

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL WEATHER SERVICE

AN INTERVIEW WITH LOUIS W. UCCELLINI  
FOR THE  
NWS HERITAGE PROGRAM  
ORAL HISTORY COLLECTION

INTERVIEW CONDUCTED BY  
GREG ROMANO  
MARY FAIRBANKS

COLUMBIA, MARYLAND  
28 JUNE 2021

TRANSCRIPT EDITED BY  
GREG ROMANO

Greg Romano: Good morning, and good afternoon. This is an oral history interview with Dr. Louis W. Uccellini, Director of the National Weather Service. The interview is taking place on Monday, June 28, 2021. The interviewers are Greg Romano and Mary Fairbanks. It's a remote interview, with Louis and Mary both in Columbia, Maryland, but in separate locations, and Greg in Buckeye, Arizona. Also joining and listening is Timothy Cermak. To get this going, Louis, we are going to really talk about your time at the Weather Service, starting at the very beginning when you made the transition from NASA to MOD at the Weather Service in 1989. You came to NWS MOD in 1989, moving from a research environment into an operational or an administrative environment. Why don't you start off by telling us your motivations for making the move, the players involved, and your thoughts at the time, both positive and negative.

Louis Uccellini: Okay, so to set the stage, I had been working in NASA at [Goddard] Space Flight Center since 1978. One year after getting my PhD at the University of Wisconsin, Madison, and immediately after having a post-doctoral position in the Space Science and Engineering Center at the University of Wisconsin in Madison, as well, I became very excited about working at NASA Goddard. It was spinning up a new research lab, with Dave Atlas (as its Director). I joined that laboratory, then Joanne Simpson came in about a year after, in the 1979 time frame, early in the 80s, maybe 1980.

We had an incredible run in the research world. Joanne allowed me to spin up a mesoscale analysis and modeling section, recruit top researchers, like Dan Kaiser and Steve Koch, as examples. Tsvi Gal Chen joined us, Mary desJardins, Paul Kocin, people that have become well-known (should also note Ralph A. Petersen). And then Franco Einaudi, actually, toward the end. And what happened in all my research, actually, I was very interested in working on cases that I learned about through my day-to-day interaction with the weather. I always followed the weather, used operational data, had to follow the weather, whether it was in the fax room at the University of Wisconsin, or a fax room that was established at Space Flight Center. So this draw to the operations was sort of facilitated by the fact that I was relying on operational data for all of my research work. Basically, all the cases I worked on started with operations data.

As a kid interested in meteorology, I was always interested in the forecast, and why it was right, and why it was wrong, and how did they do this? I was always asking those questions. When they were right, how did they know it was going to snow tomorrow or the track of the storm would be right over Long Island, or something like that? And of course, when it was wrong, or there was some real obvious boundaries involved, like rain on Long Island and snow in New York City, you know, how does that happen? So there is this natural inclination that sort of emerged or came back to me, even as I got my degrees, and as I worked at Goddard, that I started asking the questions, how does my work in research, how does the work in the research ... in the analysis, the modeling and analysis section, that Joanne Simpson allowed us to spin up ... how does the research in other parts of NASA Goddard Space Flight Center, the work that was being done under Milt Halem's -- within Milt Halem's branch with some of the top scientists not only in the United States, but in the world. In terms of the use of satellite data in operational models, how do we make this work? Well that sort of was a basis, then, of my interest in going over to the Weather Service, which was maybe 15 miles away at what was the National

Meteorological Center at the time.

I started interacting with people there, exploring what we were calling the R2O (Research to Operations) process. I was also, in parallel to all of this, involved in programs, whether it was SESAME (Severe Environmental Storms and Mesoscale Experiment), there was STORM, which was Storm Scale Operations and Research Meteorology, and had O and R in it, national programs. Both of these programs eventually evolved into the U.S. Weather Research Program. But in the 1980s these programs were being discussed, and R and O, and R2O discussions.

So, I go over to the National Meteorological Center. I visit what was the largest forecast office in the National Weather Service, which was the Meteorological Operations Division, that's the MOD that you refer to. And being on that floor was pretty exciting, because that's where all the national forecasts were; this is where they all started. With products, maps, like the surface analysis, the 12- and 24-hour fronts and weather maps that come out, and as students you'd be hanging over the fax machines, you know, waiting for these maps. What are they forecasting for us? And QPF, Quantitative Precipitation Forecast, which was just being introduced as a forecast product out there 24 hours. Which was a very difficult, very difficult forecast, obviously. I gave a couple of seminars over there. Within the research programs, we started talking about facilities, you know, transition facilities that would really focus on the R2O process. It was either one of those visits to NMC or a special workshop. They used to have workshops, you know, like in Virginia, and you'd be there, stay overnight kind of thing. Then Jim Hoke actually approached me, and said, you know, if you're going to be coming into these conferences and really talking about R2O and you're going to write papers on the R2O which people were talking about submitting to the Bulletin (Bulletin of the American Meteorological Society) ... Jim worked in the Modeling Division as a PhD, generating new models. So he really was embedded as a researcher in NMC. He said, maybe you ought to learn a little bit about the O [laughs]. And he was right, you know? I mean, I remember driving home from that first discussion and thinking, I've got to learn more about how they actually do it, not just that it's really neat to do.

Well, right about this time, Bill Bonner was the Director of the National Meteorological Center. I had actually interacted with Bill as a startup researcher working on the coupling of jet streaks, and the low level jet, and Bill had written a paper on low level jets. So I asked to go and speak with him about the work I was doing, and he was the Deputy Director of the Weather Service at the time. I remember going into his office and explaining my work and how it challenged some of his findings. We discussed it for a little while, and I won't get into details ... what the issues were, you know, solid scientific issues, but he agreed that I was onto something, and he encouraged me to continue the effort to publish. He was very supportive, for a young person walking into the office of the Deputy Director. What I didn't realize at the time, and found out later, I'd planted a seed in his head, and he -- Bill was just this terrific guy -- he said he was at one level: who is this young turk coming in here challenging a paper I wrote ten years ago? To wow, that was a really great discussion, and he has a point. You know? And he had the guts to come here and talk to me before he actually published it. Well, it obviously planted a seed in his head, because in the late 80s, as the Weather Service was spinning up the Modernization and the Associated Restructuring of the Weather Service, Bill was asked if there were any people

out there, outside of the weather service, that maybe the weather service ought to be interested in. He actually recommended to Joe Friday, who was becoming the new Director of the Weather Service, that Joe, you ought to talk with this guy from Goddard Space Flight Center and see what you think. Just an open discussion. And through that, I did meet with Joe, and we had a great discussion about the modernization, and things that I was interested in, and that was that. And then I went to a briefing that Ron McPherson gave, who was now Deputy Director for the Weather Service, and part of that whole modernization team, at a Cyclone Workshop in Monterey, which is shortly after I talked with Joe, or maybe it was -- maybe slightly before. Now these two things are kind of conflated a little bit. But Ron gave this briefing out at Monterey with a keg of beer, right in the back of the room. I was sitting in the back of the room and there were people coming in and getting their glasses of beer as he was talking. I was just riveted on his talk. I swear I was not one of the few people who actually went back and started drinking up the beer. And I decided that I wanted to be part of the modernization and I was interested in the Weather Service. And, about that time, I was invited to spend a week as part of the Visiting Scientists Program by Ron McPherson, who was now shifting from, he was between that point in time between being the Director of MOD or the Division Chief, and the Deputy Director of the Weather Service. Again, it's a little difficult to remember exactly where they were. But that position was going to open up. I found out during that week's visit that the position at MOD was opening up and was being advertised. They got this little office for the visiting scientist of the week, and I was having a really good time working with the forecasters during that week. So it was like maybe the Wednesday or Thursday of that week, and after having that challenge from Jim Hoke, after having a discussion with Bill Bonner, who sets me up with the discussion with Joe Friday, after listening to Ron McPherson's briefing of the Modernization, and then finding out that the position of the Chief of the Meteorological Operation Division is open. Who comes into my office and slaps the position description on the table in that office while I'm sitting there is a young John Sokich, who was working in the Meteorological Operations Division and he says just out of the blue ... I kind of knew him just from that interaction on the floor, with one of the days that I was out on the floor. He says, "now you have no excuse". And he walks out. And there is the -- there is the job announcement, face up, sitting on my desk.

That's how I got really interested in making that transition. I picked up that announcement, I brought it home with me, I read it, the next week I went into Goddard Space Flight Center and met with my immediate supervisor, my boss, Joanne Simpson, who I didn't know how she would react. I let her know that I was interested in this whole R2O process in the weather service, and she was very encouraging. She was very supportive. And then I came in, I said, I think this is the position I'm going to go for, really go for. I expressed some interest in some of the other positions, but I said now this one really seems to be where you can deal with the operations, learn about the operations, and then really become knowledgeable about what it takes to get the research and the technology into operations. So, I did. I applied, and I applied in March of '89, and by the end of September I was officially the chief of the Meteorological Operations Division. It was a really bold move on the part of Bill Bonner, Ron McPherson, and Joe Friday. I mean, clearly, the three of them. Ron was the heir apparent to become the NMC Director. So he was part of that decision process. So the three of them really made the decision to hire me from a research laboratory with not one day experience. Not one on the operational floor other than

as a visiting scientist for one week. No midnight shifts. No basic understanding of what people literally have to go through working on a forecast floor. And they hired me to lead the largest forecast office in the National Weather Service at that time. I asked Bill Bonner after I got the Weather Service [Director] job -- that was in 2013 -- we were at a celebration of Jim Howcroft's 90th birthday party. He was the Deputy Director of NMC at the time that I got the job, and I saw Bill Bonner there, and he is just such a warm individual, you know? And he's actually pretty funny. And so we reminisced about his decision in hiring me. He looked up, and he says, well, the way I told people when I made that decision to recommend me to Joe Friday was that this young man is either going to be the next ... he's either going to be the head of NMC, or he's going to be the head of the Weather Service. And in 2013, he says, "I didn't know it was going to be for both" [laughing]. I said, it's still a gutsy move, I don't know how you found the wherewithal to make that happen, and I left that with him.

GR: You mentioned that you had not one day of operational experience on the floor. Going into a large organization of operational meteorologists, how were you received by them? And what did you do to establish your credibility and reason for being there?

LU: There were some people who knew me. There were people in the techniques development unit; Tony Sievers was the Branch Chief there. He knew of me, and he came out of the University of Wisconsin. He was going for his Master's just as I was leaving as a post-doc. So, he knew of me. Tony Mostek, who was well-known in the training component out there in Boulder, recently retired, actually worked for me at Goddard Space Flight Center. Wes Junker was very interactive with me in that year or so that I was interacting with the folks at MOD before I applied, who was a lead forecaster, and really well-respected, not only within NMC, but he published ... he was known in the larger community. He was very supportive, in a way, of the work I did. I wouldn't say he was supportive. I don't want to overstate that he was supportive of me as a manager, or somebody who could come in and manage the place, but they knew of me. I think people like that were cautiously optimistic, or well, we got to change, and this was the best way to change bringing in somebody new like this. Really, let's just upset the whole apple cart and start off. But the people in the operational community and on that floor, were [saying] let's see what he can do before we ... we know of him, we know the work he's done, but... I think that's an honest reaction to have.

There was a new group that was being spun up at the time, it was like a marine branch within this MOD. There were 15 GS13s that were transitioned from other parts of the Weather Service; transferred into this unit. This is the beginning, by the way, of another nice story in terms of the spin-up of what is now the Ocean Prediction Center. So, I was there, right at the beginning. These were people who didn't really want to move from where they were, but the whole function of the surface analysis over the Pacific and Atlantic were transitioned here out of individual forecast offices. I think San Francisco, and the one in Washington, D.C., where at least 10 of these people came from there positions. They were not a happy group, right? For one reason, they couldn't get their products off the floor. I mean, there was really no solid plan that brought these people over in a functional way. They could do their analysis and all that, but how you get that out was something that wasn't really well thought out. So they were literally just starting

right about that time. Maybe within several weeks of me arriving. And they were in a, like I say, disgruntled mode as a unit. There were some individuals that were more optimistic than others, but so they really, I would say, were wondering about how this guy is going to help us. Does he even know what marine meteorology is? Number one. And then number two is, does he understand what it takes to get these products out. So, you know there was a mixed bag there. I can tell you that I heard this from Dave Feit, who tragically is not with us. He passed away shortly after I got my Weather Service Director's job, in 2013, I believe, or early 2014. He told me, and he was in what was the Development Division at the time, that the building was just flabbergasted. There were people in that building that were just flabbergasted that Bill made this decision for several reasons. One, I wasn't in the forecast community, I wasn't in the operational community, but also because Bill Bonner had recruited about 20 to 25 different people from Goddard Space Flight Center into NMC.

There were things happening in the lab at that point, where they were shifting their direction more toward the climate, away from weather. So there were things that were happening, and people were coming over to NMC. Working in the Development Division, working in what was the Automation Division, working in the Climate Analysis Center -- not the Climate Prediction Center; they didn't do prediction back then, they did analysis. So it's like they've gone too far. And Dave said it was, people were really talking about it in the hallways and stuff like that. I kind of felt that. I didn't know it explicitly. Well, I wound up hiring Dave, and got him two promotions, so he kind of softened up a little bit. But he opened up to me after the first position I hired him into, which was, which was into that Marine group, because I said this is a group we really need, and we can really build up. And, he had a lot of experience in OFCM [Office of the Federal Coordinator for Meteorology], and others, so he was ideal for that position. But he gave me an honest assessment in one of the first meetings I had with him, even before he got into the interview process, about what was going on there. He said there were people like D.B. Rao, and others, who knew me at Goddard, who settled some of these folks down and said, no, no, he really knows how to develop an organization and how to manage people. This is going to be a good choice. What they need up there is a good meteorologist and a good manager, and he's it, right? So, it was tamping that down a bit. But it really was walking into a situation where people knew you weren't one of them when you walked through that door, and it was more difficult than I imagined it would be. I actually thought about that, especially when I came to understand some of the human resources issues that existed there. Some of the workers went AWOL sometimes, like the first week. These are different challenges than I did not bargain for. But I'm here, and now I'm going to figure it out. So, there was some of that. And it also told me that I had to show ... that what it did in a positive way is that it showed me that what I had to do almost immediately was serve the workers that were on that floor, because it was pretty clear that they felt, whether it was true or not, they weren't being served properly to get their job done.

So, with respect to the Marine group, we figured out that NESDIS could help us out. They had a transmission line to the radio fax in Lewes, Delaware, and in Port Reyes, California. That they had room on. And I think that Tony Sievers was figuring this out before I got there. But we needed resources to get lines up to there and make sure we needed arrangements with NESDIS that they would support the line. And make sure that information was getting out. In

other words, there was a schedule to establish. I immediately jumped into that and we got that done. We literally had to run a real line up the staircase between the fourth floor and the sixth floor with signs all along, "Do Not Mess With This Line," that was our line. That was our line that got the radio fax products out, out of the Marine section. And that was the beginning, then, of when the workers there, when the unit there, saw that within a couple of weeks we focused on an issue and got it resolved in a way that, not only was it viable technologically, we got another line office to actually co-sign an MOU that there would be a product coming off of their system. That started sending a message. And then other things started happening.

The other thing that was a big -- not a surprise, because like I sort of saw this, but didn't realize how pervasive the problem was -- everything was basically in analog mode there. The forecasters did their products on acetates, the acetates were then brought over to an oscilid machine where they were copied. Some of these products were really big, so you had a big -- that's an ammonia-based machine. So there's this background smell on the floor of ammonia. They've got this big -- they've got a whole unit of people that are just there to copy these products and either send them to Asheville, bring a copy down to the Development Division, the Modelers, so that they could see the fields that they're trying to predict with their models, or copies up to the sixth floor for the climate analysis center, or maybe it was the eighth floor. The eighth floor. They had what we called the Sneaker Net. It became affectionately known as the Sneaker Net. We had the wire running up the stairwell, and then we were running these products back and forth. All of the machines -- there were no UNIX-based systems at all on the floor. We had a few proprietary machines that people were starting to do the analysis on, to show that it could be done in this digital world, but it was -- they were [using] proprietary software. And you just paid, you paid \$100,000 a year just for the licenses, for these systems. The forecasters were getting used to them but there was no open source software; there was no UNIX support in that entire building. That's what I walked into. That's what I mean about how deep the issue was. Because at NASA Goddard, we were already in the UNIX world. We were already in open-sourced software with Gempak. Mary desJardins worked for me, or I worked for Mary, because she would tell people that she chose me, I didn't choose her. That she built this Gempak system to work with any data set, do these analyses. An incredible package of application software that was basically checked line by line, by people like Ralph Peterson, who is another person I hired into Goddard Space Flight Center. And he came over. And Keith Brill, who was brilliant. So you have all of these diagnostic computations and post-processing with people like that being behind it. So the university community was already using that system. I knew it could be a basis for what we did on that floor. So Mary came over. Mary desJardins came over. That's how she got involved in the Weather Service. And all that software was brought in, it had already been brought into a real-time operational framework through, or real-time framework through our work at the GALE field program, doing everything in real-time to test the system. But for her to bring it over and get it into our operational infrastructure meant that NMC would have to adopt UNIX. And that was a battle. There were people even, because McIDAS (Man computer Interactive Data Access System) didn't use UNIX. And we had McIDAS from Wisconsin. Those proprietary software packages didn't use UNIX. And Sandy McDonald's shop out in Boulder, Colorado, the Forecast Systems Laboratory at that point didn't use UNIX. We were the only group saying you had to go to UNIX so that your software would not be

hardware-specific.

So, the fact that we did this, now, things got a little nasty. The Automation Division is like, what are you doing? We're getting these proprietary systems for you, you're disrupting that work flow. Sandy was ready to move the FSL systems into MOD, and we basically said no. And that was one of the biggest decisions and probably most important decisions that were made in my first year there. And then the rest, in a sense, we got it working. Mary, we got a group for her, she was brought into, eventually she was brought into the Automation Division because, people there, they were recruiting from the outside at the same time we're saying you don't have UNIX? So Mary became a very important person for introducing UNIX within the whole building, actually, and then she moved to Automation Division while developing GEMPAK to be applicable to every forecast desk within MOD. We tested in the way with the forecasters working with them, setting up requirements, testing the software, and convincing themselves that it would work. That became, I think, a very important marker for what we did for the Marine unit, what we did for the work stations. We started showing people that we were serious about bringing that whole division into the IT world in a way that would be meaningful, not only for getting things done on that floor, but there were buildings to then start interacting with the larger community. Remember, I was very interested in working with the research community. That software package that we were implementing in MOD was now running, and was also running in 70 different universities managed by Unidata.

So we were taking this same workstation environment in the forecast office at MOD, the Forecast Desk within that division, and also, at the same time, working with Unidata to support every university synoptics department in the United States. And some of the people, like Scott Jacobs, came into the Weather Service because of that kind of a linkage, right? He applied for a job, he had listed in his resume, [that he had] Gempak experience. He came from Albany with Gempak experience. Mary just scooped him right up. She didn't have to train him or anything. And look what Scott Jacobs has done within the Weather Service. And now, Steve Shotz, the head, in Weather Service Headquarters, working the whole program. He was Mary's right-hand person. He actually managed the software development, mapped it into the individual forecast desks, and also managed our interaction with Unidata. He came there with Mary. He worked with Mary out at Goddard Space Flight Center.

These kinds of actions sent the message that I was interested. Not only in the meteorology, and the forecasts that these folks did, and appreciation that they're doing it operationally, 24 by 7. But that we were getting into the nuts and bolts of how to make it work, not only for today, but how do we position the Meteorological Operations Division for the future? And that took about two or three years. That did not happen overnight. And we also did not stop the forecasters from using the acetates and doing it the way they were doing it, but we worked and went to smaller maps. It was sort of like the mantra, and Dave Feit, boy, I wish he were here. You know, he's the one who came up -- what this guy wants is big screens, small paper [chuckles], you know? Because people would say what do you want? What do you want? Big screens. Digital, remember, we're in the digital world. "Big screens. But small paper." Because then I could get the individual print done right there next to the forecaster, right? They were now selling these



printers that were small. You didn't have to have these big gigantic ozalid machines that run with ammonia. I want to get them out.

The other thing that this whole effort did was it got us away from the Intergraph. That was the name of the system. They were buying Intergraph's, not only for MOD, but for the what was going on down in Oklahoma, in the spin up of -- as that unit got spun up -- and the idea was, and this didn't happen until I came back from NCEP, but was to get everybody on N-AWIPS because the licensing, the costs of just getting one of those systems on the floor was more than what we had to pay for one position. So we were basically giving up an FTE in terms of resources for every system we were buying. And McIDAS was the same way. There were licensing fees, and a whole different way of approaching the software, because of the different operating systems. So it was really important that we got to this unified system. We showed it could work at MOD, showed in the research community resonating with it, so we started facilitating an interaction at a very fundamental level, work done at the -- in the research units -- could be taken in by the team that developed Gempak and put it into the next build. If it worked, and it looked like it could be supported within the framework that Mary established, we could move that in within a relatively short period of time. That's what we were working toward over those two, or three, or four years that I was in MOD. Those last three years were really exciting, because we were really gaining the trust of the forecasters.

GR: Louis, let's shift gears a little bit here. You were asked to develop a strategic plan for NMC, and I was wondering if you could walk us through the reasons for this, what actions were taken, and the lessons learned. I will also say, the Heritage Team has a lot of the documents prepared back then, so we will certainly make sure that we capture those as part of this.

LU: Okay At some point, maybe one year into my tenure in the Meteorological Operations Division, which was from late 1989 to early 1994. Okay. So basically four and a half years. Somewhere in year one, Bill Bonner announces that he's retiring, and that he's going out to Boulder, to help spin-up COMET (Cooperative Program for Operational Meteorology, Education and Training). Because remember, part of the modernization was training. We're hiring degreed meteorologists, but they have to -- we have to be trained in the mesoscale aspects that we are working toward, or really focused on -- so he went out there to spin up the COMET classes, and then the SOOs were, the Science and Operations Officers, were going to be hired, and one -- when they're hired, they're going to go out and spend a month or three weeks, whatever it was out there as part of their training and orientation in the Weather Service. So he leaves. And Ron McPherson comes in, out of Headquarters, and he becomes the head of NMC. And it was somewhere in his first year that he--could you hold on just a second?

[SHORT BREAK]

GR: Okay, we are back recording. That worked out fine. Before we took a short break, we were talking about the NMC strategic plan, and you were just beginning to talk a little bit about that ...

LU: So when Ron came back, he asked -- he called me down to his office, and he said that

they're working -- he's been working with Joe Friday and others in Weather Service Headquarters, and we want to restructure NMC into what is going to be called the "National Centers for Environmental Prediction", and he laid out a framework that came pretty close to where we wound up [laughter]. So he had the hydromet center. He had the Marine Service... as a service center. He had a marine -- remember this, marine -- because I -- already built it up into a -- from a section to a branch, but he wanted a separate marine center, which would be done in cooperation and in partnership with the National Ocean Service. The Climate Analysis Center -- he envisioned there would be a Climate Prediction Center. He envisioned that we would have a separate severe storm center, and a separate aviation center, and then, of course, the hurricane center. So there would be six service centers. There would be a modeling center, and there would be a national center for operations. That automation division would become a national center.

The point being, how do we pull them in in a functional managerial structure? Because at the time, which is kind of interesting, if you look at the history of the National Severe Storm Forecast Center, which existed out in Kansas City at the time, and you look at the history of the National Hurricane Center, those two centers that were going to be brought in at the time [yet] did not report to the head of NMC. They reported directly to the director of the National Weather Service. So this was a big move. That was the first thing. The second thing is, is that within Kansas City, you had aviation -- there was an aviation unit that was part of the meteorological operations division, and so was the SDM (Senior Duty Meteorologists), by the way. I didn't really mention that one. I talked about what was in the Meteorological Operations Division, but you had the weather, we had the marine, we had aviation, and we had the SDM. The Senior Duty Meteorologist was right there. Everything on paper, by the way, no digital, even for the SDM. You know, they found out there was a problem when somebody called in and said, "Do you realize you got a problem?" And then they'd go back to the paper scroll and find where the problem was. So how do we disperse that? How do we split off the aviation from MOD, and the aviation from Kansas City, and make them into one center? How do you create a whole severe storm center down in Norman [Oklahoma]? You got -- you know, you have to establish now a whole basis for this.

So he put me in charge. So from a strategic point of view, Ron had a vision that he brought to the team. Two, he wanted me to lead that team, and see if he -- we could make that vision work -- not only conceptually, but what it would take to actually make it work functionally? So we did that, and the thing is -- and he put some people on that team. Dave Rodenhouse was the climate rep. He was the head of CAC (Climate Analysis Center) at the time. So he was on the team. You had Jim Hoke that was, you know, already -- he'd already come up to MOD and worked for me. Remember, Jim Hoke was the one who challenged me to be the -- to learn more about operations. So I went down and talked to him when I first came into MOD, and said, "Jim, we got this aviation unit that's heavily reliant on the kinds of models that you're doing. How would you like to run that unit within MOD?" And so, he came up. So he was really important. We had Ken Haydu, who -- I think he just retired as the MIC out of Dayton, the Dayton office, or he's announced his retirement. He worked at the hurricane center at the time, and was a big deal during Andrew -- Hurricane Andrew, which we need to talk about, because that was a

defining moment, too, for MOD. And -- so you had people like that, and you had Jim Henderson from Kansas City. These were the core folks that really helped bring it together. Within the marine unit, Joe Sienkiewicz was working there. Dave Feit was now there, as we elevated the stature of the unit. Let's see. Those two were involved, and yeah -- so we had a pretty strong team. There were some disruptors on the team. Dave Rodenhouse tended to be more -- he had -- he's a very strategic thinker, but it was -- in terms of making it work functionally, and bringing them into the prediction world, it was -- there were some issues there. But Fred Mosher, who was handling the aviation part out of NSSFC, who was an office-mate of mine at Wisconsin, was particularly in a foul mood. Maybe -- I really don't understand why he was not -- he just had -- no matter what was being proposed, it wasn't meeting the bill. But I got to tell you, at the end of the day, when we got to the plan in its final state, he seemed all right with it. But so -- so there was a dynamic on the team.

We got a plan that identified the requirements for these individual service centers, how NCO would be serving them from an IT infrastructure perspective, and then, of course, the modeling aspects that would be needed to make this work across that whole spectrum of activities from climate down to the mesoscale that the storm prediction center would bring. And we laid that out. We built upon Ron's strategic vision. Again, he had it, and he nailed it, and he had obviously had support at headquarters. And then, this split of Kansas City leaving the aviation unit behind there, and then bringing the aviation unit from Maryland over -- that -- we made that happen. The SPC became a real interesting work in progress down in Norman. They did not have the National Weather Center there at the time. They were working out of trailers on their northern campus, and then the hurricane center became a fundamental part. Didn't change their operational process much. They didn't have to. They were obviously very well-established, and climate went from analysis to prediction.

The one thing that was the big surprise as Ron went to spin this up was that, at the last minute, NOS (NOAA's National Ocean Service) pulled out. There was a separate plan written for each center, and it was very clearly written that NOS would basically run -- the technique development branch for the Marine Prediction Center; would have the branch head, and have people working in there, I think up to 14 people. So you'd have -- you know, we had, at the time 15, 16, or 17 people in the weather service, plus 14 from NOS. So it was a viable center. And at the last minute, Mel Briscoe pulled out NOS. I don't know exactly what happened there. So that was sub-critical, but we kept it as a center.

And then, you know, I -- let's see. That was in '94, I think, the plan was accepted, and then the next phone call I got was from Ron McPherson to say that Joe Friday wants to have a discussion with you about going -- assuming an acting position as the director of -- acting director of OM (Office of Meteorology) at headquarters. And then, after I left -- that was in '94. I worked OM, whatever had to be done in headquarters to get that plan officially accepted, and the name change made, which was in -- I believe in April of '95. So I was not in NMC at the time that it switched over to NCEP. I had already made that move over to OM.

I have to tell you, working -- again, it was part of the learning experience. You know, Fred in his

concerns of what we were doing, actually taught me stuff about the aviation being different than the other forecast processes and other forecast schedules in the sense of what was going on, let's say, in the marine area. Hurricanes are more episodic, obviously, so the hurricane center had downtime, but it's not really a downtime. Because in the off-season, they do a lot of training. They do a lot of interaction with the emergency management community. They were actually doing IDSS before it was called IDSS. So it was a tremendous learning experience for me, and again, Ron was part of that process that got me there. He also gave me a task that helped prepare me for the future.

GR: To that last point, Louis, in preparing you for the future, how did that experience play out later in your career? I mean, how did that inform your ability to do strategic planning? Were there some direct linkages between those times and, say, when you took over as director?

LU: Yeah. It gave me exactly the tactical aspects of how to develop the plan and bring it to fruition. You know, that was one way of doing it, and there were -- as we found out later, there are other ways of doing that. But what that did teach me is the power of having a vision, and having a plan that people resonate with. Both within the organization -- because if you think about, you know, who was working on that plan with me, Henderson, Hoke, Rodenhouse, Mosher, Ken Haydu, Sienkiewicz, and Dave Feit, and others from the marine group, they had a vested -- they developed a vested interest in making that plan work. So I saw the power of that, and then having support above you is critically important. Because it's one thing to put something down on a piece of paper. It's another thing getting it through the wickets so that you can actually execute on that plan, and get it done. And I think it was a crowning achievement for Ron, because it set the foundation -- and it took time, but it set the foundation for getting a more collaborative effort of working amongst the service centers, that they're not independent islands, necessarily. It wasn't that way right away, but you have a foundation to start working together, reporting to the same person. That's pretty powerful. And having that focus on aviation. We all know now how important aviation is to the history of the organization. Marine, the general weather, hydrometeorology -- again, a new concept -- it wasn't just the weather. It was, how did it relate to flooding, because we did the flash flood outlooks off of that same floor. And then, climate "analysis" going to "prediction". That was a big deal at the time. There weren't dynamic models running to help us along in the monthly and seasonal forecasts, and there were, rightfully, a lot of discussion as to whether you could actually say that you were a predictive center in the seasonal forecast at that time. And yet, he got that forward motion going, and kept it going, and brought it over the finish line. He brought it over the finish line, and that was a lesson learned for me in what it would take to get things over the finish line.

GR: Excellent. Louis, we're looking at the time, and we've got about 15 minutes before your next meeting. And I know that we -- you probably wanted a little bit of break time. So we have -- there were two events we wanted to delve into during your time at MOD. One is the 1993 storm of the century, and the other you mentioned is Hurricane Andrew. And so, I would offer -- we could take 15 minutes and talk about one of them, or stop here, because we can certainly pick up this conversation at our next one.

LU: Yeah, let's say that both of them were fundamentally important to me and the whole grow -- the growing aspect of fully appreciating and understanding the importance of the operational mission of the National Weather Service. You know, that just essentially grew on me, and these two storms certainly brought it home to see the influence that it had. Again, Hurricane Andrew -- we didn't have responsibility for that in MOD, okay? That was the responsibility for the National Hurricane Center, but there was a backup plan in place, that if a storm is heading right for the hurricane center and could take it out, you need a backup. So they did send four or five people up. One of them was Jerry Jarrell, who was the deputy director of the hurricane center. The other -- there were others who were well-known hurricane specialists, and sure enough, that storm took a direct line and directly hit just south of the hurricane center. The hurricane center was actually damaged. The building that the radar dome was on, that radar dome was blown over. They were right on the precipice of going out completely. So there were interviews. There were things that were done out of that building, and I spent -- the day that the hurricane center folks arrived was just before the night of landfall. I stayed there the whole night. So I pulled my first midnight [laughter], and then into the next day. And I think I got one hour sleep during the whole thing, and I felt jazzed up, totally jazzed up, to see how these folks worked and made it work. When they gave an interview, if they were fidgety or asking for more information just right before the camera went on -- you know, they did the 10, nine, eight, seven, six -- boom, and perfect messaging. It was just such a demonstration of calmness under pressure, and some of these folks -- their houses were hit. They were getting phone calls from their family back home, that -- the morning after that storm made landfall, about how part of the house was damaged, significantly damaged. And yet, they just kept right on going.

I had some really great conversations with Jerry Jarrell, who became -- eventually became a director of the hurricane center. It was really fascinating to listen to him, and what he was bringing to the table. The fact that the storm was intensifying as it approached -- made landfall -- eventually, it was categorized as a cat five, making landfall, right there, right near the hurricane center. But they could see it. It was the first use of the NEXRAD. They were using the Melbourne NEXRAD, so it was the first use of a NEXRAD to -- and then, when the storm passed, parts of that operation went back to Miami. But, of course, they were dealing with all the damage to their -- to their homes, to their personal lives, and so like that, but we had the big forecast issue of where it was going back into the gulf. Was it going to hit New Orleans? It turned out it went just west of New Orleans, but you could see that, hey, the story's not over.

So that was a really powerful example to me to see the dedication, and that the -- first of all, the dedication of the workforce. I mean, we had QPF responsibilities, and of course, people on the - - our -- within MOD were supporting the hurricane center personnel, making them feel at home. And that was just terrific.

The last thing I'll just say, and we'll stop at this, was that the backup plan was John Sokich's. And John is calling me right now. Okay. I'll call him back in a minute, because this is probably really important. But he was -- he was the guy who was in charge. So here's the guy who slapped that piece of paper on [my desk] and did that plan, and he and I -- this is where we started getting close. Because he spent the time with me post-storm explaining how important it

was that he not only built these things into a plan, but how important it was that I supported him as now the head of MOD over a one or two-year period. To not only get that plan done, but to exercise it, which they did, which was one of the things that made it work. So it was a learning experience in what it really takes to operate before, during, and after the storm, and the messaging, right, with dedicated employees. What an eye-opener. I mean, just -- what an eye-opener. So let's leave it at that, but I do want to talk about the storm of the century. Because that happened, then, on the floor in March of '93. Andrew was in the fall of '92, late summer/fall of '92. We were ready for the storm of the century with that in mind, what it takes. Finally -- I finally had a clear understanding of that.

GR: Excellent. So we will pick up during our next session with the storm of the century before then talking about your move to OM.

[SESSION ENDS]