

THE FLYING TRAPEZE

THOMAS RICKENBACH

The midterm elections of November 2014 swept Republicans into a firm majority in the United States Senate and House of Representatives. In early 2015, as President Obama formulated his Clean Power Plan to limit carbon emissions to combat the impacts of climate change, some congressional leaders dismissed climate change as a hoax.

Scientists create knowledge outside of the political arena, but can they find common ground with lawmakers to create solutions?

This is the story of my experience as a climate scientist in Congress, as part of Climate Science Day on Capitol Hill in Washington D.C., on 11 February 2015, a Congressional Visits Day (CVD) organized by several scientific organizations including the American Meteorological Society. Our team of three scientists along with a science policy expert spent a day in Senate and House offices to build a base of connection and trust. The heart of the story is a scientist's foray into learning to communicate inside the political big top. The stakes are high. Will climate science survive its death-defying leap into policy?

WASHINGTON, D.C., WEDNESDAY, 11 FEBRUARY 2015. 7:45 a.m., Capitol Building steps. Sunrise on a crisp winter morning in Washington D.C. I



United States Capitol Building on the morning of 11 Feb 2015, with the Capitol dome under renovation. (Photo by the author.)

turned up my collar against the cold north wind, thrust my frozen hands deep into my wool coat pockets, and walked briskly past the long cascade of steps on the east side of the Capitol Building on my way to our team's arranged meeting point at a nearby Metro station.

The massive Capitol Dome, illuminated by the soft morning sun, was encased in scaffolding—the first major renovation of the dome since its construction during the Civil War. Hardhatted workers teetered along the high steel framework, like circus daredevils preparing for the main event. The Capitol renovation mirrored the changes in Congress following the midterm elections three months before.

A flash of light drew my gaze downward as sunlight sparkled off a shiny marble platform near the Capitol Building steps. As I walked past it I felt a splash of warmth on my face from the reflected sunlight. I smiled. Maybe this could help me explain one of the key mechanisms of climate change in the icy, marble-like polar region.

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“Remember, no jargon,” I reminded myself.

Shiny white surfaces repel the energy of sunlight. That’s why you wear a white sweater to stay cool on a hot sunny day. Change to a black sweater and you’ll warm up pretty fast. That’s what is happening as the white ice caps melt into the dark Arctic Ocean—we are putting a black sweater on our planet.

If that was the best I had, I was going to need some help.

8:05 a.m., Capitol South Metro station. I waited at the top of the Metro escalator for my team to gather. Ours was one of about 10 small groups of scientists and staff descending on Capitol Hill to interact with lawmakers on this climate-themed Congressional Visits Day. We had gotten to know each other just the day before at the headquarters of the American Geophysical Union near DuPont Circle, where we prepared for our meetings.

“You are not lobbyists, you are a resource,” read our mission statement. “A dispassionate and neutral scientific resource.”

Dispassion? Neutrality? To me, those words didn’t seem to describe how best to communicate ideas. Especially in a place of passion and polarization.

Our minder, scheduler, facilitator, and tour guide was Ya’el Seid-Green, a bright young AMS policy staffer. Originally from the San Francisco Bay Area, Ya’el was loving the pace and action of her newly adopted city of Washington D.C.

Ascending the metro escalator at her side was Angela Stevenson, a coral and fisheries expert fresh out of a Ph.D. program at Trinity College in Dublin, Ireland. She was spending a few months as an Ocean Leadership policy intern in D.C. before moving on to an academic career. But not before honing her trapeze skills in a local circus school. Her class would meet at the end of the day.

As we chatted, Professor Ingrid Visseren-Hamakers of George Mason University marched toward us down the 1st St. sidewalk. Like the freshman congressional representatives, Ingrid was new to the nation’s capital—from the Netherlands. She was an environmental policy expert, plugged into the international network that includes the Intergovernmental Panel on Climate Change, with a particular expertise in deforestation policy. Her high school experience in Alabama years before explained her flawless and eloquent English.

“I hope you guys all have comfortable shoes,” Ya’el warned.

We took a collective deep breath and headed north toward the House of Representatives office buildings.

8:25 a.m., Cannon House Office Building. Our first meeting was with the lead staffer of Representative David Rouzer (R-NC, 7th District). Representative Rouzer had ridden the coattails of the Republican midterm sweep of Congress in November 2014. He was one of a large number of freshman in the House moving in to their offices, amid boxes of North Carolina peanuts for visiting constituents and desktop computers for office staff.

I expected this might be a tough meeting. While in the North Carolina legislature three years earlier, Representative Rouzer and his lead staffer helped to pass House Bill (HB) 819, a bill that read like the abstract to a science article. Its punch line:

The Division of Coastal Management shall be the only State agency authorized to develop rates of sea-level rise. These rates shall only be determined using historical data, and these data shall be limited to the time period following the year 1900. Rates of sea-level rise may be extrapolated linearly to estimate future rates of rise but shall not include scenarios of accelerated rates of sea-level rise. (North Carolina General Assembly, 2012)

As a scientist I should be excited to read words like “extrapolated linearly” and “accelerated rates of sea level rise” enshrined in North Carolina state law. But HB 819 seemed to short-circuit the entire scientific process. When science meets policy, politics often blends fact and belief into an obscuring fog, in which it’s easy to lose your way.

We arrived a few minutes early to the meeting, anxious about how we would be received. The receptionist area was staffed by a busy young woman typing away on a computer.

“American Meteorological Society to see Representative Rouzer’s lead staffer,” Ya’el announced.

Ya’el had this down well, having led many scientist delegations around the Hill since starting her position with AMS a year earlier. A rushed but very pleasant man in his early forties greeted us and ushered us into the meeting room. We chose seats around a rather small but beautiful hardwood table, surrounded by comfortable padded chairs. Furniture helps establish a visitor’s first impression, and on the Hill it seems as if no expense is spared.

“Representative Rouzer apologizes that he couldn’t meet with you,” said his lead staffer. “He is in committee at the moment. We’re in the middle of budget season, so as I’m sure you noticed it is pretty busy in the House.”

A full docket of committee meetings was scheduled in chambers scattered around the Capitol complex, and many had already begun even at the early hour. The staffer’s North Carolina accent was slight but unmistakable—familiar—putting me, a California transplant to North Carolina, oddly at ease.

“He’s certainly engaged on environmental issues and you can be sure that I will pass along our conversation to him. What can we do for you?”

We began with what inside the Beltway is called ‘The Ask’. What are we asking you for? Why are we taking up your limited time?

Scientists like me are not used to getting right to the point. We begin our story with lots of background to get our audience up to speed. As we progress, we narrow down our discussion, then finally end with our punch line. That’s great in a conference or classroom, but by the time we make our point, Representative Rouzer’s staffer will be halfway across the Cannon Building to his next meeting.

So we had to unlearn what we had learned about communication, and start with the sharp point leading off. Ya’el demonstrated the technique.

“My team is a group of climate and environmental scientists from the American Meteorological Society’s Climate Science Day on the Hill. We’d like to put a face on climate science for you, and share with you how that science connects with the people in your state. We would like to be a resource for you to call on whenever you need a science perspective on climate-related issues.”

The staffer had a small notebook open and jotted down a phrase: “Climate Science Day.”

Ya’el eyed Angela with a quick smile, her cue to pick up the football. Angela began with a description of the deep-sea coral that live on the fringes of Ireland, the subject of her recent dissertation. Her Canadian English had absorbed a slight Irish lilt that made it hard to peg her nationality.

Angela went on.

“Those same coral species also live along the East Coast of the U.S., and flourish off the coast of North Carolina. You may not know that these reefs sustain the great variety of sport and commercial fish along your state’s coast.”

The staffer looked up briefly from his notebook and smiled politely. Fishing, he well knew, is at the base of the food chain of economic vitality along the Carolina coast, including the southern end of the district that his boss represents.

Ingrid followed, describing her work with international environmental policy negotiations. Though these include the Intergovernmental Panel on Climate Change, she read the staffer well enough to instead focus on her area of expertise and experience—the United Nations program on Reducing Emissions from Deforestation and Forest Degradation (REDD). The lumber industry is important in North Carolina, and deforestation is a key part of the global carbon equation.

The staffer turned to me. I introduced myself, an atmospheric science professor from East Carolina University. Out of the blue I asked him where he was from.

“I’m originally from Raleigh,” he said. “Are you part of the university’s Coastal Studies Institute? I think it’s somewhere on the Outer Banks, right?”

He had done his homework. I described the Institute and its mission to coordinate coastal science and policy between various stakeholders in North Carolina. My role as the only North Carolinian in our group, as we had agreed yesterday, was to make local connections with the offices and staff from my state.

I turned to my own work.

“My research centers on understanding what causes rainfall patterns across the southeastern U.S. to change with the seasons and over the years. As the Earth warms, we are trying to understand how those patterns will evolve. We have a good handle on the global trend—a warmer world makes more rain—but we need to understand better how climate change will play out regionally. We expect, and observe, an increase in the extremes of rainfall. Our agricultural sector in North Carolina is very interested in using that information to optimize hiring of seasonal workers, rental of harvesting equipment, and the sale of crops in regional and global markets.”

Well delivered, nicely explained. But I could sense that it fell flat. Was it me? Was it him? The group dynamic?

I had some ideas. So did the others.

The meeting ended cordially with an exchange of business cards. The staffer rose and we shook hands. “I want to thank y’all for visiting us. I will make sure to pass your information along to Representative Rouzer.”

10:05 a.m., 2nd floor, Rayburn House Office Building. Sitting in the waiting area of a 20-year veteran House member is a very different experience from the chaos of the freshman offices. The ever-present leather couch was comfortable as always, but here we sank deep into the well-used cushions.

“Would y’all like some water, can I get you anything at all?”

The young woman at the reception desk was all southern charm. On the wall behind her I instantly recognized the landscape of Shackleford Banks in the large framed photograph, with a group of wild horses on the beachhead of that North Carolina barrier island—descended from the horses abandoned there by Spanish galleons 400 years ago. This was the realm of Representative Walter Jones (R-NC, 3rd District), and I found myself feeling proud that my home district was represented with style in the House.

His legislative assistant greeted us warmly and invited us not into a conference room but to Representative Jones’s personal office.

“Representative Jones sends his apologies that he is delayed. He’s held up in a meeting with White House staff about the ISIS trouble.” He shook his head. “That situation is getting very complicated.”

We sat in the leather furniture in front of Representative Jones’s large desk. The walls were adorned with photographs of his family and constituents, along with random memorabilia. A beautifully varnished baseball bat, mounted on dark hardwood, was the centerpiece on the office wall.

The legislative assistant welcomed us on his boss’s behalf.

“I’m hoping he’ll be able to step in at the end of our meeting to meet with you, but if not you can be sure I will fill him in on everything we talk about.”

He could not have been more than 25 years old.

When Angela connected the health of the *lophelia* coral reef to tourism along the North Carolina Outer

Banks, I sensed an opportunity. As the Representative’s assistant took copious notes, I leaned toward him on the leather chair next to mine and looked him in the eye.

“Now, are you sure you spelled that right?” I asked.

A big smile opened on his face as he kept his focus on the page and continued writing.

Angela followed my lead.

“L-O-P-H, not F!”

The assistant thanked her with a wide grin. I offered that even though my son and I often fish at Topsail Island, I had no idea North Carolina even had a coral reef, let alone its importance to the coastal ecosystem.

When my turn came around, I lectured on changing patterns of rainfall across our state, flooding impacts on hog farm waste runoff, and the timing of the tobacco harvest. I added that knowing how these are linked requires a basic understanding of how climate change works.

I’m just not getting through.

I eyed the baseball bat on the wall and paused. I turned to the legislative assistant.

“Do you like the Nationals?” I asked.

“You kidding? I catch as many games as I can,” he replied.

“Well, call me crazy—I’ve always had a soft spot for the Chicago Cubs,” I said. *The Cubs hadn’t won the World Series in more than 100 years.*

I had an idea.

“Let’s imagine that the baseball commissioner, out of pity maybe, allowed the Cubs owner to move the fence at Wrigley Field in twenty feet. So a shorter fence at their home ballpark. What impact would that have on the game?”

The legislative assistant thought for only a second.

“They’d hit more home runs,” he said.

“Exactly. Now, that is a forecast you could take to the bank. Do we know that with 100% certainty? No. But I’d wager my mortgage on that outcome, wouldn’t you?”

More carbon dioxide in the air changes the playing field, resulting in a warmer world. That is as sure as winter changing to spring each year. As certain as it gets in science.

I continued. “O.k., but what the Cubs really care about is whether they will win more games, right? That’s a more elusive question. Let’s



Wild horses, North Carolina Outer Banks. (Photo credit: National Parks Service, Brit Brown)



Fence at Wrigley Field, 400 feet. (Photo credit: Creative Commons Attribution generic license, [Wikimedia.org](https://commons.wikimedia.org/))

think though. The Cubs play exactly half of their games at their home field. So though they should hit more home runs over the whole season, for a given game in Chicago both teams have the same win advantage with the shorter fence. But Cubs pitchers specialize in forcing their opponents to hit the ball on the ground, and so give up fewer home runs. That makes it likely the Cubs will win more games, but that forecast is not as certain. Would you take that bet though?”

“Sure, yeah I would,” he nodded, his leg bouncing rapidly.

“I would too,” I said. *What matters most to communities is how global warming plays out locally. Sea level rise will affect coastal development. Greater rain variability will influence agriculture. We’re still nailing down the details of those impacts, but the general picture is clear.*

“Now, in this modified Wrigley Field, the Cubs will want to make some adjustments to win more games. Stack their roster with ground ball pitchers to minimize the number of home runs hit against them. Draft quick, athletic outfielders, adept at robbing home runs.” *Adapt to the new reality, plan for change, use what we know to our advantage. Keep our eyes open and our heads clear.*

“And just maybe, with the help of their new manager, the Cubs will win it all in October.”

The legislative assistant scribbled frantically in his notebook, nodding and smiling.

Representative Jones never made it back from the White House to our meeting, but I felt confident that he would get the message.

2:55 p.m., 1st floor, Dirksen Senate Office Building. With tired feet we reached our final meeting, at the offices of freshman Senator Thom Tillis (R-NC)—the bookend to our first meeting with Representative Rouzer. While in Raleigh, the two lawmakers had codified the physics of sea level rise into North Carolina state law.

Our group had a final quick huddle outside the ornate wood office door.

“Angela, you’ll open with the Outer Banks coral reef fisheries,” I offered. “Ingrid will inject Weyerhaeuser’s lumber sustainability mission, and I’ll follow with a climate change primer.”

At this point, our team had become a well-oiled machine, ready to adapt to a changing audience on the fly.

I turned to Ya’el.

“So how many trips have we made across the Hill?” I asked.

“Four. No, five.” She glanced up at me as she jotted notes into her scheduler. “And you might want to tone down the ‘climate-dot-gov’ references. Sounds too much like advocacy for a particular agency.”

“Right, I’m with you,” I said. *Impartial. Dispassionate.* I reminded myself.

Senator Tillis’s office seemed more disordered than those we had visited, but I chalked it up to the late afternoon of a long day. At the reception desk, a young man was on the phone with a constituent who was clearly upset about something.

“Yes ma’am. I will be sure pass your concern along to Senator Tillis.”

He looked at us as he spoke, pulled the phone slightly away from his ear, rolled his eyes and smiled. No less than four staffers were speaking on separate landlines simultaneously.

Senator Tillis’s lead staffer strolled past the confusion and greeted us warmly.

“Let’s get out of here,” the staffer offered. “We won’t find an open room. How about we head to the cafeteria to chat?”

He was a tall, charismatic man in his late twenties. My quick instinct was that he would listen politely and then excuse himself after a few minutes. I was wrong.

I pitched the baseball–climate analogy, but he took home a different message.

“So I guess climate forecasting is like predicting next week’s weather. We just can’t tell what’s coming up for our state twenty years from now,” said the staffer.



New River Inlet, North Topsail Beach, North Carolina. (Photo by the author.)

6:40 p.m., *The Dubliner Irish Pub*, corner of F St. and North Capitol, NW. Our beer glasses clinked, barely audible over the shouts and laughter of a packed bar full of D.C. politicians decompressing after a long day on the Hill. I felt fortunate that I had a chance to move the ball maybe a half-inch forward, at a time of true consequence.

After a quick sip, Angela gathered her things to leave for her final act of the day: her circus trapeze class near the Potomac waterfront would start in 10 minutes. As she smiled, turned, and melted into the crowd, the words from an old folk song seemed to bubble up from the depths of my nearly empty glass:

I had to ad-lib, and quickly.

“Well, a good way to think about a climate forecast is risk management. You lay out a range of consequences, you assign a likelihood for each based on how confident you are in what you know, and you decide on how much risk you are willing to live with.”

The drone of 30 simultaneous conversations and the smell of French fries filled the cafeteria.

I leaned in across the table.

“Here’s an example. Let’s say you are ready for a swim at New River Inlet along North Topsail Beach. Now, the few bull sharks that live there are usually not aggressive to people, but knowing that they’re most active at sunset, would you go in the water at sunset or at noon—even though the chance of attack is never that great?”

The staffer took a pull on his plastic bottle of water.

“I think I see where you’re going with this. My dad always told my brother and I to stay out of the water when the sun goes down,” he said.

“I tell my kids the same thing,” I said. “Even though the odds are pretty low for shark attack at sunset, we just don’t swim then because there is a better option: swim at noon. So, we know enough to make the least risky choice. We guard against even a low potential for trouble because the stakes are so high.”

The stakes are high indeed. As society adapts to Earth’s rapidly changing climate, scientists and lawmakers must also adapt to a changing climate of engagement between science and politics. This means forging a bond of connection and trust in an arena of shared values and experiences. And time is not on our side.

He’d fly through the air with the greatest of ease,
That daring young man on the flying trapeze.
His movements were graceful, all girls he could please,
And my love he’s stolen away.

I closed my eyes as the lager conjured an image of a man swinging among the scaffolding covering



Trapeze artist, anonymous pen and ink, British, nineteenth century, The Elisha Whittelsey Collection, Metropolitan Museum of Art. (Photo in the public domain.)

the Capitol Dome, shrouded by an evening mist, to the familiar tune of *The Man on the Flying Trapeze*. Whether that daring man wore a white laboratory coat or a designer pressed suit was hard for me to tell through the fog. At that moment I saw that scientists and lawmakers must walk the high wire together, and earn the confidence of the country that they both love.

It had become clear to me that any hope of climate science surviving its death-defying leap into policy lay in establishing real trust and understanding between scientists and lawmakers. That begins with simple conversation that interweaves common values with common facts, each acknowledging the perspective of the other. If we do this, policy rooted in shared values can be built on a strong foundation of knowledge—as the founders of our country had envisioned.

More than 150 years ago, Abraham Lincoln delivered his first inaugural address on the eve of the Civil War in the shadow of that same Capitol Dome, then—as in 2015—under construction. If scientists and lawmakers are not able to find within themselves what Lincoln that day called “the better angels of our nature,” and rebuild our great country by finding common ground, she will be stolen away.

Today, just after the 2018 midterm elections, our politics are even more sharply polarized than in 2015. The United States has disengaged from the Paris Climate Agreement. “Alternative facts” challenge how effectively science may be used to guide policy. Trust between scientists and lawmakers is more needed than ever before. But there is cause for hope. In 2016, the Chicago Cubs finally won the World Series—without shortening the fence at Wrigley Field.

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United States Capitol Building on 4 Mar 1861, the location and day of President Abraham Lincoln’s first inaugural address, with the Capitol dome under construction. (Photo in the public domain.)

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FOR FURTHER READING

North Carolina General Assembly, 2012: An act to study and modify certain coastal management policies. House Bill 819, www.ncleg.net/Sessions/2011/Bills/House/HTML/H819v6.html.



Wrigley Field marquee after the Cubs won the World Series, 3 Nov 2016. (Photo credit: Scott Olson, Getty Images.)