



## TRANSCRIPT

Virtual media demonstration of NOAA's updated billion-dollar disaster mapping tool

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[NOAA to demonstrate new hyperlocal disaster-mapping tool](#)

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Good morning. Hello, everyone. My name is John Bateman, a public affairs officer with NOAA communications and I want to start by thanking you for joining us for today's announcement. We're here to get a firsthand look at NOAA's billion disaster mapping tool which drills down to the census tract level providing fine scale information about the risks and vulnerabilities communities face due to increasing and increasingly costly extreme weather and climate disasters.

To give you a demonstration of the mapping tool, I'd like to welcome one of the primary architects of this project, Adam Smith, with NOAA's National Centers for Environmental Information. Adam will give us a tour and understand how climate hazards impact your local community. Afterwards, we will be happy to take your questions and answers where you can type your questions into the Q&A box at the bottom of your screen. Just a friendly reminder, today's Q&A is reserved for members of the media.

With that, I'll turn it over to Adam with more. Adam?

Thank you, John. Good day, everyone. I would like to first talk about macro to micro, what we had, what we've worked on and what the latest and greatest data are in our NOAA billion dollar disaster mapping tool. So, we bring together disaster risk, vulnerability data really down to a community level and we'll see some examples.

This is integrating hazard risk, socioeconomic vulnerability within the U.S. billion dollar disaster platform using data from FEMA, census and the CDC. Let's dive in. So, this is one of the more popular long-standing products at NOAA's National Centers for Environmental Information, the U.S. billion dollar weather and climate disaster analysis. Since 1980 through 2022 we do quarterly updates. We've analyzed 332 separate billion dollar or higher events, inflation adjusted to present day dollars, and the cumulative cost is in excess of \$2.2 trillion for these most costly damaging events. Just as a reminder, last year in 2021 was yet another active year really in a series of years from 2017 through 2021 in particular. It's just been nonstop across many different extremes and hazards from coast to coast.

You can see it in the west, we had an active wildfire season precipitated by a growing persistent drought in the west. We also had another active hurricane season in 2021, particularly on the Gulf coast with Hurricane Ida. There were storm events in the central states and a cold wave in Texas, we all remember, and a heat wave in the Pacific northwest which unfortunately took many lives and was very anomalous based on climatology. This is this year's map in 2022 showing the first six months and you can see we already have a number of events, nine so far. It's been not quite as intense as recent years but of course we have the western wildfire season, the continuous drought out west and another forecasted active hurricane season right at our doorstep. So certainly this picture is not fully painted yet for the nation.

But today what we're talking about is the newly integrated multi-hazard vulnerability mapping. Last December we did this for the full U.S. for all the counties, so 3,100-plus counties. Now we've gone down another level of spatial granularity to the census tract. This is 270,000 census tracts across the nation and a census tract is relatively consistent over space and time so it's a good metric. What makes this product unique is it's integrating over 100 different combinations of the extremes we analyze in the billion dollar disaster platform, hurricanes, severe storm events including tornado, hail, damaging wind events, inland flooding events, wildfires and cold wave events. You can look at these individually or in any combination. In addition to the hazards themselves and how often those occur historically, of course there's what's on the grounds, people, assets, building value, agricultural value, which is exposed. That's the exposure, but also the vulnerability of these assets and lives and livelihoods.

One newer example of the data would be from the Census American community survey, CDC's sociovulnerability index builds on that and we've captured about a dozen socioeconomic variables to show this data in more detail. Quickly, as an example from last December, this is the U.S. county map, and you can see at the top if you selected drought plus wildfire plus flood hazard, you can see the U.S. southwest is where the combined hazard is the highest. The darker the shade of the color, the higher the risk. And we've seen a lot of these types of cascading or compound hazard events which happen in space/time frequency which makes recovery more costly and difficult for populations.

Also the National Climate Assessment noted these compound extreme events are actually greater than the sum of their parts as far as when they happen back-to-back-to-back. In the west we have drought which makes wildfire season more destructive. Then in the wet season after the wildfire season we get heavy rain, atmospheric river events which can make debris flows, mud flows more damaging and destructive so these disasters can compound and add onto one another.

Let's go to the next slide. Here's a different example. This shows tornado plus hail plus high wind derecho events combined. As you would expect, east of the Rockies is where the geography stands out. What we have highlighted here is Dallas County, Texas, has the highest risk hazards across the nation because of the high frequency of these events that happened regularly across the Dallas-Fort Worth area and the vulnerability because of the exposure is high. You can click on any of these counties or census tracts as you'll see and get a lot more information. This is just kind of showing the top level view.

Another view would be tropical cyclones which are of course hurricane events and tropical storm events. You can see from Texas to New England and even well inland, there is tropical cyclone risks particularly as hurricanes come in and rain themselves out as we saw last year from Hurricane Ida from Louisiana, New York, New Jersey, et cetera. Tropical cyclones are the most costly, in excess of \$1.2 trillion since 1980 with an average event cost of \$21 billion per event. Palm Beach County has a pretty high relative score. All of these county census tract as you'll see are analyzed compared to all counties and census tracts across the nation so it's apples to apples.

One quick county map, you can see Harris County, Texas highlighted which is home to Houston for heavy rain, urban flood events, has the highest risk there. Similar to Dallas county, a lot of vulnerability and of course it's been prone to many destructive 100- plus year urban flood events independent of what happened with Hurricane Harvey. Much of the nation has a relatively high flood risk and so we wanted to with the census tract data allow users to drill down more by integrating different data sources. Before we go to the census tracts I wanted to highlight that if you were to click Harris

County, Texas from the previous map this is what you would see. You would get actually more than this. You would get data comparing the hazard risk for drought, flooding, severe storm, for all of the billion dollar disaster hazards. How that county's combined hazard risk compared to the average county risk for the state it exists in versus all the counties across the entire nation, and you can see Harris County, Texas tops the list in a few of these categories, flooding, severe storm and tropical cyclone risk is quite pronounced. Even winter storm risk, as we're reminded what happened in February of 2021 with the cold wave, frozen grid incident. Texas, like a lot of places in the south and the southeast, are really prone to many different hazards.

So this is an example of some of the newer data from the census American community survey through the CDC social vulnerability index. This is 15 different metrics that on the right we have chosen 11 of the 15 because we thought the 11 that we chose which I'll highlight are most salient to the hazards we're trying to highlight here. So I'll show you some examples here shortly. Also in addition, you can see how for Harris County, Texas, in addition to the hazard risk scores I mentioned on the right -- excuse me, on the left, on the right you can see the socioeconomic vulnerabilities which are very important to understand how the population demographics are and how vulnerable or resilient they are to different hazards.

These are the 11 variables from the socio vulnerability index as a percentage of the full population of the county that we have pulled into the database. As you can see here, comparing, for example, on the left the percent of each county that has a mobile home as a residence versus the percent of the population for each county that lives in poverty. You can see a lot of spatial correlation there, particularly any in the southeast, and why that matters with hazards. High wind events like tornados, derechos, hurricanes are not good if you were to shelter in a mobile home for instance. You would probably need to evacuate if you want to be safe. And so it's combining the hazards, the exposure, the vulnerability with different socioeconomic dimensions. We're pulling all that together to allow users to see what the risk is for their place of interest.

Now finally, let's get to some of the newer information. Now we're looking at the state of North Carolina and at the tropical cyclone risk in shades of yellow. Darker yellow indicates higher tropical cyclone, IE, hurricane risk. As you would expect, it's mostly along the coast but it goes pretty well inland. What you can see here in the southeastern portion of the state, I've got a small census tract 115 highlighted. You can see how it has a tropical cyclone risk score of 59.28 which is substantially higher than the county it resides in, New Hanover, which is higher than the average North Carolina risk, et cetera, et cetera. We're building on this type of deeper granularity, and I'll provide more information here. So, if you were to click on that census tract and I believe North Carolina has something like 2,000 different census tracts, you would get this type of information on the left. You would get, as a shared with Harris County, the risk score for the seven different hazards in the billion dollar disaster database for the nation, state, the county but now also the census tract and you can see if it's higher or lower than the county or the state that you exist in, but more importantly, also the socioeconomic vulnerabilities right here, how the census tract compares to the county. So percent of population below poverty, per capita income which is the inverse of that, no or high school diploma, disabled population, no vehicle to evacuate, minority, single parent households, so certain variables that may make responding to a hazardous event more difficult, so all that data is pulled together now in this framework.

Next slide. To wrap it up, the next five or six slides I'm going to give you a deeper example. Now we're looking at Louisiana. As we know over the last several years, Louisiana like the southwest has been an epicenter of cascading compound hazards, back-to-back-to-back hurricanes. Last year Hurricane Ida, strong cat 4. A year before that Hurricane Laura also a cat 4. And there were other hurricanes and tropical storms as well. Here's again showing the tropical cyclone risk for Louisiana, and we have highlighted here the parish. Just like North Carolina you can see how in particular tract 504 is more than three times as risky for hurricane exposure and vulnerability than the parish it resides in so that's an important piece of information. Note we have a slider at the top which is important to see the data.

You can zoom in to your house or your neighborhood with this map. If you use that slider, and we're going to give an example for the New Orleans area in the box right here, you can zoom into New Orleans just like this and still you can see how many of the census tracts are very small so you can zoom in much more closely than what I'm doing right here. What I've got highlighted here is census tract 1751, and I'm going to compare it against all the other census tracts using the SBI data. Here let's see what the census tract looks like in the New Orleans metro area. For hurricane hazard, the census tract 1751 is quite high risk. It's high average annual loss from hurricanes, high exposure population values to be destroyed potentially but also high socioeconomic vulnerability. So again, the darker colors are worse. It means higher vulnerability. Lighter colors are better resilience, lower vulnerability. You see in the eastern Louisiana metro a lot darker colors. Let's look at some other metrics. For example, if you were to click on the top left menu above the new map under socioeconomic vulnerabilities from the SBI census ACS data, below poverty you see almost 80% of the population in this census tract are below poverty compared to only about 24.5% of the entire Orleans parish. If you're an emergency manager, that's one thing to be aware of.

You probably already know that but you can see spatially how different parts of the city compare in terms of below poverty using the data that we've integrated. Let's look at another measure, income. This is the opposite of poverty and you can see how the income is low

here, under \$10,000 per capita which is less than a third of the Orleans parish. Here actually the darker color is for income and it indicates higher income. Let's check another metric. Here would be disabled population so this is an important metric to look at. Nearly a third of the population, according to this data, 30%, is disabled. You can see how that for the census area is quite a bit higher than the other census tracts within the New Orleans metro area. Finally, no vehicle. Again, to evacuate, maybe New Orleans can use more local facilities, for example, and people could just walk and not have to evacuate, or they can get on a bus to evacuate. This type of information of course is also useful to see what parts of the city have higher levels of no vehicle access or any of these different socio economic vulnerabilities we're highlighting here. So this is one of almost an infinite number of combinations that you can look at in this new mapping.

I'd be happy to take some questions. This is kind of just a start with our partners at census and CDC and FEMA to further make this information more useful.

Thank you.

Adam, thank you so much for that very nice deep dive into the information. We are sure that there are some folks out there eager to ask questions about this new mapping tool, so if you are, we just want to remind everyone if you would like to ask a question, please type your question into the Q&A box at the bottom of your screen. Please be sure to type your full name and organization when asking your question so that we may best respond to your inquiry. Just remember, this time is reserved for media questions only, please, and we will wait and see if we have any questions. If not, we will wrap up this information. Give us a few minutes. Here we go.

It looks like we have a question here from Bill from accuweather. Thanks, Bill. How can we get video recording of this briefing?

Good question. It will be online on the media advisory later this afternoon. We're going to get that up as soon as possible so stick around for that. Hopefully it won't take very long.

Another one, Zach Colman from Politico. Adam, we had a question here, is there any way to bring up federal disaster spending by census tract?

That's a good question. I do not think that we have currently the data at the census tract level. I have not looked at that. I know it exists at county and state level for many different hazards and that's actually an example of something we

could also add in the future to this mapping so that's an excellent question. But the census tract level information, I'm personally not aware of that.

Thank you, Adam. Looks like we have another question here. This one is from Rebecca from NPR. Does the flooding risk category including both storm surge and rain-related flooding?

There are a few different flood components. What we're looking at in this particular mapping would be the heavy rainfall or snow melt, river basin flooding, urban flooding. Also with tropical cyclone hurricane events, we have the storm surge through the work from FEMA also integrated within that. The only type of hazard we have not yet added to this mapping would be non-storm coastal flooding from sunny day high tide flooding because that's traditionally not a billion dollar disaster type of event yet, but stay tuned. That may be added also in the future.

Wonderful. Thank you, Adam. It does not look like we have any other questions at this point. Again, if you would like to ask a question, all you have to do is type your question into the Q&A box at the bottom of the screen here and if we -- okay, looks like we may have perhaps one more. This is a followup question from Rebecca from NPR.

Adam, can you say more about why you chose these 11 socioeconomic vulnerability criteria and why you decided not to use a couple of other ones?

The choice was more to frame the data in terms of what seemed like the most obvious selections in terms of how emergency managers would like to look at information in terms of socioeconomic vulnerabilities for hazards. I think it's a fair question. The four we did not include, for example, crowded housing, we could easily add those. I think it was a matter of a signal to noise ratio type of thought, but perhaps we should add the other four as well.

That's a good thing to add to this, Adam, that this is going to be kind of a living site that's going to continually be updated and we'll let folks know as we add those updates. We're always looking for new suggestions as to what we can add to help folks. Thank you.

We have another question. It looks like it's Neil from Vox. The question is, Adam, it looks like your system doesn't have a filter for heat, but heat contributes to hazards like drought and wildfires as well as health impacts. Are there plans to add heat?

Actually, we do have heat combined with drought impacts. You're right, it's not quite clear the way it's conveyed in the mapping right now, but yes, we do combine heat wave impacts with drought impacts which are not always happening in the same space/time event, but that is included.

Good to know. Thank you, Adam. I'm not seeing anymore questions at this point, but again, if you do want to ask a question, we have some time.

Okay, Rebecca, a followup question, Adam, you mentioned that many emergency managers will already know the basic info about who is most at risk from disasters and their place. Can you talk more about who is the target audience for this tool and what will this tool enable?

I think there are many target audiences for this tool. Even looking at your own census tract or your own county it's interesting to see how the vulnerability within where you live versus around where you live changes. So literally anyone could find this tool and the way we have integrated the information and made it quite simple, useful just from a pure informational Perspective. If a hurricane is coming your way or hopefully a wildfire event is not coming your way on the west coast, I think a community planner, maybe a mayor, business owners, all these bodies with interest and decision-making capabilities could find this integrated, relatively simple interface useful for really quick information.

Great. Thank you so much, Adam. I don't see anymore questions. I'll wait a couple of more seconds if we have anybody that wants to ask any. If you would like to, you can go into the Q&A box at the bottom of the screen. It does not look like I'm seeing any at this point. If that's the case, then we can start wrapping this up. First of all, I want to thank all of you

for learning more about this update to the billion dollar disasters mapping tool. We hope you'll find the data valuable for your reporting. Thank you, Adam, for giving us a demonstration on how this tool can be used, and again, a recording of today's demonstration will be available on our online media

advisory shortly, hopefully by later this afternoon. As I'm wrapping up, maybe we have one quick one. Oh, okay, there we go. Rebecca says thank you. Before we quickly go, Adam, we have one more.

Grace Ferguson asked, is there a way to embed this tool into, say, a news article?

Currently the URL which is at the end of the presentation, you can see there, you can use that. Right now we haven't fully added other technological capabilities to make that more automated but some simple screen shots, it's pretty high quality map, I think would compliment news stories if you were to go that route.

Awesome. Thank you, Adam, and thank you, Grace. I'm going to continue to wrap this up. Adam, the next slide, I believe we have contact information there. We have more information on your screen and I wanted to mention again, a recording of today's demonstration will

be available on our online media advisory shortly this afternoon, and our press release with links to the mapping tool is available now on NOAA.gov in the news section. Finally, if you have followup questions, please contact me at John.JonesBateman@NOAA.gov. You can also call me. This concludes today's announcement. Thank you so much for joining us.

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