

# Q & A for NHC



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## **How did you get into weather?**

That started early in life, I had an interest in weather early on. At first it was winter weather. I grew up in North Carolina, and it sort of evolved over time into hurricanes. Like with so many other meteorologists, big events sparked my interest.

## **What was it for you?**

Fran would have been the one that was most compelling for me since it came right through the Raleigh-Durham area where I went to school at NC State. That's where I got both my bachelor's and master's degrees. I was midstream in the (masters) program when a job here at the National Hurricane Center came open, so I applied to see what would happen. NHC called a few months later and said "When can you be here?"

## **What was the job?**

It was in the TAFB (Tropical Analysis and Forecast Branch). I spent nearly six years in TAFB doing different jobs. First as a surface analyst drawing maps and then I became a marine forecaster. From there I went to the Hurricane Specialist Unit as a hurricane specialist. I did that for two years before coming here (Technology and Science Branch) as the storm surge specialist.

## **That seems like quite a leap.**

It's not as much a stretch as some may think. As a marine forecaster, you're forecasting ocean conditions, waves, and sea state. As a hurricane specialist, you're forecasting the strength and track of hurricanes. Storm surge is the rise in water along the coast due to the strong winds in hurricanes, so it was essentially merging my backgrounds into one, a very nice evolution.

## **Why is there more emphasis placed on storm surge than in the past?**

It's the high-profile events, such as Katrina and Ike, that have put storm surge in the spotlight both scientifically and in the media. So now it has become the "thing to talk about", certainly a hot topic at the present time.

## **NHC is experimentally disassociating storm surge from the Saffir Simpson Hurricane Scale.**

That was one of the things that appeared to significantly contribute to public confusion. The Saffir Simpson scale had ranges of storm surge that would typically accompany an average category hurricane. But as we saw with previous storms, it is more than just the wind (that generates storm surge). Storm surge is a complicated phenomenon that is a function of many things such as bathymetry, the shape of the coastline, the forward speed and size of the hurricane. It's not just the maximum intensity that is controlling storm surge.

## **For example?**

The best example is Category 4 Hurricane Charley (in 2004) which struck the southwest coast of Florida and produced six to seven feet of storm surge whereas Category 3 Katrina (in 2005) struck Louisiana and Mississippi and produced approximately 27 feet of storm surge. So here you have a weaker storm on the scale producing a significantly higher storm surge. Clearly, it's not just the wind. However, the scale gives the impression that if you have a certain category storm that you are going to have a certain category storm surge, and this is not the case.

### **There is some talk of a storm surge warning?**

That is being tossed about internally. It is an exploratory thing right now and the (National) Weather Service has no plans to implement it this year. The motivation is that, with storm surge being such a big event with the potential loss of life and total destruction, would a warning highlight that threat? Would it help the public understand who is most vulnerable?

### **So you could see a storm surge warning well outside the hurricane watch and warning area.**

That's the other motivation for it. You can get significant storm surge well outside the hurricane winds. We saw this with Ike last year. Ike made landfall in Texas and we saw water level rise all the way to the Florida panhandle, clearly outside the area of high winds associated with the hurricane. The current hurricane warning we have is based on the wind. So, a storm surge warning could more effectively highlight storm surge hazards that occur outside of the hurricane warning.

### **Tell me about the storm surge unit here, it seems like a very dedicated group.**

There are four of us, (Kristy, Tarah, Rebecca and myself). In addition to producing what people are used to seeing when a storm is making landfall, in the offseason we run the operational storm surge model (known as SLOSH) thousands of times to map storm surge vulnerability. We create maps that show what the maximum storm surge would be in different types of situations. This information is turned over to our federal partners and used at the local and state level to define evacuation zones. The coastline never stops changing, and in order to accurately predict storm surge, you have to constantly update this information.

### **There are some new products this year related to storm surge.**

We have several changes this year. First and foremost, probabilistic storm surge is now operational. In my mind, this is a really good decision-making tool because it brings uncertainty into account. What a lot of people have trouble understanding is that a small change in track, size, intensity, or forward speed of a hurricane can have significant impacts in terms of the storm surge. We're talking a ten or fifteen foot difference. Because of this, assuming a perfect track and intensity forecast is not the way to go. You want to make a storm surge forecast that takes into account what if the storm moves a little to the left or right of the track, what if it's a little bigger or smaller, or moves faster or slower?

### **What else?**

This year we are switching to inundation which, simply put, is talking about storm surge as height above ground level. In the past, we would reference storm surge as height above a vertical datum. Since the majority of the public likely does not understand what

a datum is, this was confusing. So a more clear and concise way to talk about storm surge is height above ground level. In the past, you would need to know the elevation of your home to know how much water you will get. Now, that's all done for you. When we say ten feet above ground level, we mean ten feet of water.

**Will graphics be available to the public this year?**

As a first step, we'll make the change in the text products. We are also changing our tools that we distribute to our partners including other National Weather Service offices and the emergency management community to give them the ability to look at storm surge the old way or height above ground level. Ultimately, we do want to produce inundation (graphical) products for the public, which is an effort underway.

**Your predecessor had this job for a long time. Where will you be in ten years?**

I enjoy the job so much that I have not thought about next steps.

**I hear you're an avid fisherman.**

Yeah, though with the new job I haven't had as much time to do that anymore. One of my loves is fishing, which has always made me interested in understanding the ocean. That may be where my curiosity of learning the physics and dynamics of waves came from.

**So if you know all of this, can you catch the big one?**

No, but you can return safely from a day on the water. That's the benefit of it.

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