

Transcript of “Azar Abadi, Research Assistant Professor at the University of Nebraska’s College of Public Health Medical Center in Omaha, Nebraska”

Clear Skies Ahead: Conversations about Careers in Meteorology and Beyond

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Kelly Savoie:

Welcome to the American Meteorological Society's podcast series on careers in the atmospheric and related sciences. I'm Kelly Savoie, and I'm here with Rex Horner, and we will be your hosts. Our podcast series will give you the opportunity to step into the shoes of an expert working in weather, water, and climate sciences.

Rex Horner:

We are excited to introduce today's guest, Azar Abadi, a research assistant professor at the University of Nebraska's College of Public Health Medical Center in Omaha, Nebraska. Welcome, Azar. Thanks so much for joining us.

Azar Abadi:

Thank you so much for having me. It's a pleasure to talk to you.

Kelly:

Azar, could you tell us a bit about your educational background and what sparked your interest in meteorology?

Azar:

Definitely. I started my—it's not a career—my education with physics. I always had this interest for nature and science, because as far as I remember from my childhood as a family, we had a big interest in hiking and camping. So I was always, most of the time, in nature and enjoying the diversity and the various things I found interesting in nature, like the type of soils, the color of the rocks, and how the water flows in the rivers, and different stuff like this. Then, I started my bachelor in physics, and then it was my senior year that I really got into more of the more tangible type of science. I was mesmerized by how nature was working. I was more interested in that. That was basically because I had courses on quantum physics and it gave me the opportunity to compare what I really was interested in. So I love topics about quantum physics, but since I had the bigger interest for things that I could actually see with my eyes, and I could see the direct impact on life and daily life, I decided to continue my education in atmospheric physics. At the time it was called atmospheric physics. We didn't have a major called meteorology.

Azar:

But when I started my master in University of Tehran, it was basically focused on the ten first kilometer of the atmosphere. So it was mainly meteorology. Something that got me very inspired in my early childhood was that my dad was always talking about the winters that they had. So he originally is from a dry type of climate, and he was always telling me about how he observed that there were no lakes or a river that disappeared in the course of maybe 15 years or 20 years. Also, he was always talking about how the winters that they had were very extreme and they had lots of snow on the ground and they had to dig up tunnels to get outside of the house. So these were part of the things that I really found interesting that, how it's happening, why it's so fast. Because in the course of 25 years, 27 years, when they lived in Iran, I never remember seeing such winters that my dad used to talk about when we were in my grandma's house. So that was really a spark for me that, to see what's happening, why we see these changes in a very short course of time.

Rex:

That's very interesting. So family history brings you to your scientific focus, family storytelling.

Azar:

That's correct.

Rex:

From your education, what opportunities did you pursue in school or once school was finished that helped you secure a job in your field with your degree?

Azar:

Then I came to the United States in 2013, and I started my PhD in a program for meteorology and climatology at the University of Nebraska, Lincoln. I had different opportunities to work on different research. I was working with a watershed climatology for a while for almost one year. Then I had different research about climate modeling stuff. My dissertation was basically focused on the climate change assessment in South America, and specifically in climate in Bolivia. Also, just to make sure that I have all these skillsets when I graduate, I had an internship in the National Drought Mitigation Center, and my responsibility there was basically modeling the future climate for the countries in the Middle East, North Africa, or MENA region. That's how I got involved with more of drought and more of a climate change assessment. Then, later on with my PhD dissertation, I was mainly focused on the climate change assessment. I was reading different articles. I watched different documentaries on how it's impacting everyday life in those countries, or more of developing countries, or more vulnerable countries. That was part of my interest for continuing my career in the human health field.

Kelly:

What type of research are you working on now?

Azar:

It was almost the last two years of my PhD was focused on the climate change assessment part. I got to the health part because of two reasons. First, I was watching different documentaries and reading different articles of how it's impacting life on Bolivian people. The other part was that I always knew that talking about climate change is very challenging, because it has become a political issue in the country, and it's not easy to talk about climate change and the climate change consequences anymore. So part of me was thinking about how I can use the knowledge that I have based on the theory, theoretical courses, the modeling that I have used to talk about climate change.

Azar:

I found out that one of the best ways to talk about climate change is through human health. Because I believe that climate change consequences is passed beyond the rising sea level or worrying about polar bears in the Arctic on a single piece of ice. It is affecting people worldwide in different countries, in different forms. In the form of air pollution, in the form of natural hazards like heat waves that have killed most of people. The number one killer is of the weather-related hazards in the United States, and it's claiming lives every single year in different parts of the country or in different parts of the world. Also with drought, it's killing more people internationally, and basically in developing countries like in Africa or in India. There are lots of human health consequences that can be explained by climate change and climate and weather-related disaster types.

Rex:

If someone is just starting college and they heard you talk right now about these human health consequences, and they said, that's exactly what I want to focus on, would there be any classes that you would recommend they take, maybe that aren't the typical math and science classes associated with a meteorology degree or climate change focus that would help them pursue a job or research such as what you do?

Azar:

That's a wonderful question. The course on human health was missing in the program that I got my PhD. We had courses like climate and society, but the health part was basically missing. All of those courses, it was very focused on the climate and climate change science by itself. But there have been efforts at the University of Nebraska Medical Center, that's what I'm aware of, that we are trying to have courses like climate change and health for the medical students and for the public health students, with the epidemiology students. We have courses in different universities, like medical geography. I'm pretty sure there are courses in different universities, but I'm not aware of any current courses in the University of Nebraska system.

Rex:

Okay, interesting.

Kelly:

So how did you end up in the position that you're at now? Once you received your PhD, did you look for opportunities for research? What made you gravitate towards the university you're at now?

Azar:

This has started almost in the last two years that I was working on my dissertation, and I was in conferences talking to different new people. My main concern was to what are the applications of climate change? How I can use my knowledge to have an impact, to make an impact on people's life, on the society? That was my main concern, because most of my work was with the climate modeling when I was working on my research. But I didn't want it to just be on the theoretical part. I just wanted to make an impact. So I found it very interesting and very exciting when I found this position at University of Nebraska Medical Center. We had a new faculty, Dr. Jesse Bell, who started in the University of Nebraska Medical Center in the same year that I started my postdoc with him, and he was looking for a climatologist to be part of his team.

Azar:

So I found it very exciting to start my position there. To be honest, it was not easy at the beginning, because I went from a science background to a college of public health. So it was mainly focused on health and health outcomes. I was completely new to this science. So at the beginning it made it very challenging. But when I got to understand better how it works, it opened lots of doors for me.

Kelly:

Wow, that was a great opportunity. It was really fortunate that you knew the professor who was starting this. That must have been a great opportunity. He knew you and you were interested, and that worked out well for you.

Azar:

Yes, that was the, I guess, perfect timing. Right place, right time.

Kelly:

Right. So besides universities, what other places do climate scientists usually work? If someone is listening to our podcast and they're interested in being a climate scientist, what other opportunities are there out there for climate scientists?

Azar:

I've seen many different positions both in the industry and academia. So one of the interesting questions that I get most of the time when I'm a speaker or a guest lecturer in a class or in a conference, people ask how did you go from climatology to medical sciences? Or the college of public health? That's always a mystery for most people. But when I start talking about it, that makes more sense for people to think about it. But I've seen people working in national labs, in private industries, in transportation. I have colleagues that are working on department of transportation and working on the road weather type of research. Also, there are lots of positions in academia, mainly geography departments, earth and

atmospheric sciences, geosciences. But I think there's no limit. So these days there are lots of opportunities for interdisciplinary research, and weather and climate is part of it definitely.

Kelly:

That's definitely good to know. It sounds like almost every sector these days has something to do with weather or climate. So students definitely have the opportunity to find positions in lots of different areas.

Azar:

Yes, definitely. If you look at agricultural states, they are vulnerable to the weather impacts. If you look at urban environments, like Houston, Texas, the East Coast, they are vulnerable to the impacts of the hurricanes. If you look at California, they are vulnerable today, like the wildfires, drought. And most of the country is vulnerable to the heatwave. So it's basically everywhere and it can affect everything.

Azar:

Something interesting was that when this COVID-19 came around and the pandemic started, we quickly started thinking about how it's impacting the transmission of the COVID-19, how the weather is impacting the transmission of COVID-19. We found early published papers were talking about comparing it to past novel coronaviruses, like SARS and MERS. Also, early on in the media you would hear about the comparison of the flu. Even nowadays, they are saying that we'll have a second wave with the flu season. So we started this research, I think about right at the end of February, how the weather is impacting the transmission of the COVID-19 around the world. We have got very interesting results out of it. That was something that I wasn't thinking about. If you would have asked me two years ago, how I can do that with my meteorology major.

Kelly:

Right. So share with us some of the outcomes of the research. Is the weather affecting it? Is it true that warmer is better to combat it?

Azar:

So yes. Our research was basically focused on the climate factors part of it, and how the weather's impacting, and we were not focused on the human interventions part of it. But something interesting that we found was UV has a very significant impact on the spread of the virus or the transmission rates of the virus in different places. So higher the UVs, the transmission goes down. Also, we found that UV and the water vapor contents of the atmosphere or the moisture content of the atmosphere has a more significant impact compared to temperature. So it's not just the warm weather. If it's drier, if it's sunnier, that has impact on the spread of the virus.

Kelly:

Very interesting.

Azar:

Yes, and also part of this research was, I think we are the first group that we have done that, to compare it with the seasonality of the flu, and to see if the COVID-19 has the potential to come back in the colder and darker months of the year. And interestingly, we found that the peak of the COVID-19 is following the peak of flu very closely. So the statement that you hear every day on the news, that there's a chance that it comes back with the flu season, research confirms that statement.

Kelly:

Ugh, that's not good. We don't want to hear that.

Azar:

It's very scary.

Kelly:

Yes.

Rex:

Could you walk us through how a typical day or typical week of conducting this sort of research looks like? Are you in the field? Are you pulling data from interviews, from a computer? What is your team? How does it coordinate? Give us an idea.

Azar:

Sure. We don't have a fixed schedule every day. It's different projects that we have to work on. So my typical day, I have a schedule from the morning to work on different research analysis that I've been working on. Sometimes we have meetings. We have meetings with different groups of people. So it might be from the agricultural industry, or it might be from the medical center from the hospital. We engage with lots of people in different research.

Azar:

For example, one of the researches that I'm involved in is the pediatric cancer with water quality in the watersheds in Nebraska, and the potential relationship between the water quality and pediatric cancer in different parts of Nebraska. We have meetings with medical doctors. So yeah, the meeting was part of it. Also, I do get lots of research. I do get to mentor people. Sometimes I'm invited to speak as a guest lecturer in different classes at the university, or different setups.

Kelly:

So I would assume that a lot of your job might entail going and presenting a paper at a conference or publishing a paper in a journal. Do you do that as well?

Azar:

Oh, yes. That's the main part of it. You're focused on writing grants to secure more funding for our research, and also publishing peer-reviewed papers. I'm an active member on the AMS and also AGU. So we get to present our work. We get to organize sessions in AMS and AGU every year to bring people with the same interests together, and also presenting our work as well.

Kelly:

It sounds very varied. What do you like most about your job?

Azar:

The thing that I like a lot is the opportunity that it gives me flexibility. So most of the industry jobs, it requires you to clock in in the morning and check out in the afternoon. But I think it differs between individuals and academia as well. But for me, it's very flexible. So if something is in my mind and I'm thinking about it, it doesn't matter if it's 2:00 AM or 3:00 PM the afternoon. It's like a double-edged sword. It can have benefits and it can have difficulties as well. So for me personally, it's not easy to draw the line between work and life. But it makes it fun for me. So I don't have to stop at a specific time.

Rex:

You said that it can be a bit challenging. Is there any other part of the job that is, let's say, the most challenging?

Azar:

The most challenging part of it for me is the communication part of it. That is the part that is missing in this specific field that I am in. There are not much developed path or strategies to communicate about climate change and health, specifically in the rural part of the state. I think that's correct for every part of the United States. It's not just focused on Nebraska. This is missing. So to develop that path and to start from the scratch, it makes it challenging.

Kelly:

You said that your job is very flexible. So I'm assuming that that allows for a good work-life balance, but yet at the same time, you said it was sometimes challenging because you don't know where the work and life, where to draw the line since you can work at any time. But overall, would you say that there's a good work-life balance?

Azar:

Yes, yes, definitely. It is. What I said, it depends on individuals. I have colleagues that they clock in in the morning and they are done in the afternoon. They have a very perfect balanced work and life schedule. But for me, it has been always when my mind is stuck on a topic I have to fix it before I have the ease in mind. So it's really personal or depends on individuals.

Rex:

Is there a part of your career that you think was the most exciting, either a transition or an accomplishment, or someone you got to work with or talk with?

Azar:

I think the transition that I made from pure climatology to more of the application side of it on human health was the most exciting thing that happened in my career, because that opened lots of doors for me. I got to know people from CDC, from NOAA, NIH, and to work closely with them. It definitely expanded my horizons. So I think it helped me to think outside of the box and it created lots of ideas that I was not thinking about previously.

Kelly:

Is there anything you wish you had done differently in your career? Or are you happy with the path that it's taken you?

Azar:

I'm really happy with the path that I have followed and I have continued. Something that I wished I would have done in the past that would have a bigger impact on what I'm doing right now is reinforcing my programming background or statistics. It's not something that you can't fake these days. Because I started getting a master degree in biostatistics here at the college of public health to compensate for that. But if you start early on you would have probably save times later.

Rex:

You could say that's almost a form of professional development. Are there any other professional development opportunities that you pursue? You talked about being a member of the AGU and the AMS and going to conferences. Is there anything you want to add to that set of activities that you find helpful?

Azar:

Yeah, definitely attending conferences is really helpful. Also, the part that I was starting organizing sessions was completely new to me in the past almost one year that I got into that. So being in a conference and attending different sessions or different career development sessions, that's really helpful. But being part of it, being part of a committee, I think it's more helpful for you. Get involved with the details. To me, it was much more helpful to just start. When I was organizing a session at AGU, I had to talk to different people and know about their research and bringing people with the same interests and asking for the speakers. So those are two different sides of the conferences that I was completely naive about one part until last year.

Rex:

Right. You're no longer just sitting in the audience or up on stage, but you're behind the scenes and working. Working personally with a lot more of the people involved.

Azar:

Yes, exactly.

Kelly:

What advice do you have for students and early career professionals looking to establish careers focusing on climate change?

Azar:

I think these days programming and a stronger math and statistics background is really needed for everything as of the science. That's part of it with the theoretical background. Also, something that I would have done differently was to engage more in the public speaking or writing classes. Those are very important. It doesn't matter what major or what career you choose. Communication is a big part of it. So you have to be able to communicate in a very clear way with your colleagues or whoever is you're addressing.

Azar:

For the earlier students in the climate change sciences or meteorology field, I think attending conferences is very important. What I have seen in the past is that most of undergrads think that they have to attend conferences if they have something to present. But to me, it's not correct at all. So you have to go to conferences, even if you don't have anything to present, to just be there, hearing what other people have to present, and being exposed. So with the different exhibitors, like in AMS, in AGU, you'll see lots of interesting people and it's a very great environment to develop ideas, to see what's out there, and what you can follow for your carrier.

Rex:

So it's okay to come with empty hands, as long as you have an open mind and a willingness to engage at the conferences.

Azar:

Definitely. Yes, I think being able to be a thinker at the beginning is much important to do then having something small.

Rex:

I think that's a great insight. Azar, we always ask our guests one last fun question at the end of each podcast. I am curious what your favorite hobby is.

Azar:

Well, as I mentioned earlier in the podcast, I developed this interest with the nature, developed this strong relationship with the nature in my early childhood with my family. I kept that hobby as an active hobby during my life. So I've been in the State of Nebraska for almost eight years. I'm proud to say that I

have tried most of the trails and the hiking paths or trails in Nebraska, in Lincoln and Omaha. So one of my hobbies is to go for long walks, sometimes two to three hours, and listening to audio books or music. That's relaxing for me. Also, watching different sceneries, different landscapes is really peaceful.

Kelly:

Thanks so much for joining us, Azar, and sharing your work experiences with us.

Azar:

Oh, thank you for having me. That was great to talk to you and talk about my interests.

Kelly:

Well, that's our show for today. Please join us next time, rain or shine.