FloridaClimateCenter
Office of the State Climatologist

February 17, 2015

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150 Southeast Second Avenue
Suite 1200
Miami, Florida 33131

Client Matter: 71336
Claim Number: 000-10-092885
Location of Interest: 15405 SW 63rd Terrace, Miami, FL 33193
Time Period of Interest: November 27, 2013; 12:00 AM – 11:59 PM LDT

To Whom It May Concern:

Included with this letter you will find information you requested from our office concerning weather observations for the area of Miami, Florida. Hourly observations provided were taken from the Automated Surface Observing System (ASOS) stations located at the Kendall-Tamiami Airport, and the Miami International Airport, which are approximately 4 and 11 miles from the location of interest, respectively. Data provided for this report are from November 27, 2013. Also attached is a list of conversions and meteorological identifiers that will help you decipher the information. A map of the area, courtesy of Google Maps, has also been included. Note the locations of the stations and area of interest, marked by either yellow pushpins or other identifiers.

The ASOS system serves as the nation's primary surface weather observing network and is designed to support weather forecast activities and aviation operations and, at the same time, support the needs of the meteorological, hydrological, and climatological research communities. ASOS detects significant changes, disseminating hourly and special observations. These observations are on archive and were provided by the National Climate Data Center (NCDC).

Observations from Kendall-Tamiami Airport during the time period of interest are summarized below:

Date	Time	Visibility	Temp	Dew Point	Relative Humidity	Wind	Wind Gust	Pressure	Present Weather	Report Type
27	0007	7 miles	72˚F	72˚F	100%	SW 13 mph	30 mph	M	Vicinity Thunder Rain	Special
27	0016	10 miles	72˚F	M	M	S 7mph	--	M	Light Rain	Special
27	0023	10 miles	72˚F	M	M	SW 6 mph	--	M	Vicinity Thunder Rain	Special
27	0038	10 miles	72˚F	M	M	SSW 7 mph	--	M	Light Rain	Special
27	0051	10 miles	72˚F	M	M	SW 7 mph	--	M	Vicinity Thunder Rain	Special

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Date	Time	Visibility	Temp	Dew Point	Relative Humidity	Wind	Wind Gust	Pressure	Present Weather	Report Type
27	0053	10 miles	72˚F	M	M	SW 7 mph	--	29.88”	Vicinity Thunder Rain	Auto
27	0113	2.5 miles	72˚F	M	M	SW 7 mph	--	M	Heavy Rain	Special
27	0119	5 miles	72˚F	M	M	WSW 8 mph	--	M	Vicinity Thunder Rain	Special
27	0153	5 miles	71˚F	M	M	Calm	--	29.86”	Rain	Auto
27	0253	8 miles	71˚F	M	M	Calm	--	29.84”	Light Rain	Auto
27	0353	8 miles	71˚F	M	M	E 3 mph	--	29.83’	Light Rain	Auto
27	0453	10 miles	71˚F	M	M	E 6 mph	--	29.83”	Light Rain	Auto
27	0553	9 miles	72˚F	M	M	E 8 mph	--	29.85”	Light Rain	Auto
27	0653	10 miles	72˚F	M	M	SW 5 mph	--	29.86”	Light Rain	Auto
27	0730	8 miles	72˚F	M	M	SW 7 mph	--	M	Light Rain	Special
27	0753	10 miles	72˚F	M	M	SW 6 mph	--	29.89”		Auto
27	0805	7 miles	72˚F	M	M	SSW 10 mph	--	M	Light Rain	Special
27	0810	2 miles	72˚F	M	M	W 10 mph	--	M	Rain	Special
27	0820	1.5 miles	72˚F	M	M	W 13 mph	18 mph	M	Rain	Special
27	0823	2 miles	72˚F	M	M	W 13 mph	20 mph	M	Rain	Special
27	0832	10 miles	72˚F	M	M	WSW 13 mph	--	M	Light Rain	Special

*Var = Variable
*M = Missing

Observations from Miami International Airport during the time period of interest are summarized below:

Date	Time	Visibility	Temp	Dew Point	Relative Humidity	Wind	Wind Gust	Pressure	Present Weather	Report Type
27	0025	5 miles	73˚F	72˚F	97%	SSW 11 mph	21 mph	M	Thunder-storm with Fog/Mist	Special
27	0051	10 miles	73˚F	72˚F	97%	SSW 6 mph	--	M	Light Rain	Special
27	0053	10 miles	73˚F	71˚F	93%	SSW 6 mph	--	29.88”		Auto

Date	Time	Visibility	Temp	Dew Point	Relative Humidity	Wind	Wind Gust	Pressure	Present Weather	Report Type
27	0153	7 miles	72˚F	70˚F	93%	SW 5 mph	--	29.87”		Auto
27	0253	9 miles	72˚F	70˚F	93%	Calm	--	29.84”	Rain	Auto
27	0353	9 miles	72˚F	70˚F	93%	Calm	--	29.84”	Rain	Auto
27	0453	10 miles	71˚F	70˚F	97%	SSE 5 mph	--	29.83”	Light Rain	Auto
27	0553	7 miles	72˚F	70˚F	93%	SSE 9 mph	--	29.85”		Auto
27	0653	7 miles	72˚F	70˚F	93%	SW 6 mph	--	29.86”		Auto
27	0753	10 miles	72˚F	71˚F	97%	SW 7 mph	--	29.89”		Auto
27	0803	2.5 miles	72˚F	70˚F	93%	SSW 9 mph	--	M	Light Rain and Fog	Special
27	0812	7 miles	72˚F	72˚F	100%	SSW 10 mph	--	M	Light Rain	Special
27	0851	10 miles	72˚F	72˚F	100%	WSW 7 mph	--	M		Special
27	0853	10 miles	72˚F	71˚F	97%	WSW 7 mph	--	29.91”		Auto

*Var = Variable
*M = Missing

Hourly observations from all airports indicate that rain fell in the area, during the early morning hours on the 27th.

In addition to the data from the airports, observations of daily precipitation totals were taken from COOP stations surrounding the area of interest. These COOP stations are sites where observations are taken or other services rendered by volunteers or contractors. Observers record temperature and precipitation daily and send those reports monthly to NCDC and a NWS office. The COOP stations vary in the times that they report the weather information they’ve collected, so these totals are for the 24-hour period, usually beginning/ending between 7:00AM and 9:00 AM, though some stations report outside of that time window. For example, daily data are collected by the COOP station and reported from 4pm to 4pm, which means rain that fell on a particular day (example: 11/26/13) could be reported the following day (example: 11/27/13). Daily values of temperatures and precipitation from each station are included with this report. Any variable listed as -999 represents a missing value for the day.

Station	NWS COOP ID	Time of Observation	Rainfall Total 11/26/2013	Rainfall Total 11/27/2013	Rainfall Total 11/28/2013
Miami Kendall-Tamiami	KTMB	2400	0.74”	0.99”	0.00”
Miami International Airport	085663	2400	0.37”	1.14”	0.00”
Perrine	087020	0800	0.51”	1.37”	0.06”
Hialeah	083909	0800	0.11”	1.69”	0.00”

Also included with this letter are official paper copies of requested radar images, provided by NCDC, for certain times during the event. The images provided are known as Base Reflectivity Images, which display echo intensity measured in dBZ (decibels of Z, where Z represents the energy reflected back to the radar). The scale of dBZ values is also related to the intensity of rainfall. Dates and times are located on the right hand side of each image (year/month/date/time are given in GMT). Since time is given in GMT, the date on the first image reflects being taken at 00:00 GMT on the 27th, which corresponds to 7:00 PM EST on the 26th.

The provided images were taken from the radar site located in Key West, located near the Key West National Weather Service Office and the approximate location of interest is noted on each image. Typically, radar images would have been taken from the radar site from Miami, FL; however, data was unavailable from radar on 11/27/13 (see included attachment).

Shower activity is seen along the West Florida coast at 00:00 GMT (7:00 PM EDT on the 26th) and as the evening progressed, the showers moved in from west, while an area of thunderstorm activity approached the area of interest from the southwest. By 03:53 GMT (10:53 PM EST on the 26th), light rain moves into the area. Typically, light rain is occurring when the dBZ value reaches 20, and values of 45-50 dBZ usually indicate moderate to heavy rainfall. Depending on the type of weather occurring and the area of the U.S., forecasters use a set of rain-rates, which correspond to the dBZ values.

Heavy rain approaches the location at 04:01 GMT (11:01 PM EST on the 26th), and impacts the area until roughly 05:02 GMT (12:02 AM EST on the 27th), when heavy rain gives way to light rain. Another band of heavy shower activity moves through the area from 05:55 GMT until 07:53 GMT (12:55 AM to 2:53 AM EST). Light rain continues from 07:53 GMT (2:53 AM EST) until 09:52 GMT (4:52 AM EST), with a short burst of heavier rain around 08:35 GMT (3:35 AM EST). At 09:57 GMT (4:57 AM EST), moderate rainfall begins to fall over the location of interest, lasting until 11:03 GMT (6:03 AM EST). After that time, light rain continues to fall over the area until 13:10 GMT (8:10 AM EST). You will notice DBZ values between 5 and 15 dBZs, especially between 13:10 GMT (8:10 AM EST) and 13:38 GMT (8:38 AM EDT), mainly due to ground clutter and backscatter from clouds, smoke, fog, and temperature inversions; even buildings and antenna towers can reflect small amounts of radar energy during a radar sweep.

Based on the data provided to us, stations surrounding the area of interest reported rainfall and radar images indicate that light to moderate rain fell over the location of interest during the early morning hours on the 27th of November 2013.

I hereby certify that the data provided are true copies of the specified records and/or publications for the times and places indicated thereon on file at the National Climatic Data Center in Asheville, NC, and the Southeast Regional Climate Center in Chapel Hill, NC.

Sincerely,

David F. Zierden
Florida Climate Center
The Florida State University
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