

## **Factual Report – Attachment 1**

Email correspondence with the NWS.

# **METEOROLOGY**

DCA18MM028

*Submitted by: Mike Richards  
NTSB, AS-30*

## Richards Michael

---

**From:** Lora Wilson - NOAA Federal [REDACTED]@noaa.gov>  
**Sent:** Thursday, August 9, 2018 11:40 AM  
**To:** Richards Michael  
**Subject:** Table Rock Lake - Derecho Determination

Mike, per our phone conversation, below is what was provided to me from Bill Bunting at SPC in the days the followed the accident. This was information was shared to senior leadership through a separate timeline document that we have in Google Docs so you may not have been able to easily access that information.

Please let me know if you have any questions or need any additional information.

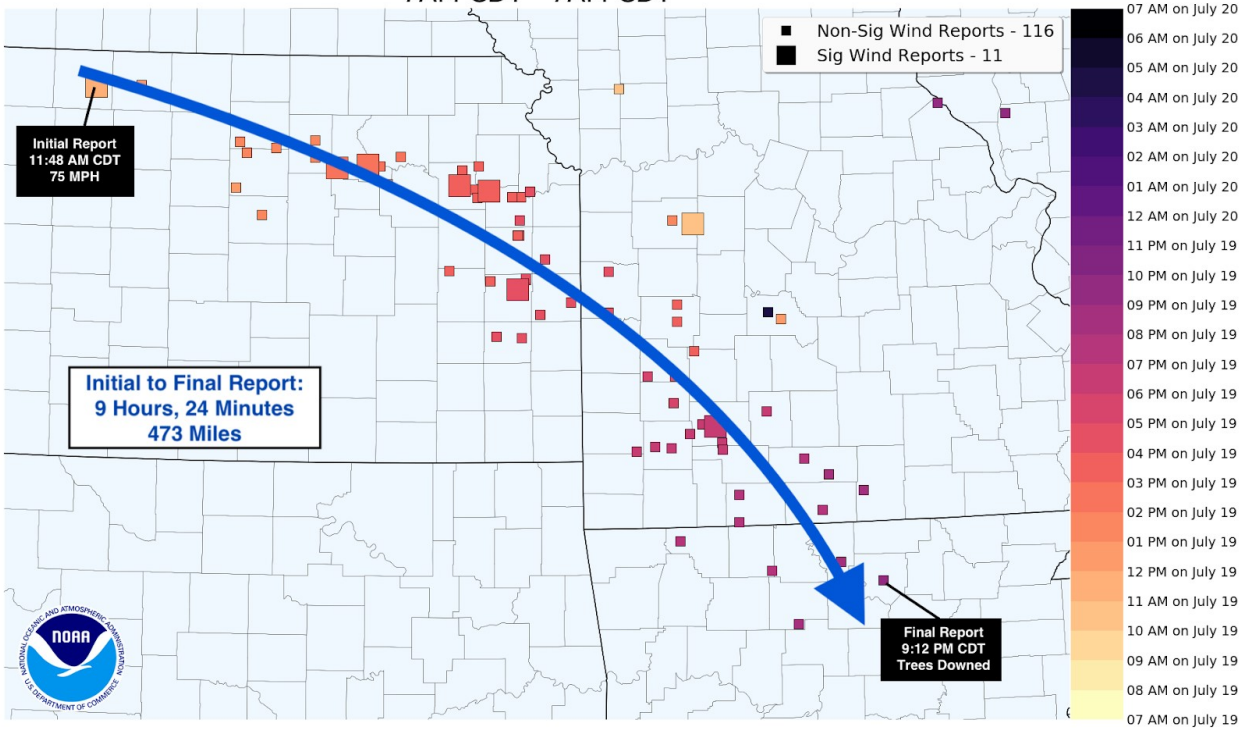
Thanks,  
Lora

### Derecho Determination

Based on SPC staff review of radar data and preliminary storm reports received so far, it has been concluded that the convective system that moved through the Branson area, including Table Rock Lake, was a derecho. Immediately below is a graphic developed by SPC WCM Dr. Patrick Marsh that depicts the reports, system length (473 miles) and duration (9 hours 24 minutes). Although the width of the responsible convective system was, at times, towards the shorter end of the derecho spectrum, the consistent progression of reports (including multiple significant wind reports), radar structure showing a pronounced rear-inflow jet, and forward speed (averaging 50 mph) well in excess of ambient mean flow are all consistent with a progressive derecho.

Additionally, it is believed it was essentially steady state, even with cell mergers upstream from the Springfield area. However, SPC would need to study more to assess hydraulic wave characteristics and make a final determination on this.

Derecho Report Overview & Timing  
July 19, 2018 - July 20, 2018  
7AM CDT - 7AM CDT



## Richards Michael

---

**From:** Patrick Marsh <[REDACTED]@noaa.gov>  
**Sent:** Friday, October 5, 2018 8:39 PM  
**To:** Richards Michael  
**Cc:** Lora Wilson - NOAA Federal  
**Subject:** Re: Duck boat NWS stats

Hello!

Sorry for the confusion. At the time of the event, I figured there would be scrutiny so I attempted to be very specific in my words. Let me try to un-parse it!

The two statements more or less say the same thing, with the second statement providing my context. They are both correct.

A few points that may help explain my wording:

**1. "Direct Wind" Explanation:** NOAA categorizes fatalities as either direct or indirect. A direct fatality is one in which the hazard (in this case wind) directly causes the fatality. An example of a direct fatality would be strong thunderstorm winds causing a tree to fall on a house and killing someone. An indirect fatality would be something akin to a person having a heart attack while using a chainsaw during the cleanup and removal of said tree. So when I say, "direct wind fatality" it is the formal way of saying the wind was directly tied to the loss of life.

**2. "Severe Thunderstorm Wind" Explanation:** Because wind is generated in many different manners, NOAA and the NWS categorizes it based on the various mechanisms that create the strong wind. Strong winds that develops as a result of the pressure-gradient force, and is not tied to a hurricane, is labeled "non-thunderstorm wind". Strong winds caused by the pressure-gradient force, and tied to a hurricane, are called tropical storm/hurricane winds. Strong winds related to dynamic pressure perturbations within thunderstorms are called "thunderstorm winds". Strong winds associated with a tornado are simply called a tornado. The winds associated with the Duck Boat Accident were generated from a thunderstorm and were not a tornado, so I'm referring to it as a "severe thunderstorm wind" event.

**3. "Event" Explanation:** Since thunderstorms are quite common, a thunderstorm event typically refers to a single location and specific point in time. For example, a thunderstorm in Norman, OK, and another one in Wichita, KS, would be referred to as two separate thunderstorm events, even if it was the same complex of thunderstorms that moved from Kansas into Oklahoma.

**4. "Severe Weather" Explanation:** In the United States, we typically use "severe weather" and "severe thunderstorm" interchangeably. The definition of a severe thunderstorm is: a thunderstorm capable of producing hail at least 1" in diameter, thunderstorm winds at least 50 knots, a tornado, or any combination thereof.

With these explanations, a better, clearer, somewhat more explicit way to make those previous two statements may be:

1. The accident was the largest "direct fatality wind event" in the US Severe Thunderstorm and Tornado Database (which goes back to 1950 for tornadoes and 1955 for thunderstorm wind and hail).
2. The accident was the single deadliest severe thunderstorm wind event on record in the United States, and the deadliest severe thunderstorm event (including tornadoes) since the Moore, OK, tornado on 20 May 2013.

or you could combine the two

3. The accident was the largest "direct fatality wind event" on record in the United States according to the US Severe Thunderstorm and Tornado Database (which goes back to 1950 for tornadoes and 1955 for thunderstorm wind and hail). It is also the deadliest severe thunderstorm or tornado event in the United States since the Moore, OK, tornado on 20 May 2013.

Anyways, I hope this helps clarify some things to you. If not, I'm happy to speak by phone to clarify things, and then can provide a written account (for documentation purposes if needed) of our call.

Regards,  
Patrick

---

Dr. Patrick Marsh (@ [REDACTED])  
Warning Coordination Meteorologist  
NOAA/NWS/NCEP Storm Prediction Center

On Fri, Oct 5, 2018 at 5:45 PM Richards Michael <[REDACTED]@[ntsb.gov](mailto:ntsb.gov)> wrote:

Hello Dr. Marsh, my apologies for us bothering you on this again (Lora had forwarded your email response to me), but making sure we get these facts straight is pretty important in my mind, and there is just a bit of confusion on my part.

If you could, would you mind (1) confirming or correcting the two statements below, and (2) perhaps clarify what "direct wind fatality event" means in context of that database, since it apparently does not consider tornados (and maybe all severe thunderstorms)?

- The accident was the largest "direct wind fatality event" in the US Severe Weather Database (which goes back to 1955).

- The accident was the single deadliest severe thunderstorm wind event on record in the United States, and the deadliest severe thunderstorm event overall in the United States since 2013.

I do appreciate your time and have a great weekend,

Mike

Mike Richards

Aviation Safety Investigator - Senior Meteorologist

Operational Factors Division

National Transportation Safety Board

██████████@[ntsb.gov](mailto:██████████@ntsb.gov)

+1 202 ██████████

----- Forwarded message -----

From: Patrick Marsh ██████████@[noaa.gov](mailto:██████████@noaa.gov)>

Date: Fri, Oct 5, 2018 at 4:05 PM

Subject: Re: Duck boat NWS stats

To: ██████████@[noaa.gov](mailto:██████████@noaa.gov)>

Cc: Russell Schneider ██████████@[noaa.gov](mailto:██████████@noaa.gov)>, Bill Bunting ██████████@[noaa.gov](mailto:██████████@noaa.gov)>

Hi, Lora,

The only thing I need to correct is that my quote had the wrong month for the previous record. The previous record occurred on 07 July 1984, when 11 people perished. (My previous quote had the wrong month.)