes these threats in the following sections: “Scientific Misconduct and Altering Good Science” (p. 2), “Suppressing or Limiting Good Science” (p. 1), “Scientific Science Misconduct” (p. 2), “Argument From Ideology” (p. 3), “Ad Hominem: Personal Attacks” (p. 3), and “Misuse of Certainty and Arguments from Consensus” (p. 3). In his Table 1, Gleick (2007) lists all the tactics used against scientific conclusions that are illegitimate, based on fraud, or even directly abuse the scientific process.

What Is EIKE and What Are Its Goals?

EIKE is the largest German-language blog according to Internet ranking and at present publishes only in German. EIKE is a scientific institution and a think tank that is not funded by the government but by private donations. Members of EIKE regularly publish scientific climate studies in peer-reviewed journals, including such high-ranked journals as *Nature Scientific Reports*, *Climate of the Past*, *Journal of Hydrology: Regional Studies*, *Frontiers in Earth Science*, and *Atmospheric and Solar Terrestrial Physics* (EIKE, 2022a). EIKE's ambitions, however, lie in its Internet blog, its climate conferences with internationally renowned speakers, and its own publications and books.

Due to the scientific quality of EIKE, a board member and a spokesperson were invited as climate and energy experts and as members of EIKE to some parliamentary hearings in several German state parliaments (German State Parliaments, 2017, 2018, 2019a, 2019b, 2020a, 2020b, 2020c, 2021a, 2021b) and in three hearings of the German Federal Parliament (German Bundestag, 2019, 2020, 2021).

EIKE does not question that anthropogenic CO₂ warms the lower atmosphere (global warming), but only opposes the climate alarmistic misuse of science by activists and the resulting rapid rise in energy prices. The CO₂ warming potential (climate sensitivity) is still poorly known and therefore an unresolved issue in climate science. In its 6th climate Assessment Report AR6, the Intergovernmental Panel on Climate Change (IPCC) publishes a wide range of climate sensitivity spanning 2.5 to 4.5°C and implying a huge uncertainty (there are peer-reviewed papers that even give 0.6°C as a lower limit). In their presentations at the EIKE climate conferences IKEK-7 in 2014 to IKEK-14 in 2021 (EIKE, n.d.) internationally renowned climate experts Richard Lindzen, Nicola Scafetta, Nir Shaviv, Henrik Svensmark, Peter Ridd, Valentina V. Zharkova, Maria Assunção Araújo, Niels-Axel Mörner, Gernot Patzelt, Jan-Erik Solheim, Francois Gervais, Henri Masson, Harald Ynderstadt, Stefan Kröplin, Sebastian Lüning, and other experts as speakers addressed currently disputed issues in climate research, among them also the central problem of climate sensitivity. A focus of all EIKE conferences are the natural climate forcings.

In short, EIKE is open to all topics of interest related to climate change, and in particular fights for a better understanding of natural drivers of climate change. EIKE propagates that it is indispensable to examine the climate facts thoroughly and neutrally before embarking on drastic and perhaps misguided plans for expensive CO₂ emission reductions. The IPCC reports today that current climate change is 100% human caused. However, major climate changes existed even before the industrialization. Since the natural factors of climate change have not ended in the last 150 years, 100% does not appear plausible.

Comparison of the Moreno et al. (2022) Paper With the Maxims of Gleick

The Moreno and colleagues (2022) article is full of vicious ad hominem attacks and appeals directly and indirectly to all the listed emotions listed by Gleick (2007), especially the strongest one, "demonization." The most obvious point in Moreno and associates (2022) is the indiscriminate and repeated use of the unscientific, pejorative, and malicious terms "denial" and "denier." Moreno and cohorts (2022) use this terminology widely throughout the article: "denial" occurs 21 times, "denialism" 16 times, and "denialist(s)" six times in the article (including summary and key words). And it is perfectly clear whom they mean when

they refer to "denialism." EIKE is already called a "denialism" "stronghold" in the title. According to Gleick (2007), the use of "denial," "denialism," "denialists" in the scientific area (i.e., when referring directly or indirectly to other scientists and their work) has nothing scientific about it. In reality, it is an attack ad hominem (demonization). No scientist can or ever deny facts. There is no place in the scientific process for religious beliefs or their denial. Denial is a political-inquisitorial activist formulation that does not even pretend to be a scientific description.

The Terms Denial and Denier

Moreno and colleagues (2022) go even further in justifying their concept of denial. They use Gleick's (2007) second and third subcategories of ad hominem attacks: "guilt by association" and "challenge to motive" (such as greed or finance; p. 271). Noteworthy here is the partnership between EIKE and the Heartland Institute, a U.S. libertarian think tank based in Chicago (Heartland Institute, 2022). According to Moreno and associates (2022), "The Heartland Institute is known for its attempts to spread climate denialist ideas, and EIKE is affiliated with it" (p. 271). While the last point is a plain and transparent fact (e.g., Heartland Institute was a co-organizer of the EIKE annual climate conference), everything else "known for spreading climate denier ideas," including the "proof points" listed in the following sentences by Moreno and associates (2022) is fine in a climate inquisition report, but has no place in a scientific paper (p. 272).

Some statements of Moreno and colleagues (2022) remind us of a medieval witch hunt in natural science: "EIKE's mission is to counterargue the adoption of climate policies to tackle global warming, given that it denies the climate consensus," and later "EIKE delivers scientific arguments for people who do not believe in anthropogenic climate change..." (pp. 270, 271). At least Moreno and cohorts (2022) are consistent: "belief" is the unscientific counterpart of "denial." But since "facts cannot be denied" or "facts can be fact-checked" are among the best slogans of the March for Science (2022), Moreno and associates (2022) should keep in mind that scientific facts need not be "believed." No active scientist can, would, or should claim to have absolute authority or to preserve the truth about hypotheses, competing interpretations, weighing of factors, questioning of models and attributions, etc. in any field, but especially not in complex fields like climate science. Even if they repeatedly invoke a fuzzy consensus behind—checking, questioning, refining, or revising hypotheses is the daily work of every scientist in every scientific field. The more groundbreaking innovative scientific ideas are, the more they challenge the mainstream of scientific "convictions" or the prevailing "scientific consensus." This is as true for climate science as for any other scientific field.

The Motive "Funding"

Peter Gleick's (2007) third subcategory of an ad hominem attack on scientists is "challenge to motive (e.g., funding)" (p. 6). Moreno and colleagues (2022) seem obsessed with proving, or at least implying, that EIKE was funded by industry. They devote several paragraphs of their article to this topic. However, EIKE is a nonprofit organization that lives on donations. Besides, would it make a difference if EIKE or even scientists involved in EIKE were funded by industry? Active scientists and scientific work are guided by clear ethical and scientific principles and need funding for both individual efforts and research. Climate science cannot function without funding. A free society is characterized by a plethora of different potential funding sources, for which competing is part of the general competition that exists in science as well.

Of course, scientists or scientific institutions can stop themselves from accepting funds from certain sources, and many do so in one way or another, but no science or research can get far without a budget. At the same time, climate activist organizations such as the European Climate Foundation accept large amounts of funding from overseas billionaires' foundations, some of which may benefit greatly directly or indirectly from investments in renewable energy or other aspects of the energy transition. Members of climate activist groups have contributed to IPCC reports and have joined national governments. Potential conflicts of interest exist on all sides of the climate debate and should not be used as an excuse to avoid technical debates.

Moreno and associates (2022) have themselves received a grant for their work: "This work was funded by the Spanish State Research Agency and the European Regional Development Fund under Grant CSO2016-78421-R, and by the Spanish Ministry of Science, Innovation and Universities under Grant FPU18/04207" is transparently stated in their paper (p. 268). However, this means somewhat absurdly that, with funding from the Spanish state, a nonprofit NGO based in Germany (EIKE) is being attacked to obtain funding. After all, Moreno and cohorts (2022) confirm in their extensive analysis of EIKE's output that "scientific approach" is the leading category (Table 1, category D16).

Is the IPCC a Purely Scientific Institution?

There is a profound misunderstanding concerning the IPCC when Moreno and colleagues (2007) write, "The following translated text clearly shows distrust of the IPCC as a scientific institution" (p. 277). Distrust is another term from the crypto-religious realm of "believe," "deny," "trust," and "distrust." But is the IPCC a scientific institution? Quoting directly from the IPCC (2022):

Created in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP), the objective of the IPCC is to provide governments at all levels with scientific information that they can use to develop climate policies. IPCC reports are also a key input into international climate change negotiations. The IPCC is an organization of governments that are members of the United Nations or WMO. The IPCC currently has 195 members. Thousands of people from all over the world contribute to the work of the IPCC. For the assessment reports, experts volunteer their time as IPCC authors to assess the thousands of scientific papers published each year to provide a comprehensive summary of what is known about the drivers of climate change, its impacts and future risks, and how adaptation and mitigation can reduce those risks. An open and transparent review by experts and governments around the world is an essential part of the IPCC process, to ensure an objective and complete assessment and to reflect a diverse range of views and expertise. Through its assessments, the IPCC identifies the strength of scientific agreement in different areas and indicates where further research is needed. The IPCC does not conduct its own research.

As one can readily see from this quote, the IPCC is not a purely scientific body, to say the least, as it is "an organization of governments" and the review is done "by experts and governments." According to the IPCC, Moreno and associates (2022) have used the classic tools of abuse described by Gleick (2007) as "Mischaracterizations of an Argument" (p. 6). To imply, postulate, or assume that the IPCC is a purely scientific

body (i.e., a body guided by scientific principles), and then to claim that any criticism of the IPCC's operation amounts to an attack on the IPCC (Moreno et al., 2022, p. 271) certainly is not sound scientific reasoning. The content of the IPCC reports depends strongly on the selection of IPCC authors who decide on which published views to support and which views to ignore or to criticize in the reports. IPCC author selection is a political process that is carried out by the IPCC Bureau, a politically and not purely scientifically elected panel.

Democracies are characterized by freely elected parliaments and governments and by rulers legitimized by free elections. In democracies there are competing parties with changing roles sometimes on the side of government, sometimes in opposition. Expertise, especially scientific expertise, is a key element in modern life, and therefore the political machinery has typically elaborate processes to draw on scientific expertise. Especially, the respective committees of parliaments hold (e.g., hearings to review input from experts). All this should be known to Moreno and associates (2022), as they have a background in journalism and communication.

Is There a Scientific Consensus?

One is dumbfounded to read that Moreno and colleagues (2022) accused EIKE's spokesperson of "attacking the climate consensus" in a Bundestag committee hearing (p. 272). This is only slightly mitigated by the fact that Moreno and associates (2022), hide behind a quote from Moritz Neujeffski (2019). What basis do Moreno and cohorts (2022) and Neujeffski (2019) have for such a claim?

The Bundestag Committees on the Environment and Reactor Safety and on Economy and Energy held hearings in February 2019, November 2020, and April 2021. EIKE's spokesperson, Horst-Joachim Lüdecke, University of Applied Sciences (HTW), Saarbrücken, Germany (unfortunately, Moreno et al. [2022] seem unable to correctly cite this affiliation) was invited for three Bundestag hearings as an expert (not as a guest, as Moreno et al. [2022] write) by the committee chairmen after discussion and approval by the elected members from the various factions of the German Bundestag in accordance with the rules applicable to the committees (German Bundestag, 2019, 2020, 2021). Generally, to invited experts is given time to submit a written statement, to make an initial oral statement, to face questions from the Members of Parliament present as well as to reply to comments from fellow experts present. The written statements sent to the Bundestag for the committee hearings are part of the extensive documentation on the website of the German Bundestag and can be viewed there.

It is not the purpose of this analysis to address the issues analyzed in the committee hearings, but to point out that evoking a nonspecific "climate consensus" to somehow scandalize an expert testimony before the Bundestag is a strange twist of reasoning: The members of the German Bundestag have every right to be informed about different assessments on any aspect of science they are interested in. It is the duty of any scientist invited to such a hearing to speak to the best of his or her knowledge on the subject at hand—that, and only that has been the guiding principle for the statement of EIKE's spokesperson at the Bundestag hearing.

However, the argument can be taken one step further: Are Moreno and colleagues (2022) indirectly implying that a scientist or any other scientific expert should not be invited to Bundestag's hearings because they are not true "believers" or dare to question a self-declared "consensus?" If that is what is implied it

would (again) be a clear attack on the integrity of science and on the democratic rules of German parliaments. In democracies and science, typically all views are heard, not just a subjectively defined subset. Again, one would very much hope that Moreno and associates (2022) will clarify this disturbing potential conclusion. The freedom of science is a constitutional right in Germany of the German Basic Law (Deutsches Grundgesetz): "Science and research are free" (article 5). One can be sure that this is also true for modern Spain, which sponsored the work of Moreno and colleagues (2022), a full member of the European Union that upholds freedom of science and research.

Finally, there is another disturbing judgment in the paper by Moreno and colleagues (2022), in which EIKE speakers are accused of reporting their scientific research to the German political party AfD. And this argument is made even though a number of well-known German climate scientists actively collaborate with political parties, including the professors Schellnhuber and Rahmstorf with the Greens, but also others with the Social Democrats or the Conservatives. All the aforementioned parties have democratically elected members in the German parliament. The work of Moreno and colleagues (2022), which pretends to be of scientific quality, is certainly not authorized to pass judgment on democratically elected political parties in Germany or in any other country in the world. Every scientist who abides by the rules of science must and will inform his audience about his scientific results and conclusions, regardless of the particular audience for which he or she has accepted an invitation.

Conclusion

Moreno and associates (2022) misused a scientific format for a personal attack against board members and spokespersons of the EIKE climate think tank. The ad hominem approach is based on the widespread use of the terms "denial" and "deniers." They ignore that EIKE does not generally contest the warming effect of greenhouse gases such as CO₂. CO₂ climate sensitivity is still poorly known, as evidenced by the large range of the CMIP6 climate models of the IPCC's AR6 report. Rather, EIKE supports the view that the role of natural climate drivers has been grossly underestimated by some climate scientists that happen to dominate the IPCC. It should not be forgotten that the IPCC is a politically controlled organization whose Bureau is elected by politicians from all IPCC countries. Clearly, we still lack a full understanding of natural climate processes making it difficult to assign 100% anthropogenic climate control (such as in IPCC's AR6 report).

Here, the questionable approach of Moreno and cohorts (2022) is compared to basic principles of scientific communication and debate guidelines. One finds that Moreno and colleagues (2022) are in clear violation of these principles. The guidelines discussed here were authored by the influential environmental scientist and climate activist Peter Gleick as part of a testimony to a U.S. Senate Committee in the hearing "Climate Change Research and Scientific Integrity" on "Threats to the Integrity of Science" (Gleick, 2007, p. 6). The testimony includes a summary on "Deceitful Tactics and Abuse of the Scientific Process" (p. 6). Personal attacks on scientists with differing views must be avoided. Instead, opportunities should be sought to discuss controversial scientific topics in roundtable discussion forums or as pro/con opinion papers in scientific journals. Deliberate cancel culture and deplatforming have no place in the scientific communication of the 21st century.

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