Transcript of "Kevin Petty, Vice-President of Weather and Earth Intelligence at Spire in Boulder, Colorado"

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**, Clear Skies Ahead: Conversations about Careers in Meteorology and Beyond**. I'm Kelly Savoie and I'm here with Rex Horner 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.

Rex Horner:

We're happy to introduce today's guest, **Kevin Petty**, Vice-President of Weather and Earth Intelligence at Spire in Boulder, Colorado. Welcome, Kevin. Thanks so much for joining us today.

Kevin Petty:

Thanks for having me.

Rex:

Well, Kevin, could you tell us a little bit about your educational background and how that sparked your interest in meteorology?

Kevin:

Absolutely. Well, I was not one of those people who saw a tornado when I was five years old and got interested in meteorology. In fact, that came later in life for me. As an undergrad, I studied mathematics secondary education, and after my undergrad degree, I started to teach high school. When I taught high school, I taught geography as well because I had a minor in geography and I taught physical geography. It was within that context of teaching physical geography that I really got interested in weather.

Kevin:

As a teacher, at that point in my career, I made roughly $18,000 a year, and I thought, "I'd like to make a little bit more money than this." As a teacher, to do that, you will generally go back to school and you'll work on your master's degree and earn more credit and that will boost you up on the pay scale. I like to do things all at one time, so I ended up going to graduate school and just went full-time at Ohio State University. It was there that I got a master's degree and a PhD in meteorology. That's a little bit about my educational background and it gives you a bit of a taste of how I got interested in this area.

Rex:

Thanks, Kevin. I have a couple follow-up questions for you on that story you're told, which was a beautiful summary, but I want to dig into a little bit of the details. First, can you let me know if $18,000, was livable at the time?

Kevin:

It was livable as a single individual in the Midwest.

Rex:

Okay, because obviously inflation and prices have changed, so I just wanted to put that number into perspective for our listeners.

Kevin:

Absolutely. Yeah, that was a while ago.

Rex:

Okay, so it was livable, but it wasn't ideal for meeting some financial goals. I just wanted to comment as well, I can see you came from a STEM background with your interests in mathematics going into undergrad, so it's nice to see you had some of those underpinnings that led you towards meteorology. Can you remind me if geography is considered a social science — or is that more under the STEM umbrella?

Kevin:

That's a great question. I think a lot of times people will consider it more of a social science. There's a human geography aspect, but then there's also a physical geography aspect, but I think generally, people put it under that social umbrella.

Kelly:

Yeah, I think some schools, it's kind of similar to a psychology degree where you can either get a BS or a BA in it, and there are some universities that have geography under the sciences, depending on the school.

Kevin:

Yeah, exactly. In fact, the program that I went to at Ohio State University was an Atmospheric Science Program nested in the Geography Department.

Kelly:

You mentioned that you started off teaching and then you went back to school. When you went back to school, were you also teaching at the same time, or did you decide to take some time off from working, and just concentrate on your studies?

Kevin:

Yeah, I totally left teaching to go to grad school. Like I mentioned previously, I like to do things all at one time, I like to focus, and not have too many distractions, and so I was lucky in that I applied to a number of different schools and I got a fellowship to go to Ohio State University. That really allowed me just to put my head down and focus on atmospheric science.

Kelly:

Once you received your degree, how did your career path end you at Spire?

Kevin:

Oh, wow. It's kind of a long path, if you will. My intent was to go back to teach, but when I was in grad school, I did the master's degree, and I was so excited about this atmospheric science stuff and meteorology that I just decided to go on and do the PhD. After finishing that degree, my advisor encouraged me to go on and do a postdoc. After my PhD, I started as a postdoc at the National Center for Atmospheric Research and transitioned from a postop to a project scientist there.

Kevin:

There was a point in my career where I left NCAR. I followed my wife to take a job in Washington, D.C., and when I was in Washington, D.C., I worked for the National Transportation Safety Board, and during that time, we had our first child, and my wife, who was climbing kind of the corporate ladder at that point said, "You know what? I'm no longer interested in climbing the corporate ladder. We have our first child and I want to spend time with her." She said, "Hey, we can move back to Colorado," and so I went back to NCAR and worked for NCAR for a second time.

Kevin:

But then I started to develop my own interest in the private sector. How do you take science and put it together with business and really have an impact on the world? I left NCAR for a second time and ended up in the private sector, worked for Vaisala, then also worked for The Weather Company, which is part of IBM now, and then came to Spire about six months ago, in fact.

Rex:

Kevin, I really appreciate how you were able to both ask and answer some of the questions that I had on my mind with how do you combine the science with the business side of the private sector, which obviously has a profit motivation in a different way. Digging into your first job in the private sector, I understand you may not be able to discuss it in full, but I'd love to speak generally about what it means to develop and execute a technology strategy, which you mentioned as one of your key accomplishments or activities at Vaisala.

Kevin:

Yeah, absolutely. Just developing a strategy overall, whether it be business strategy or technology strategy in the private sector, those two lot of times go hand in hand. For me, I had to broaden my perspective a bit when I went to Vaisala, and specifically, I really had to think even more so about that end-user and trying to understand the market around that end-user, or markets, plural. As a part of that technology strategy, spent a lot of time looking at where are there gaps in the market? What are the needs and what are those requirements? Then what are the technologies that we need to develop in order to fill those gaps and to meet those needs and meet those requirements? There's this really strong synergy between the technology that you're capable of developing and what's happening in the marketplace and trying to look beyond what's happening right now into the future and understand where those gaps are going to be and then time things in such a way that as you develop your technology, you're able to release products and services that meet those needs and requirements.

Rex:

Thanks. That's a wonderful summary of what it means to develop a technology strategy. You also dug into what I was interested in about how some skills and experience is transferable from your career at NCAR and within the government and in academia into the private sector. You were talking about the end-user and the market and the needs that exist, the gaps that you can find, and those things seem pretty applicable both in the public and the private sector. Is that a fair point to make, or would you make it differently about how you would transfer your skills and experience?

Kevin:

Yeah, absolutely. Many of those skills are transferable. There are some skills that are a little bit more difficult to translate. For example, in one of your questions I think that you brought up earlier, you talked about, "Hey, what's the motivation in the private sector?" One aspect about that motivation is that there is a need to generate revenue, and there is a need to carry staff under that revenue, and you do want to make a profit, so you're thinking as you're putting together different strategies, including a technology strategy, has to factor those things into account, and you really need to develop the skills to think differently than maybe an academic setting and making sure that as you develop those skills, you're applying those skills in a way that benefit the company.

Kelly:

Speaking of the private sector, you mentioned gaps in the industry. I know lots of students are still pretty focused on broadcast meteorology and the national weather service for careers. How do you see the future job market for careers in the private sector? It sounds to me like it's growing and I know that the AMS is really working with professors to try to get students the skills needed for the private sector. How do you feel the job market is? Are students going to be able to find jobs when they graduate?

Kevin:

Yes, they will be. The private sector continues to grow in such diverse ways, not just in core aspects of meteorology, but when we think about climatology, when we think about water resources, and the nexus of how these things come together in a way that we can address some of the world's most challenging problems, there's just so many things that can be done. Not only is there opportunity in the private sector, but just through partnerships between the private sector or the public sector and academia, those are important for us moving forward, but the private sector has grown significantly in the area of meteorology over the last two to three decades, and with that growth, what has occurred is that there are opportunities to do research in the private sector. That research can be related to observations, numerical weather prediction, to computing, to software development. There's just so much opportunity out there. What's important is for students and early career professionals to develop those skills that are going to allow them to excel if they're looking at the private sector for future employment.

Rex:

Speaking of the public sector, for those who might not be as familiar with the responsibilities and activities in a private-sector job, could you walk us through, in some respects, what a day on the job is like, understanding that your particular job at the moment you've had only six months or so in, but you've also had extensive experience in the private sector previously? If you could give us a little bit of insight, that would be a wonderful benefit for our listeners.

Kevin:

Sure. I will say that a day in the life of somebody in the private sector is going to vary a bit, depending on what your roles and responsibilities are within that organization. For me, as somebody who is leading aspects of research and development, I'll give you a bit of what I contend with on a day-to-day basis. I've been lucky enough to work in companies that are truly global companies. There are benefits to that and then there are a few downsides for some people. For me, it's not a huge downside. One of those downsides for some is getting up early in the morning and having a meeting at 6:00 AM with somebody who's in Europe.

Rex:

You're a morning person?

Kevin:

I would say I became a morning person over time.

Rex:

All right. You're smiling right now, for our listeners, so he's not lying. He's telling the truth. He seems to have been okay with becoming a morning person.

Kevin:

I have. I had to make that transition. I was the typical, I'll say, grad student throughout the early part of my career. I love to be up late and I like to work late, but I had to make that transition when I moved into some of these global companies, and so my day usually starts with talking to people in Europe kind of early in the morning. Some of that is meeting with research teams that might be in Europe, but it also consists of meeting with people who are more focused on the business and just saying, "Hey, what's up? What are our priorities right now? What are we doing well? Are there things that we need to address in the short term? Then what are our longer-term projections and how do we meet those projections?"

Kevin:

Then those meetings begin to wind down as people in Europe, you start to transition into their evening time, and then I begin to focus on teams here in the US and start to have meetings with those teams and making sure that our roadmaps, the work that we're doing in those roadmaps are being achieved, we're meeting our milestones, we're meeting our deliverables. That's a key part of my day, but also, what I really love about my job is I get to work not just in these team settings, but in one-on-one settings where I get to develop people, I get to help them understand, "Hey, what's your definition of success and how do you want to get there? Do you want to be a manager? Do you want to be an individual contributor? You want to do more software engineering? How can we get you the courses to develop those skills regardless of where you want to go in life?" That's something that I have really enjoyed as I've worked through the private sector. During my time in all the companies that I've worked for is just really developing people to hit the targets that they're looking to hit as an individual.

Rex:

That's wonderful that you've had a chance to provide mentorship and career growth one-on-one. I can see that's such an important part, both for you, and I'm sure for those individuals that you've worked

with. Could you give us a little bit of insight into what might be the most challenging part of your job, notwithstanding waking up early in the morning?

Kevin:

Yeah, the most challenging portion of my job, that's a really good question. It is probably really developing the skills that I need to be successful and then balancing interest on a day-to-day basis.

Kevin:

Let me dig into that or pull on that thread just a little bit more. One of the things I encourage people to do, especially in our domain of meteorology, is to learn about these different sectors. It's so important to do that. At the end of the day, regardless of where your role is, I think we all have the same goal, and that is to have an impact on society, a positive impact on those people around us, and a positive impact on the world through better forecasting, through better information, through better products, through better services.

Kevin:

For me, one of the challenges is in the private sector, I don't necessarily get to do absolutely everything that I want when it comes to a new product or a new service because we have to think about it as a business. I can't just go out and write a grant and go do something fun. That's something that I really had to learn along the way is that, hey, we are in a business where we're looking to generate revenue, and we do want to have that impact on the world and on society, but we need to be very strategic about that. There are some things that I think would be really fun and interesting to do, but I just can't do them because I need to focus on the broader business strategy.

Kelly:

Spire, reading a bit about the organization, it sounds like it's a really good fit for you with its partnerships and how it's a global organization. It mentioned that the organization uses one of the world's largest satellite constellations to source difficult data. How does this data help organizations decrease their environmental footprint?

Kevin:

Well, one of the key things that we derive from our constellations is something called radio application data. That data can tell us things like what's the temperature, what's humidity, what's the pressure in the atmosphere. When we take those data and we include them in a numerical prediction model, they can improve the forecast of that model. It's been demonstrated time and time again that radio application data have a significant impact on our ability to generate accurate forecasts or improved forecasts. Then what really excites me is that through those improved forecast capabilities, we can help other companies and help other organizations operate in a much more efficient, effective manner. Through that efficient operations and through those effective operations, those organizations can reduce their own footprint and positively contribute to the future of our planet. That's just a small snapshot of one of the things that we do here at Spire. That's just really so exciting and it's just great to be in a field where we can have that type of positive impact on the world.

Rex:

Switching gears, Kevin, I'd like to look back with you at your career and ask if there's anything you wish you might have done differently in your career, not of course, to make any insinuation that you've made

any mistakes or that you actually wish you were in a different place, but just maybe there was some decision points that you're happy with, but that could have gone differently, or could have led you in a different path? Maybe those would be helpful for someone that is earlier in their career and might come upon those decision points, so if there is anything, I would love to hear about it from you.

Kevin:

Yeah, from a career perspective, I have thoroughly enjoyed my career. If you'd asked me 20 years ago, would I be sitting where I am today, I would've laughed at you most likely.

Rex:

Why would you have laughed?

Kevin:

I had never aspired to be the vice-president of any organization. I always wanted to do things that would have an impact on the world and I would just enjoy it, but I never dreamed of being here and helping to run a company like Spire.

Kevin:

In terms of what I would do differently in my career, and this probably was a little bit earlier in my career, I probably would've diversified myself a little bit more beyond my traditional atmospheric science training. When I talk about diversifying myself, I would've learned how to program beyond Fortran because in today's world, Fortran's a core thing that we do from a numerical weather prediction, but when we talk about generating products and services, there are so many other languages out there that will help facilitate the type of outcomes that we're looking for.

Kevin:

The other thing that I would've done had I known that I was going to be here, I would've invested more in learning about business earlier in my career, and really try to look at, how can I leverage my scientific understanding with a more solid business understanding to have an impact earlier in my career? For me, I was lucky because I got put in position where I was able to develop that business understanding. Vaisala had a fantastic program that helped to develop me and allowed me to learn those things along the way, but I would've loved to know that a little bit earlier in my career. It would've helped me. Those are just a couple of examples of things that I would have done. This diversification of knowledge and skills I think is something that we all should consider.

Rex:

Kevin, could you talk a little bit more about what you mean by the program at Vaisala that allowed you to develop some business skills that you maybe didn't have when you came into the job? Is this a sort of a academy, or a course that they do for their employees, or is it a more personalized experience that you went through with a mentor or other peers?

Kevin:

Generally, in most organizations, including the private sector, whether it be Vaisala, or The Weather Company at IBM, or Spire, these companies want to develop you and they will put in place programs to help you develop. Since Vaisala was my first private sector role, Vaisala had in place a several programs.

They had leadership programs in place to help you, to train you, help you be a better manager, help you be a better leader, and then they also had business development programs in place, which taught you about the business, taught you about what does it mean to do strategy, and how do you do strategy effectively? Then how do you look at the financial numbers as they come out to the market and what do those numbers mean? There are some formal programs that companies put in place to develop their employees to help them be in a position to be successful in their roles.

Kelly:

Yeah, it sounds like some advice for early career professionals is to take advantage of those professional development opportunities. Since you've worked in a few different sectors, do you have any other advice for individuals looking to establish careers in the private sector?

Kevin:

I think the advice that I would have goes to a little bit of what I was getting at earlier is diversifying your background. Communication is essential. It's great to be an excellent scientist and to be able to do great programming, but in the private sector, oftentimes you're talking to customers and you have to know how to translate that science into things that those customers can understand, so that communication, whether it be spoken or written, being able to translate science into a language that others can understand is really important.

Kevin:

In addition to that, I noted this aspect on the technical side, developing programming skills beyond some of the core languages that we often use within meteorology and atmospheric science. Then in the last five to 10 years, machine learning and artificial intelligence are really taking off in the private sector, so developing those skills is also something that will help you along the way.

Kevin:

Then finally, what I would say is really being able to connect your work to society and the problem that you're trying to solve and understanding that. For me, what's been interesting just in the last couple months, some people know this, some people don't, but my family and I were impacted by the Marshall fire here in Colorado. Our house was burned. It's still standing, but we lost 95% of our possessions at the end of last year. This for me was a personal experience where I was now an individual being impacted, but I could see the atmospheric conditions on that day, and I could understand what the challenges were around this fire that erupted in Colorado. Having my core understanding, and then now being one of those individuals that has been impacted firsthand, really understanding that connection when it comes to producing better forecast and better products and why that's so important, that's so important for us as an industry, as a community to understand moving forward.

Kelly:

Oh, that must have been so tough. Did you have like zero amount of time to just get out of your home and grab whatever you could? Was it that quick?

Kevin:

It was really quick. I had gone into work that day, but then I was going to spend about half of the day at work, and I came home around noon, and I could see the fire had already started at that point. Within an hour-and-a-half, the sheriff was driving through my community, telling people, "Hey, you have to go,

you have to leave," and so I opened up a bag, threw a couple of pair of jeans in there, some shirts, and I was out the door.

Kelly:

Oh, that is tough. I have a friend who lives in San Diego and the same thing happened to her mother, and unfortunately, in that situation, hers was the only house that burned in the entire neighborhood, but she literally had like five minutes. They were like, "You've got probably five, 10 minutes to grab what you want to grab, and then you are going to have to leave." It's sad.

Kevin:

Yeah, it's quick.

Rex:

Well, Kevin, thank you so much for sharing that really personal experience. I'm glad that your family made it out safely. Of course, we wish you and your family the best for your recovery after that event, which by all means is a traumatic event to live through. However, before we end the podcast, we do like to take a look at the person behind the meteorologist and ask a fun question a little bit unrelated to meteorology before we end. I'd like to take a moment and see what your favorite hobby is.

Kevin:

It's now my favorite hobby. It's been a hobby for a long time. I once thought I would be a professional, but that didn't work out, and so I had to go into meteorology.

Rex:

Wow, I'm intrigued Kevin. I'm intrigued.

Kevin:

I've been a soccer player since I was five years old. That's what I continued to do today. At one point coming out of college, my target was to be a professional, but that didn't work out, and I ended up in a career that I love. But to this day, I continue to play and follow soccer around the world.

Rex:

Wow.

Kelly:

Wow, that's awesome that you could still play, yes.

Rex:

Wonderful that you can still play, that's just as good, and you're happy with your career. Thank you so much for sharing and good luck at your next games for the rest of your life.

Kevin:

All right. Thanks a lot. I appreciate. Thanks for having me on the show. It's been a lot of fun.

Kelly:

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

Rex:

Clear Skies Ahead: Conversations About Careers in Meteorology and Beyond is a podcast by the American Meteorological Society. Our show is produced by Brandon Crose and edited by Peter Trepke. Keep technical direction is provided by Peter Killelea. Our theme music is composed and performed by Steve Savoie and the show is hosted by Rex Horner and Kelly Savoie. You can learn more about the show online at www.aetsoc.org/clearskies and can contact us at skypodcast@ametsoc.org if you have any feedback or would like to become a future guest.