Statement of

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On

Weathering the Storm: How Can We Better Communicate Weather
To Enhance Commerce and Safety?

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Introduction

Thank you Chairman Thune, Ranking Member Nelson, and members of the committee for holding this hearing today. I am pleased to be here to address ways in which we can better communicate weather to enhance commerce and safety.

I am the Chief of Emergency Management for Manatee County and have over a decade of experience in emergency management with the past three years as chief. Manatee County is located on the West Coast of Florida and the City of Bradenton is our county seat. We have a resident population of 340,000 and we hosted 2,916,100 visitors in 2014. Our large economic drivers include the home of the Pittsburg Pirates Spring Training, Tropicana Orange Juice, Feld Entertainment, Bealls Retail, agriculture and tourism.

Our partnership with the National Weather Service and particularly the Weather Forecast Office in Ruskin Florida is vital for the protection of our citizens. We have weekly weather forecast conference calls and webinars as a matter of routine. They are available to me 24 hours a day and 7 days a week for decision support. I cannot begin to express my gratitude and appreciation for their ability to distill and distribute scientific data in a manner that our citizens, policy makers and operational responders can manage.

Weather forecasts and warnings are incredibly important to emergency managers around the country. While emergency managers deal with all kinds of events, the majority are weather-related—and the impact they can have is substantial. Severe weather can drive people from their homes, destroy their businesses, and disrupt their lives in ways both big and small. NWS, has estimated that in the United States in 2014, there were 8 weather and climate events costing more than $1 billion each and leading to 53 deaths. Events such as these leave long-lasting imprints on the communities they hit.

The United States' current capability to collect weather data and provide forecasts and alerts is advanced relative to other countries and our own historic performance. But there is still work to be done. In my testimony today, I will discuss the role of the National Weather Service (NWS) in providing these services, steps the NWS and others can take to improve their efforts, and the role of the private sector in these activities.

The National Weather Service (NWS), an agency within the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA's), plays a crucial role in providing

weather forecasts and warnings for the United States. The NWS works hand-in-hand with the emergency management community before, during, and after a disaster—providing information and expertise. In 2013, the National Academy of Public Administration released a study looking at the NWS. The study included focus groups with state and local emergency managers, who reported that they saw the NWS as critical partners with whom they communicate with regularly.

The expertise provided by the National Weather Service field offices throughout the country is invaluable, and emergency managers rely on their support. In West Virginia, for example, the NWS's Incident Meteorologists were integrated into the Joint Interagency Task Force for the National Boy Scout Jamboree. They provided information on lightning strikes and storms in almost real time and shared information with the Scout Ops Center so that some of the event could be moved before a major thunderstorm hit. Similarly, the NWS's technical facilities, such as the National Hurricane Center (NHC) and the Storm Prediction Center (SPC), provide crucial information to the entire country—which is then used to protect and save lives.

The improved warnings NWS provides have led to a significant reduction in weather-related deaths and reduced the negative impact weather can have on communities. A great example of this took place in Mississippi in February 10, 2013. The NWS office in Jackson had warned for three days that there was a significant risk of tornadoes in the southern part of the state. At 5 p.m. an EF-4 tornado ripped through Lamar and Forrest counties, including the city of Hattiesburg—which houses the University of Southern Mississippi. Despite more than 2,000 homes being damaged, there was not a single death. The incident was granted a federal disaster declaration, and when survivors who received assistance were polled they all responded that the advanced warning from the NWS and local emergency managers had prepared them to take shelter.

Getting the Message Out

The NWS plays a crucial role in communicating information and issuing weather alerts and warning—a role it shares with other federal agencies, state and local government, and the private sector. For the efforts of these stakeholders to be successful, the information produced must get to the appropriate end users: the individuals, communities, and businesses that need to know when a storm or disaster might be heading their way.

Right now, numerous opportunities exist to do this given the proliferation of communication channels and media. Whereas we once lived in era where people tuned into select television and radio stations for weather information, they now have the ability to get it anywhere and anytime on their phone and computer. For example, traditional weather radio and the Emergency Alert System are now supplemented by Wireless Emergency Alerts and FEMA's Integrated Public Alert and Warning System (IPAWS). People can also access information through private sector apps from the Weather Channel, Accuweather, and WeatherBug, among others—as well as social media such as Twitter and Facebook. State and local governments also disseminate alerts and warnings.

All of this has helped important information get into the right hands, and the NWS and others are taking advantage of the opportunities they offer. But there's more work to be done. We continue to see weather-related deaths because people and communities are caught unaware. There are several steps that can be taken to move us forward and ensure we do a better job communicating.

Provide location specific information
We need to ensure that we have the ability to get appropriate information into the hands of every person who needs it, regardless of their location and any physical challenges they may have. This means doing a better job providing location-specific warnings that are precise as possible. For example FEMA's new weather app provides an important service in providing severe weather warnings—but it only goes down as far as the county level. People need even better information.

Consider timeliness
In sharing information, we need to think more about timeliness. We often worry that people don't get enough information in advance—that we don't provide enough lead time, making it difficult for them to prepare or evacuate. But we need to think about the opposite as well. For example, while more lead time is important for large venues like a baseball stadium, too much lead team can create difficulties for business. This may result in people leaving a safe area prematurely or an unnecessary and significant loss of economic activity

Avoid "over-warning"
It's important to make sure that we don't deluge people and communities with warnings—whether over a given time period or within a specific location. Too many warnings can lead to warning fatigue, where people tune out the information they're sent, as well as second-guessing by businesses and schools that need to be focused on life safety. We also need to keep in mind that warnings are disruptive to business, which may have to curtail their hours and redirect resources.

Be accessible
In providing information to the public, we need to make sure that it is intelligible to the average citizen and not overwhelm people with jargon or inaccessible language. The NWS, for example, should continue to develop terminology that meets the needs of professionals as well as laypeople. Moreover, it is important that while the precision and accuracy of forecasts continue to increase, we help the public understand how the process works. We should make sure that any information provided to the public acknowledges the uncertainty of forecasting. It's important for people to know that forecasts are not 100% accurate.

Engage partners
Our partners in the media are crucial to our efforts to communicate information about the weather. Unfortunately, many television and news stations are dedicating less and less time to this—which is troubling given how much we rely on them. We need to emphasize to them that they are part of the solution and reward those who make a concerted effort to help.

Improving Efforts for Some Hazards
The NWS has seen great success in its forecasting and warning efforts for some hazards, such as hurricanes. The improvement in hurricane forecasting accuracy means fewer evacuations, which saves lives and allows us to focus assets where they are most needed. It also enabled us to better place vital response and recovery assets, reduce the disruption to areas that have not been impacted, and decrease the anxiety of the public. An example of this would be the difference in forecasts during 1999's Hurricane Floyd compared to Hurricanes Earl (2010), Irene (2011), and

Sandy (2012). The forecast of Hurricane Floyd in 1999 led decision makers to order evacuations along Florida's Atlantic coast, which has some of the state's most populated counties, and the result was the largest evacuation in the state's history. More than a decade later, forecasting had improved significantly enough that when Hurricanes Earl, Irene, and Sandy took tracks similar to Floyd, the forecasts did not trigger evacuations in Florida.

That said, we need to do more with regard to storm surge. A majority of hurricane-related evacuation is based on storm surge forecasting and has undoubtedly saved lives. But we need to devote more resources to this area. That means more people, more computing power, and more resources—all or which can help increase awareness. Hurricane Sandy showed the crippling impact storm surge can have. As the National Hurricane Center pointed out in a 2013 report on Sandy, the storm caused water levels to rise along the entire east coast from Maine to Florida. This was to catastrophic effect in New York and Jersey. Parts of Red Hook, Brooklyn, for example, were under several feet of water, devastating homes and businesses. In Seaside Heights, New Jersey, the storm famously destroyed the iconic Casino and Funtown piers.

We could also improve our forecasting and warning efforts for other hazards. This year, for example, we saw record snowfalls in the northeast and other regions of the country. Unfortunately, for this type of hazard, the NWS only provides information on snowfall amounts out to 72 hours, which doesn't provide retail locations with enough lead time to prepare for the rush that may occur as concerned citizens hurry to fill their pantries and refrigerators. An extra 24 hours would help avoid the inevitable news stories showing shelves stripped bare, as grocery stores and others would have more time to prepare.

Similarly, riptides are a serious problem in some areas of the country, and we need to devote more resources to disseminating information about this hazard. We have good bathymetry indicating areas where rip currents are likely, and we know when the conditions are right for them to form. But we tend to issue warnings over extremely large areas that encompass points that are not likely to have an event. Given that we can now locate individuals precisely to the inch, we have the potential to notify individuals on one specific beach while one a quarter mile away is not notified. This could drastically change beachgoers' attitudes and reduce deaths.

Finally, flooding is another hazard where we could improve. Flooding is the most costly disaster in the United States. As the Congressional Research Service has reported, over the more than 40 years it has been in existence, the National Flood Insurance Program has suffered six years in which it has issued payouts of $1 billion or more: 1995, 2001, 2004, 2005, 2008, and 2011. We need to see better cooperation among FEMA; its components, such as the Federal Insurance & Mitigation Administration and the National Flood Insurance Program; and state and local governments to increase awareness and warning with regard to floods. FEMA Administrator Craig Fugate testified in 2011 that many owners of flood-prone property choose not to buy flood insurance but then drew on federal assistance after a flood. We need to do more to make property owners aware of their risks and responsibilities.

Private Sector
The private sector obviously plays an important role in providing weather forecasts and alerts. A number of private weather companies exist, and in many cases they provide excellent services. But the NWS is a vital asset for this country, and we need to make sure that it is provided the resources it needs. We need to ensure that the NWS is recognized as the best weather agency in the world whose products are the definitive gold standard when it comes to life safety information. If they are not and people begin to rely too much on private sector weather providers, we will see conflicting information leading to action paralysis. Moreover, unlike private weather services, the NWS can be held accountable to the public for its forecasts.

Conclusion
The NWS and its partners in state and local government and the private sector provide an important service to the public through their forecasts and warnings. Although emergency managers at all levels focus on all-hazards, the majority of incidents we deal with are weather-related. By having a strong and robust partnership with the NWS, we are able to help our citizens better prepare for future disasters—which allows us to focus our response and recovery efforts more precisely on those who are unable to help themselves. It can also help improve our nation's mitigation efforts by ensuring that citizens understand the hazards they face and empower them to take actions to save their life and property

We are now at a point where advances in forecasting have intersected with advances in technology, and we have the potential ability to ensure that every person who is in the path of severe weather can be notified and take the appropriate life safety actions, something never before achievable. Continued advances will provide us even better opportunities to ensure life safety and reduce economic consequences—which will mean more lives and communities saved from loss and heartbreak. We must ensure that we keep our foot on the pedal. The economic investments our nation makes in this area more than pay for themselves.

I thank you for the opportunity to testify today and welcome any questions you may have for me.