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Meteorological analyses, opinions, conclusions and Federal Rule 26 written expert reports are prepared for each specific incident location, adhere to the Federal Rules of Evidence, and are based on sound, scientific principles and practices that meteorologists customarily rely upon.

Howard Altschule

CEO, Certified Consulting Meteorologist

I've always had a deep love for the weather ever since I was young child, and my life-long dream was to be a Meteorologist. Now more than 40 years later, I run the company I founded in 1999, **Forensic Weather Consultants**. For decades insurance carriers, adjusters, attorneys for the plaintiff and defense, third-party administrators, engineers, the United States Air Force, the U.S. Attorney's Office, government agencies, and private corporations have called on us for reliable weather information, detailed meteorological analyses, and site-specific written expert reports to help resolve insurance claims, disputes, lawsuits, and historical studies. I am pleased to say that the growth we've experienced over the past 21+ years is a result of hard work, attention to detail, and the trust our clients have placed on us to figure out the weather conditions at a specific time and place in the past, and how they may or may not have contributed to an incident or accident.

Please call us to learn more about our services and how we can assist you. I guarantee you'll be impressed with the detail, accuracy, and information we'll provide for your claims or cases.

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- **Cited in Many Supreme and Federal Court Decisions and Appeals**
- **Expert for the United States Air Force - Court Martial Trial**
- **Appointed to N.Y. Governor's Homeowners Insurance Panel**
- **Member of the American Meteorological Society (AMS)**
- **Member - Association of Certified Meteorologists**
- **New Enhanced Fujita Scale Committee Member**
- **AMS Committee on Weather Analysis and Forecasting**
- **American Meteorological Society "TV Seal of Approval"**
- **Emmy Award Winner - Aftermath of a Tornado Outbreak**
- **Hundreds of appearances on CNN, FOX, NBC, Fox Business News, The Today Show, MSNBC, Geraldo Rivera & Radio**
- **Former TV Meteorologist for NBC**
- **Former Captain, Lieutenant, President of Fire Department**

SLIP AND FALL ON SNOW / ICE CASES

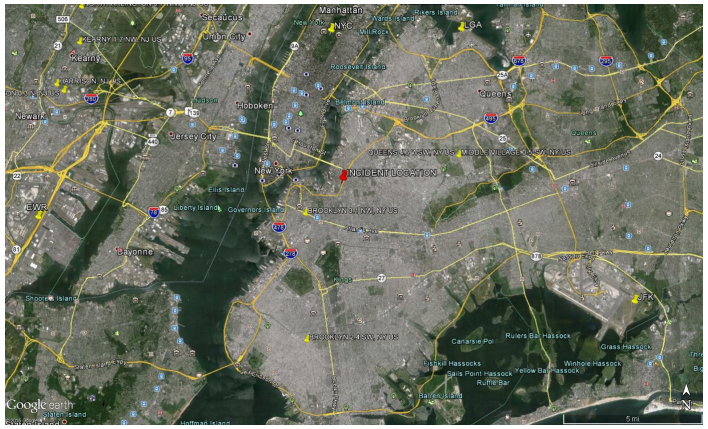
FORENSIC INVESTIGATION OF THE WEATHER AND GROUND CONDITIONS FROM DECEMBER 7-9, 2016 AT 120 BROADWAY IN BROOKLYN, NEW YORK

ASSIGNMENT:

This case was assigned to me by Yourtown Corporation. I was asked to perform an in-depth weather analysis and forensic weather investigation at 120 Broadway in Brooklyn, New York in order to determine what the weather conditions were leading up to and including the incident.

METHODOLOGY:

In order to accurately determine the weather conditions that existed leading up to and including the time of the incident, a detailed search was performed to find the closest, official weather stations to the incident location. Weather station locations provided by the National Centers for Environmental Information (NCEI) and other customary sources were plotted and are indicated by a yellow pushpin. These records are normally relied upon by meteorologists to conduct these investigations.



In order to perform my analysis of the weather conditions that existed, I obtained and reviewed official copies of the following weather records:

- Hourly Surface Weather Observations/ Local Climatological Data (LCD) from the Newark Liberty International Airport in Newark, N.J.
- Hourly Surface Weather Observations/ Local Climatological Data (LCD) from JFK International Airport in Queens, N.Y.
- Cooperative observer weather station reports from Brooklyn 3.1 N.Y.
- Community Collaborative Rain, Hail, and Snow Network (CoCoRaHS) reports from Middle Village/Queens 3.1NNW in Queens, N.Y.
- Super-resolution Reflectivity Doppler Radar images from the Upton, New York radar site that were zoomed in over the incident location
- Weather bulletins issued by the National Weather Service

ANALYSIS:

The following table is a summary of the daily weather and ground conditions day by day at the location of the incident. This summary includes the date, the Maximum temperature for the 24 hour period, the Minimum temperature for the 24 hour period, the Liquid-Equivalent precipitation total for the 24 hour period, the amount of snow and sleet that fell during the 24 hour period and the snow and ice depth that was present on the ground at 7:00 a.m. EST (in inches).

Date	Maximum Temperature	Minimum Air Temperature	Liquid Equivalent Precipitation	Snow/ Sleet	Snow/ Ice On Ground
12/7	36	17	0.00”	0.0”	4.0”
12/8	32	12	0.00”	0.0”	2.0”
12/9	36	29	0.95”	Trace + Ice	1.0”

On December 7th and 8th, 2016, no precipitation fell. Approximately 4.0" of old snow/ice was present on exposed, untreated and undisturbed surfaces on December 7th, 2016 and approximately 2.0" was present on December 8th, 2016, in addition to areas of melt/refreeze ice.

DECEMBER 9, 2016 (DAY OF THE INCIDENT)

On December 9th, 2016 (day of the incident), Doppler radar images that were zoomed in over the incident location and nearby surface observations indicated that light to occasionally moderate freezing rain fell from approximately 4:15 a.m. through 12:00 p.m. Light to occasionally moderate and heavy rain (which did not freeze on the ground) fell from approximately 12:00 p.m. through 1:19 p.m. (after the accident occurred). The precipitation changed to snow and fell with light to occasionally moderate and heavy intensity from approximately 1:19 p.m. through 2:57 p.m. A coating of snow and a glaze of slippery, dangerous ice approximately 1/10th to 2/10ths of an inch thick accumulated on December 9th, 2016.

According to the National Weather Service, "Freezing Rain" is defined as "Rain that falls as a liquid but freezes into glaze upon contact with the ground." As the liquid lands on these surfaces, it quickly turns to ice, thus causing a very slippery sheet of ice to form.

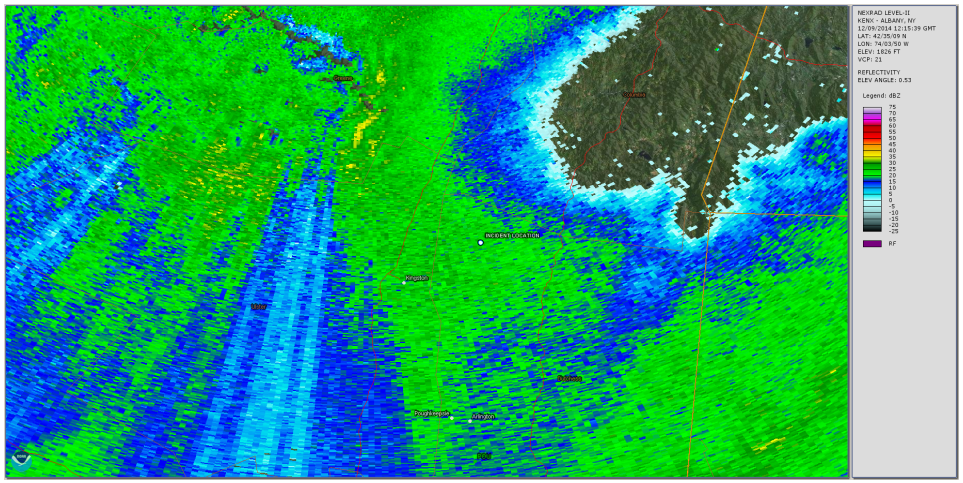
According to the National Weather Service, the following report of ice accumulation was received on December 9th, 2016:

- **Brooklyn, New York – 0.10" at 9:00 a.m.**

Between 7:15-7:30 a.m. EST on December 9th, 2016 (time and date of the incident), light freezing rain was falling, ice was actively accumulating, the temperature was 30 degrees, and a glaze of slippery, dangerous new ice approximately 1/10th-2/10ths of an inch thick accumulated thus far.

DOPPLER RADAR ANALYSIS

The following Doppler radar image was processed at 7:15 a.m. EST on December 9th, 2016 (the time of the accident) and the incident location is plotted in the center of the map. This image and area surface observations indicate that light freezing rain was falling at the incident location.



NWS BULLETINS, WARNINGS AND ADVISORIES

At 9:59 p.m. on December 8th, 2016, the National Weather Service continued its "Winter Weather Advisory" that was in effect until 11:00 a.m. on December 9th, 2016.

- ICE ACCUMULATIONS...A TRACE TO ONE TENTH OF AN INCH.
- SNOW ACCUMULATIONS...1 TO 3 INCHES.
- IMPACTS...SNOW AND OR ICE COVERED ROADS AND UNTREATED SURFACES...ESPECIALLY DURING THE MORNING HOURS MAKING FOR HAZARDOUS TRAVEL.

TEMPERATURE ANALYSIS FOR DECEMBER 9, 2016

On December 9th, 2016, the high temperature was 36 degrees Fahrenheit and the low temperature was 29 degrees Fahrenheit. The air temperature was above freezing from Midnight through 12:47 a.m. and then dropped below freezing from 12:47 a.m. through the remainder of the day.

REVIEW OF PHOTOGRAPH TAKEN AFTER THE INCIDENT

When we have these photographs we are able to opine whether condition is icy, wet, or pre-existing. In this photo that was taken a few days after the incident, snow was pushed, plowed or shoveled into a pile on the far side of a parking spot. This pile of snow/ice experienced melting and refreezing processes. The "runoff" seen across the parking lot is "black ice" that had been frozen solid since it formed. The condition of the parking lot in the photograph does not represent the condition when the accident occurred.

CONCLUSIONS

- On December 8th, 2016, approximately 2.0" of old snow/ice was present on exposed, untreated and undisturbed surfaces.
- Between 7:15-7:30 a.m. EST on December 9th, 2016 (time and date of the incident), light freezing rain was falling, ice was actively accumulating, the temperature was 30 degrees, and a glaze of slippery, dangerous new ice approximately 1/10th-2/10ths of an inch thick accumulated thus far.
- In the EBT transcript of Ms. Smith, when she was asked what the thickness and color of the ice was that she slipped and fell on, she stated "It was black ice, clear, and paper thin" (page 56, line 10). Ms. Smith's description of the ice is consistent with the 1/10th to 2/10ths of an inch of new ice that formed as a result of the winter storm that was occurring. It is not consistent with old snow or ice.
- Following my review of the photograph provided, it is evident that the conditions of the parking in the photo are not consistent with the slippery, icy and dangerous conditions that were present on the day of the accident.
- While Plaintiff's attorney, Mr. Jones, stated that only insignificant "Trace" amounts of freezing rain fell, he evidently was unaware that the rain gauge froze and was not recording true precipitation amounts.
- As a result of the frozen rain gauge and a plethora of other information indicating extremely slippery and dangerous conditions, Mr. Jones' statements that the ice was insignificant and non-measurable are incorrect and misleading.

By: Forensic Weather Consultants

The Forensic Weather Consultants Team

Howard Altschule, CEO

Certified Consulting Meteorologist

Renée Martin, Meteorologist

Director of Operations

Dillon Turner

Consulting Meteorologist

John Lombardo

Consulting Meteorologist

Kyle Gravlin

Consulting Meteorologist

How We Could Have Saved You $500,000

We Were Retained On a Wind Claim Stating the Carrier Already Paid $500,000 for Hail Damage based on a Vendor Hail Report and a 1.75" NOAA Hail Report 2 Miles Away. Our Site-Specific Radar Analysis Found that The Hailstorm Never Came Within 1.5 Miles of The Property.

Retaining Us Would Have Been a Worthwhile Investment!!

HAIL, WIND, AND TORNADO CASES

FORENSIC INVESTIGATION OF THE WEATHER CONDITIONS, WIND GUSTS AND HAIL ON MARCH 17, 2016 AT 120 BROADWAY IN DENTON, TEXAS

ASSIGNMENT:

This case was assigned to me by Yourtown Corporation. I was asked to perform an in-depth weather analysis and forensic weather investigation at 120 Broadway in Denton, Texas in order to determine in order to determine the weather conditions, wind speeds and hail sizes on March 17, 2016.

In order to perform my analysis of the weather conditions that existed, I obtained and reviewed official copies of the following weather records:

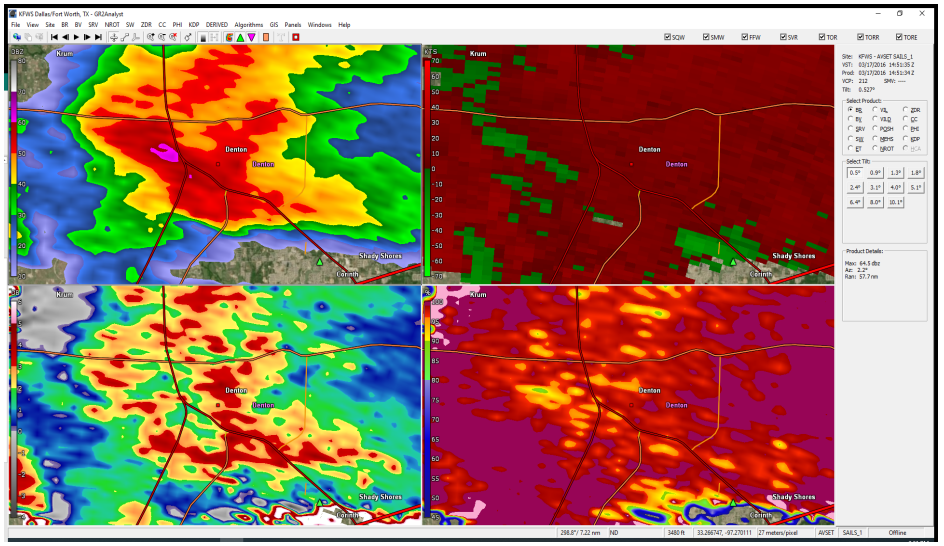
- National Weather Service Hourly Surface Weather Observations/ Local Climatological Data (LCD) from the Fort Worth Naval Air Station JRB (Carswell Field) Airport in Fort Worth, Texas
- Online Community Collaborative Rain, Hail and Snow Network (CoCoRaHS) reports for Denton County in Texas
- The publication entitled "Storm Data" for Texas in March 2016.
- Super-resolution Base Reflectivity, Velocity, and 0 to 50,000 Foot Cross-Section Doppler Radar images from the Dallas, Texas radar site zoomed in over the incident location.
- Dallas, Texas Dual-Polarization Radar Images Including: Differential Reflectivity, Correlation Coefficient, Specific Differential Phase
- Atmospheric sounding numerical data and charts from Fort Worth, Texas on March 17th, 2016.
- Local Storm Reports, CoCoRaHS Hail Reports, Weather Bulletins, Advisories, Warnings and Statements from the National Weather Service (NWS) in Fort Worth/Dallas, Texas.

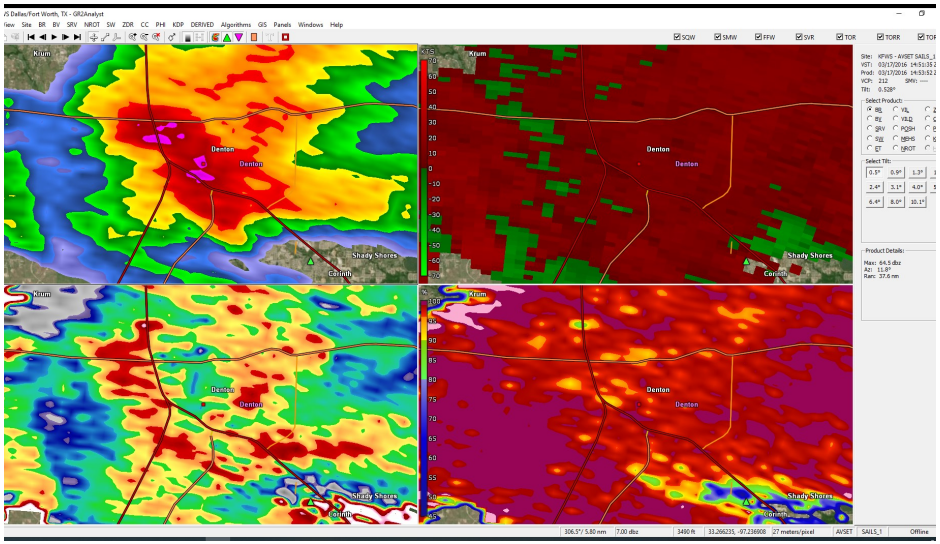
ANALYSIS:

Doppler radar images zoomed in over the incident location and other information indicated that a strong to severe thunderstorm affected the incident location from 9:30-10:15 a.m. on March 17th, 2016. During this time, reflectivity values were as high as 65 dBZ over the incident location, indicating that very large hydrometeors were present. This thunderstorm generally moved toward the east at 25 MPH. The Doppler radar beam was located at approximately 3,188 Feet above the ground over the incident location.

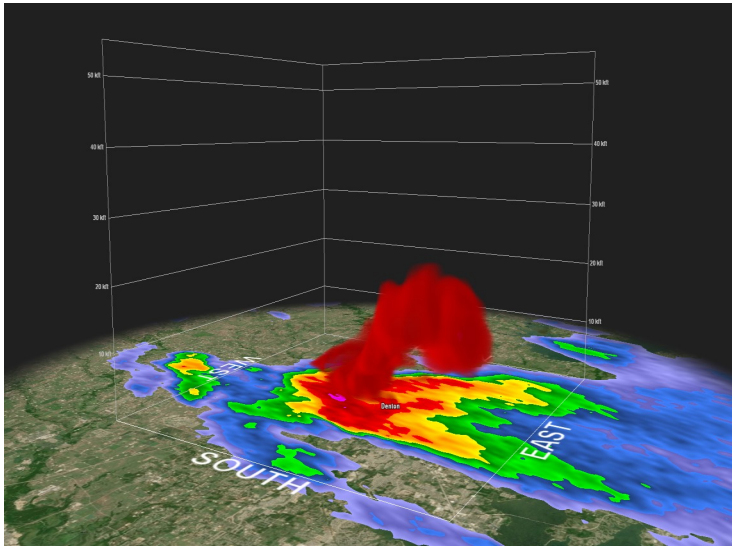
A "Severe Thunderstorm Warning" was in effect from 9:38 a.m. to 10:30 a.m. on March 17th, 2016 for hail up to 1.75" in diameter indicated.

Doppler radar images were processed at 9:51 a.m. and 9:53 a.m. CDT on March 17th, 2016 and depict super-resolution base reflectivity (top left), super-resolution base velocity (top right), differential reflectivity (bottom left), and correlation coefficient (bottom right). The -1.28 dB Differential reflectivity and 92% correlation coefficient values indicated large hail.





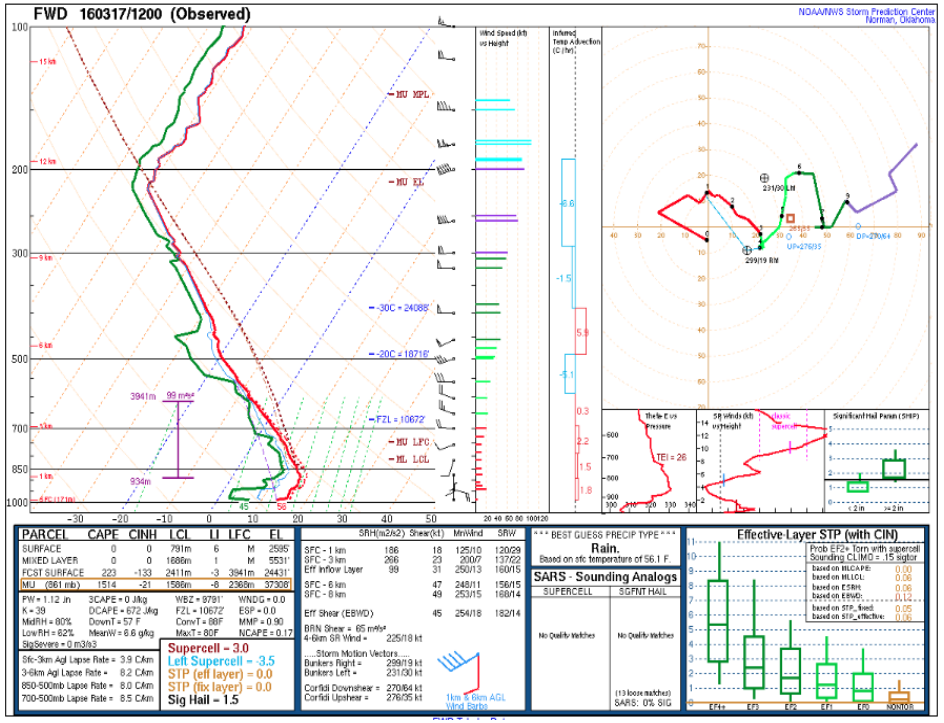
The Doppler radar images indicated that an intense thunderstorm moved over the incident location. The Doppler radar reflectivity cross-section images below indicated that 50 dBZ Reflectivity values extended over 22,000 feet above the ground at the incident location. This was at least TWICE as high as the environmental freezing level of 10,672 feet and much higher than the -20 degree Celsius level of 18,716 feet.



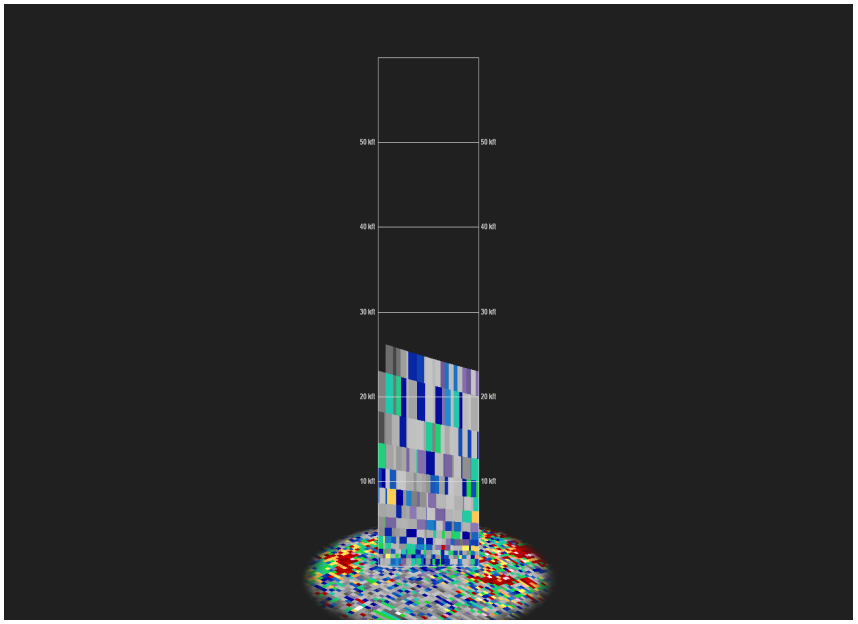
Very strong updraft were present and hailstones were following trajectories well above the 0 to –20 degree Celsius levels. Very large hail production was occurring over the incident location where a solid core of high reflectivity values between 50 dBZ and 60+ dBZ were present. This is consistent with findings of *Dennis and Kumjian 2017.* In addition, differential reflectivity and correlation coefficient values were –1.51 db and 90%, respectively. These values are also indicative of large hail.

RADIOSONDE (BALLOON LAUNCH) OBSERVATIONS

According to this radiosonde image (balloon launch) from Fort Worth, Texas at 7:00 a.m. CDT on March 17th, 2016, the Environmental Freezing Level (0 degrees Celsius Level) was located at approximately 10,672 Feet above the ground, and the -20 Degree Celsius Level was located at approximately 18,716 Feet above the ground. The sounding shows an environment that is favorable for supercell development and large hail given instability aloft and sufficient wind shear.



This Doppler radar differential reflectivity cross-section image depicts the vertical structure of differential reflectivity within the thunderstorm from the ground up. The blue/grays depict a ZDR channel and hail that is tumbling toward the ground. The incident location is located at the bottom center of the vertical cross-section box.

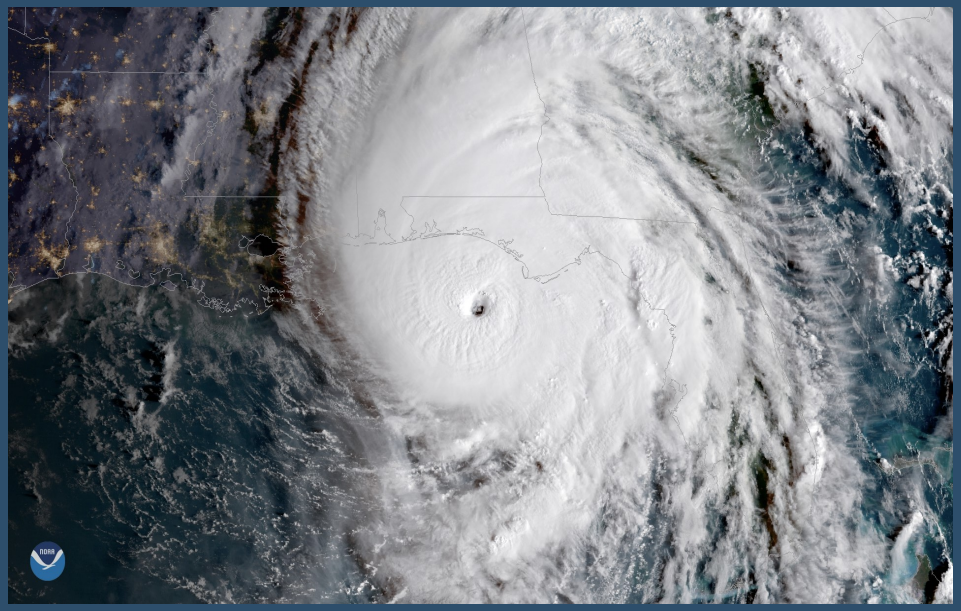


Local Storm Reports (LSR's) that were transmitted by the National Weather Service indicated that measured hail of 1.50" in diameter was reported 1.7 miles west of the incident location. Where this 1.50" hail was measured, Doppler radar base reflectivity values were very similar to those over the incident location. Measured hail of 1.50" was also reported 1.7 miles east-southeast of the incident location. Where this 1.50" hail was measured, base reflectivity values were also very similar to those over the incident location. Thus, following my analysis of the weather records and Doppler radar data indicated above, it is my opinion that hail of varying sizes, as large as 1.50" inches in diameter, affected the incident location as a severe thunderstorm moved through.

I have been advised that the following photograph was taken 2.5 miles east of the incident location. The hailstones in this photo vary but are as large as approximately 2.00" in diameter. Since the severe thunderstorm intensified further as it moved east of the incident location these photos of 2.00" hail are consistent with a stronger storm, with slightly smaller hailstones (up to 1.50") occurring at the incident location.

CONCLUSIONS

- A strong to severe thunderstorm affected the incident location from approximately 9:30-10:15 a.m. on March 17th, 2016.
- A "Severe Thunderstorm Warning" was in effect from 9:38 a.m. to 10:30 a.m. on March 17th, 2016 and stated that hail up to 1.75" in diameter and wind gusts in excess of 60 MPH were expected. This warning also stated that a severe thunderstorm was near Denton with golf-ball sized hail.
- A severe thunderstorm affected the incident location during the morning of March 17th, 2016 causing hail of varying sizes, as large as 1.50" in diameter, and wind gusts up to 45 MPH at the incident location according to Doppler radar velocity images and storm reports.
- Gusty winds caused the hail to fall from different angles and directions.



HURRICANE WIND (VS. WATER) CASES

FORENSIC INVESTIGATION OF THE WEATHER CONDITIONS, WIND SPEEDS, AND STORM SURGE HEIGHTS DURING HURRICANE MICHAEL ON OCTOBER 10, 2018 AT 807 CLARK ST. IN MEXICO BEACH, FLORIDA

ASSIGNMENT:

This case was assigned to me by Yourtown Corporation. I was asked to perform a weather analysis and forensic weather investigation to determine the weather conditions, wind speeds and storm surge heights at 807 Clark Street in Mexico Beach, Florida during Hurricane Michael.

I obtained official copies of the following weather records:

- National Weather Service Hourly Surface Weather Observations/Local Climatological Data (LCD) from the Tyndall Drone Runway in Panama City, Florida
- Surface Observations from Weatherflow Mesonet Station XUF2T
- Remote Automated Weather Station reports from Sumatra, Florida
- Community Collaborative Rain, Hail and Snow Network (CoCoRaHS) reports from Lynn Haven 1.6 SSE, Florida
- Numerous Doppler Radar and dual-polarization images from Elgin Air Force Base, Florida zoomed in over the incident location
- United States Geological Survey (USGS) Water Gage and Storm Tide Sensor reports
- National Weather Service Bulletins, Warnings, Statements, Reports
- High Water Mark Data from the U.S. Geological Survey

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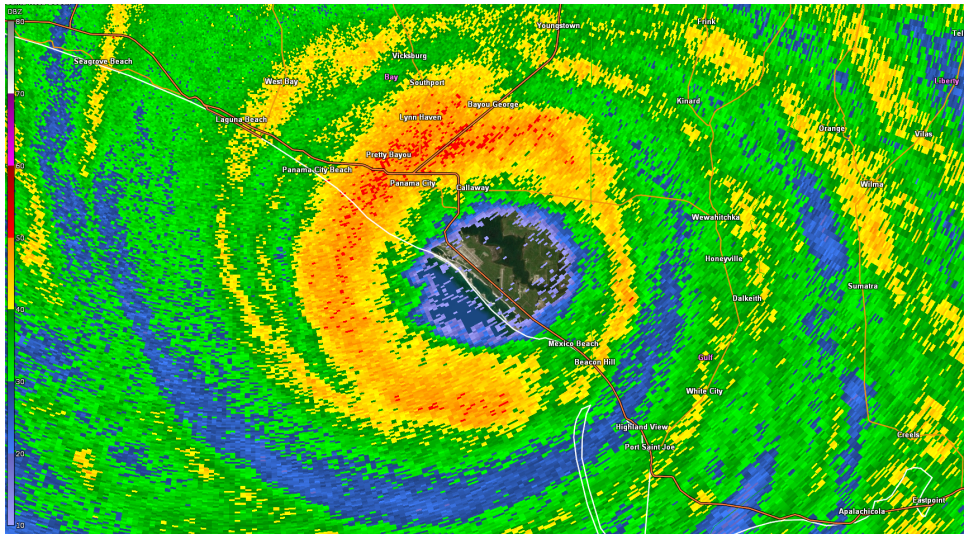
METEOROLOGICAL ANALYSIS ON OCTOBER 10, 2018

Doppler radar images that were zoomed in over the incident location and area weather observations indicated that as Hurricane Michael moved northward toward the Florida Panhandle, on and off light rain began to fall at approximately 12:05 a.m. CDT on October 10th, 2018. As the outer bands became increasingly more common, the rain became steadier, and light to occasionally moderate and heavy rain, torrential downpours, squalls and strong, gusty winds occurred at times. At approximately 8:10 a.m. CDT on October 10th, 2018, very intense rain was falling with squalls and strong, gusty winds. The outer eyewall and the northwestern portions of the inner eyewall itself moved over the incident location producing extreme winds, squalls, and steady torrential rain. The eyewall affected the incident location from 11:31 a.m. to 1:26 p.m. CDT on October 10th, 2018.



This Doppler radar base reflectivity image was processed at 12:33 p.m. CDT on October 10th, 2018. Radar and surface reports indicated that winds up to 128 MPH were affecting the incident location along with heavy rain.

During this time and for the following 45 minutes, the winds were most intense at the incident location as a result of Hurricane Michael.

The National Weather Service transmitted numerous wind reports that were recorded on October 10th, 2018 as a result of Hurricane Michael.

FCMP T2 Beacon Hill: Maximum wind gust of 127 Miles Per Hour (MPH) at 12:51 p.m. CDT on October 10th, 2018.

FCMP T3 Tyndall Air Force Base: Maximum wind gust of 130 Miles Per Hour (MPH) from 078° (*east-northeast*) at 11:53 a.m. CDT on October 10th, 2018.

HOURLY ANALYSIS OF PEAK WINDS AND STORM TIDE:

OCTOBER 10, 2018 (CDT)	PEAK WINDS INCLUDING GUSTS (MPH)	STORM TIDE WITH WAVE HEIGHTS (in FEET)
6:15 AM	41	0.0
6:30 AM	40	0.0
6:45 AM	43	0.0
7:00 AM	35	0.0
7:15 AM	38	0.0
7:30 AM	31	0.0
7:45 AM	37	0.0
8:00 AM	39	0.0
8:15 AM	43	0.0
8:30 AM	49	0.0
8:45 AM	54	0.0
9:00 AM	46	0.0
9:15 AM	46	0.0
9:30 AM	46	0.0
9:45 AM	52	0.0
10:00 AM	57	0.0
10:15 AM	61	0.0
10:30 AM	65	0.0
10:45 AM	69	0.0
11:00 AM	73	0.0
11:15 AM	72	0.0
11:30 AM	88	0.0
11:45 AM	88	0.0
12:00 PM	108	0.0
12:15 PM	123	4.6
12:30 PM	123	8.8
12:45 PM	128	3.5
1:00 PM	128	0.7
1:15 PM	117	0.0
1:30 PM	111	0.0
1:45 PM	103	0.0
2:00 PM	88	0.0
2:15 PM	84	0.0
2:30 PM	87	0.0
2:45 PM	83	0.0
3:00 PM	71	0.0
3:15 PM	67	0.0
3:30 PM	69	0.0

CONCLUSIONS

In conclusion, it is my opinion that:

- Hurricane Michael produced maximum wind gusts of approximately 128 Miles Per Hour (MPH) at the incident location.
- Peak wind gusts exceeded hurricane force well before the storm tide with waves reached the property. In fact, extreme wind gusts reached approximately 101 Miles Per Hour (MPH) before the storm tide with waves arrived at the incident location.
- The National Weather Service in Tallahassee, Florida issued an "Extreme Wind Warning" at 10:11 a.m. CDT on October 10th, 2018. This wind warning stated that extreme winds in excess of 130 MPH associated with the eyewall of Hurricane Michael were moving onshore.
- This "Extreme Wind Warning" was issued and in effect well before the storm tide with waves reached the property (approximately 1 1/2 hours prior to the storm tide with waves reaching the property).
- I reviewed the engineering report that was prepared by Structural LLP. In their report, they concluded that the storm surge waters with waves reached the property before sustained hurricane force winds occurred.
- Following my analysis of the data that Structural LLP utilized, it is evident that the engineer failed to add the elevation of the structure above NAVD88 to the height of the water level with waves. Therefore, by not doing so, the timing of the storm surge water levels with waves was flawed and occurred much later than indicated. As such, it is my opinion that their conclusions with regard to the timing of the winds and waves are erroneous.

Prepared By: Joe Smith

Forensic Weather Consultants

U.S. District Court - Northern District of New York

SUSAN BRISBOIS

-against-

UNITED STATES OF AMERICA, FDI POSTAL PROPERTIES

Presently before the Court are motions by FDI and the United States of America for summary judgment. For the reasons that follow, both motions are granted. On February 15, 2014, Plaintiff slipped and fell on the walkway leading to the post office in Tillson, New York. The Government argues that it is entitled to summary judgment because there is no evidence that it caused or had notice of the ice patch on which Plaintiff slipped. It further claims that Plaintiff's claims must be dismissed because the "storm in progress" doctrine absolves a landowner or party in possession of liability for injuries sustained as a result of slippery conditions that occur during, or soon after, an ongoing storm.

The Government offers the forensic weather report of certified consulting meteorologist Howard Altschule to show there was a storm in progress at the time of Plaintiff's fall. The Altschule Report reveals that approximately twenty inches of snow fell in the Tillson area on February 13 and 14, 2014, resulting in twenty-six inches of snow on the ground on the morning of February 15. Additionally, a melting and refreezing process occurred in the early morning hours of February 15, which caused new ice to form overnight. New snow fell throughout February 15, beginning at approximately 5:05 AM.

New York courts have explained that evidence of a storm in progress "is especially persuasive when based upon the analysis of a licensed meteorologist," such as Altschule.

Government is entitled to summary judgment. **ORDERED**, that the Government's Motion is **GRANTED** and Complaint **DISMISSED.**

New York Supreme Court - Suffolk County

MARLENE GIUSTI,

-against-

7-ELEVEN,

This is an action to recover damages for personal injuries allegedly sustained by the plaintiff when she slipped and fell on ice on the sidewalk of a 7-Eleven Store. Defendants move for summary judgment dismissing the complaint on the issue of liability as to claims that the premises was not properly maintained, indicating that no icy condition was noted upon inspection of the premises prior to the incident. In support of motion, defendants submitted an attorney's affirmation, and NOAA papers entitled "Quality Controlled LCD".

Plaintiff raised factual issues concerning the climatological data, submitting the affidavit of a meteorologist, who opines that counsel for the defendant relied upon records from Farmingdale, nine miles from the accident site, and not from Centerport, which is located only 2 miles from the accident. The Centerport data, he states, indicates that precipitation fell over the incident location during the morning and causes a light coating of snow to accumulate. At the time of the accident, the sky was clear, the temperature was 30 degrees, and approximately 3.0" of snow and ice, in addition to areas of melt/refreeze ice present on exposed, untreated, and undisturbed surfaces. The temperature did not rise to above freezing until 9:30 a.m., after the accident. **Plaintiff's expert continues the air temperature had been below freezing for approximately 9 hours prior to the incident, and therefore, the ice upon which the plaintiff had fallen had been there for at least 7-9 hours, or more, before the accident occurred.**

This raises a factual issue of the existence of an icy condition for a sufficient period of time to give the defendant constructive notice .

Defendants Motion to Dismiss is **DENIED**.

(Portions of the Federal Court Decision)

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Admin@WeatherConsultants.Com (email)