Being true to the science while true to one's self: how by stepping away from scientific restraint, we can meet people—including ourselves–where they are

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Abstract

For more than 20 years, the work of academic climate scientists and those at groups like the Union of Concerned Scientists has been to analyze, synthesize, and convey the projected and, in recent years, current impacts of climate change. In the earlier years, these impacts were still largely imperceptible and pathways for solving the problem seemed wide and flexible. A key objective of climate science communication during those years was to establish the legitimacy of our work, which faced tremendous public and policy maker scrutiny, as a simultaneous barrage of well-coordinated disinformation had led to unusual skepticism of the science. Now we are clearly seeing the impacts of one degree Celsius of warming, the current and projected climate impacts themselves have grown, and the solutions pathways have become narrow and steep. While the climate context has changed for the worse over those 20 years, scientists have largely soldiered on with the same reticent communication. Visible climate change impacts and alarming projections for future change have far outpaced the growth in experts' ability to reach people and inspire them to act with urgency. At UCS, we have consciously and deliberately begun to change the tenor of our climate communications in response to the increasingly dire results our own analyses have generated and against a backdrop of accumulating and similarly dire science. In our most recent work on extreme heat, particularly in introducing and concluding our results, we have embraced starkly visceral and impassioned language because, as scientists, we see how dangerous the future looks, how serious this moment is in the arc of climate change, and our own moral obligation to communicate it. In this presentation, we will examine the communications space our climate scientists at UCS—as well as those at other institutions—have leaned into. As sentient humans who see an emergency measured not just by data points in charts and graphs but by the faces of those whose homes have flooded, whose loved ones have lost their lives during heat waves, or whose livelihoods are no longer viable, we can't "tell it like it is" without letting go of reticence and objectivity. The words we choose may be perceived as dangerous, but they are not as dangerous as the world we are ushering in. The house is objectively on fire. It's time to shout.

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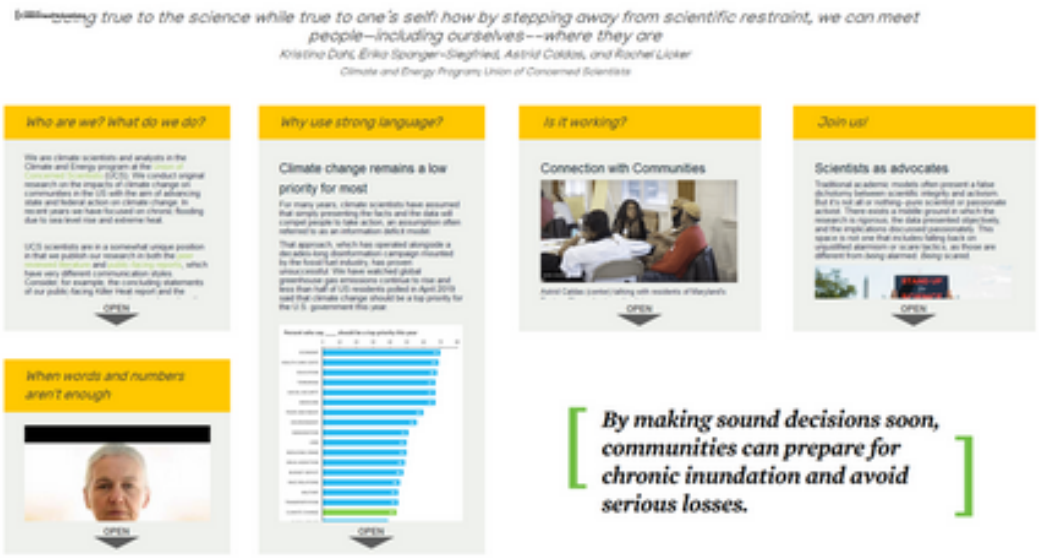

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Climate and Energy Program; Union of Concerned Scientists

PRESENTED AT:

AGU 100 ADVANCING EARTH AND SPACE SCIENCE

FALL MEETING

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WHO ARE WE? WHAT DO WE DO?

We are climate scientists and analysts in the Climate and Energy program at the Union of Concerned Scientists (http://www.ucsusa.org) (UCS). We conduct original research on the impacts of climate change on communities in the US with the aim of advancing state and federal action on climate change. In recent years we have focused on chronic flooding due to sea level rise and extreme heat.

UCS scientists are in a somewhat unique position in that we publish our research in both the peer reviewed literature (https://iopscience.iop.org/article/10.1088/2515-7620/ab27cf) and public-facing reports (http://www.ucsusa.org/killer-heat), which have very different communication styles. Consider, for example, the concluding statements of our public-facing Killer Heat report and the accompanying peer reviewed paper, based on the same research:

Killer Heat report: “Our future promises a hotter climate; there is no avoiding that basic outcome. It is not a future the children of the 21st century would choose for themselves. The rest of us chose for them. We now face another choice: to protect what we can of that future and ensure it is recognizable and safe for today’s children and youth as they live out their lives.”

Environmental Research Communications article: “With late century extreme heat index conditions and exposure under RCP8.5 being roughly double of that under RCP4.5, reductions in global greenhouse gas emissions are a complementary strategy for managing the future impacts of extreme heat in the US.”

The language we use in our peer reviewed articles must conform to the standards of scientific literature. In our public-facing communications, we make deliberate language choices that reflect the gravity of the results we have produced and ask the audience to consider the choices we have before us.

WHEN WORDS AND NUMBERS AREN'T ENOUGH

[VIDEO] https://www.youtube.com/embed/YXUJYRnCPyY?feature=oembed&fs=1&modestbranding=1&rel=0&showinfo=0
We paired the release of our recent work on future extreme heat with a video that conveyed the visceral, human nature of our results. The data we had generated gave us chills, and bolstered our sense of urgency around the need for climate action. Since scientists are known to be somewhat unique in making decisions or changing their minds based on data (1), we wanted to induce that same sense of urgency--that same set of chills--in the general public.

This "emotions first" approach is markedly different from video materials we developed in the past. For example, in 2017, when we released a study (https://www.elementascience.org/articles/10.1525/elementa.234/) of future chronic flooding, the video accompanying the study led with facts and statistics from our research. Check it out:

[VIDEO] https://www.youtube.com/embed/rvzLZ5jobsQ?feature=oembed&fs=1&modestbranding=1&rel=0&showinfo=0
As you watch these two videos, reflect on how they strike you both scientifically and emotionally. What messages might a non-scientific viewer take away from each?

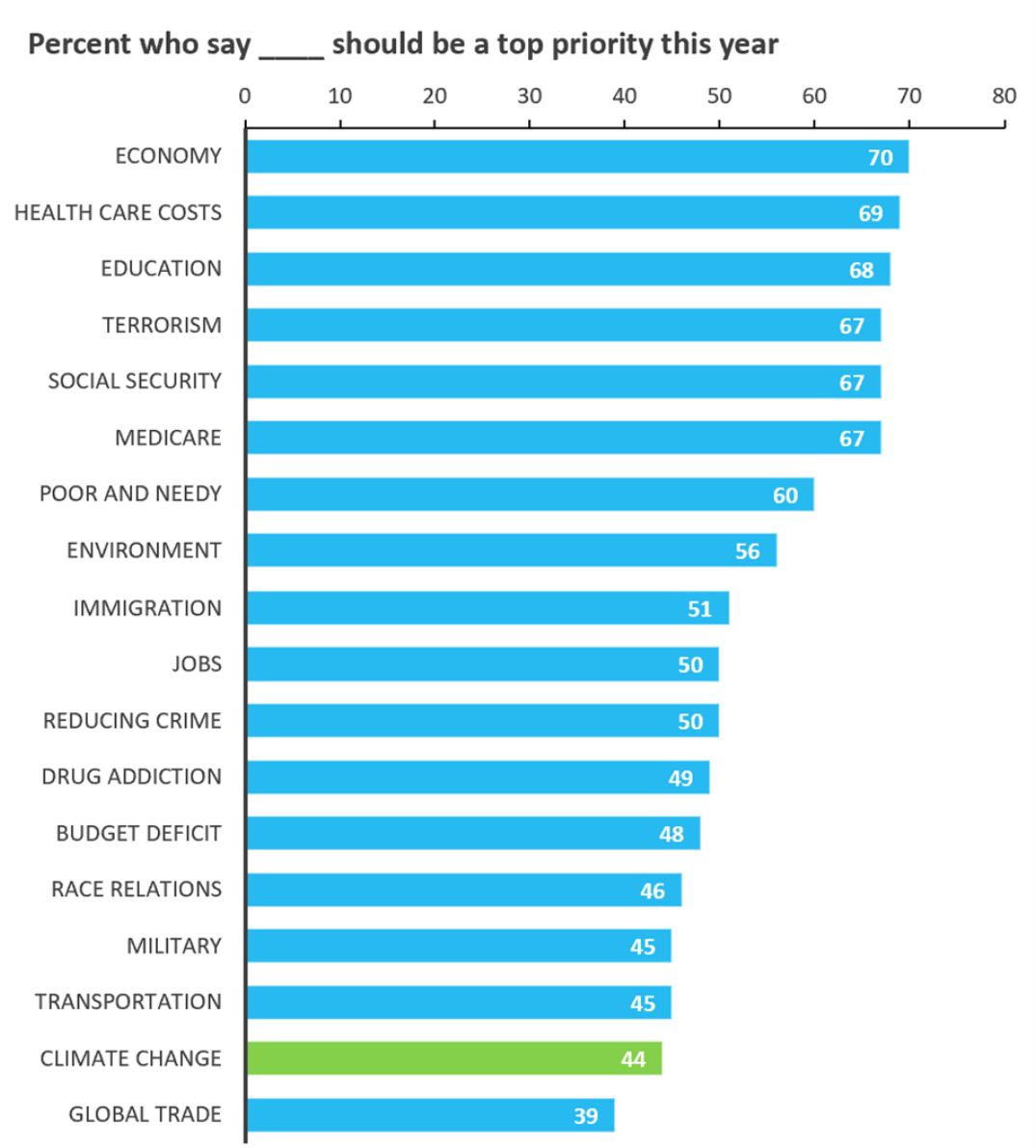
(1) See, for example, Lee McIntyre's The Scientific Attitude (http://See, for example, Lee McIntryre’s The Scientific Attitude).

WHY USE STRONG LANGUAGE?

Climate change remains a low priority for most

For many years, climate scientists have assumed that simply presenting the facts and the data will compel people to take action, an assumption often referred to as an information deficit model.

That approach, which has operated alongside a decades-long disinformation campaign mounted by the fossil fuel industry, has proven unsuccessful: We have watched global greenhouse gas emissions continue to rise and less than half of US residents polled in April 2019 said that climate change should be a top priority for the U.S. government this year.



Source: Pew Research Center (https://www.people-press.org/2019/01/24/publics-2019-priorities-economy-health-care-education-and-security-all-near-top-of-list/pp_2019-01-24_political-priorities_0-02/), 2019

Yet its effects are here and becoming clear

In contrast, we're already seeing how devastating the observed human-induced warming of 1°C can be: Hurricanes that dump record-breaking rain and flood widespread areas for days or weeks; heat waves that spread into the Arctic and cause unprecedented melting of ice, etc.

Attribution research concluded that the extreme rainfall during Hurricane Harvey in 2017 was 15% more intense that it would have been without global warming (1). Source: Staff Sgt. Daniel J. Martinez, Air National Guard.

We're experiencing these changes sooner than we expected based on the science, and yet they pale in comparison to what projections suggest is coming if global emissions aren't reduced at a pace that's hard to fathom given historical trends.

How we communicate needs to change

At UCS, we are stretching to find new ways to convey this urgency. Connecting climate data to people's lives and the things they hold dear and sharing that these things are also dear to us, i.e., sharing how we feel, is one way of doing this.

We're in a crisis. We face choices about how to respond. Scientists will make their own, individual decisions about how to conduct and convey their climate-related research both within and outside academia.

For some, that may mean sticking to their academic research, publishing in academic journals in a traditional scientific model. But those who want to speak out, to go beyond their data to talk about what it all means for this world of ours, should feel justified in marrying the weight of the scientific findings with their rational concern for the dire implications of those findings.

Science aims for positive change

The spark at the core of nearly all scientific endeavors is a desire to better understand our world and ourselves. But if we then don't connect what we've learned to the betterment of our world and ourselves, what is the point of science? Can one honestly be deeply engaged in the enterprise of researching how climate is changing and *not* feel something when looking at their own or their colleague's results? While generating knowledge for knowledge's sake is crucial for advancing society and well-being, when put in the context of an increasingly evident crisis, we have to ask ourselves if we're applying our energies where they are most needed.

(1) van Oldenborgh et al. 2017 (https://iopscience.iop.org/article/10.1088/1748-9326/aa9ef2)

IS IT WORKING?

Connection with Communities

Astrid Caldas (center) talking with residents of Maryland's Eastern Shore about sea level rise.

In our reports about sea level rise and our conversations with communities on the front lines of rising seas, we have acknowledged the fear and frustration coastal residents may feel upon realizing that their communities--or their homes, and thus their plans, savings, etc.--are at risk. The humanity and empathy we have aimed for in our sea level rise communications have led to invitations from communities in states where the words “climate change” are shunned. Our community partners have expressed their gratitude for the approach we have taken, saying that by acknowledging and helping to give voice to the difficulty of their predicaments, we have gained their trust. These communities are making progress in planning for future sea level rise.

Reach

While we--and the media--see our peer reviewed research as a critical validation of our work, our public-facing reports are able to reach a much larger audience than our peer reviewed publications. For instance, a 2017 paper we published in PLOS-ONE was recently named one of the journal’s most cited articles that year with 10 citations. The accompanying public-facing report, Encroaching Tides, has been cited over 500 times in the media.

By making the science accessible to an average reader and presenting a compelling narrative, our reports have garnered thousands of media hits. That translates to thousands of opportunities to present the case for climate action in a broad range of media markets.

Being true to ourselves

Not everyone will feel comfortable marrying their science with impassioned language on the threat and the need to act on climate change. But over the last five years, as we have watched the effects of climate change disrupt people’s lives around the world while projections have grown increasingly dire, most of us have wrestled with emotions including: grief over what has already been lost; fear for what the future has in store for today’s children; and cautious hope that humanity will yet change course.

To fully address the climate crisis, we must acknowledge that that a future in which warming goes unchecked will likely be difficult. At the same time, the path that would lead us to greater safety is also likely to be difficult. We will, as societies, grapple with grief, fear, and hope. These emotions are natural, and they can motivate us, personally, to keep doing this work year after year. Including these emotions in our communications allows us to connect with the general public in powerful ways and to be true to both our science and ourselves.

JOIN US!

Scientists as advocates

Traditional academic models often present a false dichotomy between scientific integrity and activism. But it's not all or nothing--pure scientist or passionate activist. There exists a middle ground in which the research is rigorous, the data presented objectively, and the implications discussed passionately. This space is not one that includes falling back on unjustified alarmism or scare tactics, as those are different from *being* alarmed. *Being* scared.

The UCS Science Network

The Science Network is composed of 26,000 scientists, engineers, and other technical experts united by the desire to use their specialized skills and knowledge for the public good. Members work to build power on critical issues like climate change.

The Science Network also helps its members realize and apply their powerful voices to almost any science-related issue with the goal of improving lives and outcomes for all. There are additional resources for early career scientists.

Learn more about the Science Network by scanning this code with your smartphone.

Sorry but time is up!

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SWITCH TEMPLATE