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Remembering Stephen Schneider

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Prof. Stephen Schneider, one of the truly important voices in climate science of our time, [has died](#) ^[1]. For over three decades, he had been researching and speaking out on the need to sharply and quickly reduce greenhouse gas emissions.

Schneider served as a consultant to Federal Agencies and White House staff in the Nixon, Carter, Reagan, George H. W. Bush, Clinton, George W. Bush and Obama administrations.....

Schneider was the founder and editor of the journal *Climatic Change* and authored or co-authored over 450 scientific papers and other publications. He was a Coordinating Lead Author in Working Group II IPCC TAR and was engaged as a co-anchor of the Key Vulnerabilities Cross-Cutting Theme for the Fourth Assessment Report (AR4) at the time of his death.

Schneider managed this urgent message even while consistently focusing on the uncertainties inherent in the science — he understood that the uncertainties made the case stronger, not weaker, particularly since most of the uncertainty is on the high end of climate sensitivity and impacts. And he managed this even while he battled and beat [a rare cancer](#) ^[2].“

I'm in SF today with my family and speaking tonight at the Commonwealth Club, so I don't have a lot of time to blog now, but will certainly be remembering him tonight in my remarks and seeking out those who knew him far better for comments. Please add your remembrances below.

For now, let me just reprint a recent interview he gave – it typifies his worldview perfectly:

Last month I wrote about the [new study that reaffirmed the broad scientific understanding of climate change and questioned the media's reliance on a tiny group of less-credible scientists for "balance."](#) ^[3] The *Proceedings of the National Academy of Sciences* study "[Expert credibility in climate change](#)" ^[4],“ was predictably attacked and misrepresented by the disinformers as part of their ongoing efforts to promote their fringe anti-science views.

To set the record straight, [ClimateScienceWatch.org](#) ^[5] talked with one of the article's coauthors, Stanford University Prof. Stephen Schneider. The video and transcript of the interview are below. First, let me repost the study's main conclusion:

Here, we use an extensive dataset of 1,372 climate researchers and their publication and citation data to show that 1) 97-98% of the climate researchers most actively publishing in the field support the tenets of ACC outlined by the Intergovernmental Panel on Climate Change; and 2) the relative climate expertise and scientific prominence of the researchers unconvinced of ACC are substantially below that of the convinced researchers.

That is the conclusion of an important first-of-its-kind study published today in the

Here is the CSW interview with Stephen H. Schneider, Melvin and Joan Lane Professor for Interdisciplinary Environmental Studies, Professor, Department of Biology, and Senior Fellow, Woods Institute for the Environment, at Stanford University.

Note: The transcript "contains more extended text from the interview:

CSW: The article on climate science expert credibility that you co-authored, recently published in the Proceedings of the National Academy of Sciences (PNAS) – what prompted this study?

Schneider: There are so many claims out there from all kinds of interests, about how climate change is 'the end of the world,' or 'good for you,' and people – policymakers and media – are understandably confused. Part of the problem is that over time the media has fired so many of its specialists that there aren't a lot of people left to sort out the relative credibility of all the claims. So, since a lot of those people who deny that humans have any impact on climate are claiming that they have scientific expertise, we said let's just put it to a test.

There's a very well-known and widely used independent index, which is: how many papers have you published and how many times have people cited them in the scientific literature? Those people who chose to put themselves on lists and petitions denying that there was a human impact on climate, let's see how many papers they've published, and how many citations they have. Those people associated with the Intergovernmental Panel on Climate Change (IPCC), let's check them and see if there's a difference.

CSW: In terms of how you defined the groups in the study, you have one category that you refer to as "convinced by the evidence" – convinced by the evidence for anthropogenic climate change. The other group is the "unconvinced by the evidence." Are you defining them by scientific perspective, or are you defining them by policy positions?

Schneider: It's a bit controversial how you define anyone in categories like "convinced" and "unconvinced" since none of us – I hope – are 100% convinced of anything, or 100% unconvinced, but we can have a vast preponderance of evidence. There are lists where groups have organized themselves into pro, basically, and con human impacts on climate. Most of the 'pros' work on the IPCC, mainstream science, and most of the 'cons' do not. Only two or three are in common. They wrote petitions saying they didn't think there was much likelihood of anthropogenic change, and we put them in the unconvinced category. That is, they put themselves in the unconvinced category. As far as those who spent much of their life working at IPCC, there's a very high probability they are convinced this problem is real or they wouldn't be putting in all this time. The bottom line is that we let people self-define and then we let the numbers fall where they were, in terms of the relative credibility of each of those groups – and the credibility was vastly different. Not surprisingly, those people who do work daily in climate science have a much, much higher citation count and more published papers than those who just claim it isn't true but really, for the most part, are not prime workers in climate change.

CSW: Well then, what about the charge that the study, in effect, is creating a 'blacklist' of certain scientists? It's saying that these are the skeptics, the unconvinced by the evidence, but they don't have any credibility and so you shouldn't pay any attention to them.

Schneider: Well **it's laughable that it's a blacklist**. A blacklist is what

somebody like Joe McCarthy did back in the 50's, or Senator Inhofe is doing now, when we all know it's the senator who is deliberately distorting. How could we be doing a blacklist when we're using the names that they gave? All we did was test it. The fact that they don't publish very much is not our issue. This is a fact check.

It really matters what your credentials are. If you have a heart arrhythmia as I do, and I also have a cardiologist, and you also have an oncological problem as I do, I'm not going to my cancer doc to ask him about my heart medicine and my cardiologist to ask about my chemo, I'm going to the experts. Who's an expert really matters. People with no expertise, their opinion frankly does not matter on complex issues. And in my opinion shouldn't even be quoted when we're talking about the details of the science.

When we're talking about what to do about it, then every citizen's opinion is just as important as anybody else's, and everybody should be quoted. But not about how many degrees of warming there is – that takes a lot of knowledge, to be able to know what you're talking about. That knowledge is very well reflected in the counts of the number of times people's scientific papers have been cited by their colleagues. That's where the mainstream climate scientists have a major advantage over those who are unconvinced. We feel that's a robust conclusion, that most of the claimants that there's no anthropogenic climate change are very weak scientists – by and large – and most of their comments are really not very scientifically credible.

CSW: I believe Judith Curry argued that, on your various lists, under "convinced of the evidence" you were including people who are ecologists and biologists, and who aren't really experts in the climate change detection and attribution research. So that somehow skews your notion of how to sort people out in terms of credibility. What's your response to that?

Schneider: Well, there are two responses. First of all, there are a couple dozen people in the world that work in ecology – that includes people like Terry Root, Camille Parmesan, and myself, among others – who actually look at the bloom dates of roses in your grandmother's back yard and when birds come back. We do detection and attribution studies. Those people are in the IPCC and they are legitimate experts and they have published research in *Science* and *Nature* and *PNAS* and places like that. There was an entire chapter on it in [IPCC] Working Group II and those people, again, like Cynthia Rosenzweig, were included in the IPCC database.

But she does have a point, that not everyone in IPCC is an expert in detection and attribution. That's certainly true. **But when she said that the IPCC group that we used in our PNAS study should be cut down to something like 20% of the original. That's hundreds of people, that's still quite a lot of people. If you look at the "unconvinced of evidence" group, virtually nobody in it has ever published a paper on detection and attribution. So, by Judy's own logic, that means it's virtually a null set. That means there's almost nobody in the unconvinced category who has any expertise whatsoever in detection and attribution. So, if you take her logic, and apply it symmetrically to the "convinced" and "unconvinced" you narrow the "convinced" group down to a smaller but still clear and robust population and the "unconvinced" has virtually no expertise, and their opinion becomes completely irrelevant.**

CSW: What about the argument that some of the people critical of the study

have made, that there's something wrong with the metric of counting numbers of publications and counting how often your work is cited by other scientists. Some people will say that just the number of your publications doesn't necessarily tell what the quality of your science is, and of course people of similar viewpoints will cite each other, or some articles have 10 or 12 authors and that racks up a lot of totals for some people, so using the publication and citation metrics doesn't necessarily represent a scientifically correct perspective. Rather, it's an elitist appeal to authority claiming that one group is more credible on the basis of these questionable metrics.

Schneider: Well, first of all, there's no perfect metric. What we're trying to do is find out, in the spirit of risk management, where is the preponderance of evidence? Where is the preponderance of skill? We didn't make [these metrics] up, which is the number of papers people publish and the number of times colleagues cite them. There is a very widespread belief, built on evidence, that those people with stronger publication records, getting themselves published many more times in peer reviewed literature – which is not easy – and the number of times you're cited, the number of times other people are quoting you, is a very good metric as to whether you just published a meaningless paper about something irrelevant, or whether that paper has real clout.

The only way you can get citation and not have quality is if you have made a big error. In fact, one of the things we did to try to eliminate that is we didn't just look at the average number of cites, we looked at the top four or five papers each person published, and then we tried to check and see whether one of them was massively cited. We'd cut that out, saying either that was their one brilliant shining star or they made so many mistakes that everybody caught them. As it turns out it made almost no difference in the statistics. We feel that these statistics are pretty robust in giving you the strong preponderance of evidence that those people who publish more and have more citations are much more scientifically credible.

About the 'elitist' part: *Scientists are really stuck. It's exactly the same thing in medicine, it's the same thing with pilot's licenses and driver's licenses: We don't let just anyone go out there and make any claim that they're an expert, do anything they want, without checking their credibility. Is it elitist to license pilots and doctors? Is it elitist to have pilots tested every year by the FAA to make sure that their skills are maintained? Is it elitist to have board certification on specialities in various health professions? I don't think so. I think it's the way we have safety. We have an FDA, which analyzes food and drugs.*

We're talking about planetary life support. People who are special interests in making money in the fossil fuel industry, who are ideologues, who are so deeply opposed to government regulation or international agreements, will just make any wild claim to support their ideology or special interest. They'll find some hired gun PhD, or they'll pick weak scientists for the most part – and should they really be afforded as much credibility? Can you tell me that a hundred institutions around the world, that have been working for 40 years, that have had dozens and dozens of carefully reviewed assessments, are somehow no more credible – even if they're more elitist – than petroleum geologists funded by an oil company? They're as knowledgeable about climate science as I would be about how to fix the leak in the Deepwatergate problem. I mean, they're really not experts, and it really does matter what people know. If we do not do the due diligence of letting people understand the relative credibility of claimants of truth, then all we do is have a confused public who hears claim and counter-claim.

That's why there's a National Academy of Sciences: it has to sort out the relative credibility of claims. Why is there an IPCC? Because the average person is not trained in what cloud feedback is, nor is the average geologist, just as the average climate scientist is not trained in how to find oil! So, let's stay where we have our expertise. Science is a meritocracy. You have to have evidence. When somebody says I don't believe in global warming, I ask, "Do you believe in evidence? Do you believe in a preponderance of evidence?"

CSW: What about the charge that there is a sort of commingling of science expertise with policy prescription here, in that, to say "convinced by the evidence for anthropogenic climate change," that takes in most of the science community but it would also incorporate people who have a range of views on what kind of a climate policy would be desirable. There may be people who accept anthropogenic climate change but don't support legislation for a strong mitigation policy. Or don't support strong government regulation to limit greenhouse gases. Does it seem to you that real credible expertise in climate science points in the direction of a particular type of policy prescription, that we need a strong mitigation policy? Can you disconnect the two – and should we?

Schneider: I think it's very difficult to disentangle them, without looking up every statement everyone has ever made. But most of people that signed the petitions saying they do not believe anthropogenic global warming is very likely, and they're not convinced, are also making very strong statements that we shouldn't have climate policy. Actually, very often people who say they aren't convinced by the climate science are saying that simply because they do not want regulations, because they are anti-regulation ideologues, or special interest in the fossil fuel industry, or have a world view about private rights being more important than collective protection. Now, we aren't going to be able to specifically separate them one by one unless you can find petitions that separate them – and those petitions don't exist. But there's a very, very high correlation between people who are convinced that there's anthropogenic climate change and their argument that something should be done to slow it down to protect the planetary life support system. And there's a very very high correlation between those who are unconvinced and saying "why should we have climate policy if we aren't even convinced this is going on?" So, I think our conclusions are quite robust, though I have no doubt there could be 10 or 20% exceptions.

We have a database of over 1,000 people. Only a small number of them are going to fit into those ambiguous categories, and therefore do almost nothing to the statistics. So these are nitpicks, designed to discredit the overall preponderance of evidence we found. So while we feel that it is not a perfect measure, it's a very close fit to the basic preponderance of thinking of the convinced and unconvinced. And if they don't believe that, let them do their own study.

They also make a claim, which we haven't discussed yet, that the reason the mainstream scientists have more papers and citations is because the "unconvinced" scientists have been systematically blocked by the peer review system, which is a cabal of government-funded scientists who are trying to eliminate the opinion of the contrarians. Now, this is pure assertion. They have absolutely no data. Have they ever shown us how many papers they've submitted, relative to the others?

I edit a journal called *Climatic Change* and I can tell you that the number of submissions I get from people with completely unconventional views is trivial, a tiny fraction of the hundreds and hundreds of submissions where people are not convinced of every detail, but they're convinced the problem is real enough that

it has to be studied and looked at and we have to take a look at the implications. So there are very few of them that are submitting. Now, they could come back and say, well that's because we know that we'll never get through the peer review process. Now they're imputing that we're some dishonest community who's not going to give them a fair shake. When I get those papers, I often publish them, but I publish them with editorials that have opposite points of view. Just as, if I get a new radical idea in saying that climate change is going to be worse than the mainstream now thinks, I'll probably publish it in *Climatic Change*, but then I'll get an editorial from someone who is a little more conservative.

So they make this assertion that they're being systematically excluded, because they have no other argument, they no have evidence for the assertion. Let them do a study. Let them show us the letters of all the papers that have been rejected. What we did is look at real evidence, independently collected: How many papers, and how many citations. That's independent, and the only way you can claim it isn't true is to invoke some massive conspiracy that is frankly laughable.

CSW: One critic, I believe it was Roy Spencer, called attention to your use of the term "tenets" – "the basic tenets of anthropogenic climate change," or "the basic tenets of the IPCC." He said that the term tenets belongs in religion, not science.

Schneider: Roy Spencer ought to know about religion since he publishes on creationist blog sites and I don't, so I'll give him expertise on religion that I don't have. However, the word tenet has been used since I can remember being in 8th grade referring to a set of conditions and beliefs and criteria. So, in the sense that it's criteria, or underlying aspects of a problem, I don't have any difficulty using that word. I mean the tenets of those people who are unconvinced about climate change is that as long as there are loose ends anywhere, they don't accept it.

The tenets on the side of the IPCC? Well it's that greenhouse gases have increased. They trap heat. A significant fraction, almost all recent increases, are from human activities. And so forth. Each one of those is a component of the knowledge base. 'Tenet' is perfectly legitimate, it's a standard word. The religion does not come from the side of the mostly convinced.

CSW: Last thoughts to leave us with?

Schneider: The main thing I want people to remember is that when we're talking about expertise, we're not talking about expertise in what to do about a problem. That is a social judgment and every person has the same right to their opinion as any person in climate. However, we are talking about the relative likelihood that there could be serious or even dangerous changes. Because before you even decide how you want to deploy resources as a hedge against a wide range of important social problems, you have to know how serious the problems are. All we're trying to do in science is give the best estimate that honest people with a lot of evidence can, about the relative risks, so they can make wise decisions in their own lives and in who they elect about how we should deal with it.

If you have no idea about the risk, it's very hard to rationally do risk management. And we feel that there many people deliberately muddying the risk waters because of a combination of ideology and special interest. We have every right to point out that they have weaker credentials in science than those who are convinced on the basis of the forty year record and longer that the scientific

community has been successively examining, year after year after year. That is how we make decisions in medical, in health, or in business. We operate on the basis of preponderance of evidence. The same thing must be done for the planetary life support system. That's why it's so important to understand who's credible.

["Expert Credibility in Climate Change"](#) ^[4] (*Proceedings of the National Academy of Sciences*, published online before print, June 21, 2010)

[Stephen Schneider's website](#) ^[6]

[Science as a Contact Sport: Inside the Battle to Save Earth's Climate](#) ^[7]

Schneider was a crucial voice in climate science he will be greatly missed.

Revkin has his thoughts [here](#) ^[1]. Add yours below.

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[1] has died: <http://dotearth.blogs.nytimes.com/2010/07/19/the-passing-of-a-climate-warrior/>

[2] a rare cancer: <http://www.nytimes.com/2005/05/03/science/earth/03conv.html>

[3] new study that reaffirmed the broad scientific understanding of climate change and questioned the media's reliance on a tiny group of less-credible scientists for "balance.": <http://climateprogress.org/2010/06/21/pnas-study-climate-science-media-balance-deniers/>

[4] Expert credibility in climate change: <http://www.pnas.org/content/early/2010/06/04/1003187107.abstract>

[5] ClimateScienceWatch.org: <http://www.climatesciencewatch.org/index.php/csw/details/schneider-interview-climate-expert-credibility/>

[6] Stephen Schneider's website: <http://stephenschneider.stanford.edu/>

[7] Science as a Contact Sport: Inside the Battle to Save Earth's Climate: <http://www.amazon.com/dp/1426205406?tag=thepatientfro-20&camp=14573&creative=327641&linkCode=as1&creativeASIN=1426205406&adid=034KVS7P75A73BJMNRD4&>

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