Civil Defense Message from Hurricane Agnes ([00:14](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=14.06)):

Get out now. Get out now. There's still time that this is the warning, but the river is starting to come over your dike. The work on the dikes has ceased. The water is expected to break through. Keep your head about you. There are plenty of people around to help you out. You have places to stay. You will have food. You will have bedding. You will have everything. So don't panic. Just get yourself to safety as quickly as possible.

Mark Peterson ([00:44](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=44.42)):

I'm Mark Peterson. And this is 'Before, During and After', a podcast from FEMA.

Mark Peterson ([01:01](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=61.98)):

We're kicking off the 2022 hurricane season with a look to the past to prepare for the future. What you just heard were some 50 year-old bits of tape from Civil Defense and Department of Defense films that we found while researching Hurricane Agnes, one of the worst hurricanes to hit the East Coast Mid-Atlantic states and also one of the contributing disasters that ultimately led to the creation of FEMA. This 50th commemoration episode remembers the lessons Agnes taught emergency managers back in 1972 and how we've worked to improve hurricane response and recovery over the last 50 years. So 50 years later, Agnes is still the storm of record in many parts of the Mid-Atlantic. So we caught up with Mike Bilder, FEMA Region 3 Hurricane Liaison and Rob Shedd from the National Weather Service. Hey, and stick around after the conversation as we share some amazing survivor stories from David DeCosmo, who had a critical role working the disaster, and Deb Kennedy who experienced the disaster firsthand as a child. And so I'm joined by Mike Bilder, Hurricane Program Manager from FEMA Region 3, and then also Rob Shedd from the National Weather Service. Thank you both.

Mark Peterson ([02:18](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=138.79)):

Rob?

Rob Shedd ([02:19](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=139.22)):

Thank you very much for having us.

Mark Peterson ([02:20](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=140.52)):

Mike?

Mike Bilder ([02:20](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=140.91)):

Hey, great to be here.

Mark Peterson ([02:21](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=141.451)):

Let's just start off, Mike, maybe with you. And just tell me a little bit about, you know, your position with Region 3, which is located in Philadelphia.

Mike Bilder ([02:30](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=150.46)):

Yes.

Mark Peterson ([02:30](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=150.681)):

Pennsylvania. So tell me a little bit about what the Hurricane Program Manager does and what you do there.

Mike Bilder ([02:36](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=156.58)):

So, FEMA Region 3 has the following states. We have Virginia, Maryland, Delaware, Pennsylvania, West Virginia, and the District of Columbia. And each of the coastal regions, or I should say that each of the tropical-threatened coastal regions in the United States has a Hurricane Program Manager. And what we do is we work with our various, you know, threatened states and we work very closely with them to ensure that they are ready for hurricane response, primarily focused on evacuation is the biggest thing that we work on. We do a lot of the... We have these hurricane evacuation studies that focus on a lot of factors. That's where we get our evacuation zones. When we find out where the evacuation zones are, we figure out how people are likely to respond behaviorally, and then how many people are likely go to a shelter.

Mike Bilder ([03:31](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=211.97)):

We take all that data and we finally start modeling, doing some transportation modeling at which point we've tried to figure out, which is one of the most important things to learn is how long does it take for them to get out of the evacuation zone. But the hurricane program also - especially in the Mid-Atlantic, as Rob's gonna talk about - in Region 3, we have a very important inland component as well because in the Mid-Atlantic region, most of our tropical-related events are what are inland events.

Mark Peterson ([04:05](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=245.171)):

Inland rain.

Mike Bilder ([04:05](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=245.96)):

Yeah. And so we... Yeah, heavy rainfall, extreme flash flooding, river flooding, and that's... Urban flooding. And that's very, you know, so we have to be prepared on both fronts, both the coastal side, where we can vary, you know, we get a catastrophic hurricane or catastrophic inland event and we're right in the middle of it.

Mark Peterson ([04:23](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=263.11)):

Well, I suspect that the development of the hurricane program is maybe gonna be one of the things we talk about later on, sort of an outgrowth of what FEMA has done to sort of develop that, you know, understanding for local emergency managers. So I think we'll get there probably. But Rob, also so you're at the National Weather Service. Tell us where you're located and also maybe talk to us a little bit about the Silver Jackets and the group that you all are part of.

Rob Shedd ([04:51](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=291.8)):

So yeah, I'm the Service Coordination Hydrologist with the Middle Atlantic River Forecast Center, located in State College, Pennsylvania. And so I've been with the office for about six years or so. So our office is responsible for forecasting mainly the larger rivers from New York down to Virginia. So the area that really got hammered the most by Agnes itself. And so we work very closely with a whole lot of partners to try to get the best forecast information available as far as what's gonna be happening. And then the other program that we're involved with is the Silver Jackets, which is a state-by-state organization basically, that's coordinated through the Corps of Engineers, but has representatives from a variety of federal, state and local partners who are involved with the flood mitigation water management issues. And so that's actually where some of this project has come out of is been a multi-state Silver Jackets project to commemorate Agnes, but not just to remember what happened, but to learn lessons from it that we can apply for today.

Mark Peterson ([05:56](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=356.81)):

So let's walk through the track. Let's talk about what happened 50 years ago. So Rob, you know, sort of paint the picture of what unfolded.

Rob Shedd ([06:07](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=367.339)):

The initial parts before Agnes really, was sort of the wet couple of months we'd had going into the middle of June, basically. So April and May had both brought sort of wet conditions across the whole Mid-Atlantic and that sort of helped prime the pump for what was gonna be happening. And then the storm forms off the Yucatan Peninsula, and then moved up the Gulf Coast of Florida into the Florida panhandle, before beginning to track northward, and then went back off of the Atlantic coast and then reformed. And then, you know, most storms, a lot of times when they get to mid-Atlantic, when they get up to North Carolinas or something like that, they tend to move very quickly northward at that point. And Agnes didn't do that. Agnes stalled and wound up, you know, remaining over the area for several days. And so that's really what part of the real big contributing factor was to creating the massive flooding, is that we had rain there for about five consecutive days.

Mark Peterson ([07:09](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=429.47)):

Are there storms, you know, in recent memory that are sort of comparable in the track? It sounds like the stalling effect sounds like maybe Hurricane Harvey in Texas, where it kind of hung out over Houston. But I'm trying to remember a storm that started near the Yucatan and then, you know, sort of skipped through and then came up the Atlantic.

Rob Shedd ([07:29](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=449.52)):

Yeah. I mean, I think it's fairly common that to see a storm that comes up through that Gulf Coast and then come up through the Mid-Atlantic. So Ida last year had a very, you know, from that standpoint, had a somewhat similar track, coming up across the Gulf coast. So it's not that uncommon. A lot of our storms that we get, you know, tend to be remnant storms really, by the time they get up to our area. But there still can be potent amounts of precipitation that they're producing.

Mike Bilder ([07:56](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=476.4)):

And that's a very important point and something that I'm constantly working with both Region 3 and our state's emergency managers. Last year I compiled a list of storms that have impacted the mid-Atlantic, Region 3. And I highlighted, just as an exercise, went and highlighted, how many of them were Gulf coast storms and in a good, you know, quarter, a third, of them are Gulf coast storms. And when you look at the names or which storms they were, we're talking about some of our heaviest hitters: Camille, Ivan, we had Lee, we had Ida last year. And Agnes is probably on top of that list, but a very long list of us getting, seeing, very serious impacts from these Gulf coasts...

Mike Bilder ([08:57](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=537.08)):

And so during the season, when, you know, we're working, I'm working with Rob very closely, working with the Hurricane Center closely, and we're trying to keep everybody abreast. You know? Sometimes I get, "Well, why do we care about that? That's in the Gulf." I'm like, "No." <Laugh> "We have to be very concerned about anything that's gonna make landfall pretty much from like Louisiana eastward." And so that's something that, you know, if any of your listeners are kind of in the same realm - response realm - even any parts of FEMA, like that's something you always have to pay attention, not let your guard down just because it's not an East Coast storm.

Mark Peterson ([09:30](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=570.809)):

So with the name Agnes, I have to suspect it was an early season storm. What time of the year was this?

Rob Shedd ([09:37](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=577.46)):

So Agnes occurred in the middle of June. So, yeah, it was first storm of the year, very early from that standpoint. The other interesting thing about, you know, 1972 was there only four storms that year. And so, you know, none of them got more than Category One status. And so it was very interesting, you know, from you look at the statistics and say it wasn't a very powerful storm year. And yet at the same time, the results of that one storm were overwhelming.

Mark Peterson ([10:07](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=607.19)):

So let's talk about the significance of Hurricane Agnes. So how does it compare, in your mind looking back 50 years, and knowing what maybe the world was, the region was like 50 years ago? Why was it so significant?

Rob Shedd ([10:20](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=620.91)):

Well I think what we saw with Agnes was we saw major flooding, basically from New York state all the way down through the Carolinas. And it's major flooding, you know, it was, you know, breaking records, 4, 5, 6, 8 feet, basically for what had happened before. And many of those records still stand today. You know, individual locations, one or two locations get, you know, broken in certain storms. But to see those records still standing 50 years later, over such a broad area is really the impact is, you know, that large storm over that large an area is really what, you know, really shaped a lot of the Mid-Atlantic in very many ways.

Mike Bilder ([11:02](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=662.2)):

And, and how that translate though also is heavily... The Mid-Atlantic is heavily developed, urbanized, especially in our Piedmont area. So the Piedmont means the foothills between the mountains and the coastal plains. You know, very historically lots of towns and boroughs, cities, and these areas that have that terrain that is particularly conducive for extreme flash flooding. And later on, you know, Rob might get into some of those other factors that from Agnes is why Agnes is bad. Anyhow, how that translated as far as the impact of what that type of storm had, we're talking nearly 50,000 homes were destroyed or incurred major damage with an additional 65,000 homes experiencing minor damage. And roughly, you know, 7,500 farms and small businesses were destroyed or had major damage. And there was an extensive, you know, damage to infrastructure, bridges, roads, railroads over the entire Mid-Atlantic, which is, you know, again, a lot of people live there.

Mike Bilder ([12:03](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=723.24)):

A lot of commerce happens there and, you know, like the roads are very important, just like they are everywhere else. But, you know, they seem, you know, there's just a high concentration of that type of activity, as well as we have, you know, the debris. There was like 43 million tons of debris that required removal and at least 4,000 channels of waterways had to be restored. And it was the costliest tropical system up to that point in American history. It was about $2.1 billion, which today would be just shy of $14 billion in 2021 dollars. But it held that distinction for 11 years until Alicia in 1983. So, and we, it's hard to quantify like disasters as a whole, like, you know, how does this compare to the San Francisco earthquake of 1906?

Mike Bilder ([12:57](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=777.76)):

It's kind of hard. Things get a little complicated when you look beyond tropical cyclones, but it was very clear that it was considered the Hurricane Harvey of its day. It was, you know, it was ranked up there with some of the worst disasters in American history up to that point. And I think it had a lot to do with where it hit, impacted so many people, became, you know, hitting anywhere from near New York City down to DC. You know, you're gonna, it got of a lot of a national attention. And so it really was a monumental event.

Mark Peterson ([13:29](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=809.45)):

You've talked a lot about the Mid-Atlantic but, you know, specifically for those that aren't familiar with, you know, kind of what we consider the Mid-Atlantic and then how far inland we're talking about in terms of the flooding. Are we talking about all the way, you know, to Ohio into Pittsburgh and then down to Wheeling? You know, tell us a little bit about the topography we're talking about.

Rob Shedd ([13:50](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=830.92)):

So from an Agnes standpoint, the impacts that we had, the biggest impacts were certainly say the Susquehanna River basin in eastern and central Pennsylvania. But certainly the impacts extended all the way out to Pittsburgh and into parts of the Ohio Valley as well, down into, you know, certainly down into Virginia, getting crossover to West Virginia in some locations as well. And so I think that's sort of the general area that we're focused on.

Mark Peterson ([14:16](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=856.11)):

So just knowing that area, there's, you know, obviously the flash flooding. But I'm guessing mudslides, you know, some of those other really consequential impacts.

Rob Shedd ([14:27](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=867.87)):

Yeah. Certainly the, you know, all the rivers were transformed, I think from, you know, erosion, mudslides, definitely was occurring. You know, you've got a lot of terrain, you know, cutting right through the middle of the area. And so, yeah, this all becomes an impact.

Mark Peterson ([14:44](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=884.51)):

Mike, this is something that you've looked into for a pretty long time. So what really motivated you to take a look at Hurricane Agnes, knowing that, you know, this was a storm that occurred 50 years ago, and there's been many very consequential storms throughout history? And some are sort of lost to history. But what drew you to Hurricane Agnes?

Mike Bilder ([15:05](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=905.98)):

So I was born 12 years after Agnes, but my family was living in Pittsburgh when it happened. So my parents still remember seeing the golden triangle downtown flooded. Even though I didn't witness it directly, I have lived my entire life in ground zero from Agnes. I'm not saying my entire life was spent like in one county and then I just went to the next county over, so like a highly concentrated area. No I'm talking, I've lived in six, very different places throughout my life. And each of them had, you know, was where there was extreme flooding from Agnes. The, so I, you know, I was born in Lock Haven, Pennsylvania. In fact, the church... There's a USACE report out there with the picture of the church I was baptized in that was flooded.

Mike Bilder ([15:52](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=952.75)):

And, oh, by the way, the name of the church is St. Agnes. So I was literally baptized in the waters of Agnes, technically speaking. <Laugh> So I, you know, I grew up in Wellsboro, Pennsylvania up in Tioga County. Actually Wellsboro was saved because of mitigation. It's beautiful little town. They even based a Hallmark movie on the town. Just to give you an idea, like the type of the type of town I grew up in. It was saved by three reservoirs that they built through mitigation. The rest of the county though was heavily, heavily destructive. In fact, entire county was cut off. They had air. They had to bring through helicopter. They had to bring medical supplies and everything like that. Then I went to school down in Carlisle, Pennsylvania at Dickinson College. So Carlisle got some bad flooding and Dickinson College decided to set up a shelter.

Mike Bilder ([16:39](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=999.53)):

And the shelter was in my, ended up being the same building that my freshman dorm was in, in my freshman dorm. And my freshman dorm room was a dorm room that was, or was a room used as a shelter room for survivors of Agnes. And then I lived in DC and Northern Virginia, which saw a lot of bad Agnes flooding. And currently I live in Montgomery County, Pennsylvania, which was also ground zero for a lot of horrendous flooding from Agnes. So, I, and then I personally did witness the 1996 flood, the snowmelt flood, in the Susquehanna basin, which was in other parts of the Mid-Atlantic, which was, it's not, was not as bad as Agnes. But it was, it rivals it to a certain extent. And so I saw that flooding, along the west branch of the Susquehanna in person, saw what major stage flooding looks like.

Mike Bilder ([17:28](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1048.9)):

And I will never forget that. So I kind of seen, I've seen a taste of it. And so, as you could see, like I've spent my entire life around people talking about Agnes. It was a monumental event. People in the central Pennsylvania especially talk about Agnes like, or, you know, life about pre- before Agnes or after Agnes. It's just it was, you know, I don't wanna say compare it to 9/11, obviously. But it was like a 9/11-type event for people who went through it. It was before the flood or after the flood.

Mark Peterson ([17:55](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1075.88)):

Well, that's kind of interesting that you now have evolved to be an emergency manager working for FEMA. And so throughout, you know, those sort of personal aspects or experiences that you've had sort of having a connection to Agnes, what do you think we can look back on the storm and learn from it as emergency managers?

Mike Bilder ([18:19](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1099.89)):

There are countless lessons-learned for emergency managers from Agnes. Countless. The ones though that stick out to me, as far as if you were to ask. First off, I think, is air operations. Critically important when you have something like Agnes, and especially in terrain like the Mid-Atlantic terrain. We have the mountains. We have the foothills. And then we have the coastal plains, but especially in those foothills, the Piedmont, where we have a lot of development, wherever there's the flash flooding is where you could see very severe impacts to smaller roadways, smaller bridges. You know? Things that we take for granted on a day-to-day basis in that you don't realize how important they are until they're gone and/or not accessible. And then as emergency managers, it's all about logistics. Right? And search and rescue.

Mike Bilder ([19:12](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1152.15)):

And during the response phase of this, of an incident like this, and so we need things like roads. We need things. You know? We need to be able to get things from point A to point B. So air operations was key and it's not just the smaller stuff. It's the big rivers. We had several key bridges across significant rivers that were destroyed, partially destroyed, and had significant consequences. And if you're along the Susquehanna River and you have a major hospital complex on one side of the river, that you're gonna rely on in an incident like this, and you're on the other side of the river and you lose that bridge, how are you gonna get folks to the hospital? How are you gonna get folks? You know what do you need to do?

Mike Bilder ([19:52](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1192.89)):

And at the end of the day, it comes down to air operations. And that's one of the big things I would take away from that. Always working with the National Weather Service is a given. I mean, I don't think it's a lesson learned. It's something we do, you know, instinctively now. But obviously there, you know, I worked with Rob very closely in the lead up to Ida. In fact, Rob's, you know, Rob and I... A week ahead of time, you know, his guidance to me is what got Region 3 spun up for Ida very early and led to what we consider a very successful mission or activation. So, you know, that's a particularly given, but it wasn't a given necessarily back then. I mean, they worked closely emergency managers, not like they do today, so wanna make sure that's the lessons learned.

Mike Bilder ([20:34](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1234.27)):

The third thing I'd mentioned is, and we're gonna talk a little bit about the transformation from civil defense to emergency management a little bit. But even though there were issues with emergency management back then, what was very clear was they understood the importance of learning their lessons from previous storms and applying them for the next response and things like exercises. And in fact, Virginia did a big flood exercise in April of 1972. Luzerne County, Pennsylvania, which was where Wilkes-Barre is, which was probably the ground zero Agnes, they had a flood exercise two months prior. Those were directly attributed to have the successful responses that they had despite the devastation they saw. They also, Virginia actually, had Camille three years prior, which is a horrific flash flood and riverine flood event and very destructive. They took the lessons learned from that and directly applied it to their response for Agnes as a Commonwealth. And they were applauded for, you know, basically being better prepared. So I think that whole, you know, the whole after action, the corrective action process that we see through like national preparedness activities, like that's, I think another critically important lesson.

Mark Peterson ([21:54](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1314.19)):

Rob, the weather service didn't have the same tools that we have now then. But we did have things like the civil defense air raid sirens and like sort of other ways of alerting the public. The radio. What has the weather service learned from Agnes and storms of that generation and how have they sort of applied them now?

Rob Shedd ([22:17](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1337.32)):

I mean, yeah, I mean, I think if you look at the weather service today and 50 years ago, you're looking at a totally different organization. You know? I mean, I think we've learned so much, you know. During Agnes, the power at the River Forecast Center failed, phones failed, and we had to, you know, improvise basically. So we didn't, you know, we were having to, at the end of the storm, we were having to forecast by lantern light, by hand. You know? We didn't have the computers. So we have invested in, you know, things like generators, UPS systems to prevent power loss, communications backups. We now have our computational systems backup as well now, that's just been recently started. And so we've got many more tools to be a little bit more robust in these situations. You know? And then you just look at the, you know, the amount of data that we've got available today that we'd never had, you know, before. You know? In terms of radar, in terms of satellite, in terms of the amount of ground truth data that we've got.

Rob Shedd ([23:24](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1404.74)):

Another problem that we had during Agnes was river gauges failed, to stop reporting either because of power loss or because there was a maximum reporting limit that the gauges had because we didn't expect that we'd ever see storms as high. And so we we've overcome a lot of those issues. It's not to say that things are perfect. We can still have communications values of different sorts, but we've definitely come a long ways and, you know, improved the way we can communicate with effectively with a large number of people.

Mark Peterson ([23:55](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1435.56)):

You two have done a tremendous amount of research leading up to this 50 year anniversary. You've presented at the National Hurricane Conference and I know that your region and the Silver Jackets are doing a number of different things. What's really one thing that you would like maybe the listeners and emergency managers to really take away from the historic look back at Hurricane Agnes?

Rob Shedd ([24:21](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1461.17)):

I would say for myself, I would say, you know, it's not just a matter of looking back at history and finding, you know, all these cool things that happened. It's a matter of what are the lessons to learn from it going forward. And first and foremost is the fact that a storm like this can happen again. You know, many of the people in these communities weren't there 50 years ago and don't understand the impact of what happened 50 years ago. And so to recognize that this, you know, a storm of this magnitude can and will happen again at some point. And, you know, what do we need to be doing to prepare? What is my personal risk that I've got? Where do I get information regarding this information? And so I think that's, you know, from the standpoint of looking forward, that's what we need to be looking at.

Mike Bilder ([25:05](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1505.109)):

Rob's absolutely right. The likelihood of us seeing another Agnes or something that comes close is, you know, is, I would say pretty, you know, it's a likely event. In fact, we just saw it last year. Even though Ida didn't come anywhere near, wasn't nearly as bad as Agnes. But we're gonna see a lot of those type of events we've gotta be prepared for. And the last, the other thing too, I think it's an important thing to take away besides the response lessons learned, I mentioned before is mitigation. Mitigation saved the day in Agnes. Agnes would've been exponentially worse if it weren't for a lot of mitigation projects that happened in the 30 or so years leading up to Agnes. And it was brought on by the 1936 flood, which is probably the flood that was actually worse than Agnes overall. I would go on record of saying it was worse in Agnes, geographically in a lot of respects.

Mike Bilder ([25:58](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1558.69)):

And that led Congress to say, "Okay, we need to do flood control nationally." And a lot of the projects that you saw that save the day during Agnes were projects that either happen because of the '36, 1936 push, or there's a number of storms in between that kind of set reminders like, "Hey, we should probably be working on this." There's several examples of mitigation failing during Agnes, but there are tons of examples of where mitigation truly saved the day. I mentioned my little town at Wellsboro even some bigger examples of that and I think that's very important. Not just levies and dams and reservoirs, but also the other forms of mitigation. You know, that don't necessarily require building something.

Mark Peterson ([26:49](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1609.98)):

Having explored how the storm played out in the Mid-Atlantic and reeked havoc in some areas, we wanted to bring you two stories from Wyoming Valley in northeast Pennsylvania of two people who experienced firsthand the devastation of Hurricane Agnes. First, we'll hear from Dave DeCosmo, who was at the center of the action during Agnes as a radio broadcaster. Back in the 1970's, emergency management was run a little bit differently and Dave was deputized during the storm to work as a Public Information Officer for our predecessor, the Office of Civil Defense.

Dave DeCosmo ([27:22](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1642)):

My name is David DeCosmo and I was, at the time of Tropical Storm Agnes, the news director of WILK radio in Wilkes-Barrie. Agnes was as President Nixon described it in 1972, the worst disaster to hit the United States. This area was the hardest hit. This area lost thousands and thousands of homes. We had bodies disinterred from a local cemetery that the river broke through and washed coffins and bodies out into the streets.

Dave DeCosmo ([28:35](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1715.6)):

We had a major downtown business district, completely destroyed. We had thousands of homes. We had one community where only a few, a handful of homes were not affected. When the storm hit, and we knew that was trouble in some way, shape or form. I would be calling the civil defense headquarters to try to get information on river levels and precautions that people might take. And it was a disturbance to have to call them constantly. WILK was the emergency broadcast system station for our area. And consequently, we had a two-way radio located here in the sub-basement of the Luzerne County courthouse. And it occurred to me that it would better to come over and utilize that radio and be in on the conversations rather than constantly bothering someone here. My boss okayed that. But when I got to the courthouse, I found that with all the preparation civil defense had in place, the one missing element was a Public Information Officer to get the information out to everyone as quickly as possible and General Frank Townsend, who was the civilian Commander of Civil Defense, asked if I would take the job.

Dave DeCosmo ([30:02](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1802.94)):

Basically he told me he needed me. And I called back to my boss, Roy Morgan, who was the Chief Executive Officer of WILK, told him what the situation was. He said, "Okay, do it. You can still get reports back for us. That's fine. You can be the Public Information Officer." So I suddenly took on a career that I never envisioned taking on. Back here where you see those tables now, we had ham radio operators set up their two-way equipment. There was only one working telephone in all of Wyoming valley. And so all the communications were by radio, state police radio frequencies, the ham radio operators, even some citizens band radio broadcasters helped this out. This information was coming in extremely rapidly from the various communities throughout Luzerne County and some of that information was questionable. Civil defense felt it was very important to have one voice, to have the established facts released to the public and to do that, our radio station took the lead. But fortunately, because of a colleague of mine, Ron Giardo, radio name was Ron J of WAZL in Hazleton, he started an idea that really mushroomed. Ron said, "Why don't you allow our station to pick up your signal? And we will re-broadcast your signal." That led to us getting 13 area radio stations on board and doing the same thing every hour. At quarter after the hour for five minutes, we would broadcast a newscast strictly involving flood information. And that way you knew that information coming through all of those stations was approved by the folks at Civil Defense and had been legitimized. People coming in here were bringing in information from the field. And some of it was very, very routine information. Some of it was information that led us to believe that the danger level kept rising and rising.

Dave DeCosmo ([32:26](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=1946.09)):

And yet at the end of that first day, there was a feeling that we might possibly be able to head off the river with a massive sandbagging effort. And so our broadcast, going out on all those 13 stations, was an appeal. An appeal to have 10,000 people come fill sandbags and put them in place. And we got them. Primarily college students who were still in the area and they spent hours and hours filling sandbags and placing them along the levee system, until the realization came from river reports upstream from us that the upstream levels were just too high. There was no way that we could avoid a flood here. At that point, the decision was made. We were going to hit the siren. The siren's immediate impact was not an area evacuation, but to get the people away from the dikes, away from the sandbagging effort. They were in the most imminent danger. We hit the siren and it still sends a chill up your back to think of the siren going off and looking at the siren on top of this courthouse, watching the people run away from the sandbagging efforts.

Dave DeCosmo ([33:49](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=2029.73)):

One of those lives that we lost was someone who didn't make it away from the sandbagging efforts. The two other lives that we lost - still a minimum loss of life in terms of the disaster - were rescue workers, which reminds people when you're told to get out and you say, "I'm gonna stay with my home." That sounds noble. But if you look at it in terms of history and what happened during Agnes, your being stranded means someone is going to come out to try to rescue you. That's someone, that emergency worker, puts their lives at danger, serious danger. And in Agnes, we lost a couple of them.

Mark Peterson ([34:33](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=2073.4)):

Dave's story shows how far we've come in our capacity to bring information to the public. That being said, radio has definitely withstood the test of time and is a valuable tool to get the word out. We also wanted to bring you a survivor story. So we're gonna hear from Deb Kennedy who was on the ground, seeing her town flood and barely escape the flood waters. Her story is a great example of why we spend so much time and energy on evacuation planning and why it's so important to get out now, as Dave DeCosmo put it.

Deborah Kennedy ([35:02](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=2102.56)):

My name is Deborah Kennedy. We are in Swoyresville, Pennsylvania and I grew up here. When Agnes was here, I was 10 years old... 1972. My whole family grew up on this street. This is the street where we evacuated from, from our house. My dad was driving and he said, "Don't turn, don't look, don't turn, don't turn around." <laugh> And of course, when someone tells you that, that's what you do. You turn around. And I did turn around and the water was coming up behind us as we were driving up. So, you know, there's some car still coming up at the water was already coming. We could see it. But we did get out just in time and within no time, the water was, you know, halfway up this road and all of... There's so many people that would congregate here at the Swoyresville borough building behind me.

Deborah Kennedy ([35:56](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=2156.05)):

And we would all be standing up here and you'd be standing here to watch how far the water was receding. Because you could see the water from this point and how far down it was going. But and it was also here that people would come to get food, also shots. Everybody had to have shots because of the water and like the typhoid and different types of things. So, you know, it was pretty much kind of central to where everybody was. When we came back to the house, it was really incredible because, you know, the water was up to the ceiling of the first floor and on the floor in the kitchen was a sugar bowl with the sugar still in it. So it must have floated up with the water and as the water receded, it came all the way back down and it was just left on the floor, but everything else was totally destroyed except that sugar bowl that was left there.

Deborah Kennedy ([36:50](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=2210.77)):

I really think people need to be prepared by watching the news, making sure they're looking at the weather, the forecast. Not just what's happening in the moment, but what's projected for a few days out, you know, and really heeding those warnings. You know, really listening and making sure you're up-to-date and listening to those official forecasts. Really, it can be very unpredictable. The reports that were coming in said that mostly Wilkes-Barre was going to be affected, possibly Kingston. No one ever expected Swoyresville to get flooded and the dike broke and in '44 and that's really what happened. So definitely these storm's water is so strong, totally unpredictable of what's gonna happen. So really wanna heed those warnings. When they say to evacuate, evacuate! Don't wanna be stuck.

Mark Peterson ([37:45](https://www.temi.com/editor/t/ITivs389nyfgbSpOdsmqeLGtgm9AsUJrcml95XWG-4BfXtGRfmU3IbUWt4RwVXfiL_gelJP_5lWBzlDVL0Z9zxlJA2Q?loadFrom=DocumentDeeplink&ts=2265.239)):

Thanks so much for listening. If you'd like to learn more, the Silver Jackets who are made up of FEMA, the United States Army Corps of Engineers, and the National Weather Service have been hard at work at creating historic survivor videos, interactive story maps, and a webinar series commemorating the 50th anniversary of Hurricane Agnes. You can access all of this information and a lot more by following the link in the description of this episode.