sonix

NAME
nws.mp3

DATE
November 29, 2023

DURATION
31m 44s

6 SPEAKERS
Hannah McCarthy
Nick Capodice
Kris Harper
Speaker4
Archival
Felecia Bowser

START OF TRANSCRIPT

[00:00:05] Hannah McCarthy
Nick I never knew I was afraid of tornadoes until I was in Alabama one night and the tornado radio started making noises.

[00:00:14] Nick Capodice
The tornado radio. Hannah, was this produced by Michael Crichton?

[00:00:17] Hannah McCarthy
They're called weather alert radios, which is the sort of thing that you have in your possession. If you live in a place where weather could otherwise interrupt all communication, and also your power could go out. So it comes with a hand-crank. But the point is that I lay there on a perfectly still night, listening to the occasional, and frankly, to me, terrifying sound. Now, for.

[00:00:37] Nick Capodice
Our listeners who are curious out there, we will not be playing that sound here despite the audio medium, because it is in fact, prohibited. That is.

[00:00:45] Hannah McCarthy
Right. People think that that applies only to the emergency alert sound, but actually it is any sound that mimics or even sounds similar to that sound. And you know, we don't need to find we are listener supported public radio. Anyway, through that sleepless alabamian night, I realized, okay, one thing I am totally terrified of tornadoes. Who knew? And simultaneously, isn't it weird and special that I live in a time and place where this free alert happens to let me know that I could be whisked away to Oz at any moment? So how did this time and place come to be? The sort where a terrifying noise pierces the radio waves when troubles come in? It's time to talk about every news outlets favorite excuse for hyperbole. Whether this is Civics 101, I'm Hannah McCarthy, I'm Nick Capodice. And to get specific here, I want to talk about the federal government's role in the weather, or at the very least, in how the government shares weather data with the public and uses it to give guidance about all manner of things. Today, we are talking about the National Weather Service, how it came to be and later what it is like to actually work there.

[00:01:57] Nick Capodice
Out of curiosity, Hannah, did you actually experience or see a tornado?

[00:02:01] Hannah McCarthy
I did not, and I acknowledge that there are bolder souls out there who might find my East Coast exceptionalism toward columns of decimating wind to be a little, you know, soft handed.

[00:02:21] Kris Harper
Okay, so I'm Kris Harper, I'm professor of history and philosophy of earth sciences at the Department of Science Education at the University of Copenhagen. And I was a Navy officer, a meteorologist and oceanographer for 21 years. I'm a retired commander. And then, as my meteorology friends would say, I went to the dark side and became a historian of science. And now I study the history of the atmospheric science.

[00:02:48] Nick Capodice
The dark side.

[00:02:49] Kris Harper
Oh, well, because, you know, we look at archives and we're not out looking at the weather and forecasting and doing that kind of thing. It's all kind of fuzzy and not as solid science as my science buddies would like it to be.

[00:03:05] Nick Capodice
While we're on the subject of Kris's science buddies and the weather, there seemed to be a lot of people out there who suggest that weather prediction is not as hard of a science as, say, biology or something like that. So what is with that? Is there any truth to that?

[00:03:19] Hannah McCarthy
All right. So let's get into this for a sec.

[00:03:21] Kris Harper
Many people didn't consider meteorology to be a real science. Or as one physicist put it, it was a guessing science. I mean, you know, be still my heart. I mean, that's just I mean, really.

[00:03:35] Nick Capodice
All right. Good to know.

[00:03:36] Hannah McCarthy
So is meteorology a real science? Yes. And every time I open my NOAA app to check the weather, that is confirmed by me through a combination of translated physics, statistics, geography and chemistry.

[00:03:51] Nick Capodice
All right. You brought up Noah Hannah, and I think I've got this one. Noah is the National Oceanic and Atmospheric Administration.

[00:03:58] Hannah McCarthy
Very well done. Thank you.

[00:03:59] Nick Capodice
Is that the same thing, though, as the National Weather Service?

[00:04:02] Hannah McCarthy
Actually, the National Weather Service is what you call a child agency of NOAA, which, by the way, shapes policies around climate, oceans, fisheries, coastal restorations. Basically, the National Weather Service sits under the NOAA umbrella, and they have a more focused mission.

[00:04:20] Kris Harper
So the National Weather Service, which has had a variety of names over its lifetime, its mission is to provide weather services to the public to keep the public safe, to provide forecasts that help agriculture and industry.

[00:04:37] Nick Capodice
Now, that last part, agriculture and industry. That is something that I was not expecting. Yeah.

[00:04:41] Hannah McCarthy
And this ties into where the National Weather Service actually fits in the organization of the government. While many of the Earth science, research and policy groups are housed under the Department of the interior because of the origin story of the government's interest in weather data, the service part is part of the Department of Commerce.

[00:05:00] Nick Capodice
Okay, so there's that industry tie in. So what exactly was the National Weather Service doing when it was originally founded?

[00:05:08] Kris Harper
So we first see the United States get involved in collecting weather information in the early part of the 19th century.

[00:05:19] Nick Capodice
Now, hold on a moment. I happen to know something about that. A little almanac by Mr. Benjamin Franklin, but that was published way back in the middle of the 18th century.

[00:05:30] Hannah McCarthy
That is right. Almanacs were a very popular publication in North America, and Ben Franklin did in fact publish one called Poor Richard's Almanac, and it, like other almanacs at the time, did contain weather predictions. They also had puzzles and witticisms. Poor Richard's was wildly popular. Now the Farmer's Almanac is still in publication today, but that particular publication started out in 1818. There is also another almanac called The Old Farmer's Almanac. Two different things, by the way, the Farmer's Almanac claims to have an 80 to 85% accuracy rate and claims the bragging rights of having been predicting the weather since before the National Weather Service existed, and having been right about a number of major weather events, which is true. However, their accuracy has been analyzed and it has been found to be closer to 50%.

[00:06:23] Nick Capodice
Still not that bad.

[00:06:24] Hannah McCarthy
So farmers had been predicting the weather for basically as long as they'd been working the land and observing the weather. But in the early 19th century, things really started to pick up.

[00:06:35] Kris Harper
So people started to specialize. And at that point you see more people taking weather measurements and keeping track of them in a systematic way, often related to astronomical observatories. Because, of course, if you're trying to look at the planets and the stars, it's a real bummer if it's cloudy and raining, right? So those people were taking weather observations. So so the initial weather observations were often coming from astronomical observatories, and then they would share that information. And slowly over time, by the middle of the 19th century, they were figuring out how. How to use that information in a way that made sense.

[00:07:20] Nick Capodice
Sharing that information, as in beyond the publication of an almanac.

[00:07:28] Kris Harper
We see the rise of teletype so you can send the information more quickly. You can have great weather information, but if you can't get it to anybody. Oh well, I mean, that doesn't do you a whole lot of good. Right? So we see the Smithsonian was involved. We see observatories that were involved. There were universities that were involved. So you had this loosely knit collection of people who were putting observations together and trying to make sense of them. Meteorology isn't so much a science at this point. It's it's more of a collection activity.

[00:08:06] Nick Capodice
Oh, wow. So this is like crowdsourcing before there was such a thing as crowdsourcing, but with weather data.

[00:08:11] Hannah McCarthy
Yes. And the network grew in the mid 1800s. The Smithsonian supplied telegraph offices with basic weather instruments, and in turn, those telegraph offices would submit their observations to the Smithsonian, which would make weather maps. By the end of 1949, there were 150 volunteers making observations. By 1860, there were 500 stations nationwide submitting reports to the Washington Evening Star.

[00:08:46] Kris Harper
And then by 1870, we see the formation of sort of the first National Weather Service without that being its name, under the auspices of the US Army Signal Corps.

[00:09:00] Nick Capodice
And what exactly is the Army Signal Corps? So it's.

[00:09:03] Hannah McCarthy
Still around. It was created just before the Civil War, as the branch of the army that was in charge of communications. And by the way, the guy who came up with the Signal Corps ended up being the same guy who ran the weather service about a decade later. And while his real name was Albert J. Myer, his nickname was Old Probabilities.

[00:09:23] Speaker4
Old probabilities.

[00:09:24] Nick Capodice
As in this will probably happen today, and this probably won't.

[00:09:28] Nick Capodice
This probably didn't help the reputation of meteorology as a hard science.

[00:09:33] Hannah McCarthy
Nicknames aside, the data was important, especially prior to the widespread use of electricity. Being able to predict the weather was pretty essential, and.

[00:09:42] Kris Harper
Originally the observations were taken by the Medical Corps in the Army because they considered it important for people's health. And the army outposts mean we're talking forts and that kind of thing right out, out west. They had teletype and so they can send those reports in. And then by 1890, Congress passed a resolution that formed the US Weather Bureau as an entity and assigned it to, you know, make forecasts for agriculture, to make forecasts for industry, to keep people safe to to do near-shore kinds of forecasting, even included volcanology, you know, volcano things were part of their original mandate. So by 1890, you're seeing the professionalization of meteorology.

[00:10:38] Hannah McCarthy
The early 1900s saw the explosion of weather, useful technology. The weather bureau was using airplanes and weather balloons. They were able to do things like tell farmers in the West how much water would be available for irrigation in the coming season, after the Titanic disaster in 1912. The Coast Guard began an international ice patrol that same year had the first fire weather forecast. Natural disasters like floods and hurricanes were always spurring new weather innovations, and I'm jumping ahead a bit here. But the Hoover Dam, completed in 1935, that could not have happened without rain and flood predictions, which allowed for a relatively or compared to the alternative, safe construction.

[00:11:25] Archival
Within 24 hours. The Colorado River, under control for the first time in its history, was flowing around and past the dam site through the huge divergent tubes.

[00:11:36] Hannah McCarthy
Also, with this lickety split progress, you saw the first ever meteorology program crop up at MIT, the Massachusetts Institute of Technology.

[00:11:44] Nick Capodice
Just in case anyone out there was still wondering if it was a real science.

[00:11:47] Hannah McCarthy
Just in case. All right. Now finally, in 1940, a year before the US entered World War Two, the Weather Bureau was assigned to the Department of Commerce.

[00:11:58] Kris Harper
President Roosevelt said, we need to build 60,000 aircraft for the war effort, which also means you need at least 60,000 pilots to go in them. And you also need weather forecasts for those pilots.

[00:12:13] Hannah McCarthy
A pretty famously in World War Two, the decision to invade Normandy in 1944 was based on a weather forecast. D-day was delayed by 24 hours, big risk to allow for a break in rough weather, a break that the axis forces did not predict. It is.

[00:12:31] Nick Capodice
Amazing to think that something is massive and world defining, as D-Day was in part about the weather, it.

[00:12:38] Hannah McCarthy
Was very much about the weather, and the US had a more robust weather operation going than Germany did at the time. But back to the Department of Commerce thing. National security is certainly bound up with wargames, but it is also pretty bound up with the economy. That's why the Weather Bureau ended up in commerce instead of defense or agriculture. But it's not like the agricultural part of the government's interest in weather data went away.

[00:13:04] Kris Harper
There were still crop forecasts. I mean, there were still fruit frost warnings and, you know, fire weather warnings and all those kinds of agricultural related things. But aviation was huge. And so it left agriculture and was moved into commerce.

[00:13:19] Hannah McCarthy
There's this other element that I found pretty fascinating. After World War Two, you had all of these people who had been studying the weather on behalf of the government. That was their wartime job.

[00:13:30] Kris Harper
We have these thousands of people, men, almost all men trained to be meteorologists during the war. And in the war is over. What are they going to do with all of these meteorologists? Well, some of them decided to do other things. Some of them went to graduate school, and some of them decided to become consulting meteorologists that they would provide tailored forecasts for a given customer. Now, that's not something that the National Weather Service does because that's not their job. Their job is to keep the nation safe and the people within the nation safe. That's their job. So what consulting meteorologists did was they provided specialized forecasts to construction people, to people who were who were growing certain kinds of crops, to engineers who were working on projects, to people who grew certain kinds of crops and needed to figure out how to get them safely. Some place, sometimes to sports teams. Where are they going to be able to play on the weekends or not?

[00:14:41] Nick Capodice
Wow. Private meteorology.

[00:14:43] Hannah McCarthy
That is how it happened. And today there's a multibillion dollar commercial weather industry. It wasn't the role of the Weather Bureau to provide small scale predictions for for profit interests. And it is not the role of the National Weather Service to do predictions for profit. But today they do provide data that helps to drive nearly every weather product used by businesses and consumers alike.

[00:15:06] Kris Harper
That's the difference between the National Weather Service. They're the ones that collect the massive amounts of data for the most part, which is very expensive. I mean, the infrastructure for that is really, really expensive. That's why the government does that.

[00:15:20] Nick Capodice
By the way. Hannah predicting the weather. It it can't just be about what's happening within our own borders. Right. Like I get maybe keeping her weather predictions out of the hands of enemies back in the day. But today we have a global interest in sharing weather data, don't we? Hurricanes and tsunamis don't care about borders and conflicts.

[00:15:39] Hannah McCarthy
That's right. The UN who else established the World Meteorological Organization in 1950? They also set the standard for monitoring the weather, because if we weren't all doing it the same way, we would have no real way of knowing what was really going on or coming our way. In the 1961 state of the Union, President Kennedy actually invited the world to join the United States in developing an international weather prediction program.

[00:16:06] Archival
Finally, this administration intends to explore promptly all possible areas of cooperation with the Soviet Union and other nations to invoke the wonders of science instead of its terrors. Specifically, I now invite all nations, including the Soviet Union, to join with us in developing a weather prediction program.

[00:16:27]
In a new communication.

[00:16:33] Hannah McCarthy
Now. Today there are big weather data centers where international weather agencies like the National Weather Service share their data with everyone.

[00:16:40] Nick Capodice
When did the Weather Bureau actually get that name? The National Weather Service?

[00:16:44] Hannah McCarthy
That was not until 1970. And what's important to keep in mind is that all along the way, the public was able to access this weather information as they are now. And it was thanks in large part to the media which discovered how much we love weather forecasts.

[00:17:02] Nick Capodice
Actually, I do want to ask about the public thing here, Hanna, because for one thing, I check my weather app every single day. And I think a lot of people out there do. And also like probably a lot of people, I am guilty of the classic well, they didn't say it was going to rain. You know, there's often this sense of, well, the meteorologists got it wrong again, which I think is where this idea that it's an art and not a science might come from. So how inconsiderate are we being exactly when we get vaguely annoyed at the weather service?

[00:17:34] Kris Harper
I think it's important for people to know that, that the forecasts that come from the National Weather Service have over an 85% verification rate.

[00:17:47] Nick Capodice
Well, that's pretty good.

[00:17:48] Hannah McCarthy
Yeah, it's pretty good for something that tells you what the future is going to look like.

[00:17:53] Kris Harper
So people think, oh man, you know, like they never get it right. But I can tell you, having been a meteorologist myself and been on the forecasting end and been on the end of phone calls from people who were not happy with what was going on outside their door, is that we tend to remember weather that interfered with what we were planning to do, whether that was a smart thing to do or not. And we don't remember all of the days when the weather was good for us. And so we really weren't paying attention to what the forecast was because we didn't need to, because it was really nice outside and by really nice outside. For most people, that means the sun's out. The wind's not strong and it's not too hot. And if you've planned to be garden party and it rains on you and you weren't expecting that rain, or as I call it, two feet of partly cloudy sitting on your front stoop that has to be shoveled off, then you're not going to be really happy about that. And it may have been forecast for you, but you're still not happy about it because it interfered with what your plan was.

[00:19:06] Nick Capodice
Oh, wow. It sounds like meteorologists can't really win, can they?

[00:19:10] Hannah McCarthy
I mean, I keep thinking about that thing of being a child and expecting a blizzard and a snow day and then not getting either, even if a meteorologist told you it was going to happen. But we really need to remind ourselves that that is not the National Weather Service's fault. All right, Nick, I want to take a quick break here, but when we're back, you and I are going to hear from someone who probably deserves a bashful apology from a lot of Americans who raised a fist to the unexpectedly rainy heavens.

[00:19:48] Nick Capodice
But before that break, just a quick reminder that it is now our Civics 101 annual fund drive. When we give gifts back to you, the listeners, for supporting our show. And we have a hat. It'll keep your head dry. It is a snazzy vintage black Civics 101 baseball cap and it can be yours. Just click the link in the show notes or head on over to our website, civics101podcast.org. And thank you so much. It means everything. All right. We're back. We're talking about the National Weather Service. And, Hannah, just before the break, you hinted that we might be meeting someone inside the National Weather Service.

[00:20:35] Felecia Bowser
My name is Felecia Bowser, and I am the meteorologist in charge at the National Weather Service in Tallahassee, Florida.

[00:20:44] Nick Capodice
I feel like when it comes to weather, the stakes are pretty high. Down in Florida.

[00:20:48] Felecia Bowser
In a typical weather forecast office, we are in charge of pushing out a seven day forecast. We don't go beyond seven days because it can. The computer models can get a bit fuzzy, a little bit dicey, a little bit beyond that, let alone as we enter the sixth and seventh day. So we don't go beyond seven days. And of course, people will see that forecast is if it's going to rain, is it going to be sunny, what's the temperature, that type of thing. So we do issue that basic forecast.

[00:21:21] Hannah McCarthy
Felecia says that the National Weather Service in Tallahassee also does things like work with health departments and the Red cross and the state Department of Emergency Management, all to let them know whether it's going to be rain or shine. They send out what Felecia calls weather packages via email to help entities around the state be prepared.

[00:21:41] Felecia Bowser
As a result. Because of that, our footprint is is pretty active in the sense that we get a lot of requests to do what's called decision support services, or DSF for short. And what that is, is a good example would be, let's say there is the governor's inauguration, which is what we helped with as far as providing what the forecast is going to be leading up to the inauguration earlier this year, and of course, the day of. And so if I recall correctly, it was looking like there was going to be some chances for some rain. And there's a lot of moving parts that they had to get in order because there was going to be a helicopter flight. And of course that's important to know if it's going to rain and whatnot. Okay.

[00:22:32] Nick Capodice
So the governor's office is doing a little bit more than just checking their weather app and booking a helicopter based on what they see there. Yeah.

[00:22:38] Hannah McCarthy
So that's a common part of the everyday of being a National Weather Service meteorologist in the US. And in Felecia's case, communicating with these various parts of the government and private entities in Florida. Felecia refers to them as partners, by the way. But then there are the millions of others who are dependent on that information to.

[00:22:57] Felecia Bowser
So communicate with the public. We would do things such as Facebook posts. We would put out videos just letting people know what's what's what to prepare for, how they need to get their hurricane plans in place, and things of that nature just to make sure that they get prepared for their homes and their families. So there's that aspect.

[00:23:19] Nick Capodice
Okay. Yeah. And hurricanes. Now we're talking about Florida here. What does it look like when a state like Florida has to predict and prepare for a major storm?

[00:23:29] Hannah McCarthy
All right. So let's take for example, Hurricane Dahlia. When it comes to a major storm, the National Weather Service looks inward. They get on phone calls with the National Hurricane Center, which is a division of the National Weather Service that just so happens to be headquartered in Florida.

[00:23:50] Felecia Bowser
So a lot of times they talk to the officers. That's going to be most impacted, of course, when it comes to a hurricane. But they also have what's called a pre call. So you have the main call where any office can can can log in and listen in on what the hurricane center has to say about a particular storm. But there is a call prior to that where they're just speaking to the offices that are most directly impacted. And of course, during that storm, we were directly impacted because it made landfall in our area of responsibility.

[00:24:27] Nick Capodice
Okay, but what are these meteorologists actually talking about on these calls?

[00:24:31] Felecia Bowser
If they're seeing a little bit of a track shift or is it still in line? Has anything changed when the the reconnaissance aircraft went through? It has strengthened okay. It's strengthened. How much has it strengthened to. And so they're telling us this information prior to telling it to everybody else, just so that we can be prepared to, to make any changes on our end. And that would be conveying that information about why the forecast has changed, why the track has changed, why the intensity has changed, being able to then translate that information to our partners and the public in a scientifically way, and also in a way that they understand. So it's not overly scientific because we want to be able to prepare them as well.

[00:25:21] Hannah McCarthy
Basically, many members of the public will have no idea what to do with the scientific data the National Weather Service is collecting. We need it translated for us. I should say, though, not all members of the public, you know how the National Weather Service started off with people scattered across the country volunteering observations that could be sent to the Smithsonian in DC? Well, the volunteer thing is very much alive.

[00:25:45] Felecia Bowser
It's basically called Cocorahs. Cocorahs basically is a public volunteer service where people will have their rain gauges at their office, at their homes, excuse me. And they will tell us how much rainfall has fallen. There's a there's a website that they all can go to and input this information. They'll tell us what their temperature was, their high and low temperature. This is purely volunteer. They don't get paid for this. So this is definitely out of the kindness of their heart to do this. But yeah, any anybody can do this. If somebody was to Google Cocorahs, they can go in there and see what the type of equipment that they need to purchase to do it.

[00:26:32] Nick Capodice
Cocorahs so in lieu of Googling Hannah, what does it mean?

[00:26:36] Hannah McCarthy
It means the community Collaborative Rain, hail and Snow network. And I really love that it exists because I love civic participation, and having a small scale weather monitoring station in your backyard is commitment to the cause. So one last thing that's pretty important here. If you go to the National Weather Service website, you're going to find a truly detailed like more detailed than I have yet to discover on any other federal website timeline. Someone at the National Weather Service really appreciates their history, and in the most recent history, you're going to see words like record breaking, increasingly vulnerable, deadliest billions in damages. Now, whether you're a member of Cocorahs or not, the weather is going to be pretty in-your-face in years to come. So I want to go back to Kris Harper for a minute here, because she addressed that new challenge with those big, ominous vocab words and what that means for the meteorologists behind our weather information.

[00:27:39] Kris Harper
It's a lot trickier than it used to be, because what we're seeing is storms that are carrying more moisture. We're seeing sea surface temperatures that are really, really warm, which is basically providing the engine that's keeping hurricanes going. And they they spin up faster than they used to. So like this last one went from like almost nothing to a category three like overnight. I can tell you as a forecaster, if I'm seeing something like that while I was still doing weather forecast, I would have thought, oh my, we're we're in trouble here. You know, this is this is just not acting like a normal kind of system, which should take days, days to do. So it will get trickier. It will get trickier to do. It's not that the models can't handle it. The models can handle it. But people need to be ready to pay attention and realize that when a storm's coming in, it may be a lot more severe than it's been in the past.

[00:28:42] Nick Capodice
What I think is pretty interesting about the National Weather Service, Hannah, is that despite our griping about when the data doesn't match our hopes and expectations or even the politicization of weather, which has become a thing, one major and clear goal of this agency is just keep people from being swept away in a tornado, because we can all agree that would be bad.

[00:29:04] Hannah McCarthy
Yeah. I mean, if you look at the US as an organism with many parts that need to be kept healthy from the economy to national security to the safety of its inhabitants, the National Weather Service is like the doctor you mostly forget about until you get sick, and then really need to be told what to do. The National Weather Service quite literally works to keep the US alive.

[00:29:26] Kris Harper
So the National Weather Service, you know, their mission is to keep people safe and to provide people with the best forecasts they can based on the data that they have and the expertise of their meteorologists, who are really dedicated folks who are looking out specifically for the people who are in their forecast area. Big hand to all the National Weather Service forecasters, the observers, everybody who were on their team. Because, you know, it's one thing when it's a string of nice days, but when the weather turns bad, they have a really tough job just trying to get the information out to make sure that people don't inadvertently put themselves in harm's way because the weather, the weather is not going in a way that people might expect.

[00:30:40] Hannah McCarthy
That does it for this episode. It was produced by me, Hannah McCarthy with Nick Capodice and Kristina Phillips. Our senior producer. Rebecca LaVoy is our executive producer. Music. In this episode by peerless OCS, Jack Carlton, Liz Ryan, James Carr, Walt Adams, springing Kepple skies, Otto Hacker, ISO Indies and Binkley. Don't forget you can listen to everything we have ever made and also get in touch with us at civics101podcast.org. Drop us a line for real. We read every email and we want to know what you think. Civics 101 is a production of NPR, New Hampshire Public Radio.

END OF TRANSCRIPT