Transcript for "Meghan Klee, Product Innovation Manager at StormImpact in Dublin, OH"

Clear Skies Ahead: Conversations About Careers in Meteorology and Beyond

May 13, 2025

Kelly Savoie:

Hello, Clear Skies Ahead listeners. This is Kelly Savoie and I'm hoping you can take a moment of your time to rate and review our show wherever you listen to podcasts. We have produced over 60 episodes and you can help us reach even more individuals that will benefit from the diverse experiences shared by our guests. Thanks so much for listening, and I hope you enjoy this new episode.

Welcome to the American Meteorological Society's podcast series, Clear Skies Ahead, conversations about careers in meteorology and beyond. I'm Kelly Savoie and I'm here with Emma Collins and we'll be your hosts. We're excited to give you the opportunity to step into the shoes of an expert working in weather, water, and climate sciences.

Emma Collins:

We're happy to introduce today's guest, Meghan Klee, Product Innovation Manager at StormImpact in Dublin, Ohio. Welcome, Meghan. Thanks so much for joining us today.

Meghan Klee:

Hello. I'm so happy to be here.

Kelly Savoie:

Meghan, could you tell us a little bit about what sparked your interest in meteorology and how it influenced your educational path?

Meghan Klee:

Sure. So some of my earliest memories of being interested in weather was just watching storms roll in with my dad. My dad's sort of also a weather nerd himself. Of course, I grew up in the age of the movie Twisters and The Perfect Storm and Night of the Twisters, which is underrated, but watching The Weather Channel, so on, so forth has really sparked my interest. And I think in middle school there was a time where I remember there being severe weather one day, even some tornado warnings, and the very next day it snowed and I was like, what is going on? I grew up in Indiana, so it is not uncommon to get strong mid-latitude cyclones like that that cause big swings in weather, especially in the springtime.

So really just wanted to get down to "why does weather do what it does?", but also weather kind of runs on my family. So I guess I'm from a family that's a bunch of weather nerds. My uncle on my dad's side of the family is a weather observer for the Northern Indiana Weather Service. I have a cousin on my mother's side of the family who does some tornado and storm chasing, and apparently my great-grandmother used to keep a journal of high and low temperatures daily, and I just found out about that a few years ago. So you could say that weather runs in my blood. And I was the first person in my family to go to college, so I pursued that passion. I knew from an early age, I'd say about middle school, that I wanted to be a meteorologist. So back then resources for finding meteorology schools were slim.

The internet's just up and going, no one around me. Friends, family, teachers were like, "I don't know where you go to school to get a meteorology degree."

So I just started trying to search and I wanted to stay in state because I paid for most of my school myself, so I wanted to be cost-effective, but still being able to pursue my passion, and ended up at Purdue University, which ended up having a pretty good atmospheric science program. Pretty small, but I almost enjoy that part of it because you get really close to your fellow students and your professors really know your strengths and weaknesses and they're more available for office hours and for questions and so on and so forth. But yeah, my experience at Purdue was really great.

Kelly Savoie:

And I think they have an AMS local chapter there as well. So I remember several years ago their chapter was pretty strong too, and they were very involved in AMS activities.

Meghan Klee:

Yes, and there's also a club that a student led called the Purdue University Meteorological Association, short term for PUMA, not to be confused with the shoe, but they'd bring in speakers to talk to the students. I think that was each semester or quarterly or something like that. So we get to hear from different experiences. Sometimes it would be like a national weather service leader, forecaster, maybe it'd be more academics, so on and so forth. So it was really unique and a good experience to learn about the different sectors out there that you can go into.

Emma Collins:

And were there any particular opportunities that you pursued that you knew would be beneficial to securing a job once you graduated?

Meghan Klee:

Well, I just wanted any job. I mean, it's competitive out there, right? So it actually took me a long time to get a job after I graduated. But really I knew internships were really important, so I wanted to test out different sectors. So I got some internships at some new stations, found out through my internships that I'm not good at talking or speaking on my feet. So I realized quickly, that probably is not the most successful path for me. So I interned at a few news stations, one back home in Fort Wayne, Indiana and one also in Lafayette, WLFI.

I also attended all those educational seminars that I could. I was working part-time as well as going to school full-time. So it was a bit limited, especially as I got into my junior and senior years. But any chance I could take to learn about different areas of meteorology, I took. Also my senior year, we had a class where all the students would have to team up and come up with an original research thesis, and we had a network of weather observation stations that we would deploy, collect data and do an analysis on and write a paper on.

So Purdue is out in West Central Indiana and there is a wind farm nearby, and I don't take credit for this, but one of my classmates was like, "There has to be something there. The weather has to be changed while it goes through the big wind turbines." So we went out to Benton County, which is the Fowler Indiana area, and started knocking on doors asking just the public, "Hey, can we put a weather station on your property?" And some people just decided to trust a bunch of college kids. All we needed was an extension cord as a power source, and we put the weather stations up. We tried to create sort of a box

around the wind farm, and then we put one weather station in the center of that. So we collected all the data that we could over, I think it was a week or two, went and collected the instruments and the data, did an analysis, and we found some really interesting findings from that.

And we found that as the wind went through the wind farms during nighttime, it would raise the temperatures a degree or two and also dry out the air. So one could assume, and of course we would need further research on this to definitely know with soil moisture instruments or something, but it could potentially lengthen the growing season and prevent frost, and just having an additional week or two before the first frost can be a big difference for farmers. So that was sort of our preliminary findings from that research. And I took the initiative to submit our paper that we wrote to the first Journal of Undergraduate Research, Journal of Purdue Undergraduate Research is what it's called.

Emma Collins:

That's awesome.

Meghan Klee:

Yeah. And they accepted it, and we were actually featured on the cover because wind turbines are cool and pretty, and they were just starting to get popular back in what, 2010 or '11, whenever that was. So we were able to work with an editor and get that published. So as an undergraduate, that's a pretty big win. And then we also created a poster and presented that at the AMS conference in Seattle, Washington in 2011. So that was really awesome, and I think it really helped jumpstart my job search. Because that was something that stood out on my resume that was a bit different than other current graduates as just having a bachelor's degree in meteoritic science was hey, I was able to take thousands of rows of data and do an analysis and come up with these findings and then get it published and present it at an annual countrywide weather conference. So that really helped things along well.

Kelly Savoie:

Yeah, I can see why that would really stick out on a resume because that's quite an opportunity to be able to have something published in a journal. And also, you got the opportunity to see what it would be like to do research. It sounds like you enjoyed it. It sounds like it was something that you were interested in.

Meghan Klee:

Yeah, I mean that was really cool and it kind of sparked maybe my interest in potentially going into the energy sector. Just standing underneath a wind turbine and seeing the blades spin around. It's almost like you think it's going to hit you, but it's way far away from your head. But yeah, I grew fond of wind farms and clean energy during that time in my life.

Kelly Savoie:

So what was your first job in the field and how did you end up where you are today?

Meghan Klee:

Yeah, so I talked a little bit about how competitive once you get out of school because you're competing against a bunch of other meteorology majors out there. It took me till October after I graduated to get my first job. So I was applying for anything and everything, including broadcasts, even though I knew I

wasn't super great at. And I applied for a job in Antarctica doing research and didn't get an interview for that, but I got a lot of hits for the private sector. So the first job I got after graduating was at Southwest Airlines as an associate meteorologist in their network operations center, and that's down in Dallas, Texas. So I packed up my life and moved down to Dallas and started my job down there. At that time, there was only four meteorologists at Southwest and now there's a dozen, maybe two dozen meteorologists there.

So the program's really grown since I've left Southwest, but I really enjoyed my job there. It was more so forecasting how the weather's going to impact operations and air traffic control rather than forecasting between point A and point B. So it's more so how is this big weather system going to impact operations and when, so which airports are going to potentially have ground stops, air traffic control delays, so on and so forth, when do we maybe need to cancel flights? Things like that because each airport has its individual set of minimum takeoff and departure conditions. So knowing all of that is a bit of a steep learning curve, but it was really challenging in a different way to apply your meteorological knowledge to operations of a unique sector.

So that was my first job. I was there for about two and a half, three years. I saw a job posting come up for American Electric Power, which is in Columbus, Ohio, and that's closer to home. While I liked my time in Dallas in my early to mid-twenties, it was fun, but I didn't see myself living there long-term. So I went ahead and took the leap and applied for that job at American Electric Power, which is called AEP, and I got it. So really my ability to look at the entire United States and select Caribbean stations and find the problem of the day really helped me secure that job at AEP because that's what you do. So AEP was a really large electric utility from southwest Michigan over to Virginia, down to Arkansas, Louisiana, down to the very southern tip of Texas. Don't forget Oklahoma. So it was a lot of the part of the country that's east of the Rockies. So they really enjoyed the fact that I could look at the weather forecast over the next 10 days and say, "Hey, where's the problem? Where do we need to focus our energy?"

So at AEP there was a lot of different parts of the job. One part of the job was putting in 48-hourly forecasts for the energy load model. So that's trying to forecast how much energy demand is going to be needed by your consumers. So that is used to make sure that we have enough generating plants available to supply that electric for the demand, the electric power that is. So one might think it's not a big deal to be off 5 degrees or 3 degrees for a high, but when it comes to temperatures over like 90 degrees, that's a big difference in energy demand because the hotter it is or the colder it is, the more your AC or furnace is going to be working to keep your house at a comfortable state. So that was a really accountable, highly rewarding part of the job.

And there are definitely some risky weather patterns such as falling temperatures throughout the day as well as 90 degrees plus a chance of thunderstorms, because it can go from 90 degrees to 70 degrees in the amount of half an hour as storms roll through. And we're typically focusing on the next day, is what we call day ahead because we're bidding our power plans into the day ahead market to get selected to run, to supply the energy for that demand. So you're certainly not going to drop the temperature from 90 to 70 degrees when you're forecasting more than 24 hours in advance. So there's a lot of risk mitigation when it comes to those types of forecasts. The biggest part of the job was forecasting big storms that would bring down a lot of power lines. So that's preparing the utility to bring in restoration crews from other states to help restore power ahead of big storm events.

So that was my favorite part of the job, but also probably the most important part of the job too. And now in today's climate, everyone's so dependent on technology that there's really not been a lot of leeway in power outages, especially long-term power outages. So the state commissioners are really scrutinizing utilities when they have long duration power outages from say like a hurricane or a massive

windstorm or ice storm, so on, so forth. So making sure that you can provide the best information possible to the decision-makers so they can bring in the correct number of resources is huge. But also there's the other side. You don't want to over-prepare and bring in more resources than you need because then you're wasting money. So you directly impact the bottom line that way.

Down in the South we had service territory in Oklahoma, Arkansas, Louisiana, and Texas. Winter storms are a big deal down there, and they tend to get a lot of media attention because the South isn't used to winter storms a lot. So our job was to say, okay, is there extended period of freezing rain that can create accumulation of ice a quarter inch or more, or is there going to be heavy wet snow? But sleet, not a problem to power lines, that bounces off trees and power lines. So you're really looking at the ice and the wet snow. Most snow is not a problem to power lines because it's not heavy enough to weigh down branches. So you're really looking for that thick cement like snow and enough of it to accumulate on tree branches to break off and fall into those power lines.

So it's really intricate. You can be correct on your weather forecast, but wrong on the utility response. And that was what was really, I would say, fun for me because I really enjoyed the challenge of it. You could say, "Yeah, there's going to be eight inches of snow here," but your job is to say how it's going to actually impact the utility. So they don't want just to know the weather forecast, they want to know why do I care and what do I do to prepare for that?

Kelly Savoie:

And you know what I was thinking, how far in advance, it seems like it's almost like last minute in some places where they make decisions, but if they have to bring in equipment or trucks or whatever, they must need at least at 24 hours notice of what to do.

Meghan Klee:

How much time do we have? I could talk about this for an hour. So it depends on the weather event. So honestly, with thunderstorms, sometimes it's wait and see because thunderstorms are so finicky, so they could be highly impactful and sometimes they're not. You really just need the perfect conditions in the right places. But things like hurricanes, you can see coming days in advance, and winter storms you can see coming but ultimately the impact from ice storms is really a county or two wide.

Kelly Savoie:

I know, it's like the track can change at the last minute.

Meghan Klee:

Yeah. So winter storms and ice storms and wet snow events and stuff, you start preparing. So you start with weather briefings just being like, "Hey, you might want to start thinking about resources and securing them." But then what's interesting about winter weather is you have to bring in those resources before those roads get bad. You don't want to bring in resources into an ice storm. You want to have them in place so that they can start to work right away. And make sure they have hotel rooms, they have to be fed, so on, so forth. So you can see how that adds up from a financial standpoint really quick. So if you are wrong and you wake up and it's 33 degrees and raining, you don't feel good about that forecast because that could easily cost a utility a million dollars right there. It could be one county north of your service territory and you're like, "Oh man, I missed that one."

So thunderstorms is sort of like a wait and see, unless you're in a really risky weather pattern such as the ring of fire where you have MCSes rolling up and over the heat dome, because that can happen over multiple days and one of those are going to be impactful. So there are times where you can prepare ahead of time or there's a high risk day, maybe there's a potential for a derecho. Derechos are hugely impactful to the utility, more so than a couple tornadoes actually. Some people don't realize it's not always just about tornadoes because a couple of tornadoes, while yes, they make a lot of damage, it happens in more localized areas. So we're looking for those big events where you don't have enough restoration crews within that area to restore power. So unless you have an EF5 roll through Tulsa, Oklahoma, you're most likely going to be okay with the staffing that you have.

But a derecho is swaths of 80 to 100 mile per hour wind gusts, and that takes a lot of territory down. So that means you have to have hundreds of restoration crews come in to help restore power so that you can get it up as quickly as possible. So the more staffing that you can get brought in, the better. But also, the early bird gets some worm, right? So if you're a utility and you know neighboring utilities are also going to get hit, you want to be the first one to secure restoration crews so that you're not bringing them from further away.

So say you have a storm in Ohio and you secure crews from Michigan, well say that the utility that decided to wait until there was more certainty or just wait and see what happens, they may need to bring crews in from Minnesota or Canada. So that's an extra 8 to 10 hours of driving time that you're paying crews to come in, and that's also 8 to 10 hours longer of restoration time for your customers who are unhappy when they're out of power for even half an hour. So it's a lot of moving parts and it's really complicated and really challenging and kind of fun. I'll just say that.

And then I'll touch on the very last part of my job at AEP was energy trading. So we did have energy traders that we worked for. The job was constantly evolving. So at one point we did stop supporting the energy traders at AEP, but that was a challenging job in a sense that you want to stay ahead of the market. So how you communicate the forecasted risk was almost just as valuable as the actual forecast. So being able to do seasonal forecasting, longer term, 11 to 15 day outlooks, where's it going to be cold?Where's it going to be hot? Because the energy traders want to make sure that they can buy power at the cheapest possible and then sell it when it's the highest, right?

So in the wintertime, that's being able to touch on the risks of when an Arctic outbreak is going to occur, when and where. And in the summertime when there's going to be extensive heat dome over a certain area and energy demand's going to be really high. So the energy traders would then go out and buy futures of energy prices in hopes to sell it at a higher cost as you get closer to that event. So I did anything from day-of forecasting all the way to seasonal outlets, what's the summer going to look like? What's the winter going to look like?

So there was never a dull day. It was a lot. There was only three meteorologists, myself included. I was the manager for I think five years or so. I spent about 10 years at AEP, but I got to the point where I wasn't really learning or growing anymore and I was ready for a new challenge. I mean, clearly you heard the passion in my voice of how much I enjoy the storm forecasting, but I was ready for something new. That was my expertise. I think I got as good as I could with that part of the job, and I was a valuable asset, but I was ready for a new challenge. So I eventually left my job at AEP and started working at StormImpact, and that was August of last year, so 2024. So it's been just over six months at StormImpact.

What's really great about StormImpact is they are a software as a service company that provides utilities with data-driven machine learning models to predict power outages. So it's still using my expertise that I have, but in a different way. So it's less of a specific forecasting for utilities and more so how can you

quantify the impact that storm's going to have to utility backed with past storms and how those past storms impacted that utility. And taking historical weather information with historical outage information from that utility overlaying with their assets. Where's the poles? What's the condition, what's the condition of those poles? And then what's the weather forecast coming in?

So it sort of makes the connections of those past weather events and applies it to the current weather forecast to give the decision-makers some sort of quantify the impact of that storm. So maybe how many customers are going to be impacted as the storm event comes through? Maybe it's predicting how many poles are expected to be damaged from this weather event that comes through. Poles are the hardest thing to replace because it takes the most time, it takes the most crews. And sometimes those weather events, if you have wind gusts that are over 30 to 35 miles an hour, you can't put the buckets in the air. And a lot of times when you're restoring power, you really need the buckets on those trucks in the air to get higher up to fix a crossarm or to restring the wires. So there's lots of different types of complications and weather thresholds that are utilized with utility forecasting it impacts.

Kelly Savoie:

Yeah, I was going to say I didn't even consider that. You don't even think of, okay, there's somebody up there, they don't want to get blown out of their bucket.

Meghan Klee:

Right, yeah. So making sure that the crews are safe too. And honestly, after hurricanes it gets really hot, right? Because hurricanes usually come in around heat domes and then when it departs, it's hot again. And when you're doing 16-hour days in 100 degree heat indices, it's really disappointing and really sad to hear when a lineman dies from heat-related illnesses. And that happens, and these guys are young and have families, and it just breaks my heart when that happens. And just the safety crews in the leaders, make sure that they're hydrated, make sure they're taking breaks, but sometimes it's just so hot, and if you don't properly hydrate or sit in the shade or cool off in the truck in the AC enough, sometimes those heat-related illnesses do catch up to you and those are really sad to hear about. And being a lineman is really, really dangerous work. Electrocution, falls, trees falling on you, trucks rolling over in high-strain areas and falling down cliffs, all of it's just really dangerous. Yes, I have the utmost respect for linemen and women.

Emma Collins:

So could you walk us through a typical day on the job as a product innovation manager?

Meghan Klee:

Sure. Yeah. So I work for a startup. There's only six of us, so we wear a lot of hats, but my main job is to learn the ins and outs of the model, so the inputs and outputs, and brainstorm ideas on how to improve those products. So coming up with testing cases, mainly around the weather side of things because that's where my expertise is, but also coming up with ideas for new products too. So because my expertise is within the utility operations and the weather side of things, I really bring to the table the operations side of things. So I know how the decision-makers are thinking.

So being able to take that information and create a product that's more usable for that decision-maker is really what my job's all about. But also there's other things to the job, like listening to customers and writing down enhancements and changes to ease of use for them. I also give performance reviews. So

yeah, we have the machine learning model and we have customers use that, but we also want to go back and see what went well and what didn't. And if it didn't go well, what can we do to improve that?

I also participate in demos as well as some sales things, but also a lot of the job is just staying on top of industry trends. So wildfires is a big topic right now, and that's been something we've been asked about a lot. So a lot of our customers are east of the Rockies, but a lot of those utilities that maybe aren't as prone to wildfires are starting to get asked to come up with robust wildfire mitigation plans and monitoring and forecasting. So that's something that we're working on currently at StormImpact is a wildfire situational awareness tool, but also a seven-day forecast because a lot of wildfires, it's a consequence of weather and climate.

But also being able to drill down to the circuit level is important because some of the more general wildfire risks that are out there publicly don't give the decision-makers who are making public safety power shut off decisions. They want to minimize the amount of customers that they are going to impact with that decision. So knowing the exact circuit or line that is at the highest risk for potentially sparking a wildfire is important so that they can isolate where they might need to make those decisions and cut the power for a certain period of time.

But there's also other forecast testing or model testing that have been successful that I am proud of. It's really nice to have an idea, and it makes sense in your mind from a forecasting standpoint and be able to perform a test around your machine learning model to see if your gut instinct is actually correct and it actually does improve performance. It feels good to know that you made a difference there. But yeah, the job's really fun and interesting and I'm learning a lot. The group is so intelligent. I'm the least educated person in the company with my little bachelor's degree in atmospheric science. But like I said, I bring the utility operations, some experience to the team too, but really great group of people, really smart, and being able to have an idea and know which person to go to to test and implement that has been really awesome and fun to work with.

Kelly Savoie:

And do you have to travel as part of the job? Do you ever have to travel to visit clients or talk face-to-face, or is it all virtually through Zoom?

Meghan Klee:

Yeah, a lot of it's virtual, and thanks to the pandemic that everyone tends to have that technology now. In the past, I've heard the team has traveled to clients before, for training sessions and just getting the overall scope of what the utility wants us to build for them, because the partnership with the customers is really important. So we want them to be able to see our face and see us and meet us in person. The performance reviews, because they're monthly or every other month, we do have those virtually, but we do visit customers from time to time, especially if they're wanting some in-person training.

Kelly Savoie:

What do you like most about the job in particular? Is it what you were saying about figuring that something worked out perfectly that you were looking at and it had a great result?

Meghan Klee:

Yeah, I mean, improving the model, I mean, that's what my job is. I love when that actually happens. I did have a test come through where I was like, this is going to improve things so much, I'm so excited. And

then the data came back and I was like, "Oh, whomp, whomp. No, it made things worse." So there's goods and bads when it comes to the testing, but you don't know until you get the data back. But I love that I can use the creative side of my brain. I was in operational forecasting for what, 13 years, 14 years? So being able to sit back and just think is really nice because a lot of my other jobs, we were so limited with staffing that there wasn't a chance to just breathe and maybe even think or even read a research paper for goodness' sake.

So it's been really nice to be able to keep up with the research. I got to go to the AMS conference this year, which I hadn't been to since I presented that research in Seattle in 2011. So I was so excited to go to that. And there was the first ever wildfire session, which I spent most of my time doing because I wanted to learn everything and anything about that. But also I don't do the same thing every day. So that's also really nice to just mix it up every day. And I still get to work with the weather driven power outages, which I have passion for and is my expertise. So really, I feel like this job was almost fate for me because I left my job at AEP in July, and I started at StormImpact in August. So I knew StormImpact because AEP was actually a customer of theirs, and it was founded by a group of folks within the OSU realm.

So one of the founders is an OSU professor, Dr. Steven Quiring. And so we meet with them face-to-face once in a while. We helped get the dashboard up and running and create ideas on how to best display the model data and output. So I have quite a relationship with most of the team members because of my work at AEP. So when I left my job at AEP, I was like, "Hey, just an FYI, I'm not at AEP anymore, so you won't see me on any performance review meetings in the future. But also if you're ever looking to beef up your team, like I'm here." And I was planning on taking some time off, maybe getting the climate change professional certification and spending time with my toddler and little beknownst did I know, was going to start working in this company.

Kelly Savoie:

They snapped you up.

Meghan Klee:

Yeah. And it feels so grateful because I'm really enjoying the work.

Emma Collins:

So on the flip side of that, what are some of the biggest challenges you faced during your career? You did touch a little bit on how sometimes staffing could be limited.

Meghan Klee:

Yeah, I have a lot of challenges I could talk about. One thing I don't feel like you're well-prepared for getting out of college is the gender and generational barriers because you go to school and you go to college and you are treated mostly equal than your male counterparts. But when you get into the workplace, corporate world, it was a big eye-opening experience for me. I am just like, "Oh, I'm a meteorologist. I know what I'm talking about." And I go and lead my first weather briefing and I don't think I'm getting taken seriously. And so it takes more time to build up and earn that respect from some of the leaders that you work for because they're just like, "Oh, this young woman just comes in and why do I believe her?"

And I get it, right? You have to gain respect and earn that for your time. But I guess I just wasn't ready for that particular challenge. So it took me a long time to, I was taken aback and then I kind of closed in on myself a little bit like, oh, okay, so this is how I need to be. But then with time I started taking more risks or really saying what I thought with the forecast and being like, "Hey, I really do think that Chicago's going to have a snow squall that comes in between 2:00 and 4:00 PM, and you're probably going to have a lot of diversions for flights. And then when that actually happens and they're like, "Oh, Meghan was right." And you get those little nuggets and you get that respect and you earn that trust for your decision-makers with time.

Juggling being a new mom as well as a leader in a very demanding job when you're short-staffed. So that was a lot of sacrifices and challenges that you're not prepared for until you become a mom. So there are times where I felt like I had to choose my job over being the best mom I could. And it's hard. It's hard for any parents, not just moms, but also dads. And the dads have the status quo of I am asked to do my job and that's what I'm going to do, and I'm going to lay more of the parental responsibility on the mom. So it's not like it's just on moms, it's also on dads too. They have those gender roles and those stereotypes that they feel compelled to follow as well.

And then lastly, February of 2021 was awful. So to jog everyone's memory, that was when Texas had all the blackouts from the extreme cold air mass that came through. So a lot of focus was on Texas and ERCOT and the failing grid, but we also have territory in Kentucky, West Virginia, Virginia that got back-to-back ice storms. And then a week later there was a wet snow event, and a week later there's another winter storm. It's just a parade of winter storms that we just had to keep forecasting. So we'd write a weather alert and be like, "Oh, and by the way, there's another potential ice storm coming in a week, FYI." And it just felt like it was never-ending. And of course, when it's really cold, guess what's also really important? The load forecasting. So making sure that you have temperatures that are cold enough so that you know how much energy demand you're going to be needing for your customers too. So every part of our job became really important during that time.

And there's only three meteorologists, and we were working 12, 14, 16 hour days. All three of us worked three weekends in a row on top on Monday for Friday. It was just awful. Really rewarding because we properly prepared our utilities for what was coming, but really, really draining. And it was something that I was like, this is a career defining moment in the moment, but I was trying to plan out the next two weeks. I was sitting there and I'm like, "Okay, Meghan. All right, just make a list, say what's most important on this day and that day, and start assigning people things. And we're really, really lucky that there wasn't someone on vacation because there was a lot of boss juggling and nothing dropped, no shoe dropped. We kept all the balls in the air, and I'm really, really thankful that I had such a strong team during that time frame and that they made sacrifices for their families to be able to be available for that timeframe.

So I think at the end of that year, I sent some thank you cards around Christmas and sent them all like a $100 Visa gift card. Please take your family out to like-

Kelly Savoie:

Yeah. Take a break.

Meghan Klee:

... David & Buster's or go bowling or yeah, go spend time with your family. And wrote the wives, "Thank you for being patient with your husbands as they had to work hard this year, and they sacrificed a lot of

home time as well." So lots of different topics we talked about there, but there's certainly not a lack of challenges so far in my career, and it's what, been 14 years? So I'm sure there's more to come.

Kelly Savoie:

And that's a good segue. Now that you've been working in the field for some time, is there anything you wish you had done differently, like taken a different path, or are you happy with how things transpired?

Meghan Klee:

Oh, I'm always one who says, I have no regrets because everything I feel like happens for a reason. I will say though, that I fought hard for everything that I accomplished. So it's not like things just happen for me. You got to work hard for those good things to happen for you. But one thing I wish I would've leaned into more was coding. In school you're like, "Oh, I got a programming class," and it just really didn't click with me. It's really hard for me to work backwards. So I had to take C coding at Purdue and the professor would be like, "Okay, create code to create this output." And I'm like, "I don't know where to start." So that was really difficult for me, but I wish I would've just stuck with it because it started to click a little bit towards the end of my time at Purdue, but Python is so invaluable right now, and so what's the word, transferable to other languages as well.

So that's one thing I wish I would've done more, maybe even push myself into taking another coding class. I know that would've, when you're in college, the last thing you want to do is add more work to yourself, but that really would've served me well, and that's one skill that I really lack, that I wish I would've learned a little bit more. And it's not like it's too late. I just need to be disciplined in carving out time every month to sit down and do a Python module. And I certainly have coworkers to lean on to ask questions and help me with that as well.

Emma Collins:

So you also have a passion for climate change resiliency. What are some steps that can be taken to better cope with climate change risks?

Meghan Klee:

So there's two parts to the answer to this question. There's like, what can we do personally? But then also what can you do as a business? So I'm one of those people who go into a room and I see all the emergency exits, and I know where the fire extinguisher is and so on, so forth. So just being aware of the risks, being prepared and educate yourself and staying atop of research is really important as an individual. Doing your part such as buying less in general, driving less, eating less meat, voting, and also talking to your friends and family about climate change is doing your little part on educating just the public and your little circle, group of people that you love and know. But speaking specifically for utility business, really knowing how climate change affects your business, not just physically, but also financially so that you can take steps to be more resilient to those extreme weather events.

One thing that has been difficult for utilities over the last couple of winters has been the strong El Nino events because when you're looking at budgeting for the financial year, you kind of rely on that money coming in from it being cold and winter, but it's getting warmer in the winter overall, everywhere. This year, we actually had a winter, which was really nice. So because it was so warm the last two winters, the utility was really counting on the revenue from the customers using their heat, even at an average standpoint, but maybe even more. But when you have two warm winters in a row, that's two winters of

loss revenue. And when it comes to budgeting, that makes it really, really tight to the end of the year, especially if you're an investor-owned utility and you're trying to grow your stock as well as your earnings for the investors.

Also just hardening your grid, being prepared for those disasters. Hope is not a plan. We talked a lot about making sure that you have the crews in place for power restoration. You certainly don't want to be fined by the state commission or even the federal level for not being properly prepared for a big power outage, but especially if there were deaths from that, from either it being extremely cold or extremely hot for a long period of time. Also just utilizing less fossil fuels and using more clean energy. I know there's a big push for that, but you got to stop thinking about how we've always done it this way and think more innovatively.

So a lot of the new ways to think about how can we supply energy and electricity when we're expecting the demand to go up? So we have not only warmer temperatures in the winter, hotter temperatures in the summer, but we have AI and machine learning data centers that are going in and that are going to suck up a lot of energy. So there's challenges when it comes to the utility business right now with how do we get enough energy for the demand? So there's things that they're starting to think of differently. What can you do with microgrids? Maybe we need to think of how we can use small modular reactors, which are essentially a tiny little nuclear plant. Reliability as a service. So putting a large battery or generator at a factory for them to use when their power's out, but also being able to utilize that energy to eject into the grid during peak afternoon heat or early morning cold.

But also things like virtual power plants. So having customers sign up for a program where the utility could turn your thermostat up two degrees during extreme heat, and all of those thermostats combined can lower the demand on the power grid, so it lowers prices. But you also get it kickback for being a part of that program too, and you can save money on your energy bill. So there's a lot of innovating happening in the utility industry at the moment, and a lot of that has to do with how the weather and climate is changing, but also the technology increase as well. So there's just so much to talk about, and that's just one sector.

Kelly Savoie:

Yeah. And I know there's always been this debate when I talk to people about electric vehicles, and some people say, "Well, if everybody had an electric vehicle, the grid wouldn't be able to handle it." And I mean, I could see how that might be true, but how do you make it so that it can handle it and we don't have to rely on fossil fuels so much?

Meghan Klee:

Yeah, that's one thing I didn't even touch on was EVs, because what's hard about that is yeah, the EVs are fine in the summer, spring and fall most likely, but it's the winter season that gets a little dicey because the coldest time of the day and the highest demand is in the morning right before the sun comes up. But also there's sort of another secondary peak when the sun goes down, you come home from work, you plug in your EV so it can start charging. What happens if there's not enough energy to supply that demand? Are we going to have to have incentives up for, "Hey, don't plug in your EV until 1:00 AM, better set your alarm, right?

Emma Collins:

I know.

Kelly Savoie:

Yeah.

Meghan Klee:

But there's also an opportunity to take the EV battery and eject that back into the grid. So that could be another way that if you had an EV, and the technology still needs to be worked out, and I don't know everything about that subject, I just know enough to be dangerous. But if you're not using your EV, if you're not going to be using that car during a really hot summer day. You could essentially take whatever megawatt from your battery and eject that into the grid to help lower the demand. So it's really interesting. I almost wonder why we're not driving around with solar panels on the top of our cars right now, but it's just a really interesting topic. It's really interesting to be a part of the energy transition right now because there's just so much to think about.

Kelly Savoie:

Yeah, I'm sure the future will have some pretty cool technologies that will help with that, hopefully. So for our listeners, if you are hiring a staff person, what type of skills and experience would you be looking for to fill a weather risk mitigation position? For anyone who's interested, who's going to be graduating, who wants to start working in this field?

Meghan Klee:

Communication is the biggest thing always. I think for any meteorology job, if you can't communicate your forecast or the risks effectively, then there's no action to be done from that. Data analysis is always really important, any sort of coding experience is a good plus too. Being able to apply your meteorological skills to different sectors is good because StormImpact might not just be in the utility space in the future. So if you have experience in other sectors such as aviation or transportation or tropics or so on, so forth, that's useful. But because we're such a small group, being a team player and a problem-solver are important right now. Being able to get along with your colleagues is pretty dang important when there's only six of you.

Kelly Savoie:

Underrated but important skill.

Meghan Klee:

I know, right? A lot of skills that are really important are soft skills. Yeah, you can have all the technical skills in the world, but if you don't have those soft skills as well, you might not be the best candidate for a highly competitive position that opens up. But because it would be a risk mitigation position, any emergency management technical skills would be valuable as well.

Emma Collins:

Well, Meghan, we're so grateful for everything you've told us about your career. However, before you go, we always ask our guests one last fun question at the end of our show. So what is your favorite hobby?

Meghan Klee:

I love to sing and dance. I was in show choir in high school, so I really enjoyed the performance side of things. It's a way to sort of escape yourself, you can become a different person on stage. So I am a part of two community choirs in the central Ohio region, and one of those choirs, I'm on the board, and I also do the choreography for some of the songs in the spring concert. So it's another way to once again, tap into the creative side of my brain.

And I really feel like having a hobby when you're in your adult life is so important so that you're not stuck in that work, home life, kid life repeat, right? So having one thing for yourself that brings you joy I think is really important. So I very much love, love, love being a part of those community choirs. And my son's only three, so when he starts joining sports, I might need to cut back on that a little bit, right? Or if he has other interests like art or theater or something. But for now, it's been really great to have something to look forward to in the midweek. And my husband also does hockey, so I really do, I'm a self-advocate for self-care. So really do think, find something that brings you joy and get involved and meet new people, make friends, and make time for yourself. We're more than just meteorologists.

Emma Collins:

Absolutely.

Kelly Savoie:

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

Meghan Klee:

Thank you. It's been so much fun.

Emma Collins:

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

Kelly Savoie:

Clear Skies Ahead, conversations about careers in meteorology and beyond is a podcast by the American Meteorological Society. Our show is edited by Johnny Lay, technical direction is provided by Peter Killelea. Our theme music is composed and performed by Steve Savoie, and the show is hosted by Emma Collins and Kelly Savoie. You can learn more about the show online at www.ametsoc.org/clearskies, and you can contact us at skypodcast@ametsoc.org if you have any feedback or would like to become a future guest.