

UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

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Investigation of: *

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FATAL COMMUTER PLANE CRASH NEAR *

NOME, ALASKA ON FEBRUARY 6, 2025 *

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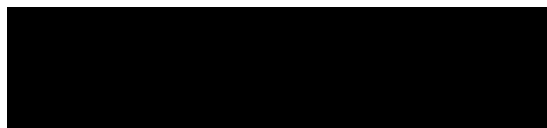
Accident No.: ANC25MA018

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Interview of: NATE ECKSTEIN, Science and Operations Officer
Alaska Aviation Weather Unit
National Weather Service

Anchorage, Alaska

Thursday,
February 13, 2025

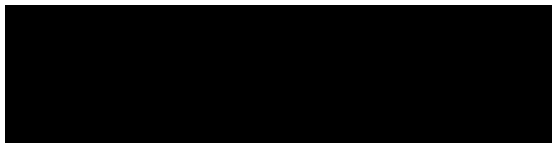


APPEARANCES:

PAUL SUFFERN, Meteorologist/Investigator
National Transportation Safety Board

STARR BLUM, Operational Factors Investigator
National Transportation Safety Board

DAVID KOICHEVAR, Warning Coordination Meteorologist,
Alaska Aviation Weather Unit
National Weather Service
Representing Mr. Eckstein



I N D E X

ITEM

PAGE

Interview of Nate Eckstein:

By Mr. Suffern

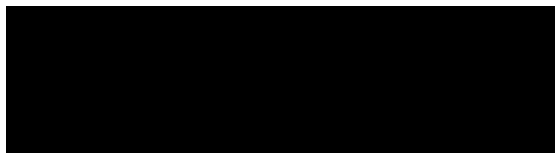
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By Ms. Blum

24

By Mr. Suffern

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I N T E R V I E W

(9:14 a.m.)

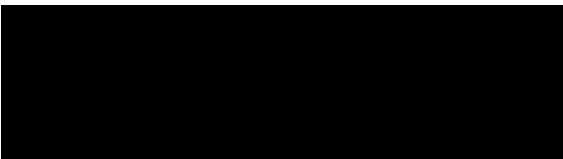
MR. SUFFERN: All right, I show us on the record at 9:14 Alaska Standard Time. And good morning, my name is Paul Suffern, I'm an investigator with the National Transportation Safety Board and we're here today to discuss the meteorological factors and things like that around the accident, the Cessna 208 accident that happened up near Nome on February 6th, 2025. The NTSB's role is completely about safety and looking at all aspects of an investigation as it relates to aviation in this case, to help prevent future accidents and again, issue recommendations to help save those incidents from happening again.

As part of our process, lots of times we have other subject matter experts on our groups to help look into different areas and so today I have one of my colleagues from the NTSB, if you could introduce yourself for the audio.

MS. BLUM: Hi, my name is Starr Blum and I'm an operational factors investigator for the NTSB.

MR. SUFFERN: Thank you, Starr.

And as part of the process, we already discussed this a little bit beforehand, but we do record the interview and we'll have a transcription of that audio made for the record, but the audio will just stay in NTSB possession and once the transcript is done, the -- that will be -- the audio will be destroyed and so that won't go anywhere, it will just -- just the public docket



1 will just have the transcript in that record there. And as part
2 of the interview process, you are allowed to have one
3 representative, it can be your dog, your cat, a family member,
4 anybody else, and I believe you've chosen David to be your
5 representative?

6 MR. ECKSTEIN: That's correct.

7 MR. SUFFERN: All right, David, could you introduce yourself
8 for the record?

9 MR. KOCHVAR: Yeah, David Kochevar, I'm the warning
10 coordination meteorologist at the Alaska Aviation Weather Unit.

11 MR. SUFFERN: Thank you, Dave.

12 All right. And so we will go ahead and start chatting here.

13 INTERVIEW OF NATE ECKSTEIN

14 BY MR. SUFFERN:

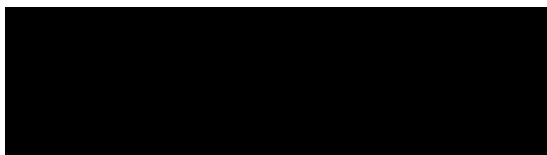
15 Q. So Nate, could you say your name and spell it for the record?

16 A. Yeah, my name is Nate Eckstein, N-a-t-e E-c-k-s-t-e-i-n.

17 Q. All right, thank you. And could you state your, I guess,
18 affiliation with the aviation weather unit here and your role?

19 A. Yeah, so I'm the science and operations officer for the
20 Alaska Aviation Weather Unit and the Anchorage Volcanic Ash
21 Advisory Center.

22 Q. Okay. And just give me kind of a 10,000-foot view of how you
23 got interested in weather, you know, sometimes it's -- for a lot
24 of weather folks, it could be a hurricane, it could be a snowstorm
25 or it could be being afraid of that, what was it for you?



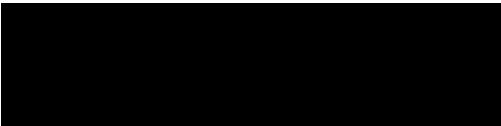
1 A. So I came in, I think, to meteorology a little differently
2 than a lot of my colleagues, but I came through a geography
3 department and was interested in climate and impacts on humans and
4 that relationship, and then got into operational meteorology the
5 more I went to school for it and decided that I wanted to work for
6 the Weather Service sometime before I went to grad school, so --
7 so all my work in grad school was geared towards studying climate,
8 but then becoming an operational meteorologist.

9 Q. Okay. And so as you went through grad school and now you
10 made it into the Weather Service, can you kind of step me through
11 where -- what offices or locations or roles you've had in the
12 Weather Service leading up to being the ops --

13 A. Yeah, there hasn't been that many, I -- in 2007 I was hired
14 by the Alaska Aviation Weather Unit as a general forecaster, I
15 worked in that role for two and a half years and then became the
16 science operations officer, I did that for five years and then I
17 took a physical scientist job at the Alaska Region Headquarters
18 for the National Weather Service, I did that for four years and
19 then I came back as a science and operations officer in 2019 and
20 I've been doing that role since then.

21 Q. Okay. Fantastic. And so just on a day-to-day basis, what is
22 the hat of a science and operations officer --

23 A. That might be a longer answer. It goes between, you know,
24 two primary things we oversee, you know, we're in the science and
25 technology integration portfolio of the Weather Service, so

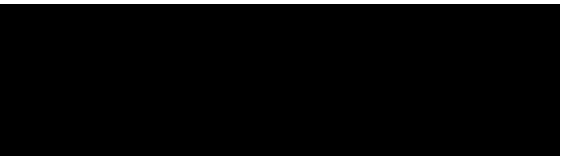


1 anything that's training or science learning related, bringing in
2 new research or techniques for forecasters to learn and implement,
3 to building a training program for your whole staff and that could
4 be -- it could be science or career development, to working on a
5 technology, developing software or scripts or things to make
6 efficiencies in operations or to write tools to help forecasters
7 do their job better.

8 Q. Okay. And so that sounds like, in your position, not only do
9 you -- could you work with like computer and bringing the science
10 into the computer realm, but you also have a personal aspect to
11 the people and making sure that they're learning or staying
12 updated on things that they do, is that kind of correct?

13 A. That's correct. Yeah, they could kind of go hand in hand, if
14 we're teaching somebody something and they're having really a hard
15 time with it, then maybe there's another way to look at it or an
16 efficiency that we could do to help -- help keep the complexity
17 down.

18 Q. So as far as aviation and what you do here at the AAWU, what
19 does typical training look like for -- I guess we'll just start
20 off with someone that's brand new to the AAWU and they -- they may
21 be -- let's just say they come from a local office, so they're
22 used to aviation from maybe the TAF point of view and then come to
23 the AAWU, what does the training look like for them coming on
24 board and all the way through to they're, I guess -- is the term
25 fully qualified?



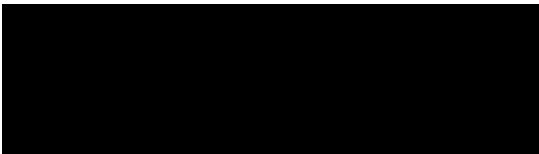
1 A. Yeah.

2 Q. Okay, what would that look like?

3 A. So if they're coming from another Weather Service office,
4 then we don't necessarily need to start with like systems training
5 for AWIPS or a gridded forecast editor we call GFE, to have some
6 familiarity with that, then, you know, that cuts out quite a bit
7 of onboarding for, say, someone fresh out of school or someone
8 coming from another -- another part of the industry.

9 So if they're already Weather Service, then they have the
10 knowledge of the tools and we need to teach them what we do with
11 them, and so we'll work through a number of exercises and job
12 sheets that teach them not only the process, but integrate the
13 tools that we use to do those forecasts, so -- and then another
14 half of the training is teaching the area forecast language and
15 the composition of that. So those are the two big things.

16 Certainly, the warning workflows are practiced throughout the
17 training time and then, you know, a lot of it's on the desk with
18 an experienced forecaster who can speak to that day's scenario.
19 So they do this work six to eight weeks, I can see a number of
20 things, you know, and then there's certainly -- you know,
21 depending on when they're on-boarded, might need to come back
22 through even after they're qualified and in the rotation to do
23 something that wasn't captured in the season that they were
24 trained in. So we brought a lot of people on board in the fall,
25 that's a little bit after our summer convection season, so we need



1 to put them back through convective training here in the spring to
2 prepare for that. So there are some things we have to come back
3 around to after they're done, but they're not -- you know, that
4 doesn't prevent them from being able to work the desk and do most
5 of the job. If something like that came up out of season, then
6 there should be somebody there to help them out with that.

7 Q. I do want to apologize, you may see me writing and what I'm
8 doing is I'm writing down acronyms.

9 A. Yeah.

10 Q. As meteorologists and government --

11 A. Yeah, yeah, yeah, we use a lot of those.

12 Q. The transcriptionist doesn't often know that, so you'll see
13 me writing down acronyms, so --

14 A. Okay.

15 Q. -- that's what that list --

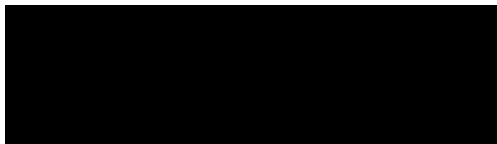
16 A. I'll try and spell them out.

17 Q. Yeah. You're totally fine, you're totally fine. I am
18 comfortable with all the acronyms, but depending on you can do
19 that, so -- so it sounds like, you know, they come on and
20 depending on the season, they'll see the different scenarios, but
21 there is on-the-job training --

22 A. Yeah.

23 Q. -- I think you were stepping through that.

24 A. I think it's really geared towards -- you know, it depends on
25 who it is and what their background is. Again, it makes a big

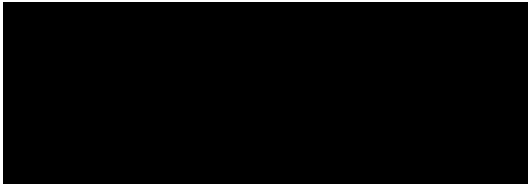


1 difference if they're prior Weather Service and they know our
2 systems than if they were coming in, you know, without any
3 knowledge of what tools we have and the processes we use.
4 Certainly, someone who knows TAFs could come in and learn area
5 forecasts a little bit easier than someone who's never done either
6 of those.

7 Q. Okay. And then -- so that's basically a new hire or somebody
8 new to the AAWU, how, as a SOO, do you bring in kind of, I guess,
9 new technology, maybe there's a new technique that is coming from
10 either the lower 48 or has been developed here in Alaska, how does
11 that get out to the work -- or the forecasters and such?

12 A. Yeah, on the satellite side, there's different ways that can
13 happen. We have had to -- when we have to do satellite series
14 like GOES-R and, you know, there's a proving ground and there's
15 new algorithm development that they try to reach out and put that
16 data in front of you in a sort of demonstration period.

17 We tend not to get involved in anything that's not further
18 along in what we call readiness levels, so we don't want to see
19 something that's at the early or even intermediate stages of
20 research, it needs to be very close to an operational capability.
21 So when we look at that and whether or not we're going to spend
22 our time interacting with a group that has something that might be
23 useful, we want to see that it's far enough along and that it's
24 been proven somewhere else in some ways. It could be -- I mean,
25 we've done work with NASA researchers on other satellite



1 techniques for ash and SO₂, we've done work with cooperative
2 institutes that are connected to NOAA and NOAA funding for
3 research and that's kind of how we know where things are as they
4 speak that readiness-level language. So a lot of it comes in
5 through, you know, NOAA-adjacent research work. It's not like,
6 you know, a random company is knocking on our door, say, "Hey, do
7 you want to try this out?" So that's not generally what I see, I
8 mean, that's happened infrequently, but it's more of the pieces
9 that are already connected to NOAA.

10 Q. So you don't have salespeople and all that --

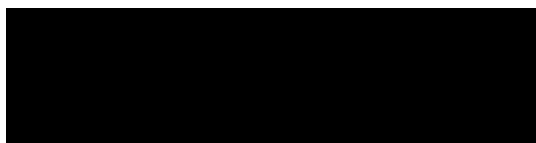
11 A. I don't.

12 Q. -- that come by the office and like ring the doorbell.

13 A. Yeah.

14 Q. Okay. So as far as -- so those are the agencies that bring in
15 the -- that set of information, are there -- I don't know the
16 specific training here at the AAWU, but does it come in the form
17 of like computer-based training, like a forecaster will sit down
18 and there will be like a 10-minute module and they have to
19 complete that or is it -- there's this new button on GFE and
20 here's -- and you sit with another forecaster that's done that,
21 how does that work?

22 A. Yeah, a lot of it can be that we ask -- we ask, you know,
23 somebody who is providing something to create a guide or a
24 document for it. So for the satellite stuff, it's been a lot of
25 quick guides and in some cases, like a five-minute video briefing,

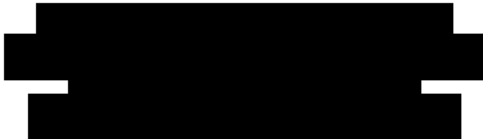


1 goes through it and may make some examples of it and certainly,
2 that's on one of the guides that we ask for, is hey, can you take
3 an example and highlight, if it's like, you know, multispectral or
4 a colorized image, you know, what do all these colors mean. So it
5 depends on what it is, but there's definitely either myself or I
6 ask the group that's providing this demonstration to generate some
7 kind of training material and it's not usually too in depth at
8 that point because we're just trying to see does this create an
9 efficiency, does this help the forecaster make a decision.

10 So I wouldn't say it's a minimal effort work, but it is kind
11 of like we're not trying to create a whole new program or do it
12 fully in depth, like we're gathering this data, you're going to
13 have it, so here's a 16-hour course to go through, it's usually
14 not that kind of level of effort, but just enough so that the
15 forecaster can understand what they're looking at.

16 Q. And then when there's something new, is there like a feedback
17 loop, like this -- this improves our efficiency by 15 minutes to
18 help this get out faster and that goes to you, back to the
19 developers or --

20 A. I think the demonstrations with the staff, because they're
21 doing it in real time, is a lot of anecdotal stuff, so they're --
22 they're capturing this case, hey, I used it here, it helped me
23 make these decisions or, you know, we've looked at this in these
24 scenarios and we didn't really get anything out of it or
25 something, you know, so it's a lot of anecdotal experiences that

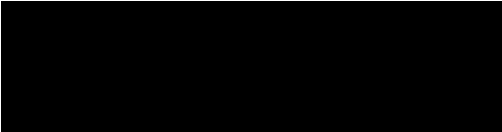


1 hopefully add up over however long the evaluation or demonstration
2 is going on to provide enough feedback to know where maybe there
3 needs to be an improvement or there's too many false alarms or
4 whatever, you know, depending on what it is.

5 Q. Okay, that makes sense there. And as far as -- so I guess
6 stepping into the realm of forecasting for icing, like what are
7 the tools that you've seen here that a forecaster will go through
8 training on learning how to use tools for icing?

9 A. Yeah, so we often start with, you know, bounding, you know,
10 X, Y, and Z area by -- by temperature and RH, that usually gets us
11 the sort of extent or constraints of what icing-related forecast
12 does for a specific time. And then they'll go in and use other
13 tools, they might look at, you know, BUFKIT for soundings in
14 particular areas that look like they could be moderate or greater,
15 you know, and that helps them diagnose the sort of vertical
16 element of it, too, so they can figure out what tops they want.

17 And so there's other techniques, looking at cloud tops and
18 heights of cloud tops to figure out where your icing tops should
19 be. And then, you know, from there, if you've got a good picture
20 of where you think your icing intensities and areas are, to go
21 through the icing guidance that's provided, so right now we're
22 using the Icing Product Alaska or IPA, another acronym. Before,
23 we used FIP, which is what they're using and we're moving back to
24 when we change models here. And I can go through a number of
25 things there, there's three parameters in IPA, you know, severity



1 index, which goes from nothing, trace, light, all the way up to
2 what they call heavy, and then there's a probability, which is
3 from zero to a hundred or a percentage and then there's an SLD
4 probability, as well. And so we might -- we might suggest that if
5 there's an agreement with your BUFKIT data and SLD or the severity
6 index with, say, a mixture of medium to high probabilities, that
7 you might consider ramping up the intensity of your icing
8 forecast.

9 Q. Okay.

10 A. So, you know, a lot of it's -- and I think of forecasting as
11 ingredients based, so if all of these things add up to a recipe
12 for something, that that's what you -- you want, you would have
13 more confidence in that forecast than you might if only one of
14 your ingredients was true.

15 Q. Okay. So I think you --

16 A. Yeah.

17 (Noise interference.)

18 MR. SUFFERN: Well, it's nice to get some vitamin D.

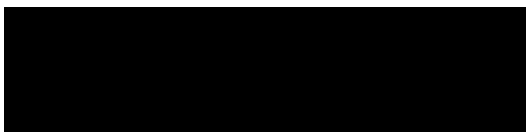
19 MR. ECKSTEIN: Yeah.

20 MR. SUFFERN: So we're good. Thank you, appreciate that.

21 BY MR. SUFFERN:

22 Q. So as far as -- I think you kind of -- what you were stepping
23 through there was a lot of weather models and guidance there. Is
24 there things in real time for icing forecasts or --

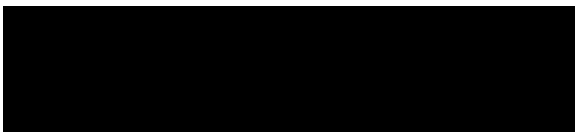
25 A. Oh, sure. I should back up on that. So, you know, we



1 recommend that when you're starting forecasts for icing or
2 turbulence or maybe even doing cloud layers, that you go through
3 like a PIREP analysis and you look at the current satellite
4 imagery and the current observations that are out there. In this
5 case, it could be, you know, your regular balloon soundings and
6 kind of do an analysis. So that's certainly true and that's kind
7 of true of a lot of meteorological approaches is what's going on
8 now, how does the guidance agree with what's going on now, and
9 then that gives you some confidence in either using that guidance
10 or trying to figure out why it's not right. So yeah, I think
11 that's certainly true, you need to go through the analysis
12 approach before you try to do the forecast.

13 Q. Okay. And then part of the list that you were mentioning,
14 one of those is PIREPs, as far as PIREPs, and I guess we'll just
15 stick on the icing parameter, are you getting enough of them, are
16 there areas where you're getting a lot and you wish you had them
17 in other locations or you all cover the whole state of Alaska
18 and --

19 A. I mean, we get more PIREPs during the day than we do -- and
20 some of them are producing the 4:00 a.m. forecast package, yeah,
21 there's less of that to go on. But you do have the 12z sounding
22 in several places across the state, so you do have some
23 observational, some -- something to help with your analysis. You
24 know, by midday, you know, or morning, you know, even through the
25 morning for our noon forecast package, they should have a lot



1 more, you know, PIREP information to help do that, update that
2 information going out at noon and then, you know, some more
3 through the afternoon to help the evening part, so we do three
4 packages a day --

5 Q. Okay.

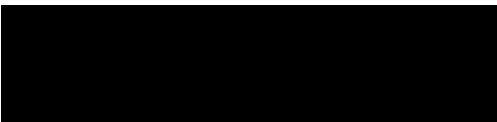
6 A. -- 4:00 a.m., noon, and 8:00 p.m., with amendments in
7 between. So they should have enough for two of the three but
8 yeah, for the morning one and unfortunately, that seems to be the
9 most important one because that's where decisions are made in the
10 morning to fly but, you know, that's the way it is.

11 Q. Okay. So I think we were just looking through the -- just
12 the AAWU page in general, I see you all do graphics, so there's
13 the text information out there, whether it's AIRMETs and area
14 forecasts, but I know the Aviation Weather Center in the lower 48
15 has gone much more graphical, I think -- I think the AAWU was
16 first with going with graphics and then the Aviation Weather
17 Center has now gone --

18 A. Yeah.

19 Q. -- up here, can you kind of step me through the history of
20 the AAWU graphics as far as you can recall, since you've been here
21 since --

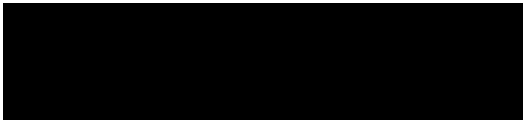
22 A. Yeah, a little bit. I know when we started we didn't do the
23 graphics at all and then we brought in, you know, a limited set of
24 graphics, we've done some outlook stuff, which we call our sig
25 weather charts or significant weather, and then we used to make,



1 you know, one -- one chart for each time we produced an FA for
2 icing, one chart, one chart for turbulence. And then we've done a
3 surface chart with fronts, highs, lows, and fronts on it and also
4 a surface analysis and then it has precip and visibility
5 information that's forecast at that time. And then when we
6 brought the GFE in, so the gridded forecast editor, we started
7 doing this as a representation in a database.

8 We expanded our graphics to doing more time steps throughout
9 the FA period so they cover the full 12 hours, they're at three-
10 hour time steps, and then there's a summary that kind of is a
11 composition of all -- all of the data over the 12-hour period. I
12 think that started in 2013, but we may have started it earlier
13 than that with convection, that was the first time we had really
14 gone and expanded and done this convective outlook which we do in
15 the summer season, May through the end of September.

16 And I think at that time we also separated high-level
17 turbulence and low-level turbulence so there's a different set of
18 graphics for those. And icing, icing also got that treatment.
19 And at the same time we went to those graphics, we started
20 producing that in the grids the forecasts in the GFE, we started
21 implementing some automation of the text in the FA. The idea was
22 that we would do them once in the GFE and get both products out of
23 it and create efficiency that way, while also having some
24 standardized tools to help people forecast things similarly in the
25 grid. So it was -- the goal was to get some consistency out of us



1 instead of -- when I first got to the AAWU in '07, you would write
2 the area forecast from scratch, top to bottom.

3 Q. Um-hum.

4 A. And you would go zone by zone and you could make different
5 decisions in each zone for icing AIRMETs, for turbulence AIRMETs
6 and whatever, so it wasn't necessarily a built-in consistency, you
7 know, spatially between zones. I'm not sure if it was necessarily
8 a data-driven process like the GFE pushes you towards more use of
9 modeling or use of data approaches, using tools to turn data into
10 a forecast, so like I described, you know, bounding the icing by
11 RH and temperature, you can start to build that picture.

12 Q. Okay. And so -- so basically, from my understanding of what
13 you're saying, is you're using a graphical system that gives you
14 the images and it also spits out the text product that may go out
15 to the website, as well, and then people can go in and adjust the
16 text, anything like that, but basically you're -- the first thing
17 you're doing is creating a picture, kind of.

18 A. Yeah. And it's -- you know, and it's put together, we look
19 at everything in the X-Y or sort of the flat spatial space,
20 there's a height dimension to it, as well, that we're defining in
21 there and so we put it all together as the horizontal and the
22 vertical information in the database.

23 Q. Okay. And if you can recall, since this was probably 2013,
24 but somewhere in that time frame plus or minus, as we get older we
25 forget things, totally there, do you recall if there was built-in



1 feedback from the aviation community and from other users that
2 were going to use this, these graphics, as far as, you know, what
3 the -- what the graphics would say on them, you know, what the --
4 and things like that, if you can recall?

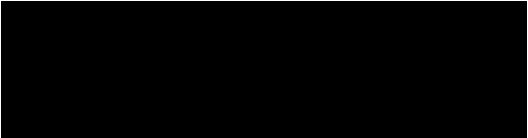
5 A. I'm sure we did some outreach on this on some prototypes. We
6 tend to work with AOPA and the Airmen's Association here. We
7 might have shopped them through the Coordination Council, I'm not
8 sure about that one, but I'm quite certain we would have reached
9 out to AOPA, Tom and Adam at the Airmen's Association, that's
10 generally what we've been doing over the years and we've done
11 other pilot focused groups and things with them, so pretty good
12 partners on "hey, is this the right approach for us" and, you
13 know, they've taken that and gone out and talked to their
14 community about "what do you guys think" and come back with us, so
15 it's not just their opinion, you know, they're trying to get their
16 members' opinion.

17 Q. Um-hum.

18 A. It's been a good way to kind of get a sense of whether or not
19 we're building the right thing.

20 Q. Okay. And so that was likely done back then, if they had
21 feedback and things like that, will they still come to you or the
22 AAWU today, kind of?

23 A. Yeah. In fact, I think, not long after we started those
24 graphics, we didn't have any -- they were having a hard time
25 geo-locating where features ended or began on the graphic, so



1 there wasn't enough, you know, information over the state map, and
2 so we added rivers a few years later, I remember coordinating that
3 with both AOPA and the association, as well as the Coast Guard and
4 the Civil Air Patrol. So we had some contacts for that and we
5 worked that through and that helped us not -- what they originally
6 asked for was points and text, place names, but it would have
7 really cluttered up the graphic, not be able to see it, so I was
8 trying to push them towards something a little bit less cluttered
9 that would give them the spatial information they needed, and so
10 they all agreed at that time that the rivers would provide them
11 that information, so we have sort of their highways --

12 Q. Yeah.

13 A. -- they might fly. Yeah.

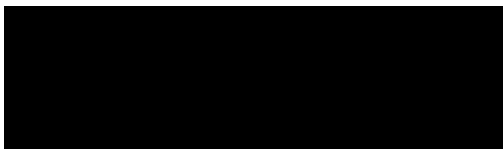
14 Q. Alaska is unique like that, to have those features to be able
15 to do that, that's pretty cool. So as far as the icing graphic in
16 particular, I mean, I think we were looking through it there and I
17 see there's three different categories, it appears --

18 A. Sure.

19 Q. -- and I think all three -- one of them, I think, was
20 isolated moderate and then I think they were moderate on the other
21 two, can you kind of, if you recall, step us through the history
22 of why those three categories --

23 A. Yeah.

24 Q. -- were developed that way and kind of what a pilot is
25 supposed to take from that graphic?



1 A. So when we went to these expanded graphics, we wanted to
2 represent what we had historically written in the area forecast
3 and so these are ways we had previously written this text, and so
4 when we went to create the grid process that we call it, we wanted
5 to replicate that. So we weren't doing some new forecast for the
6 forecasters, we were doing the same things that -- always been
7 doing, just in a different way. So we wanted that one, the one
8 type translation and, you know, that's basically why we have those
9 three categories, because that's what we use to write.

10 Q. Okay. Okay. And so, I guess, if we wanted to learn more
11 about the categories, then we'd have to go back and find the --
12 probably, the directives back when the first -- when they first
13 started writing the text, maybe --

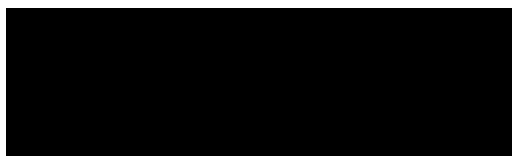
14 A. Yeah.

15 Q. -- would be the place to look for that? Because if the
16 graphics were just a continuation of whatever the text was in the
17 late 2000s.

18 A. Yeah, I don't know where that information is.

19 Q. And then I guess from the SOO perspective and the AAWU
20 perspective, with those different categories, what do you hope a
21 pilot would take from those different categories, as far as
22 mitigation or fly/not fly or things like that?

23 A. You know, I think we hope that, you know, because there's --
24 there's a lot of smaller aircraft in Alaska that we forecast
25 things that are below AIRMET criteria and I'll apply the extra



1 things that we do or sub-AIRMET criteria and I think we've
2 historically done that because of a lot of small aircraft up here
3 and we know, from talking to pilots and talking to these groups,
4 that their thresholds and sensitivities are way lower than what
5 our directives tell us to forecast and so I think that's the basis
6 and the history of it is the AAWU was created for GA support, that
7 we are a MetWatch office, so we deal with every size aircraft, it
8 certainly makes it a challenge to make a warning decision when,
9 you know, it will affect operators differently.

10 So that's probably the biggest square peg in a round hole
11 that we have is one product size doesn't fit all and so we're
12 trying to create some more information in that space for -- that
13 can help everybody.

14 And I think, you know, one of them are moderate, isolated,
15 severe both on, not necessarily the icing side, but the low-level
16 turbulence side is specifically for GA. A lot of them are very
17 sensitive to winds at low levels and, you know, the heavy aircraft
18 just sometimes don't mind that, so where a SIGMET might be
19 overkill for them, it may be appropriate for GAs, so we're
20 strongly wording an AIRMET that we know GA will see, don't tend to
21 see the heavy operators looking at our AIRMETs as much, so maybe
22 that's how we're messaging the right community.

23 Q. Okay. And then as far as icing, has the AAWU ever looked
24 into providing anything with like SLD icing or the guidance just
25 isn't good enough and so we don't feel that we can communicate

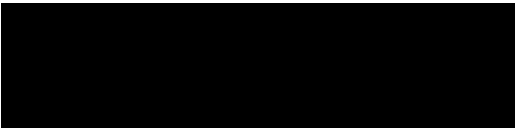


1 that at this time or anything like that, can you step me through
2 any history of that?

3 A. Yeah, so we were trying to get the forecasters to recognize
4 or do is to look at that guidance and use it as another ingredient
5 to make a decision, so if it -- I don't know that we can use it on
6 its own, but if it adds up to, you know, our weather picture, you
7 know, certainly techniques in icing forecasts where you may have
8 drying aloft and then you're capping top clouds and trapping
9 super-cooled liquid, it could be scenarios where your SLD is
10 higher in those and whether or not the guidance captures that or
11 not, the setup is right, or post-frontal type situations we see a
12 lot of higher intensity icing.

13 So really trying to teach them that there's scenarios and
14 that this guidance should match that in these cases, but to look
15 at this and see if you're missing something in your otherwise
16 analysis that the models are trying to tell you about.

17 And so that's true in a lot of model analysis where, okay,
18 the model is showing me this but why is it, I don't see that in my
19 weather picture and as a forecaster, you've got to connect those
20 two things up and figure it out. Sometimes you don't, but try and
21 do that, that's, I think, a big part of the job. So models should
22 always be treated as guidance, but you should take them seriously,
23 I guess, and this way they could be telling you something that you
24 otherwise missed, maybe it wasn't sampled by the -- by the balloon
25 sounding or BUFGIT, you know, used a different model of BUFGIT, so



1 sometimes it's a model mismatch. So you're really, you're dealing
2 with a lot of inputs and you got to see the ones that make the
3 picture and your conceptual models, so it can be a lot of trying
4 to get people to have the right conceptual model for things, but I
5 wouldn't say that we just take the SLD data and drop into our
6 forecast and then go with that.

7 Q. Okay. And so, to your knowledge, has there been any feedback
8 from the -- whether it's GA community or larger carriers, as far
9 as, you know, it would be nice if we had SLD because I'm -- my
10 airplane is equipped to fly into whatever, you know, the light
11 icing or -- but if it turns into SLD, then I can't do that, has
12 there been any feedback that you can recall?

13 A. I've never heard anything like that.

14 Q. Okay.

15 A. That seems pretty specific from what we usually get from the
16 pilot groups.

17 Q. Okay, great.

18 A. Yeah, I don't -- not that I can recall.

19 MR. SUFFERN: Okay. I am going to take a break and pass it
20 on to Starr, if you've got some questions.

21 BY MS. BLUM:

22 Q. Yeah. Again, thanks for talking to us. So let me make sure
23 I got this correct, the SLD areas will not be predicted on the
24 graphic, is that correct?

25 A. Not explicitly, no, they're not. They would become part of



1 an AIRMET or, you know, a safety decision or something like that,
2 so it's not specifically explicitly replicated into the products.

3 Q. It's been a while since I've looked at one, but are there
4 altitudes included with that for the pilots, of areas that are
5 forecasted to maybe have that?

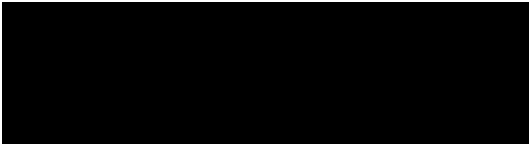
6 A. For the SLD?

7 Q. Yeah. Between the surface and 5,000.

8 A. The guidance would have that information at flight level, but
9 it's not passed on in any way, it's displayed out to, you know, a
10 web resource or another -- in a product.

11 Q. So I'm not familiar with GA flying up here in Alaska and all
12 the unique challenges, but looking at that graphic, you know, we
13 talked about the three that we saw, they were all moderate, so as
14 a pilot, it's kind of hard to discern, you know, what's moderate
15 that I can attempt or what's the scary moderate that I got to
16 avoid. How would you recommend a pilot look at that graphic and
17 interpret those colors and the coding?

18 A. Okay. Yeah, I can see that point that they may not be
19 explicitly, you know, saying there are occasional moderate areas,
20 the ones that are represented in the orange color are our AIRMET
21 areas, so that's AIRMET criteria. And that's why I was describing
22 things as the sub-AIRMET criteria text, that is the yellow color,
23 so there's -- the way that it's represented is sort of categories
24 that we represented in the text and we haven't changed that since
25 I've been in, up in the AAWU.



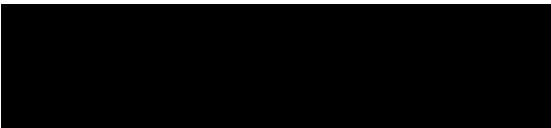
1 Q. Okay.

2 A. Yeah, so not explicitly saying hey, this is an AIRMET area on
3 the graphic, it doesn't -- doesn't do that.

4 Q. Okay. So let's say it's a group of new private pilots or
5 even me, if I'm coming up here to learn how to do some Alaska
6 flying, what would you -- how would you teach a pilot looking at
7 going on a flight where there's probably going to be icing, what
8 sources of information would you, as a meteorologist, tell me to
9 look at and get a clear picture? How would you teach me to get a
10 clear understanding of the weather, like when I'm
11 pre-flightting, preparing for a flight, from a weather perspective?

12 A. I mean, I think if you go through our graphical suite,
13 starting with, say, the surface chart, you can get a picture of
14 where those surface features are and what precipitation and
15 visibility forecast we have out for the short term, so if you're
16 getting ready to go, that one should be representative of the
17 weather in the short term, like the first three or four hours.

18 And then we have companion charts for that, that show where
19 areas of IFR low ceilings and visibilities or even marginal VFR
20 areas are and then you can go into specific other graphics for
21 turbulence and icing that kind of should match up with those
22 weather pictures. So if you're seeing, you know, the
23 precipitation areas, the icing associated with that, that that
24 should help, hopefully help, you know, connect up, hey, these
25 features causing the snow or rain or freezing rain, that stuff



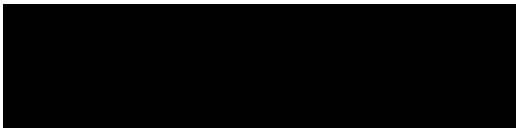
1 with these icing areas and this front and these turbulence areas.
2 Yeah, I'll put the picture together, I think that's -- that's
3 really -- graphical information does and because we're providing
4 these time steps throughout the FA period, you can see more of the
5 progression of the weather than what we can describe in a text
6 format.

7 Q. So do you think it's safe to say, then, start with the
8 graphics and then start getting into the text?

9 A. That's what we hope people do because translating the text
10 into, you know, a sort of mental image of what's going on, I
11 think, is going to be incomplete, it's just too difficult to write
12 that much in a short period of time. And so, you know, the whole
13 points of going to -- beyond one graphic or even, you know, what
14 we did when we started graphics, you know, we only had one, it
15 covered the 12-hour period and that's a long time. So having
16 something that could show you hey, this is how things are evolving
17 throughout the next 12 hours and then we're updating that every
18 eight hours or even more frequently if we need to amend, that
19 you're getting a better picture of how things are evolving across
20 wherever you're interested in operating.

21 Q. Okay. Yesterday I was learning how important PIREPs are for
22 you guys in the forecasting and we started to talk about the
23 outreach you guys have done about that, can you tell me a little
24 bit more about the outreach efforts?

25 A. I don't know that I've been involved in that many of them.



1 MR. KOCHEVAR: Do you want me to take them?

2 MR. ECKSTEIN: Yeah.

3 MR. KOCHEVAR: Yeah, that was the point that I made
4 yesterday. So we've been providing outreach to most of the Flight
5 Service, but we're open to providing it to whoever on how we're
6 using pilot reports in our operation and where they're important
7 and actually highlighting cases like icing that the pilot report
8 is one of our few pieces of ground truth information that we're
9 basing our forecast off of. So we've been providing, roughly,
10 quarterly training to the training academy for Flight Service --

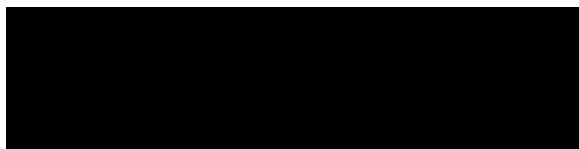
11 MS. BLUM: Oh.

12 MR. KOCHEVAR: -- since kind of late summer on that and, you
13 know, been invited to provide it to air traffic towers, as well.
14 But it's something we do outreach with local carriers, I mentioned
15 we had traveled to Nome, Utqiagvik, and Bethel in the fall, late
16 summer, we're talking about how pilot reports are important to, in
17 particular, our turbulence and icing forecasts.

18 MS. BLUM: Do you guys talk to Anchorage Center?

19 MR. KOCHEVAR: We do, yeah, primarily through the CWSU,
20 that's co-located there and they're tasked to do all of the
21 training for Anchorage Center, so we're often more of like in a
22 supportive role there but, you know, that's definitely, definitely
23 something we would be open to providing but, again, typically it
24 starts through the CWSU.

25 MS. BLUM: Okay. And just wondering if, you know, we're here



1 in a safety capacity, but other ways we can maybe assist you, you
2 know, to get the word out.

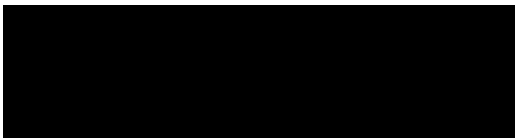
3 MR. KOCHVAR: Um-hum. I'd say in addition to this, we --
4 when it comes to, like, where we really actually utilize the CWSU
5 in soliciting pilot reports on a daily basis, as far as they're
6 kind of looking at our forecast and encouraging where pilot
7 reports are needed and if we're needing it for a forecast, we can
8 request that they go to a supervisor and try to get one.

9 MS. BLUM: Do you feel like the communication is pretty open
10 between you and Center, where you guys can have conversations
11 about this?

12 MR. KOCHVAR: A hundred percent, yeah. I mean, we have both
13 the Google Chat room that's always open, that we can, on the fly,
14 coordinate through and then just traditional over the phone. And
15 an example, this morning I'm on the forecast shift and I talked to
16 Center on the phone twice this morning and a few times over Chat,
17 just in a few hours.

18 MS. BLUM: Great. Yesterday --

19 MR. ECKSTEIN: I have to make one point. So when Center gets
20 a PIREP, like an urgent, then they'll pass that through Chat and
21 if we don't see that, then they'll call us, "hey, you know, this
22 is here. " So there's a way that we pass information that's part
23 of the PIREP workflow that's done through Chat, as well, just in
24 case we're not on top, like we don't see something coming right
25 away, if we're looking at some other part of the state or doing



1 something else, they can get our attention with something. And
2 then we have an alerting software for an urgent that comes in,
3 highlights in yellow, usually visually captures your attention so
4 we can see PIREPs that are urgent as quickly as possible.

5 BY MS. BLUM:

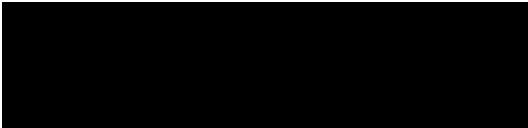
6 Q. Does moderate count as a --

7 A. Yeah. I think so.

8 Q. -- description? I was asking, yesterday they said it was
9 better to talk to you, like, I don't know where you guys -- all
10 your sources of what information you -- where you get your
11 weather, but in the day and age that we're living in, I'm curious
12 now like how AI is starting to come into that, is that going to be
13 a part of your forecasting?

14 A. The only application or tool we have right now that uses any
15 kind of machine learning which might dabble in the realm of AI, I
16 don't think that this one's particularly -- fits that category, it
17 is machine learning, is a turbulence probability that we get out
18 of CIMSS, the Cooperative Institute for Satellite Studies, it's at
19 Wisconsin, University of Wisconsin program.

20 And so they have a turbulence, a high-level turbulence
21 probability that's based on machine learning using water vapor and
22 band-pass filtering and it does pretty well with convective-based
23 turbulence, but it also captures, you know, frontal based
24 turbulence and some other areas, as well, so we've been dabbling
25 and using that to kind of get a real-time analysis of high-level



1 turbulence.

2 Q. Yeah, just with your position with this new science, it's --

3 A. Yeah.

4 Q. -- I was really curious, like, how you find --

5 A. So that's where we -- that's the first we stepped into
6 that --

7 Q. Yeah.

8 A. -- that world and been using that for a few years now, just
9 have it on a website. They still have a website up, I can pass
10 that to you guys to look at that. The imagery that you get when
11 you pass water vapor through there is very helpful. We had a
12 forecaster here try to learn to interpret it, I don't think it's
13 very difficult, so having a machine do that for you and suggest
14 areas of different moderate or greater turbulence intensities and
15 probabilities is really interesting. I guess, probably, I have a
16 good sense of how it works by now, but I'm not sure I can answer
17 that.

18 MS. BLUM: Okay. That's all I've got right now.

19 MR. SUFFERN: Okay.

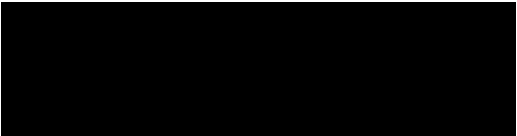
20 MS. BLUM: Thank you.

21 MR. SUFFERN: Yeah, I think I just got a couple more
22 questions, you doing okay --

23 MR. ECKSTEIN: Yeah.

24 MR. SUFFERN: -- need a break or anything? Okay.

25 BY MR. SUFFERN:



1 Q. Yeah, so I'll just, I think, step around a couple of things,
2 but I guess one of the biggest questions I was thinking is like
3 are there any places in the state, from your perspective, that are
4 more challenging forecast-wise based on, you know, whatever reason
5 you think of, you know, lack of observations, you know, time of
6 day when we need to do the forecast, anything like that, or just
7 the entire state?

8 A. I mean, we're really well sampled in south-central and
9 sometimes in southwest, it -- maybe also the Tanana Valley --
10 yeah, in Fairbanks, but as we get more north and more west, it
11 drops off a lot. And so we could have one PIREP in, you know, a
12 quarter of the state for, say, icing, it's pretty difficult to,
13 you know, use that one way or another. So, you know, again, if
14 you're trying to do analysis, it seems like your analysis is
15 incomplete because you don't really have an observation of what
16 you're trying to forecast, so that's certainly challenging if
17 you're doing clouds and weather on -- in the Brooks Range, we have
18 one ob, two obs for hundreds of miles that aren't representative
19 of those areas, so you need a good conceptual model to be able to,
20 at least, take a good approach to that. So yeah, it's hard to do.

21 Q. Just thinking on that and just something that popped into my
22 head, I know the FAA has the weather camera system up here and --

23 A. Yeah, it's been huge.

24 Q. Okay. And so I didn't know how you all use it or if it's --
25 there's so many that, I mean, that's a lot of -- a lot of little

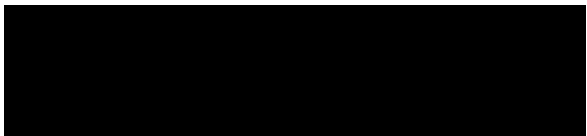
1 points to look at, unnecessarily, too, but if you're curious about
2 one location, maybe it's helpful?

3 A. One of the things is that -- you know, that one, that's a
4 little inefficient, but one of the things we do with surface
5 observations and again, learning the geography, is like if you
6 know all the ob sites and you can recall them through a tool we
7 have, you can get all that information really quickly and
8 efficiently.

9 That's not so much the case with weather cams, so you might
10 target it where you look at weather cams and where the
11 observations are inconsistent, so use them together and having the
12 weather cams come in has been a huge help to diagnosing like why
13 is this ob showing, you know, a low ceiling or visibility and then
14 you go to the camera and you find out there's like one cloud
15 hanging over top of the sensor and it's not representative of the
16 bigger picture, so getting that context is huge. It's a big help,
17 so -- and then all these things, whatever you can get, PIREPs,
18 cameras, obs, add up to like okay, I feel more confident about
19 what is, I think, the pattern or the conditions are, and that
20 confidence helps your forecast confidence of what you're going to
21 do and what decisions you're going to make.

22 Q. That's helpful. One question I was thinking of, too, and I
23 think was mentioned a little bit yesterday, was having a lot of
24 new forecasters here and how's the staffing at the AAWU?

25 A. You know, we're -- we're in the best staffing we've had in

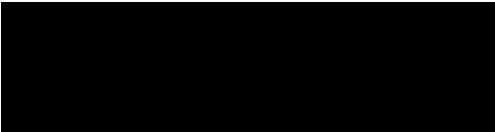


1 five, six years. So, you know, the challenge with that is you got
2 a lot of, I guess, green forecasting folks and so we've been in a
3 lot new effort with the people we've had that have been here for
4 some time, that have some experience helping improve our training
5 program, build efficiencies in that so we can teach people things,
6 you know, that we have documented instead of by word of mouth or,
7 you know, like what we see, where we see things break down is if
8 we find that this training for this particular area has basically
9 been the game of telephone.

10 So, you know, trying to get more consistency on that and
11 build out the program training approaches is a new effort with our
12 older staff to help onboard new people and we knew that AAWU would
13 get younger at some point. For most of the existence of the AAWU,
14 we had a pretty stable staff and then we had, say, six people
15 retire in three years from 2019 on, so we fell off a little bit of
16 a cliff staffing-wise and experience-wise. But, you know, our
17 lead forecasters are seasoned and have good experience.

18 Q. Do you feel like with everybody coming on board and once they
19 get trained, you have the resources to be able to do things that
20 you --

21 A. Yeah, we're down two by numbers but we're at 10, which was
22 what we historically used to be staffed at forecaster-wise and
23 then Dave's position as the WCM is relatively new, just started in
24 2021. So having, you know, an official outreach arm in management
25 and not having the supervisor and the SOO kind of do that as a



1 side gig is a big deal. So yeah, we used to have to just pivot,
2 so stop working on things internally and go do outreach or the MIC
3 would leave me in charge and go do outreach so, you know, it was
4 just job share. So yeah, we have more capability now. If we can
5 keep that, then we'll be in a good place.

6 Q. You can only wear so many hats at one time.

7 A. That's definitely difficult. I mean, when -- I've been
8 acting MIC, meteorologist in charge, for the AAWU four times over
9 four-month stints, so -- and Al is my fourth supervisor here. So
10 I've been really, really lucky, it's going pretty good. But I've
11 been in that role and when I'm in that role I don't code or do
12 technical work, I just really struggle to try and stretch that
13 far.

14 MR. SUFFERN: And I've gone out there.

15 MR. KOCHVAR: I'm going to step away to go back to the
16 forecast --

17 (Crosstalk)

18 MR. SUFFERN: Okay, thanks.

19 BY MR. SUFFERN:

20 Q. As far as -- and this is my favorite question to ask, but is
21 there any weather tool or thing or technique or anything that you
22 wish that you had here at the AAWU to help you do your job better,
23 whether that's in icing or anything else?

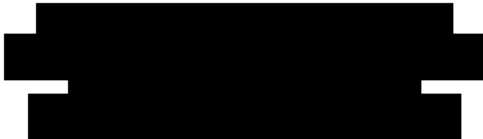
24 A. You know, a lot of the aviation forecasting is sometimes by
25 proxy, we use these -- you know, like temperature and RH, well, RH



1 is -- it's okay but, you know, I could tie that more into, you
2 know, like a wet-bulb depression or something that's more specific
3 to the physics of it. You know, maybe that's what our guidance is
4 trying to show us through these algorithm approaches, but that's a
5 little different than, you know, putting the raw science in front
6 of a scientist, giving them the end result of the forecast is
7 here, take this at face value and use it or I don't, there's not
8 really any way to say well, I can use this part because I know
9 this part's correct, because you don't know how well it's made.

10 So having more direct tools to break things down has been
11 kind of an interest of mine, so if we were to take like the SLD
12 problems, can we get the components and get that build back. And
13 so one of the things that we do when we diagnose models and
14 compare them is to see what -- you know, based on experience or
15 what we've been taught, is that likely, and so if you have the
16 ingredients that made the algorithm, then I think you could tease
17 out where it's going wrong, maybe when you really should lean on
18 it and when you shouldn't.

19 So, you know, having more diagnosis tools and knowing how
20 they're put together is an interesting part of the -- you know,
21 how things pass from research to operations. Sometimes it seems
22 like a black box, like you get something at 0 to 100 scale and
23 it's like okay, well, that's what I have, it doesn't really fit
24 this picture, so I can't use it today or hey, well, this really
25 matches up, that gives me some confidence and so I can lean

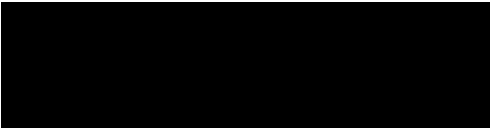


1 towards making this decision or that decision. I think, you know,
2 we'd probably have more time to diagnose stuff and make other
3 decisions if we weren't really production heavy and we're very
4 production heavy, so we spend quite a bit of time typing and
5 actually producing the forecast.

6 So a lot of what I've been trying to do, we're --
7 particularly as we onboard younger staff and new people who don't
8 have experience with these tools, you see them struggle with them
9 or take a long time to produce something, they're spending more
10 time in production than they are analyzing, and I think that's
11 true across the Weather Service a lot and that we really -- if we
12 can really build out efficiencies and not have to manually produce
13 stuff, then we'd have more time to dive into something, you know,
14 and across a state like Alaska with, typically, two forecasters on
15 shift, it's a lot to cover.

16 So if you're spending more time producing than diagnosing,
17 certainly that leads you to believe you could miss things, you
18 know, and I think it's a perfect world where you're going to
19 capture everything, but you see the balance there is not correct.

20 Q. So just to follow on your answer there, as far as diagnosing
21 different pieces, are you -- I clearly -- I think I understand
22 that you would like the different pieces of the modeling to put on
23 so you can see when to use that, as well, would there be
24 additional observational tools that would help you pick out those
25 pieces, and I'll just pick something out of thin air, but you



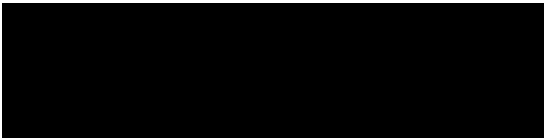
1 know, airplanes equipped with wet-bulb as they're in -- giving you
2 targeting information going into Bethel or things like that --

3 A. Yeah.

4 Q. -- like if that would be helpful kind of stuff.

5 A. I think, I mean, some of the ACARS and MEDCARS, there's a
6 bunch of different ones, you know, some of it's been proprietary,
7 we've had it on different websites at times but not been able to
8 put it in the system, so it's been limited and I think whenever
9 you limit a tool like that, it doesn't get used. And that
10 certainly goes back to some of the proving ground and, you know,
11 test-bed work where if we only put the data on a website, your
12 chances of getting it into operations go down dramatically,
13 whereas if you give the Weather Service the data and you let it
14 integrate it into our AWIPS system, the likelihood of adoption
15 goes way up because you're putting it and allowing them to mix it
16 in with their other tools.

17 I think that's slowly changing, that certainly seems to be
18 true on the WFO side of the Weather Service in the lower 48 where
19 they're using more web-based tools because they're looking at
20 probabilistic and ensemble data. The aviation side is further
21 behind on the probabilistic, you know, creating probabilistic
22 datasets. So that's something that the Weather Service wants to
23 do across the board, is produce more probabilistic information, we
24 don't really know how the FAA or the community will treat that or
25 use it, there's a probably a long road there.



1 Q. It sounds like a challenge.

2 A. Yeah, I teach everybody here probabilities and statistics
3 certainly against their will, so on the training that they made,
4 but the -- yeah, it's a lot of jargon.

5 Q. I can recall my statistics class from school and it did not
6 go well for me, so I can understand, I can fit in that box.

7 A. I feel like I know this stuff and even I -- my feedback for
8 the class was -- just kind of learned how to take quizzes again,
9 because that's what I felt like the training was, just a bunch of
10 quizzes, so -- but it's good, I mean, it's something to put things
11 into context for emergency management and all of these other
12 areas, so it does seem like it's working, but some areas we'll
13 just have figure out is there a reason for us to do that and where
14 and with what, and maybe it's more in the longer-term picture head
15 start and it seems to be a good way to introduce it. Our guys
16 jumped into doing probabilistic in the short term first, that's
17 what I think, so --

18 MR. SUFFERN: Yeah. Starr, do you have any more questions?

19 MS. BLUM: I don't.

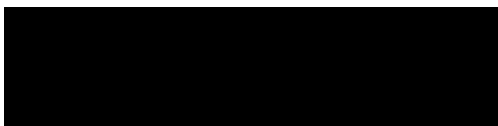
20 MR. ECKSTEIN: Okay.

21 BY MR. SUFFERN:

22 Q. Is there anything else that -- maybe a question we forgot to
23 ask that you wanted to chat about?

24 A. No.

25 Q. Anything else or --



1 A. Not that I know of.

2 Q. Okay.

3 A. I hope I captured the tools and the things that they do for
4 icing but, you know, they could look at a lot of different things
5 in AWIPS and they haven't told me that, so --

6 Q. Yeah.

7 A. But we do teach and we're trying to work on building a better
8 program where we're teaching new staff a consistent approach and
9 that the rest of the staff knows what they're learning. That's
10 not always been the case. When I got into the AAWU, I sat down
11 with one person and they taught me how to do it and that's how I
12 learned how to do it and it may have been different than the other
13 nine people that I worked with. We're really trying to fix that.

14 Q. It's a challenge.

15 A. Yeah. I get this sense sometimes that I've been calling them
16 like operational myths, like I hear something that was somebody
17 was taught and like that's not true at all, so you find these
18 little nuggets and you're like oh, that's odd. Nothing too
19 serious, but it's kind of like no, you don't -- you don't need to
20 do that, they're usually extra steps --

21 Q. Yeah.

22 A. -- people have been told to do that aren't necessary, so when
23 you're trying to reduce their production time and create
24 efficiencies, you know, they want to hear that, so -- yeah, the
25 turnover has been pretty insane, especially coming from a really



1 stable period of our history to, you know, across the Weather
2 Service having people move around and having new people all the
3 time, you know, certainly -- okay, I'm going to do a better job
4 with our documentation and our training program. Don't wear
5 everybody out trying to train new people. So yeah, we've given
6 that a lot of thought, going to keep tweaking that and hopefully
7 make that easier for us.

8 Q. Great.

9 A. Yeah.

10 MR. SUFFERN: All right. Thank you, Nate. So off the record
11 at 10:17 a.m.

12 (Whereupon, at 10:17 a.m., the interview concluded.)
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CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF: FATAL COMMUTER PLANE CRASH NEAR
NOME, ALASKA ON FEBRUARY 6, 2025
Interview of Nate Eckstein

ACCIDENT NO.: ANC25MA018

PLACE: Anchorage, Alaska

DATE: February 13, 2025

was held according to the record, and that this is the original,
complete, true and accurate transcript which has been transcribed
to the best of my skill and ability.

