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# Notes from the Field

Month in Review • September 2021  
[woodwellclimate.org](http://woodwellclimate.org)

# White House Office of Science and Technology Policy announces Dr. Philip Duffy as Climate Science Advisor

**Joe Mueller**

Chair, Board of Directors



I am writing with some exciting news from Woodwell Climate. I am pleased to announce that Dr. Philip Duffy, President and Executive Director of Woodwell Climate Research Center, has been appointed to serve as a Senior Climate Science Advisor in the White House Office of Science and Technology Policy (OSTP). This is a one-year term, during which he will support Dr. Eric Lander, Director of OSTP and Science Advisor to the President, and OSTP Deputy Director for Climate and Environment, Dr. Jane Lubchenco, in shaping science-based climate policy.

This appointment recognizes Phil's expertise, thought leadership, and international stature, as well as the unique and valuable contributions Woodwell Climate makes by working at the intersection of science, policy, and society.

The coming year presents a critical opportunity for urgently-needed progress on climate policy, and the Biden Administration has demonstrated ambition and commitment to an all-of-government approach to address climate change. Simultaneously, this is a time of great opportunity, momentum, and growth for Woodwell Climate--all of which will continue expeditiously during Phil's appointment.

While Phil serves in this temporary post, he will step away from his role as President and Executive Director of Woodwell Climate Research Center. Therefore, I am heartened to share that Dr. R. Max Holmes, who has served as Deputy Director for six years, will take on the role of Acting President and Executive Director. Dr. Jennifer Francis will serve as Acting Deputy Director. The Board of Directors and I have every confidence in the deep and skillful leadership capabilities that Max and Jen will contribute to keeping Woodwell's upward trajectory on course.

On behalf of our entire Board of Directors, thank you for your continuing support of Woodwell Climate. Your ongoing dedication is greatly appreciated. We hope you will join us with resounding congratulations and best wishes to Phil on his departure for Washington to begin his important temporary assignment. We extend our sincerest gratitude for his successful leadership of Woodwell Climate since 2015, and look forward to welcoming him back in a year's time.

We also call upon all of you, the Center's closest friends and contributors, to step forward with your votes of confidence and continued investment in the Center's mission in this critical forthcoming decade that will impact the future for our children's and grandchildren's way of life on this planet.

Thank you for everything you do in support of Woodwell Climate Research Center.

Sincerely,



**READ**

Read the White House press release at:  
<https://bit.ly/ostp-announcement>

# Imagining Earth's most probable futures

by Sarah Ruiz  
Science Writer

## New climate education initiative portrays the warmer worlds we are likely to see this century, in hopes of preventing them

One point five—most readers will recognize that number as the generally accepted upper limit of permissible climate warming. With current temperatures already hovering at 1.1 degrees Celsius above the historical average, the race is on to hit that target, and the likelihood that we will surpass it is growing. Even if we do manage a 1.5 degree future, that's still warmer than today's world, which is already seeing devastating climate impacts.

So what will it actually feel like to live in a 1.5 degree world—or a 2 degree one, or even 3? The Probable Futures initiative has built a tool to help everyone imagine.

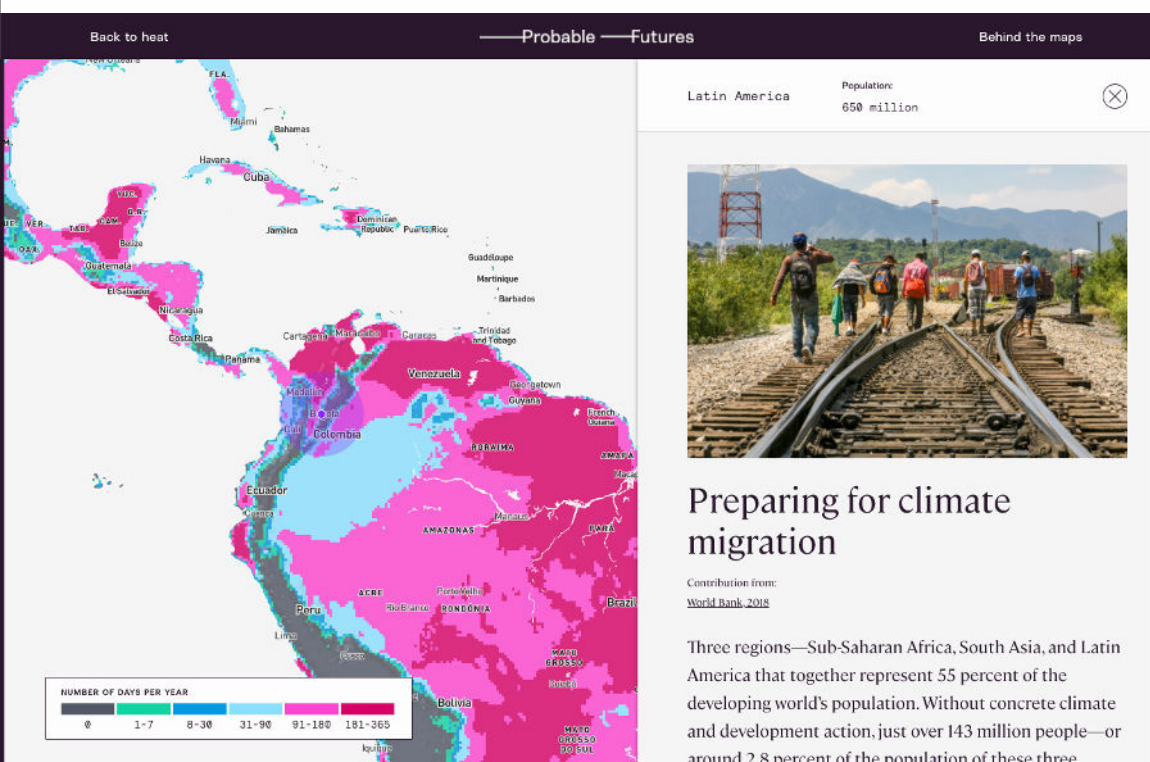
According to Glendon, although there was an abundance of available climate science, it wasn't necessarily accessible to the people who needed to use it. The way scientists spoke about climate impacts didn't connect with the way most businesses, governments, and communities thought about their operations. There was no easy way for individuals to pose questions of climate science and explore what the answers might mean for them.

In short, the public didn't know what questions to ask and the technical world of climate modeling wasn't really inviting audience participation. But it desperately needed to. Because

tackling climate change requires everyone's participation.

"The idea that climate change is somebody else's job needs to go away," Glendon says. "It isn't anybody else's job. It's everybody's job."

So, working with scientists and communicators from Woodwell, Glendon devised Probable Futures—a website that would offer tools and resources to help the public understand climate change in a way that makes it meaningful to everybody. The site employs well-established models to map changing temperatures, precipitation levels, and drought through escalating potential warming



### Building a bridge between science and society

Probable Futures is a newly launched climate literacy initiative with the goal of reframing the way society thinks about climate change. The initiative was founded by Spencer Glendon, a senior fellow with Woodwell Climate who, after investigating climate change as Director of Research at Wellington Management, noticed a gap in need of bridging between climate scientists and, well... everyone else.

scenarios. The data is coupled with accessible content on the fundamentals of climate science and examples of it playing out in today's world.

According to the initiative's Executive Director, Alison Smart, Probable Futures is designed to give individuals a gateway into climate science.

"No matter where one might be on their journey to understand climate change, we hope Probable Futures can serve as a trusted

resource. This is where you can come to understand the big picture context and the physical limits of our planet, how those systems work, and how they will change as the planet warms,” Smart says.

## The imagination piece has been missing in communication between the scientific community and the broader public.

Isabelle Runde  
Woodwell Research Assistant

### Storytelling for the future

As the world awakens to the issue of climate change, there is a growing group of individuals who will need to better understand its impacts. Supply chain managers, for example, who are now tasked with figuring out how to get their companies to zero emissions. Or parents, trying to understand how to prepare their kids for the future. Probable Futures provides the tools and encouragement to help anyone ask good questions about climate science.

To that end, the site leans on storytelling that encourages visitors to imagine their lives in the context of a changing world. The maps display forecasts for 1.5, 2, 2.5, and 3 degrees of warming—our most probable futures, with nearly 3 degrees likely by the end of the century on our current trajectory. For the warming we have already surpassed, place-based stories of vulnerable human systems, threatened infrastructure, and disruptions to the natural world, give some sense of the impacts society is already feeling.

According to Isabelle Runde, a Research Assistant with Woodwell’s Risk Program who helped develop the maps and data visualizations for the Probable Futures site, encouraging imagination is what

sets the initiative apart from other forms of climate communication.

“The imagination piece has been missing in communication between the scientific community and the broader public,” Runde says. “Probable Futures provides the framework for people to learn about climate change and enter that place [of imagination], while making it more personal.”

Glendon believes that good storytelling in science communication can have the same kind of impact as well-imagined speculative fiction, which has a history of providing glimpses of the future for society to react against. Glendon uses the example of George Orwell who, by imagining unsettling yet possible worlds, influenced debates around policy and culture for decades. The same could be true for climate communication.

“I’m not sure we need more science fiction about other worlds,” Glendon says. “We need fiction about the future of this world. We need an imaginative application of what we know.” Glendon hopes that the factual information on Probable Futures will spark speculative imaginings that could help push society away from a future we don’t want to see.

For Smart, imagining the future doesn’t mean only painting a picture of how the world could change for the worse. It can also mean sketching out the ways in which humans will react to and shape our new surroundings for the better.

“We acknowledge that there are constraints to how we can live on this planet, and imagining how we live within those constraints can be a really exciting thing,” Smart says. “We may find more community in those worlds. We may find less consumption but more satisfaction in those worlds. We may find more connection to human beings on the other side of the planet. And that’s what makes me the most hopeful.”

VISIT

Probable Futures website at:  
[probablefutures.org](https://probablefutures.org)

## Recognizing risk—raising climate ambition

A series of workshops hosted by the COP26 Presidency and Woodwell Climate aims to increase climate risk understanding at highest levels of government



**UN CLIMATE  
CHANGE  
CONFERENCE  
UK 2021**

IN PARTNERSHIP WITH ITALY

The UK will host the 26th UN Climate Change Conference of the Parties (COP26) in Glasgow on 1-12 November 2021. The COP26 summit will bring parties together to accelerate action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change. Policy progress, however, has not matched the severe warnings of impending climate change impacts.

In this context, the COP26 Presidency and Woodwell Climate Research Center are organizing country-specific

workshops to understand how to better deliver information on the full scale of the risks of climate change to heads of government, in a way that can inform critical national decisions on emissions reduction as well as adaptation.

“It is critically important that policymakers understand the severity of climate change risks, and that they match their policy ambition to the scope and scale of those risks,” said Woodwell Acting Deputy Director and Senior Scientist Dr. Jennifer Francis. “We worked with the COP26 Presidency to organize these workshops because we need to deliver this information more effectively, so that governments can take the urgent action that is needed now.”

Working with the UK’s Science and Innovation Network, Woodwell is convening cross-sectoral experts, advisors and advocates on risk to collect and share best practices. Countries involved in the workshops include Argentina, Australia, Brazil, Canada, China, India, Indonesia, Russia, South Korea, South Africa, United States, and Turkey.

“A better understanding of the full scale of the risks which climate change poses to our way of life and national economies is essential to inform commitments to climate action at COP26 and beyond,” COP26 President-Designate Alok Sharma said. “This program will bring together scientists, policy makers, and civil society to improve the understanding and communication of these risks, as we work to make sure we keep the 1.5 degree goal alive.”

Workshop outcomes will feed into COP26 Presidency processes and will be summarized in a report on global best practices to be released at COP26. Participants are invited to share their expertise and knowledge to drive action on better analyzing and communicating the risks of climate change.

## Fund for Climate Solutions supports new cutting-edge projects

### Summer 2021 awardees focus on understanding and enhancing natural carbon sequestration

The Fund for Climate Solutions is a competitive, internal granting mechanism that supports early-stage and high-risk, high-reward research with breakthrough potential. The Summer 2021 round of funding awarded more than \$500,000 to five projects largely focused on understanding and enhancing the potential of land-based systems—from farms, to rangelands, and forests—to remove carbon from the atmosphere.



#### Scaling Forest Carbon Markets: Toward A Global Carbon Rating Standard

Submitted by Dr. Wayne Walker and Dr. Glenn Bush

As both public and private sectors commit to more ambitious emissions reduction targets, forest carbon crediting has the potential to be an important market-based mechanism for mitigating climate change while protecting global forests. Forest carbon credits are currently uncertain investments due to confusion about evolving standards, and the perceived risk is exacerbated by a lack of transparency. This project seeks to promote market confidence by delivering the first ever investment-oriented forest carbon rating standard (FCRS). In partnership with Wellington

Management, the FCRS will define the operational architecture for a global rating system similar to Moody’s bond ratings. By incorporating key metrics of forest carbon quality and ecological integrity while accounting for governance- and climate-driven risk, the FCRS has the potential to aid in unlocking the billions of dollars in investment needed to scale the global forest carbon market.

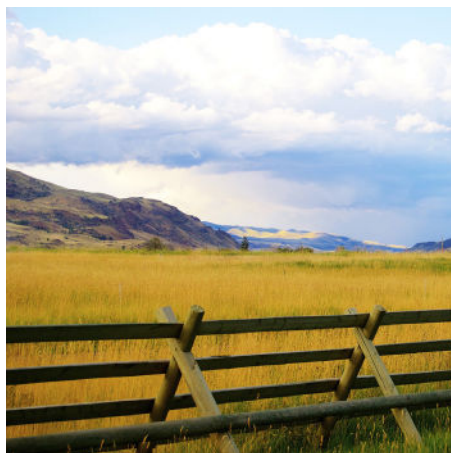


#### Getting the word out: Support for open access publications on land and air use in southwestern Amazonia

Submitted by Dr. Foster Brown

Southwestern Amazonia, a region with about a million square kilometers, is one of the most biologically and

culturally diverse regions on the planet. It has become a key region where conflicts of development and conservation are accentuated, and where science can make a difference in land use trajectories – but only if that science is available to stakeholders and policymakers. This funding will enable open access publication of four articles that provide suggestions for public policy ranging from changing the Amazonian development model, to simplifying identification of illegal logging and deforestation, to describing how new technologies and collaboration resulted in an air quality network that could serve as a model for others.



### **A Rangeland Carbon Monitoring Platform for the Western United States**

Submitted by Dr. Jennifer Watts and Dr. Jonathan Sanderman

Rangelands (which include grassland, shrubland and pasture) cover nearly a third of U.S. land area and offer a large capacity to remove carbon dioxide from the atmosphere and store it in soil. Studies suggest that capacity could be increased significantly, and this is a high-priority goal for conservation and climate mitigation efforts. However, integration of rangelands into emerging carbon markets is hampered by a lack of practical methods for quantifying and monitoring carbon in rangeland systems

over large regions. Our team at Woodwell is developing a cutting-edge approach for comprehensive spatial and temporal carbon monitoring in rangeland systems. This system will provide rangeland managers with information needed to quantify carbon sequestration within landscapes and make informed decisions about land use; it will also provide a platform capable of supporting carbon sequestration verification requirements for carbon markets—all at no cost to range managers.

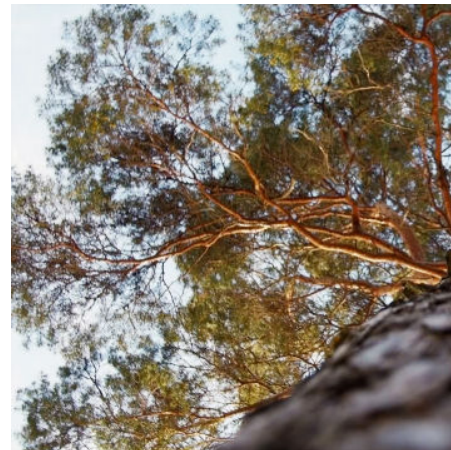


### **Decoding the Regenerative Agriculture Revolution in India**

Submitted by Dr. Jonathan Sanderman

Andhra Pradesh's Community-Managed Natural Farming (CMNF) program is one of the largest experiments in agroecology in the world and holds lessons for regenerative agriculture work worldwide. CMNF, previously referred to as zero budget natural farming, is a method of regenerative agriculture that is promoted as a key initiative for improving human, soil, and environmental health, climate resilience and mitigation, and rural economic development. Sound, independent science is critical to understand the promise and limitations of CMNF. This project includes a five-year-long longitudinal impact assessment comparing CMNF and conventional farming across three sustainability dimensions, as well as a climate risk

assessment for agriculture in Andhra Pradesh (India), and efforts to develop and disseminate replicable approaches for scaling up CMNF. This work has the potential to demonstrate the effectiveness of natural farming, and significantly influence the growth and adoption of regenerative agriculture across the globe.



### **Bias in the estimated emissions of carbon from terrestrial ecosystems**

Submitted by Dr. Andréa D. de Almeida Castanho and Dr. Richard (Skee) Houghton

It is critical we understand the future capacity of forests to absorb and store carbon. To date, our understanding has been based to a large extent on the estimates of carbon emissions from Land Use, Land-Use Change, and Forestry (LULUCF), calculated by the so-called bookkeeping model. Several recent lines of evidence suggest that the growth curves used in the bookkeeping model to simulate forest growth may be biased toward rapid forest regrowth and low carbon accumulation after 100 years of growth. This project will examine the effects of modifying forest growth curves on estimated emissions, with the potential to suggest ways of refining the bookkeeping model and improving our understanding of the land carbon sink.

## In the news: highlights

Dr. Sue Natali and Dr. Brendan Rogers co-authored an op-ed in *The Hill* calling for prioritization of permafrost thaw research and the inclusion of permafrost thaw emissions in global carbon budgets.

*E&E News* broke the news of Dr. Phil Duffy's appointment as Senior Climate Advisor in the White House Office of Science and Technology Policy with a Q&A piece. The news was also featured in the *Axios Generate* newsletter, and covered locally by the *Falmouth Enterprise* and *Cape Cod Times*.

*Bloomberg's* Eric Roston got the exclusive on the launch of Probable Futures, but the news also showed up in some other interesting places, like *The Spuzz* and *Divya Bharat*.

Dr. Jen Francis was quoted in stories explaining "How Hurricane Ida Got So Big So Fast" (*Scientific American*), "Why a Warming Arctic Has the U.S. Coast Guard Worried About the Rest of the Country" (*TIME*), and the ramifications of a shifting jet stream, (*E&E News* and *Scientific American*). She penned an op-ed in *The Hill* commenting on the need to keep the climate crisis on the front burner, and was quoted extensively in Yvonne Abraham's weekend column for the *Boston Globe*.

Dr. Christopher Schwalm was quoted in a story about the under-recognized climate hazards that utilities face, published on *S&P Global* and *Coal Zoom*.

A new *Science* paper by Dr. Jen Francis' close collaborator, Dr. Judah Cohen, on the link between Arctic warming and the deadly Texas cold wave got extensive coverage: *Washington Post*, *CBC*, *AP*, and *New Scientist*.

Dr. Jon Sanderman was quoted, and his recent work with EDF was cited, in a strong piece on agricultural carbon markets syndicated in several trade magazines, such as *Farm Progress*, *Farm Industry News*, *Corn and Soybean Digest*, *Delta Farm Press*, and *Southeast Farm Press*.

The *Orlando Sentinel* turned to Dr. Zach Zobel to explain the connection between climate change and wildfires in a story about local firefighters who traveled to Montana to help with wildfires there.

Dr. Foster Brown again featured prominently in high-profile coverage of air pollution and health issues related to fires in Acre.

Dr. Skee Houghton weighed in on the importance of land carbon sinks in a piece on *Down to Earth* that was subsequently republished by the IEA's clean coal center.

Spencer Glendon was quoted in a *Miami Herald* article about flood insurance.

# Beyond 1.5

A Kaneb Lecture Series

## KANEb SPEAKER SERIES

### Beyond 1.5

As the latest IPCC report made abundantly clear, human activities to date have kicked off unprecedented global warming and committed us to hitting or passing the 1.5° mark early next decade. We must now courageously confront what lies **Beyond 1.5°C**—the risks and choices that we face as we shape our climate future. Our fall event series invites you to do just that, guided by experts and thought leaders from across Woodwell's global network.

#### OCTOBER 6

Tipping points: Is there a point of no return?

Ecosystems that have long absorbed and stored carbon threaten to become emissions sources, and ice sheets may be committed to complete melting long before they've disappeared.

**OCTOBER 20** | Going negative: How much carbon can we capture?

**NOVEMBER 3** | Just in case: What do we need to know about geoengineering?

**NOVEMBER 17** | Seeing the future: What do success and failure look like?

LEARN MORE & REGISTER AT: [WOODWELLCLIMATE.ORG/BEYOND1.5](https://WOODWELLCLIMATE.ORG/BEYOND1.5)

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