Mark Peterson - Host ([00:05](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=5.78)):

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

Mark Peterson - Host ([00:22](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=22.329)):

In the months before hurricane season, federal, state, local, tribal and territorial emergency managers in hurricane-prone areas are hard at work, making logistical preparations, revising plans and building relationships. And it's not just emergency managers along the coast. History shows us that when a storm comes ashore, all that precipitation has to go somewhere. And that's why it's critical for emergency managers - even well inland - to be ready. Part of that preparation is to interact with other emergency managers by attending trainings and sharing best practices and experiencing new technology at events like the National Hurricane Conference. So on today's episode, we're gonna take you there to the National Hurricane Conference for a conversation we recorded live in the conference expo with FEMA Administrator Deanne Criswell and National Hurricane Center Director, Ken Graham.

Mark Peterson - Host ([01:24](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=84.3)):

So we're here for our first live recorded podcast at the National Hurricane Conference in Orlando, Florida. And we're sitting here at the National Hurricane Program booth, which is run by FEMA, and it's one of those tools that we have to understand the impacts of hurricanes and how we can make better decisions. But I'm joined by two very important people during the course of our hurricane response and recovery. First, Deanne Criswell, the Administrator of FEMA. Thanks for joining me.

Deanne Criswell - FEMA Administrator ([01:53](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=113.951)):

Thank you, Mark.

Mark Peterson - Host ([01:55](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=115.01)):

And Ken Graham, the Director of the National Hurricane Center.

Ken Graham - NHC Director ([01:57](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=117.82)):

Yeah. Great to be here.

Mark Peterson - Host ([01:59](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=119.08)):

We're here in April for this conference and everybody I've talked to said the success of a hurricane response really is about the preparedness that happens well before a hurricane season takes place. And so I think it's really important that we're here in April talking about partnerships. One of the most critical partnerships I think we have is between the National Hurricane Center and FEMA. So Ken, can you tell me... Give me an overview of the National Hurricane Center?

Ken Graham - NHC Director ([02:26](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=146.11)):

We are not as big as people think. I mean the National Hurricane Center is 46 people. So it's nine Hurricane Specialists. We have a group that's there 24 by seven issuing the marine forecast. So people ask me all the time, what do you do when there's not a hurricane? Well, a lot. So there's marine forecast over the Pacific and the Atlantic and the Gulf of Mexico. All that has to take place year round. And we have FEMA there as well with the Hurricane Liaison Team, two members of FEMA in our building. And we were talking about it earlier, the relationship between FEMA and the National Weather Service, NOAA, the hurricane center, it's more than a partnership. It truly is family. It truly is this partnership that it takes all of us together to be able to get through a disaster. So we're not as big as people think. I mean, it's the hurricane forecast, the products that you see. It's the media interviews. It's the impact-based decision support. You know? Briefing the federal and the state and the local community on what's happening with this hurricane. So it's a... I don't know if the public fully understands how close we are before, during, and after that disaster.

Mark Peterson - Host ([03:25](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=205.21)):

So when a hurricane has formed and you're starting to push out products, what's your usual tempo throughout the life cycle of a hurricane?

Ken Graham - NHC Director ([03:34](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=214.95)):

The tempo is running around the building like crazy a little bit. But it's a controlled chaos and it's the hurricane hunters. We coordinate the hurricane hunters out of the building. So the tempo is get the forecast out, get that forecast communicated to FEMA, communicated to the emergency managers, communicated to the public, so they can get the information. It Is so important to get the latest forecast, because it can change. You can't anchor based on that first forecast. So the tempo is repetitive. Get the forecast out. Make sure everybody understands that forecast. And that really does trigger a lot of the reaction and response associated with these big storms.

Mark Peterson - Host ([04:08](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=248.95)):

So Deanne, in the National Response Coordination Center up at FEMA headquarters, we host these regular VTCs. Talk to me about how FEMA utilizes that information from the hurricane center in our decision making.

Deanne Criswell - FEMA Administrator ([04:23](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=263.74)):

You know, I think Mark, I'd start out by saying and just piggyback a little bit on what Ken said, is it starts with the relationships from the beginning. And our National Hurricane Program is co-located with the National Hurricane Center individuals that are embedded in there. And then we have our liaisons in our six of our most prone regions. Right? For hurricanes. They are communicating all the time, all year long, about the things that we can do to work better together. And so when the NRCC is activated... Maybe, I should say if the NRCC is activated, keep our fingers crossed, that relationship that has been built throughout the blue sky days is critically important to feed information into us, into the team that's staffing the NRCC so they can then better plan what the impacts potentially could be and the resources that we're going to need to do.

Deanne Criswell - FEMA Administrator ([05:12](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=312.14)):

I think the critical piece is they give us information early and Ken is great about not just waiting for the actual models to come out, but telling me what his gut thinks. Right? There's a lot of art behind this science and so that allows us to move resources quickly. We can move resources ahead of a storm, make sure that they're in place. That's what the NRCC is doing. That's how they're coordinating with our regions to make sure, based on the forecast, based on the potential of what we think might happen, we are ready to respond if, and when it makes landfall.

Mark Peterson - Host ([05:43](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=343.42)):

Are there any new tools that the hurricane center is gonna be putting out this year for the forecasting that'll influence those conversations?

Ken Graham - NHC Director ([05:51](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=351.32)):

Yeah. We have nine social science projects that we have going on to really better our products, review everything that we do to make sure they're better understood. So one of them, the feedback we got is to make storm surge easier to understand. And we have a new graphic that basically shows where the highlights are, where the storm surge forecast is. And you can really quickly see where the big trouble spots are associated with the storm surge. And I think that's a big deal and you don't have to do any math when you see those values. It is literally water above ground, water up your pant leg, so to speak. So we're constantly trying to make our graphics easily understood. I think that's a big part of it involving social science. So that's one of them. We are desperately trying to get to a six and seven day forecast. We are trying so hard. The problem we're having, and I'm very open with it, is the fact that when you get out to six and seven days, some storms behave. Other storms could have a four or 500-mile error associated with them at day six and seven. So how do you portray that on a map to not let people think, "Well, it's not coming my way and they never look at another piece of information?"

Mark Peterson - Host ([06:49](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=409.621)):

You have an entire...

Ken Graham - NHC Director ([06:51](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=411.04)):

Yes. So it's not just the physical science, it is the social science as well. So there's some highlights for this year.

Mark Peterson - Host ([06:57](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=417.3)):

You know, I'm just kind of curious now because of that, you know, if we got to a larger forecast, how would that influence conversations, you know, with multiple states, well in advance? You know, pulling them into those VTCs. Would it change things?

Deanne Criswell - FEMA Administrator ([07:10](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=430.83)):

Yeah. So when you're talking about a larger forecast, are you talking about earlier. Right?

Mark Peterson - Host ([07:14](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=434.75)):

Yeah. Earlier.

Deanne Criswell - FEMA Administrator ([07:15](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=435.74)):

You know, I think that we see that when we have a hurricane that's going up the East Coast, because it's always starting to head towards Florida, then Georgia, the Carolinas, and then Virginia and up the Delmarva Peninsula. Right? And so when we see those hurricanes, we are doing that all the time. We are trying to figure out where do we think our best guesses on where it's gonna hit. Where do we preposition resource? And we do bring all of the States in on those 12:30 VTCs to get an understanding of what they're worried about and what actions that they're taking and where they think their gaps are, so we can be prepared to support those gaps. I think the same thing in the Gulf, if we think it's gonna impact multiple regions in the Gulf, we would do the same thing. Right? We wanna be able to understand their gaps, their concerns, and what we need to do to help support them.

Mark Peterson - Host ([08:04](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=484.26)):

So, this year - 2022 - we've learned a lot over the last two years throughout the COVID-19 pandemic. Have we realized any efficiencies in the way that we conduct our responses or maybe something that we're looking towards into this hurricane season?

Deanne Criswell - FEMA Administrator ([08:22](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=502.75)):

I actually think that we've made so many changes over the last decade in how we respond to disasters. We don't wait. Right? We wanna make sure that we are there early, that we have resources in place ready to respond. And if we don't need them, great! I'll just pull them back, but I don't ever want us to hesitate. And we continued to do that through the 2017 hurricane cycle. We did that last year, making sure that resources were deployed and ready to go. And we're actually having... I think one of the things that we did last year that maybe we haven't done as aggressively is really talking with the States, with the Governors. I had calls with them last year to say, "Hey, you really should just ask for a pre-disaster landfall declaration - emergency declaration - so we can get things moving for you." And then if it doesn't amount to anything, that's okay. And so we wanna be more aggressive. We wanna be postured and positioned, ready to respond, making sure that there's no delay. There's no gap in time. So we can get those resources out there because time is our most valuable resource. Right? It's critical. You can't get it back and so we don't wanna lose that.

Mark Peterson - Host ([09:27](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=567.79)):

And in that same vein about making these forecasts more accurate, so we can make better decisions, it seems like every year the forecasts get more and more accurate. So what kind of science goes into developing that increased accuracy year-over-year?

Ken Graham - NHC Director ([09:42](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=582.89)):

Yeah, we've had so many advances in the model computation, bigger computers. But the other part is the data that goes into the models. I mean, we're seeing more than we've ever seen before, and part of it is the aircraft data. We've got instrumentation on hurricane hunters where Doppler radar's on board. You can actually see the center of the storm and really dissect the structure of the storm and getting that data into the models has improved the models by 20%. So, you know, how many years have we talked about we're making so much progress in the track? We still have a lot of work to do with intensity. We've cut that intensity forecast accuracy in half over the last three years. We're making a real dent in the accuracy of the intensity. Hurricane Ida was probably the boldest forecast in hurricane center history. For us to go on the first advisory straight to a major hurricane, that never... we never had the confidence to be able to do that. We did in Ida. So that's just a testimony to the advances that we've had. We have the drone, the sail drones. We're getting that data. All that gets into the model. So we're making a lot of progress in this accuracy and that makes a big difference. Because the earlier we could get the information out and the more accurate and more consistent, the better decisions that we can look at, the earlier on the timeline that we can get the decision makers. So accuracy totally equates being able to make better decisions earlier.

Mark Peterson - Host ([10:59](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=659)):

We always hope for a quiet hurricane season, but we know that it's probably an eventuality, in some respects. So as we look towards Response and Recovery, what's new from FEMA? What new initiatives do we have this year for our state, local and tribal and territorial partners. What they can expect?

Deanne Criswell - FEMA Administrator ([11:19](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=679.55)):

You know, I think the biggest thing, the biggest change that we made last year, which I'm really excited about, is a couple of really simple changes in our Individual Assistance policy. We know that there are certain individuals that have had a hard time proving ownership of homes, homes that they've inherited through the generations and they don't necessarily have the legal documentation that somebody that just bought a house might have. And so we made some policy changes about the type of documentation that we would accept. And what we saw last year was, I think it was about 1400 more families were eligible for assistance that we would've denied the year before. So those simple changes about us making sure that those that need our help the most can access our assistance has made a big difference. We're gonna carry that through this year and we're looking even more at what is it that we can do to adjust our policies, to make a difference for those communities that are the most impacted, but also in the most need.

Mark Peterson - Host ([12:17](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=737.63)):

I know it's busy here and we have a lot of eager people to talk with you, but I just have two more questions. One, when we look at communicating that forecast and, you know, readiness information, how... I know it's been to reach underserved communities throughout the potentially impacted areas and also inland, frankly. What is the hurricane center doing to sort of increase that communication?

Ken Graham - NHC Director ([12:45](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=765.33)):

Yeah. One thing that we're doing is, you know, when you look at the watches and warnings and the forecast, translating that into Spanish is so critical, and that's what we're doing. We're gonna do more products with time being able to translate that. We got new software. It's brand new. Hopefully we'll be able to test that this year. That's gonna take our products in the actual system that we issue the forecast in and the system could translate those products into Spanish. So that's exciting. That was manually done previously. So we're really excited about the new technology that we can be able to translate those products. More than half of the people that we serve - 28 countries, we're responsible for 28 countries - more than half of those in Spanish speakers. So we're really eager to be able to translate more of our products. And the other part of it is we're building a whole studio dedicated to be able to do more Spanish media interviews and that's multi - international to be able to get that information out to these different countries. I'm really excited about that. And we really are reviewing, we talked about it a little bit ago, how we do outreach. We sure go to a lot of conferences where people fully understand the weather, fully understand what their risk is. So how do we get to conferences we don't normally get to and give these same presentations? We're having conversations about that. We plan on doing better with that.

Mark Peterson - Host ([13:52](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=832.99)):

Yeah. Well undoubtedly here at the hurricane conference, there are likely some new emergency managers. So I'd like to ask both of you, what advice do you have for new emergency managers that are facing their first hurricane season, preparing their jurisdictions? Let's start with Ken and we'll allow you to close us out.

Deanne Criswell - FEMA Administrator ([14:13](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=853.92)):

Sounds great, Mark.

Ken Graham - NHC Director ([14:14](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=854.96)):

Wow. Expect the unexpected. I think it's part of that. And it's all about the planning. A plan's great. But it's really interesting doing this for so many years, how these storms sneak outside your plan a little bit. You're ready to adapt and these small changes in the hurricane, don't take anything in meteorological, the weather forecast, don't be razor thin. Because if you do that, small changes, little wiggles and wobbles can bring that core rain, the core wind, the core storm surge into your municipality. So plan on that. Don't plan on exactly where that line is. Be ready to wiggle that around and plan for the worst and be ready for the unexpected.

Mark Peterson - Host ([14:52](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=892.33)):

Sure, absolutely. Deanne, any thoughts?

Deanne Criswell - FEMA Administrator ([14:55](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=895.56)):

I would say time is your most precious commodity. And so you can't be afraid to make decisions because you don't have perfect information yet. You have to embrace risk. Get comfortable with the unknown and make sure that you are not late to need in getting those people the help that they need, or prepositioning those resources ahead of time, or notifying them that they might need to evacuate. Don't let time get away from you.

Mark Peterson - Host ([15:22](https://www.temi.com/editor/t/AdkLveZKh_ZEkQlubBMZhCs3DMfthhtsGWxQEayirER6mywKsoqXw_Vl-b2bn1Y1PUDqXMyJ-8oKwT_ANcSJQ6na-3M?loadFrom=DocumentDeeplink&ts=922.66)):

Well, I wish you both a quiet hurricane season. Thank you so much for joining me. Thanks for listening to this episode of 'Before, During, and After', a podcast from FEMA. If you'd like to learn more about this episode or other topics, or have ideas for future episodes, visit us at fema.gov/podcast.