**Jinny Nathans**: This is Jinny Nathans and I am in Denver at the WAF/NWP meeting. I am here speaking with Vijay Tallapragada, who is going to start by telling the story of how he became a meteorologist.

**Vijay Tallapragada**: Thank you, Jinny, for this opportunity. I have been in this field for almost twenty-five years. The first time I joined a course in meteorology was a master's in Andhra University in India. That's when I got introduced to this fascinating subject of meteorology, atmospheric sciences. The first two years of my college was a struggle in those days, because we had not much access to the information, we were using books written in 1950s and '60s, and had to depend on occasional guest lectures from eminent people who were working in this field. So that encouraged me to continue further, and I did another Master's in atmospheric sciences. I was fascinated by the dynamics of the atmosphere, and also physics, and the modeling. I quickly got into both the computational science of it, as well as the theoretical part of it.

I was fortunate to be associated with a project in those days on tropical cyclones, and in 1996 there was a big tropical cyclone that almost wiped out the entire village that I was born and brought up in, and I lost a few people who I knew, and that was an eye-opener for me on the power of weather, and the natural hazards that can create havoc on humankind. That prompted me to explore opportunities in becoming a true meteorologist by applying my knowledge and exploring future opportunities.

That led me to coming to Florida State. Prof. Krishnamurti, he was a great tropical meteorologist who recently passed away, that was in February, I was fortunate to get in the memorial service and give a lecture there. He was my mentor and he really introduced me to the modern era of meteorology and applications. Not just the science, how you apply it to help advance our understanding and applications to the public. That's how he groomed me and he gave me so many opportunities to explore new things. I was the first person to invent the superensemble technology along with him, that improved the tropical cyclone prediction tremendously in the past 10 years, and even now the Hurricane Center uses that as a tool to provide more accurate forecasts based on collection of models that we generally see in weather prediction.

**JN**: It must been very exciting to work with him. Can you describe a little bit more what it was like when you worked together?

**VT**: It was like a walking encyclopedia next to you. He was a great scientist and also a great mentor. The way he operated was unique. We worked about fourteen to sixteen hours each day, including weekends, and you completely dedicated yourself to be with him and follow his footsteps, tried to argue him on his ideas, try to provide counters and the healthy debate that leads you to improve your capabilities, take advantage of his knowledge collectively with the rest of the lab. It's like an NWP conference every single day.

**JN**: Wow, that's a wonderful comparison.

**VT**: The whole lab with fifteen, sixteen postdocs surrounding him, working on multiple areas of weather prediction both the short range, medium-range, long-range climate simulations, from floods in England to Arctic and Antarctic climate, from tropical cyclones to monsoons,

everything, the whole encyclopedia is in front of you. I wrote about 26 publications with him during my seven-year stay in Florida State, from 1999 to 2006. I got exposed to field campaigns like NASA's CAMEX [Convection and Moisture Experiment], the TRMM [Tropical Rainfall Measuring Mission] satellite mission, the GPM [Global Precipitation Modeling] and also studied on the past experiments like the MONEX [Monsoon Experiment] and the GATE [GARP Atlantic Tropical Experiment] and several field experiments that Krish was part of. I created a compendium of all that information and actually I wrote a compendium for aviation meteorologists along with him for [inaudible].

And he sent me to places, I went to Kuala Lumpur to give a keynote on Arctic climate and Antarctic climate, and I went to Bangladesh to teach them spectral modeling. I went to India several times, where I interacted with a lot of government and private agencies and universities, where I was giving lectures. And more importantly the National Weather Service, where I'm now working. He introduced me to a new product that was created after Hurricane Katrina. The Congress mandated the Weather Service to create a new program that dramatically improves hurricane predictions. That was before the Hurricane Forecast Improvement Project. So starting with 2006, that was the first time I entered into the National Weather Service as a hurricane model developer.

**JN**: That's absolutely fascinating – it's really something to have been able to work that closely with him for that long. That's wonderful. Taking a bit of a step back, when you were a young child in your village, what was it that started you to think about meteorology, and then to become really interested in it as a field?

**VT**: I think I can share some of my personal experiences. I don't want to claim that I was born as a weather genie and fascinated by the weather, because in the tropics the weather doesn't change much on a daily basis. It's hot in the morning, hot in the afternoon, hot in the night. It rains in the morning, rains in the afternoon, rains at night. Never so cold that you have to have a blanket while you sleep. So my first exposure to a weather phenomenon was again flooding due to a tropical cyclone, that not necessarily impacted my neighborhood, but in the village there were low-lying areas where they were flood-prone and there was not enough warning. Actually, there was no warning at all. There was no warning mechanism, there was no electronic media that reaches out to people, you only learn it in the next day, seeing it in the newspaper. So, that's our forecast. It's already happened.

**JN**: Right.

**VT**: So people were unaware of anything that's coming their way, and I was asking some questions to my teachers, are these unique, once-in-a-lifetime events, or are they recurring events? The answers were not necessarily academically oriented, but philosophical, you know, it's God's wrath, you know, people make sins and God punishes them. That was the answer the teachers were giving me. I was not satisfied, naturally. So again my early childhood was not necessarily aligned with the academic growth the kids nowadays are experiencing, in terms of exposure to knowledge. We were very limited in our access to information, our training, so it was self-learning, mostly, and your own curiosity that drives your interests.

But once I moved from the village to the town, that's where I had had for the first time more systematic access to education. There I joined a Roman Catholic missionary high school, that changed how I was brought up and I got exposed to more talented teachers. I could challenge them with my questions, and they were trying to find answers if they don't know, and trying to give more reasonable answers. So this is a coastal town in India, it's called Visakhapatnam, also known as Vizag, shortened. And that was a beautiful place with the sea on three sides, and the hills on the other side. So it's like a riviera, it's on the Bay of Bengal, the east coast of India, and it has a natural port. The waterways come inside, so that the ships can directly be docked into the port, and I got really fascinated by the sea breeze and the land breeze that drives people towards the beach and away from the beach.

So that was one thing initially even before I knew what meteorology was, I was looking at why the wind turns one way or the other way, and I was trying to model it in a physical sense. Is it the warming of the water, warming on the land, during daytime, during nighttime, how these winds reverse. So I used to have an anemometer that I was gifted by one of my church fathers, it's a three-cup anemometer, and I used to watch the change in the wind direction on a daily basis and record it. So again I was not exposed to meteorology or anything related to atmospheric sciences and there were only two professions in India that were considered the practical way of leading your life. Either you are an engineer, or a doctor. If you're not an engineer and you're not a doctor, you're good for nothing. That was the way of being brought up that we were under, our parents always wanted us to become either a doctor or an engineer. My mind was always towards pure sciences, so I had a great struggle to argue with my parents that I wanted to become a scientist, independent of meteorology or anything, I wanted to actually become a nuclear scientist. And also space weather, space science, not space weather, space science. So those are the two attractive professions for me, but there were no employment opportunities in those fields, whereas if you are an engineer you can definitely get a job, and a doctor obviously is a noble profession. But they were very competitive, you have to compete with millions of people.

When I moved from high school to college, we had to unfortunately go back to our village environment, where I lost access to sources of information. After the two years of my Plus 2 [junior college], I had to come back to the University where I studied for my bachelor's and Master's, and I chose my path independent of my parents' intentions. There I was introduced to meteorology for the first time after I did my bachelor's. I was applying for college admissions and I was selected in almost every part, pure physics, applied physics, nuclear physics, meteorology, geography and geology. Among all these subjects, when I heard meteorology I thought it was weights and measurements, that was my initial… [laughter]

So then the chairman of the department, who was trying to attract good people, obviously meteorology was not the first choice, again, due to lack of professional advancement, but he was nice to explain various parts of this subject, and I got stuck to that. And I did very well. I got a gold medal in my master's, that's like you become number one in the entire country, and be given a special award. That was an incentive for me to go beyond. I was very poor in mathematics, and I know I need to know the partial differential equations, the nonlinear interactions between dynamics and physics and the rest of the parts of the atmospheric system, so I took another Master's in applied mathematics with fluid dynamics as my specialization.

So that's three master's to get some solid foundations, and then I got a fellowship from the Indian government to study at advanced laboratories in India, and that's where I exposed myself to numerical weather prediction, dealing with supercomputers and running general circulation models to study monsoons, tropical cyclones and so on and so forth.

**JN**: It's wonderful that you were able to take advantage of the opportunities when they were offered so that you could follow the path that you had chosen.

**VT**: Well, sometimes I had to create my own path. One time I wanted to really simulate a tropical cyclone using, in those days MM-5, the mesoscale model, and it was very popular in the literature, but not accessible in India, because of lack of computing. The only source was a nuclear facility in the south of India that had a good computational facility, and I was told by somebody that they will give access to the machine if you put in a proposal. They said it has to be connected to the nuclear facility, that means how the weather impacts the nuclear facility, if I can write the proposal they'll allow me in. They are next to the coast, south of where I lived, and no tropical cyclone ever hit that facility, but there were a lot of depressions that were crossing and causing a lot of concerns for them to protect the radiative properties of the nuclear waste, because the nuclear waste has been sent into the ocean. So the dispersion part of it is of interest to them. I efficiently combined their interests and my interests and I got into it, and I was the first person to simulate a tropical cyclone in India using a three-dimensional model. So that was one of my personal satisfactions, although it was not well-recognized, but I would say I personally am very pleased with that kind of thing, where it's a single person working on no sorts of information, no training, like the WAF workshops or our AMS meetings, so you got to learn everything by yourself.

**JN**: When did you become a member of AMS?

**VT**: That was in 2000. 1999 I joined Florida State, 2000 was my first AMS meeting in Fort Lauderdale.

**JN**: And as someone coming to the US, and then also coming from the environment where you really didn't have any peers, what was it like to become a member of an organization that reaches out to people the way AMS does?

**VT**: There are two stories I want to tell, very short ones. The very first one is my first exposure to an international community. The first meeting in Fort Lauderdale, AMS tropical meeting. I saw the parallel sessions going on, it was crazy, you don't which one to go to. I mean first of all becoming a student member is a very nice feature of AMS, the student membership was so attractive and so affordable that it's a no-brainer. I took that opportunity, became a member, established my network very quickly, going there, looking at various professors coming in and researchers coming in, giving lectures on more advanced topics, it was mind-blowing. The second one is a cultural shock, that the down-to-earth professors and the world leaders in the field, they come and talk to you, you can't even imagine how that makes you feel. Like you're walking in to the president of the United States and talking to him as if you are a friend of his. So, you know, you underestimate yourself as a student, as a foreigner especially. But the science really erased those boundaries of cultural or ethnic backgrounds or anything. And the special

attention towards the students' presentations, the poster presentations, the encouragement that you get, the critical comments that you receive. They all are really motivational. I made sure ever since I attended almost every AMS conference.

**JN**: In your travels and meeting new people to work with, since you found that congenial environment for yourself, some members make a specific effort to do the same thing when they meet a younger colleague, and that sort of thing. So is that something that you think about and that you do?

**VT**: Yeah. I became a hurricane team leader at the Weather Service in 2006, and as I said I attended every tropical conference of AMS, that happens every alternate year. My main purpose ever since was to look at the bright students, postdocs, and invite them to work with me. I got at least six interns coming and working at NCEP in my projects that were all chosen from these AMS conferences. I just attend them, spot people, find their interests, align them with my project goals, and bring them over, and a few of them are continuing now as my colleagues.

**JN**: That's exactly how it's supposed to happen.

**VT**: They get career advancement. I find AMS conferences more meaningful than AGU, for instance, and the NWP and WAF community is really more attractive to me because they are right on the topic that the Weather Service has to deal with. The cutting-edge science that was shown here really paves way into operations. And I take this opportunity also to convey the state-of-the-art of the US weather enterprise from NOAA. As the chief of the modeling and data simulation branch, it's my responsibility to inform the community on how we are making progress, what are the areas of improvement that we need to work on. I always challenge in my talks the rest of the community to address the most critical issues that we are facing right now.

**JN**: Thank you, thank you very much. Is there anything you'd like to add? I think we're at a stopping point?

**VT**: No, I think we're good.

**JN**: This was fascinating to hear your story. Thank you.

**VT**: Sure. My pleasure.