

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
VOICES ORAL HISTORY ARCHIVES
IN PARTNERSHIP WITH NOAA HERITAGE AND THE NATIONAL WEATHER SERVICE

AN INTERVIEW WITH JAMES MCFADDEN
FOR THE
NOAA 50th ORAL HISTORY PROJECT

INTERVIEW CONDUCTED BY
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TRANSCRIPT BY
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Molly Graham: This is an interview with Dr. James McFadden for the NOAA 50th Oral History Project. The interview is taking place in Lakeland, Florida, on January 8, 2020. The interviewer is Molly Graham. I like to start at the beginning. Can you say when and where you were born?

James McFadden: I was born in Winchester, Virginia, 1934, February 19th. So I have a birthday coming up in a little over a month.

MG: Happy early birthday.

JM: Thank you.

MG: Can you trace your family history a little bit and tell me how they settled in that area?

JM: Well, we're Irish. My grandparents immigrated from Ireland and ended up in the Winchester, Virginia area, which is where I was born. My dad was there all his life. My mother came from Upper Montclair, New Jersey. She was part-Scottish and part-German. They met at some kind of party and were married. She moved to Winchester, and that's where I and my siblings were born. I am the only remaining one of four. My older brother was a doctor, a cardiologist. He passed away in 2003. My twin brother – I should tell you I have a twin brother – passed away a little over a month ago.

MG: I'm so sorry.

JM: And my sister, who was the youngest, passed away about two months ago. So I'm the only one remaining, which is sad.

MG: It sounds like this has been a tough time for you, and I'm so sorry to hear about your losses.

JM: I appreciate that.

MG: What memories do you have growing up with your siblings and living in Winchester?

JM: Well, I would say that most of the memories I have about my siblings were from Winchester because once I graduated from high school, and my siblings graduated, we all went separate ways. While we did stay in touch, it was not a close connection like it is with my family, which we'll get to in a minute. So I went off to Virginia Tech, and was there for four years, and got a degree in geology. I was a distinguished military graduate, for whatever that's worth. I got a regular Army commission, but since I did not want to make the military my career, I declined that commission and took a reserve commission, and ended up down in El Paso, Texas, at Fort Bliss in the antiaircraft guided missile school. That's where I was for my whole two year period. I was a teacher and an operations officer there for two years. My older brother, he was a couple of years older than I, and he went off to Syracuse University. He got his medical degree there. He did all of his residency work up there. Then he moved to California, and he stayed in California. So we lost track – we didn't lose track, but we didn't see each other. My twin brother, he went in the Army. He went to Germany, so I didn't have much

connection with him during that period. When he came back, he went to school and became a hospital administrator and lived up in the New Jersey area, where he married and had two children. My sister pretty much stayed in the Winchester area. We would talk occasionally. She would visit once in a while. But it wasn't the frequency that we have in my present family. So they're all gone now, and here I am.

MG: Tell me a little more about the geology program at Virginia Tech and the classes you were taking.

JM: Virginia Tech's a great place to take geology because it's in an area where you can go out in the field and study geology firsthand. That was one of the beauties about doing geology. It wasn't my first choice. My first choice was chemical engineering. I realized very quickly, "Well, that wasn't going to work." So I went into geology, and I enjoyed it. It was very nice. When I left Virginia Tech and went into the service, towards the end of my two years in the service – it was an obligation you have when you're taking ROTC [Reserve Officers' Training Corps]. I had obtained a job with an oil exploration company down in Louisiana. I got out of the service in September. That job did not start until January. I was, like I said, in Fort Bliss, Texas. En route back to my home in Winchester, I stopped at the college at Virginia Tech; went to see my old major professor and the head of the department. He said, "Well, you got all this time on your hands; why don't you come back to school?" They were on a quarter system, which meant that their quarter was from September until the end of December. I thought, "Well, that sounds like a good idea. I'll refresh my knowledge." I did. I stayed on because I enjoyed it; I enjoyed the academics. I got into geochemistry. So there you come back full-circle to the chemistry part. I was there for about two years. Things weren't going very well in the oil exploration business at that time. I wasn't particularly enamored with geochemistry. One of my colleagues there suggested that perhaps I would like meteorology better and that the University of Wisconsin had a program that they had just got up and running. They were offering research assistantships, and perhaps I might look into it. So I did. I was accepted there at the University of Wisconsin and got a research assistantship. In September 1960, I went off to the University of Wisconsin-Madison into the meteorology program. It was a great program. One of the reasons it was great is that the student to faculty ratio was almost one to one. So you lived and breathed right along with the faculty; they were on the same floor and in the next room. So that was a good experience. I was there – of course, I switched majors now, so I'm starting all over again with the new discipline. In five years, I got my PhD in meteorology and a minor in oceanography. It was all great.

MG: Did you work with Verner Suomi?

JM: I did. Verner Suomi was right there.

MG: Just a few feet away from you?

JM: Yes, yes. He was a tremendous guy. Don't ever tell anybody this. His office was ten times as bad as my office.

MG: Pretty messy?

JM: First of all, it may have been this size, not much bigger than this office. Every nook and cranny was full of papers and articles and stuff like that. He was a very dynamic person. He's just go, go, go, go. He was a real sparkplug.

MG: I've learned a little bit about him in doing these interviews, and he sounds like an impressive person.

JM: He was. He was unbelievable.

MG: What was your working relationship with him like?

JM: Well, he was in satellites, and I wasn't. I was in climate. So other than just a passing relationship and some lectures that I had from him, we didn't have – what would I say – something that was in the discipline area. So other than just a personal, “Hey, how are you?” and sit down and chat, and “How are things going?” – he always wanted to share what he was doing. You'd go by his office, and he'd say, “Jim, look here.” Of course, he being the father of the first weather satellite, he was pretty special.

MG: Had the Space Science and Engineering Center [SSEC] been set up by that point?

JM: No, that came way later. Are you familiar with the university in Madison?

MG: A little bit. I didn't go there, but I lived in Madison for a couple of years, and I've done some interviews out there.

JM: Do you know where the Student Union is?

MG: Yes.

JM: The main Student Union.

MG: Yes.

JM: The big sort of – I don't know.

MG: A big tower.

JM: Big tower brick building across the street. We were on the fourth floor of that building. So the science center actually came after I left. I graduated in '65. I think the science center was, I don't know, several years later.

MG: Did you leave Madison in '65?

JM: Yes, I did.

MG: Tell me about your graduate school experience and what your research focused on.

JM: My research was based on – first of all, you got to understand, when you’re doing a research assistantship, you’re doing work that’s assigned to you by whoever it is that has control of your assistantship. Mine was a climate assistantship that was directed by the Navy. The Navy was interested in climate, particularly as it had to do with the Soviet Union because, back in the ’60s, we had almost no access to what went on there in terms of climate. There were ways to derive certain things like climate patterns that were there, how cold it was, how warm it was, by looking at lakes, looking at when they melted by knowing the depths of some of these lakes. That was what I was tasked to do. That’s where I got my love of airplanes. As a matter of fact, that’s an old picture – I’m over in the shadow there – taken back in the ’60s. We used to that airplane to fly up over Canada, looking at the lakes in the fall and in the spring, and mapping when they froze and when they thawed. Then, during the summer, we would go to some of those lakes and measure the mean depth of the lake, and then compare that to when that froze. You had a line of freezing, and you had a line of thawing. Then they could translate that to the Soviet Union, and get some idea of the climate that was in the Soviet Union. It was interesting. Very, very fascinating.

MG: When you earned your PhD, what were your next steps? Where did you go after that?

JM: Well, before I got my PhD, I started looking for a job. I really wanted to go to work for what was the Weather Bureau. So I applied for a job with the Weather Bureau. Now, you’re going back to when there was a Weather Bureau, and there was a U.S. Weather Bureau, and there was a U.S. Coast and Geodetic Survey. This is before they formed and became ESSA [Environmental Science Services Administration]. So I was offered a job in the Sea-Air Interaction Laboratory, nicknamed SAIL, which was part of the Office of Meteorological Research in Washington, D.C. as a research scientist. That’s where I went in August of 1965.

MG: Tell me more about your duties and work there.

JM: Well, as a research scientist, you’re pretty much allowed to do what you want in terms of selecting your research topics. Mine that were of interest were radiation, air-sea interaction obviously, and then I became interested in hurricanes, and the impact of hurricanes, upwelling, what upwelling did in terms of providing cold water to weaken storms, and things like that. So that all had to do with air-sea interaction. Most of it involved the aircraft. I was happy. I was doing what I liked. Let me tell you about the part in D.C. Then we moved to Florida. So I went to Washington in ’65 with my – or, should we start with my family?

MG: Sure.

JM: Let’s talk about my family first, before we talk about – because we’re jumping all around. I went to Madison in, like I said, fall of ’60. I met my wife-to-be in January of ’61. We were engaged in April, and we were married in August. Our first child was born about two years later. She came to Madison, and she had a degree from the university in music education. She looked for a job as a music teacher. She could only find a job way out on the west side of Madison. So she was looking around. She came home one day, and she said, “Hey.” She had known a guy in

my office who knew some people in the Student Union. She got a job as a secretary in the Student Union to the lady who was the social director of the Student Union. She, my wife, introduced her to this chap. They ended up getting married, and that job became vacant. So my wife became the social director of the Student Union. She became very close friends with a lot of people that are – when were you in Madison?

MG: I was there from 2011 to 2013.

JM: Does the name Joel Skornicka come to mind?

MG: No.

JM: Joel Skornicka was the mayor of Madison at one point. He also went out to the University of California-Davis and became the president of that. We were all very close friends because we were all – I was going to school. She was the social director. That's where my clique of friends were pretty much in that crowd, as opposed to the crowd in the department. So we enjoyed the Union, and she enjoyed the Union. It was just a good time. Being in grad school can be a lot of fun. It's a lot of work, but it can be a lot of fun.

MG: Especially in Madison. It's such a great little city.

JM: Oh, yes. Anyway, then we moved. We had one child that was born in – where are we? – 1963. That was my older daughter, (Kerry?). Then my older son, James, Jr., who we call "Mack," was born in April. Wait. One was born in April, and one was born in August. I can't keep them straight. [He] was born in 1965 just before we moved to Washington. So I had two children when we moved off to Washington. My third child, a girl, Sheila, was born in – well, we lived out in Kensington, Maryland, in December of 1966 because we moved to Miami in 1967. That's the early part of my family's career. My last child, my younger son, was born about four years later in Miami. He was the caboose. We had girl, boy, girl, and we said, "Well, why don't we have a boy." Of course, this is before you could find out what it was. We were just taking pot luck on it, and it turned out to be a boy. So we have four - girl, boy, girl, boy. Two of them live over here in the Orlando area. Two of them live up in the Atlanta area. All very close. The whole family is just extremely close. There are phone calls back and forth every day among the siblings and with the parents. That's the way to do it. I'm always happy when the phone rings, and it's one of my four calling. Anyway, where were we?

MG: You mentioned your interest in aircraft, so I was curious about where that came from and how you developed your interest.

JM: Well, using the aircraft for my research at the university – using aircraft. Because when I went to work for the Weather Bureau, I was using the Weather Bureau aircraft for some of the work I was doing, the ocean work, the hurricane work, and some other radiation work. So I stuck with the airplane all the way through this period of time. I liked airplanes, and I was always fascinated. [Telephone rings.]

[Tape paused.]

MG: We're back on. You were talking about the aircraft.

JM: The fascination with the aircraft. So I was always fascinated with the aircraft. I had been using them in my research. I had been using them once I got into the Weather Bureau. So that's why I was always interested in the aircraft.

MG: The Weather Bureau become a part of ESSA.

JM: The Weather Bureau and the Coast and Geodetic Survey joined and became ESSA.

MG: Was that around the same time you arrived in Washington?

JM: Shortly thereafter. Like I said, I moved there in 1965. It was the Office of Meteorological Research, part of the U.S. Weather Bureau. We were in an office building on the corner of Connecticut Avenue and M Street. We were there for about three months, and then we moved out to 24th and M Street into what was an old brick castle. Very, very interesting place. Of course, none of that is there anymore. Well, the office building is there, but all the stuff out there on West M Street is nothing but condos and apartments and stuff. Then, when they formed ESSA, there was ocean research in the Coast and Geodetic Survey, and there was weather research in the Weather Bureau. So they tried to figure out how to do this, and the weather research stuff stayed together as part of environmental research laboratories out of Boulder Colorado. Our particular laboratory, which was air-sea interaction – you're either ocean, or you're atmosphere – they chose to put with the ocean research group. This was when they formed ESSA now. So we became part of ocean research. It was called the Atlantic Oceanographic Laboratories. After about six months out [at] 24th and M Street, they had built the Grammax Building in Silver Spring. We all moved out to the Grammax Building. So we were there until 1967. During this whole period, the ocean folks were looking for a place along the East Coast to build a laboratory. They did an extensive evaluation of Miami and Charleston and a number of other locations and selected Miami. In 1967, we moved to Miami, this ocean group, which was under the direction of Harris Stewart. I don't know if that name has ever popped up or not – Harris B. Stewart.

MG: It rings a bell.

JM: They built the laboratory out there on Virginia Key. It took a while to build that building. It didn't pop up when we first moved there. Before it was built, I had received an invitation from the director of the aircraft facility to join them as the coordinator of science programs because they didn't have any real scientists in the organization. People would come to them to get the aircraft to do research, and they didn't quite understand some of the things these folks wanted to do. He said, "I really need somebody who understands the science and can translate what they want into what we can provide." So that's how I ended up at the aircraft facility. So now I had pretty much everything I liked. I had aircraft. I had meteorology. And there was travel associated with this. Those are my big three things that I love. So that's why I went there. That's why I stayed there. That's why I'm here.

MG: Can you describe these early missions?

JM: Well, surprisingly, it was very much like it is now. We did a lot of hurricane flying in much older airplanes with much older instrumentation. We used DC-6 aircraft. That's way before your time. They used reciprocating engines. They don't use turbine engines like we use today on our P3s. We had a small jet, and we had four airplanes. But we would go out and fly hurricanes with these things. When we weren't flying hurricanes, we would do other research projects. Before I came, they went to India and did a monsoon project over there. We would do projects out in Colorado relating to thunderstorms, very similar to what we're doing now. So the science is pretty much – our supportive science has pretty much stayed the same. It's just that the aircrafts, of course, have changed, and the instrumentation has all changed. Growing up with that has really been a real plus to me. I've enjoyed that tremendously.

MG: Were you calling yourselves “Hurricane Hunters” back then?

JM: Yes. I know that there was an argument between us and the Air Force about who were the real hurricane hunters. We had the tag – the U.S. Weather Bureau Hurricane Hunters or the ESSA Hurricane Hunters. That's been with us ever since I've been there.

MG: Can you tell me about the history of the Hurricane Hunters?

JM: They started in the early '60s. They had a couple of airplanes they operated out of West Palm Beach. Then they moved down to Miami. They got the two DC-6s, a DC-4, and they had a WB-57 jet, an old one. It was an A model. It was old. I flew my first hurricane in 1966, before I ever moved to Miami, by accident, which was another story. Let's see. Who was involved in that? I can't remember his name. I'll think of it. Anyway, They started that in the early '60s. When I moved over there in '68, they were doing a lot of hurricane flying. We fly a thousand hours during hurricane season. We might fly two hundred hours now during hurricane season because there's not all that much money floating around. Anyway, we would do a lot of deployments down to Barbados or down to Puerto Rico, and go out and fly the storms from there. We'd go to Bermuda. We went a couple of times down to some islands in the Caribbean and flew. During the hurricane season, we did a lot of flying.

MG: You just mentioned that your first hurricane flight was accidental. What did you mean by that?

JM: Well, I was actually doing – the flight was for me. It was a research flight for me. During the course of that flight, it was associated with Hurricane Inez. I was looking at upwelling using a radiometer to measure the sea surface temperature, running a pattern on the right side of the storm. The aircraft received a call that whoever was doing the reconnaissance flights – the aircraft assigned to that flight couldn't make it. I think it was an Air Force aircraft. They needed the information because this thing was right in the Gulf of Mexico. So we broke off the research and made one pass through the storm. That was my first hurricane penetration. I was totally underwhelmed. It was sort of like, “That's it?” But that all changed later on. Hurricanes come in different shapes, sizes; every one is different. Don't let the first one you fly in fool you because you'll get your comeuppance later.

MG: Inez was unusual in that it had a different track. I thought I read something about that.

JM: I don't know. I can't remember the track of it. I just remember, A, they took me away from doing my research, B, it was my first penetration. Since I was not – I was still up in D.C., and I was still in the Sea-Air Interaction Lab. So I didn't give much attention to Inez after that particular flight. I wasn't particularly interested in hurricanes at that time, except the impact that they had on the ocean.

MG: That would change later on.

JM: Oh, yes. Because once I got here, and I became a flight meteorologist, flight director on the aircraft, I did a lot of hurricane flying. So they did become of great interest to me.

MG: Did that happen when you moved to Miami or Lakeland?

JM: That was Miami. We've only been here two and a half years. We were in Miami – well, I was in Miami from 1967 until 1993. The aircraft facility was there in Miami at the Miami airport. The aircraft facility at that time was – there were heavy aircraft, and there were light aircraft. The heavy aircraft were based at Miami International. They were separate and apart from the light aircraft. The light aircraft belonged to the laboratories that used them and did not belong to a dedicated facility. So we were at Miami International. Well, early '[70s], they combined – well, this is about the time NOAA formed.

MG: NOAA formed in 1970.

JM: Yes, okay. Fifth-year. At some point, they decided to combine all the aircraft into one facility called the Office of Aircraft Operations. Miami just didn't fit for all those airplanes because you needed to get them all into a hanger occasionally to do maintenance and stuff like that. So we moved to MacDill Air Force Base over in Tampa at the end of '92. I went there in '93 because I was off doing a project down in Guadalcanal. The planes were down there for four months. When we came back in '93, then all the airplanes ended up in MacDill Air Force Base. So we were there until two-and-a-half years ago when the Air Force decided they needed our hangar back. So we moved over here.

MG: You talked about your first flight and how it was accidental. When was your next flight?

JM: I guess it wasn't until after I joined the facility, which was '68. So it may have been another year or so before I did. I joined them in '68, and the first really big thing we did was BOMEX, the Barbados Oceanographic and Meteorological Experiment. They were celebrating their fiftieth-anniversary last year. It was in 1969. They're having a big symposium at the end of January down in Barbados. Incidentally, one of our planes will be there doing a project called ATOMIC [Atlantic Tradewind Ocean-Atmosphere Mesoscale Interaction Campaign]. It's leaving next Wednesday and will be down there for thirty days. That's a tropical meteorology experiment. So my first outing with the group was to go to Barbados to look at the facilities

down there in preparation for this BOMEX experiment. But I didn't fly a hurricane until maybe the next year.

MG: What was NOAA's involvement in BOMEX?

JM: Quite extensive. They had three airplanes involved. Ship-wise, there are four ships out there, and I'm sure one or two of those ships were NOAA ships. So we're still not NOAA yet.

MG: Right.

JM: ESSA ships, I guess. There was extensive involvement of both the aircrafts and the ships. The way it ran, it was four months long. They would run periods of research for three weeks, and they would take a week off. Planes would come back to Miami. Then they go back and do another three-week period and just repeat for a total of four separate IOPs they called it, intensive operating periods. That's the way these field programs run. They do intensive operating periods for two, three weeks, four weeks, and then they take a week off. The operation we did down in Guadalcanal was the same way. We flew out of Guadalcanal for three weeks, and then we'd go over to Australia and sit for a week. Then go back to Guadalcanal and do the same thing all over again.

MG: What was your role in the BOMEX project?

JM: The science guy. I was our project manager for the three aircraft. I did the science interface with the science guys. All the other people in the facility, even though we had meteorologists, they were operational people. They flew the airplanes. I was the guy that went to the meetings and brought back what information they needed in order to go out and fly the mission. The missions were pretty routine, pretty much the same thing every time we went out to fly. It was a big box like this. We had three of our airplanes flying, each flying on one side of the box. They had a Navy airplane, a Hurricane Hunter airplane from the Navy, flying the fourth side of the box. They were about as boring of flights as you could ever imagine. You'd start out, you fly at five-hundred feet, the length of the box, one side of the box, and you climb up to fifteen-hundred feet, fly back, climb up until you got to about fifteen-thousand feet. Then you climb back down and go home. That was what we did on every flight. It was not really exciting.

MG: I've seen some videos of the eyewall penetration, and that seems a little exciting.

JM: Well, eyewall penetrations, that's a different ballgame. Flying hurricanes, that's a different ballgame. Flying hurricanes, flying tornadoes, which we do, they can get a little interesting. I've been in some good ones. Certainly, Hugo comes to mind. I don't know whether you heard about the Hugo incident. We were the first aircraft in Hugo, flying at fifteen hundred feet, the plane I was in. The only reason I was there – and I was the project manager. The only reason I was there is we had a reporter from the Barbados newspaper – trying to remember the name of the newspaper. So somebody needed to shepherd her around and tell her what was going on. So I was with her, and I was showing her around, telling her what we did on the airplane. The pilot finally says, "We're going to make our penetration now, so take your seats." We sat down, and I looked at the radar, and I said, "Oh my goodness." I knew that we shouldn't be penetrating this

thing at fifteen-hundred feet. But we did, and we're here to talk about it, but barely. It was supposedly a category two storm, and it was a category five. We had a hundred and eighty-nine knots of wind in the eyewall, and we lost an engine in the middle of the eyewall. There was extreme turbulence. It was not a pretty sight. Got into the eye, and we were going down, not up. I think we ended up about seven hundred and fifty feet above the surface before they recovered. Then, once they recovered, they were able to climb in the eye and get up to a safer altitude, get out, and get back to Barbados. But it was one of my nine lives. I say I have nine lives; that was one of my nine lives.

MG: What's the mood on board after getting through that?

JM: After something like that?

MG: Yes.

JM: I think the mood is one of relief that you've made it. Then, after that, you want to clean up the mess because it was extremely messy. I wish I had time – I have pictures. We had to clean up the airplane to the best that we could.

MG: Did people get sick?

JM: I don't think people really got sick on that because it was so quick. Usually, when people get sick, it's because of repetitive jostling. I don't know whether you get sick flying or not.

MG: I'm not a good flyer.

JM: We take reporters along with us, and they're always – "Yeah, well, rah-rah. I do a lot of flying. I never get sick. Yeah, yeah." About fifteen minutes into the flight, and they're back curled up in their chair. We did a flight last year out in Kansas with a reporter from the Weather Channel, a guy who had six Emmy's, and he flew with us. He spent the entire flight curled up in a chair. But he put together an amazing report once he got back on the ground. It was really great. So I can see why he received a bunch of Emmy's. It's just not your typical flying. Some people are used to it; some people aren't.

MG: You had another close-call in the North Atlantic near Canada.

JM: Yes.

MG: Can you tell me about that?

JM: Yes. It's one of those stories that starts out, "It was a dark and stormy night." Literally, it was a dark and stormy night. Dark because there was no moon. Stormy because we were out flying in hurricane-force winds out over the North Atlantic at an altitude of three-thousand feet. We were doing a pattern for what we call Ocean Winds, winter pattern for Paul Chang, who's a NESDIS [National Environmental Satellite, Data, and Information Service] research scientist. We had made some tracks in this particular storm he was interested in. There were a whole

series of comments that were made prior to and during the flight that were of interest because they almost came true, but the one comment I made – he wanted to change course and fly up towards the center of the storm. I made the comment, “Oh, you want to take us up to the Valley of Death.” It’s just one of those things you throw out. So we headed up that way. Then, all of a sudden, the number three engine – the inboard on the right side, coughed with a big boom and spewed fire out the back, and you shut it down. That’s your only alternative. Well, then probably a minute later, the outboard engine did the same thing. We thought, “Well, one engine is okay.” Two, you start to get a little worried. After the first one went, we started to go home. Climb and go home. We were five-hundred-and-some miles away from St. John’s, which is where we were operating from. So we’re heading back towards St. John’s with two engines out. Then we had – I don’t think at that point we’d called in a mayday, but then probably two minutes later, the outboard engine on the left side did the same thing. They had to shut it down. Now you’re down to one engine, and the plane does not fly on one engine. So there’s a lot of activity going on, as you can imagine, on an airplane that’s now headed down towards the water. Remember, this is hurricane-force winds you’re in. I think we got down to seven-hundred-and-eighty feet. What happened was that the pilots, knowing that they’re not going to survive with one engine, so the aircraft commanders said, “Let’s try and restart number one engine.” They got it restarted. “Oh, well, now we got two engines running. Now, at least, we can maintain altitude. Well, we got two engines started. Let’s try the third one.” So they did the number three engine, and *voila*, they got that restarted. “Well, let’s try it for four.” So they got that one started. Now we got four engines, but we’re running at reduced power and just lumbering back. But one of the things I strongly remember from that was that I could hear the navigator doing the mayday call after the third engine went out. I tell you, it makes the hair on the back of your neck just stick out. It’s the most harrowing thing you ever hear – “Mayday, Mayday, Mayday,” and you know it’s not a drill. It’s the real thing, and you’re in the middle of it. We’re all in the back stowing stuff and trying to get our immersion gear on. There are a lot of things we found out. Once you got the immersion gear on, you couldn’t sit down and put on your seat belt because the hand parts wouldn’t work. You couldn’t operate the seatbelt thing. So I went in the back; sat down back where we eat. I just sat there and prayed. Then the next thing I heard was the copilot came on and said, “Good news, guys. We got all four running again.” We got back to Saint John, got off the airplane, and the airplane was that color, right there – white. I walked up. I went – and tasted it. It was salt. What had happened was we had ingested so much salt into the engines that they choked out the engines. Once you do that, and you’re restricting the amount of air, you got too much fuel for the air that’s coming in, and they choke and cough up and send fire out the back. Well, that’s happened before, but we were all very fortunate. There was nothing wrong with the engines. They washed them out, and they were fine. We all came home commercially. That was probably my scariest moment in all the years I’ve been flying. I thought it was all over. Well, obviously, it wasn’t because here I am.

MG: Is it difficult to get back on a flight after that happens?

JM: It’s not for me. It is for a lot of people. Out of that flight, I think we had one – one guy never got back on an airplane. Maybe two; I can’t remember. But most of the guys got back on. Still working here, we have one, two, three, four. I think four of us are still here flying. So we had one guy on the Hugo flight – when that engine number three went, it was – I’ve never seen a flame come out of an engine like that in my life. On the flight in the North Atlantic, it was like,

“Boom,” and you get this puff of fire coming out. This was like a streak of fire coming all the way out. He came back. He got off the airplane, went over to the terminal, bought a ticket, and came back to Miami. He never flew another hurricane flight.

MG: I know we only have about five or ten more minutes, so I’m wondering if you could talk about the value of this work and why it’s worth risking your life for.

JM: First of all, I don’t think I would use the term “risking life,” because it’s not that dangerous. We’re safety freaks around here. I got to tell you that there’s nothing that goes on here that – you have to pass the safety litmus test before you do it – even walking down the stairs, practically. It’s not inherently dangerous. Sure, guys get paid a paltry hazard duty fee for flying hurricanes, but the planes are certainly up to it, the crew is more than capable. So I would never ever be afraid to get on an airplane into a hurricane. I just wouldn’t. A category five? Eh. Category fives often are not as rough as categories ones and twos that are rapidly intensifying. I guess you use an element of danger, but it’s not dangerous to the point where people are going to worry about not coming back from the next flight. Why is it important? Extremely important. It’s important to forecast. It’s important to improving the forecast. We’re research guys over here. We’re developing the tools to help the Weather Service improve, track an intensity forecast. We’ve developed the tail Doppler radar to a high standard now. It’s being used in real-time in the forecast models. The jet flies around the storm, drops the sondes, which are all assimilated into the models, which have proved to improve the track forecast. So we’re really providing data that helps to improve all the forecasts, which, in turn, provides the public with much better information. They used to say – maybe they still say, “It costs a million dollars a mile to prepare the coastline for a hurricane” – just preparation. If you can reduce that, by improving the track forecast, cut down your zone of warnings, you’ve saved a lot of money. People want to know three things. They want to know when is it going to come, where is it going to go, and how strong is it going to be when it gets there. Well, when is it going to come? That’s a crapshoot. That’s climate. It’s going to come sometime, but we don’t know when. Where is it going to go? We got a pretty good handle on it now, where is it going to go. How strong is it going to be when it gets there? We’re improving that all the time. We got two P3s now. Next year, they’ll be both up and running. We had the wings replaced on both of them. So we got two strong airplanes. We’ve got a lot of new instrumentation. We really are looking forward to the next season. I think it’s going to be gangbusters. What we can do next year is going to be fascinating.

MG: Why do you say that?

JM: All the new technology, all the new instrumentation that we have available. It’s not only what we have on the airplane, but it’s what other scientists bring on the airplane, too. Now those instruments don’t necessarily aid in improving the forecast, but it certainly aids in gaining a better knowledge of the storm itself and leading towards what you have to do, what kind of instrumentation do you have to have that would improve the forecast. So there’s a tremendous number of different instruments, and PIs involved in the hurricane program. So it’s exciting work. I sit here. I’m running the program section. I’m the program manager for the hurricanes project, so I get there in the front seat and enjoy all of this. I’m excited about all the other things that we do with the light aircraft. I have this young lady out here, who’s my deputy. She takes

care of the light airplanes, but they do a lot of exciting stuff. I don't know how much you know about what they do, but that's a whole discussion for another day. They do amazing stuff, and they fly a lot more than the heavy airplanes. But now the heavy airplanes, they're getting ready for one of their busiest seasons. We have one leaving next Wednesday for Barbados. For atomic, we have one leaving the following Tuesday for Ireland, for Ocean Winds winter. The jet is getting ready to go to Portland, Oregon sometime after the twentieth of January for atmospheric rivers. Then they came back, and the jet goes up, flies along the Aleutian chain for something called – it has to do gravity [for the] Redefinition of the [American] Vertical Datum. GRAV-D it's called. One of the P3s comes back and goes to Kansas to fly tornados. So by then, you're back into the hurricane season. So busy, busy season for the big airplanes.

MG: I'm aware we're out of time, but is there anything else you want to add to the record about your long and record-breaking career?

JM: Well, I've just really enjoyed it. I don't think I could have found another job that I ever would have enjoyed as much as this one. A lot of very interesting people here to work with. I enjoy all of them – not all of them; there's always one. But it's just been fascinating. I probably have until the end of this year, and then I'll hang it up. I've been doing it for fifty – gosh, I started here in '68, so I'm into my – I've done it for fifty-whatever-years. I've enjoyed every year of it. It's really been fascinating.

MG: Well, it's all so impressive. Thank you so much for all the time you spent with me today.

JM: Well, I wish we had more time.

MG: Me too.

JM: It's sort of scattered, jumping back and forth.

MG: If I'm down this way again or if we can reconnect, I would love to do a follow-up. You can also have the opportunity to add more to the record when you receive the transcript. Thank you again.

JM: Alright, Molly.

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Reviewed by Molly Graham 3/18/2020

Reviewed by James McFadden 5/19/2020

Reviewed by Molly Graham 5/20/20