

# RUTGERS

THE STATE UNIVERSITY  
OF NEW JERSEY

## Play Ball – or NOT! Whether the weather will compel you to call the game off

A lesson developed for the  
2015 NJ Science Convention

by

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Rutgers University



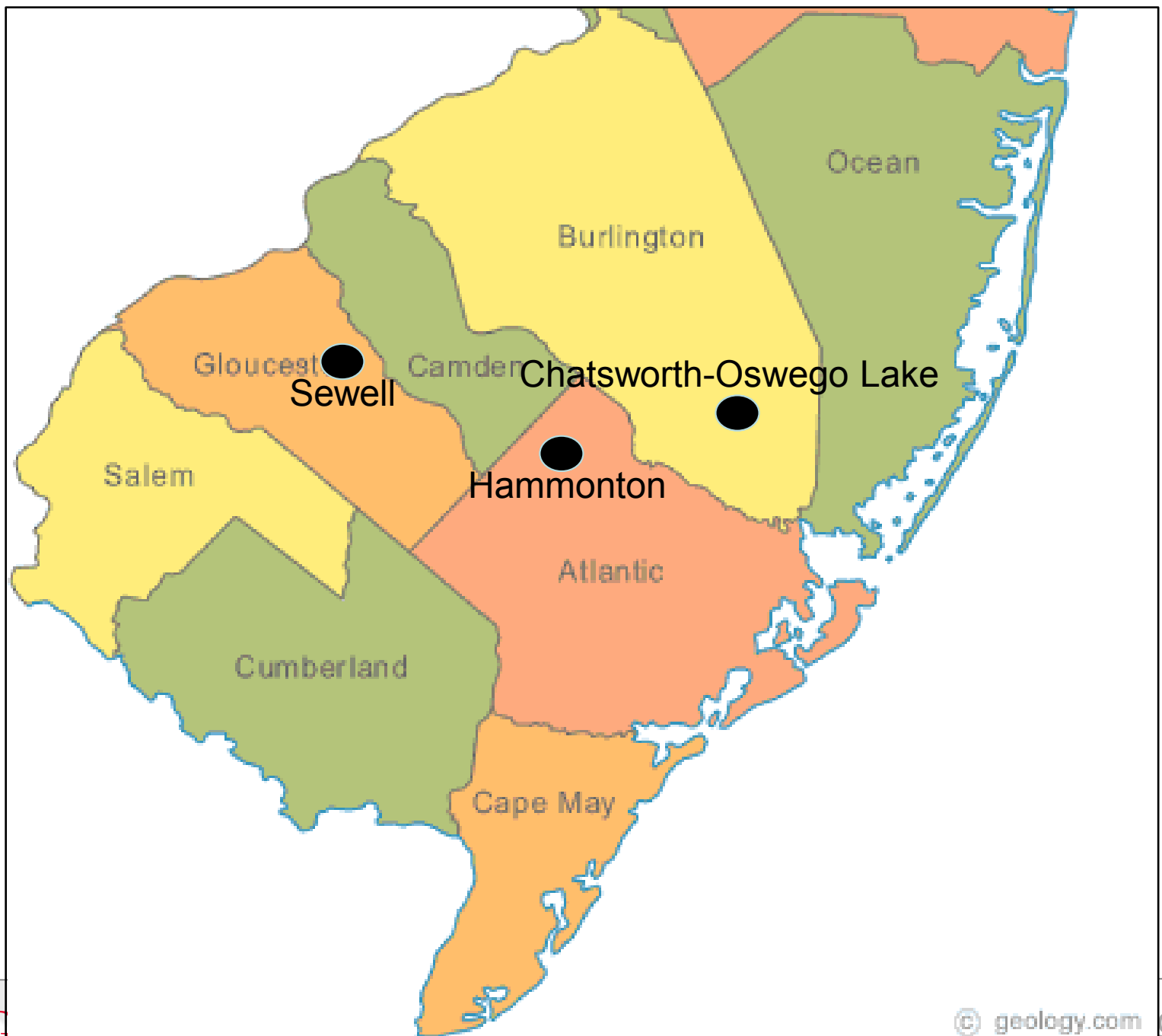
# PART 1

# Scenario

June 23, 2015

The Chatsworth Little League championship game is scheduled for a 6:00 PM first pitch. There is pressure to get the game in as the school year is ending.

The weather forecast has south Jersey in a zone where severe weather may occur during the late afternoon or evening.



Outlook issued at 8:00 AM June 23, 2015





# National Weather Service Forecast

## 12:30 PM 23 June 2015

### **Forecast**

SOUTHEASTERN BURLINGTON-  
INCLUDING THE CITIES OF...WHARTON STATE FOREST  
1230 PM EDT TUE JUN 23 2015

...SEVERE THUNDERSTORM IN EFFECT UNTIL 7 PM EDT THIS  
EVENING...

.THIS AFTERNOON...SHOWERS AND THUNDERSTORMS LIKELY. SOME  
THUNDERSTORMS MAY BE SEVERE WITH DAMAGING WINDS.  
BREEZY...HOT  
WITH HIGHS IN THE MID 90S. SOUTHWEST WINDS 15 TO 20 MPH WITH  
GUSTS UP TO 30 MPH. CHANCE OF RAIN 70 PERCENT.



# Dilemma

Make a late afternoon decision to postpone the game?

or

Start the game and keep an eye on the weather?

or

Start the game early and get it in before a storm arrives?

or

Pay no attention to the forecast?



# PART 2

# National Weather Service Forecast

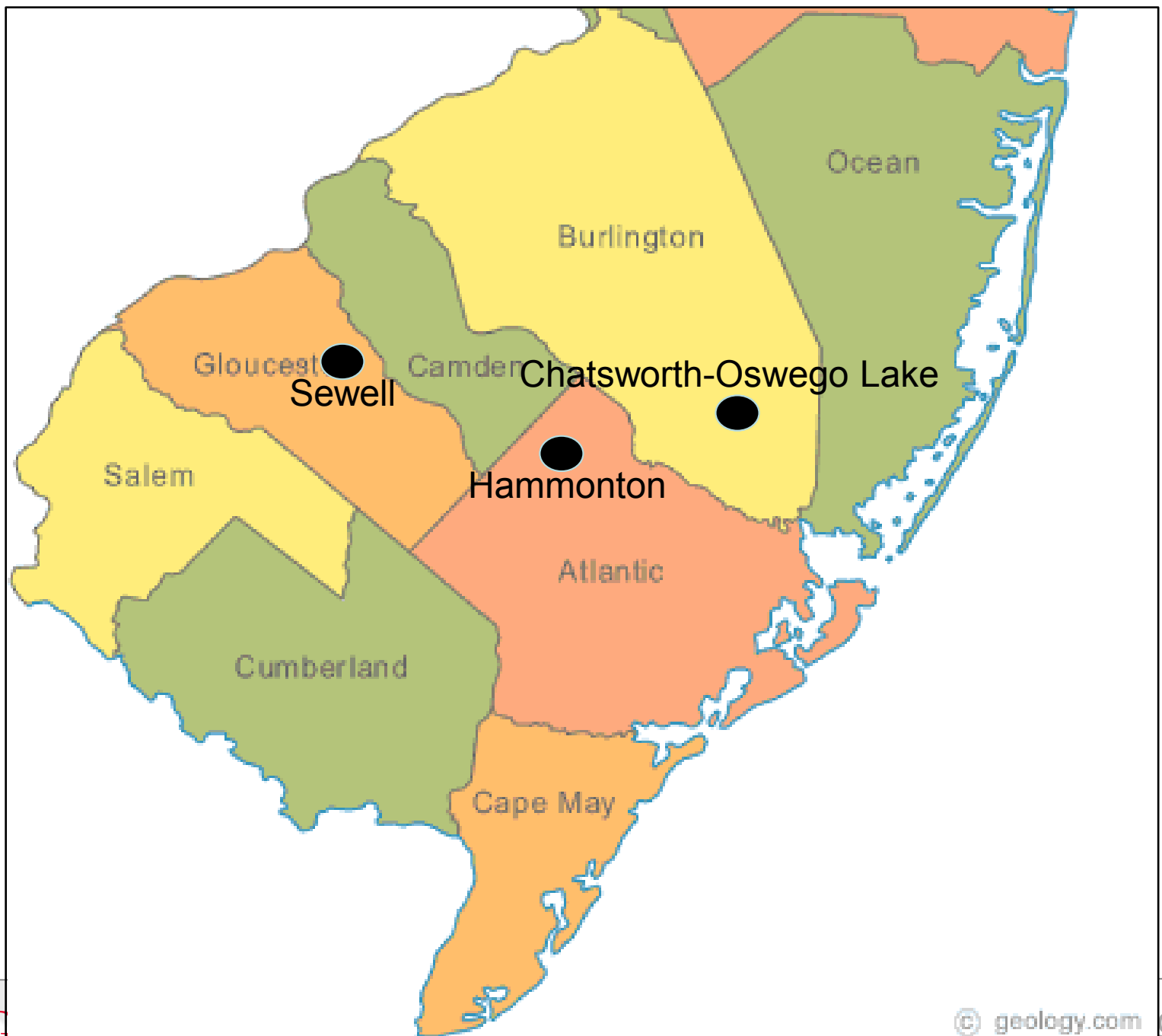
## 4:15 PM 23 June 2015

### **Forecast**

SOUTHEASTERN BURLINGTON-  
INCLUDING THE CITIES OF...WHARTON STATE FOREST  
415 PM EDT TUE JUN 23 2015

...SEVERE THUNDERSTORM IN EFFECT UNTIL 11 PM EDT THIS  
EVENING...

.TONIGHT...MOSTLY CLOUDY WITH SHOWERS AND THUNDERSTORMS  
LIKELY THIS EVENING...THEN PARTLY CLOUDY AFTER MIDNIGHT.  
SOME THUNDERSTORMS MAY BE SEVERE WITH DAMAGING WINDS.  
LOWS IN THE UPPER 60S. NORTHWEST WINDS 5 TO 10  
MPH...BECOMING NORTH AFTER MIDNIGHT. CHANCE OF RAIN 60  
PERCENT.



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Wind Gusts

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### Third Warmest and Driest as Drought Concerns Arise, and a Pronounced Transition: May and Spring 2015 Recap

Thursday, June 4, 2015 - 8:52pm

A fog bank sits just offshore of Sea Girt (Monmouth County) during the afternoon of May 31st. Photo by Captain Jim Freda, Beach Manager for Borough of Sea Girt (@SGLifeguards).

May 2015 was a warm and dry month across New Jersey. As the month ended, drought concerns were looming large, though rainfall in the north during the afternoon and evening of the 31st and continuing into the first days of June resulted in at least a temporary braking of the downward slide. Based on data gathered at long-term National Weather Service Cooperative Observing (COOP) stations, May rainfall averaged 1.08" across NJ. This is 2.92" below the 1981-2010 mean and ranks as the 3rd driest May since records commenced in 1895.

As those who have been reading these monthly narratives for some time now know, precipitation that falls at COOP stations after

Latest Extremes

City, State	Temp	City, State	Temp
Jersey City (LSC), NJ	84	High Pt. Monument, NJ	70
Mansfield, NJ	83	High Point, NJ	74
Sea Girt, NJ	83	Netcong, NJ	75
Hillsborough, NJ	83	Pittstown, NJ	77
Cape May Court House, NJ	83	Wantage, NJ	77

most current information as of Jun 21 12:25 PM

Latest Conditions & Forecast

West Cape May, NJ

82°F

Wind

5 mph from the WNW

Wind Gust

15 mph from the WNW

Partly  
87°F  
This Afternoon

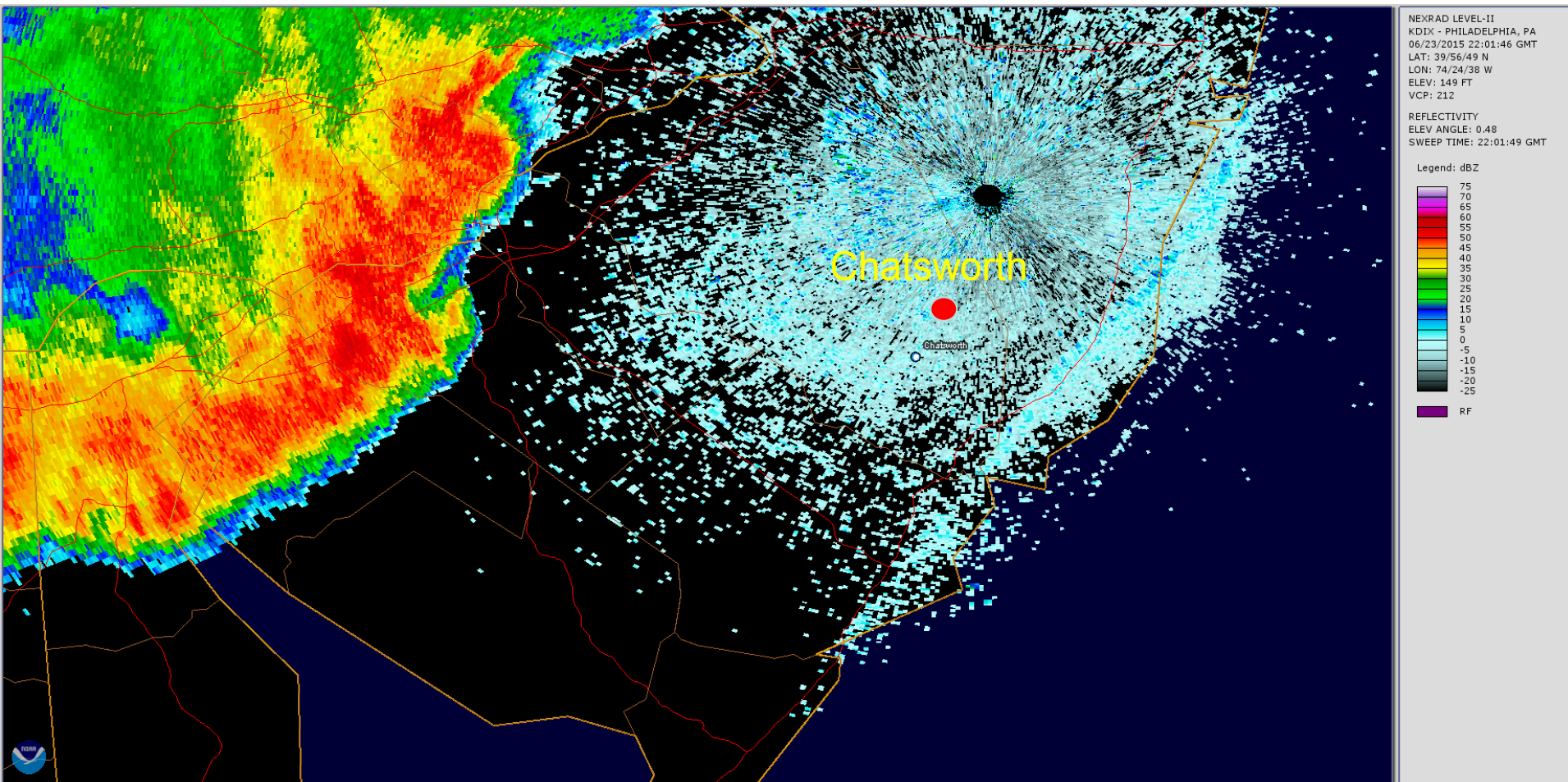
Slight Chc  
74°F  
Tonight

Sunny  
87°F  
Monday

Mostly  
71°F  
Monday Night

RUTGERS

# Radar: 6:00 PM 23 June 2015





## Oswego Lake, NJ

Philip E. Marucci Center for Blueberry and  
Cranberry Research

[SET AS FAVORITE](#)

[GO](#)

### Latest NWS Forecast



Mostly Clear

52 °F

#### Tonight

Mostly clear, with a low around 52. Northwest wind around 6 mph becoming calm in the evening.



Mostly Sunny

70 °F

#### Thursday

Mostly sunny, with a high near 70. Calm wind becoming east around 5 mph in the afternoon.



Partly Cloudy

55 °F

#### Thursday Night

Partly cloudy, with a low around 55. Light southeast wind.



Partly Sunny then  
Scattered Showers

79 °F

#### Friday

Isolated showers between noon and 3pm, then scattered showers and thunderstorms after 3pm. Partly sunny, with a high near 79. Southwest wind 7 to 11 mph. Chance of



Showers Likely

57 °F

#### Friday Night

Scattered showers and thunderstorms before 8pm, then showers likely and possibly a thunderstorm between 8pm and 2am, then scattered showers after

#### Saturday

### Latest Conditions

71 °F



[Wind](#)

--

[Wind Gust](#)

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Temperature  
Heat Index  
Dewpoint  
Wind Speed/Gust  
Precip

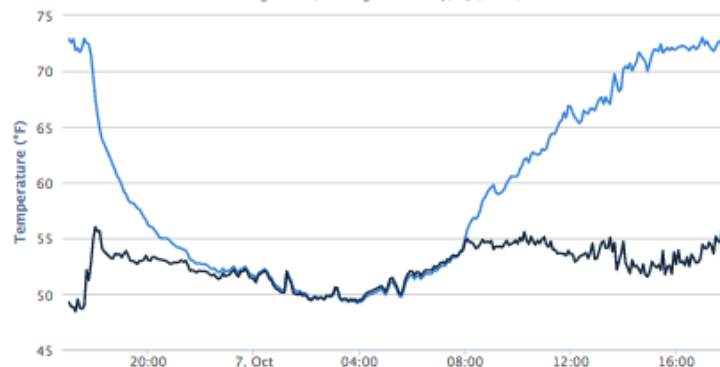
Now	This Hour		Last 6 hr		Today		Last 24 hr	
71	72	73	65	73	49	73	49	73
--	--	--	--	--	--	--	--	--
58	53	57	50	58	49	57	49	58
0	--	7	--	14	--	14	--	14
--	0.00		0.00		0.00		0.00	

Values in blue are minimums, values in red are maximums. Data as of Oct 7 05:55 PM.

View expanded tabular data for this station: [5 Minute](#) / [Hourly](#) / [Daily](#)

### Trends and Climatologies

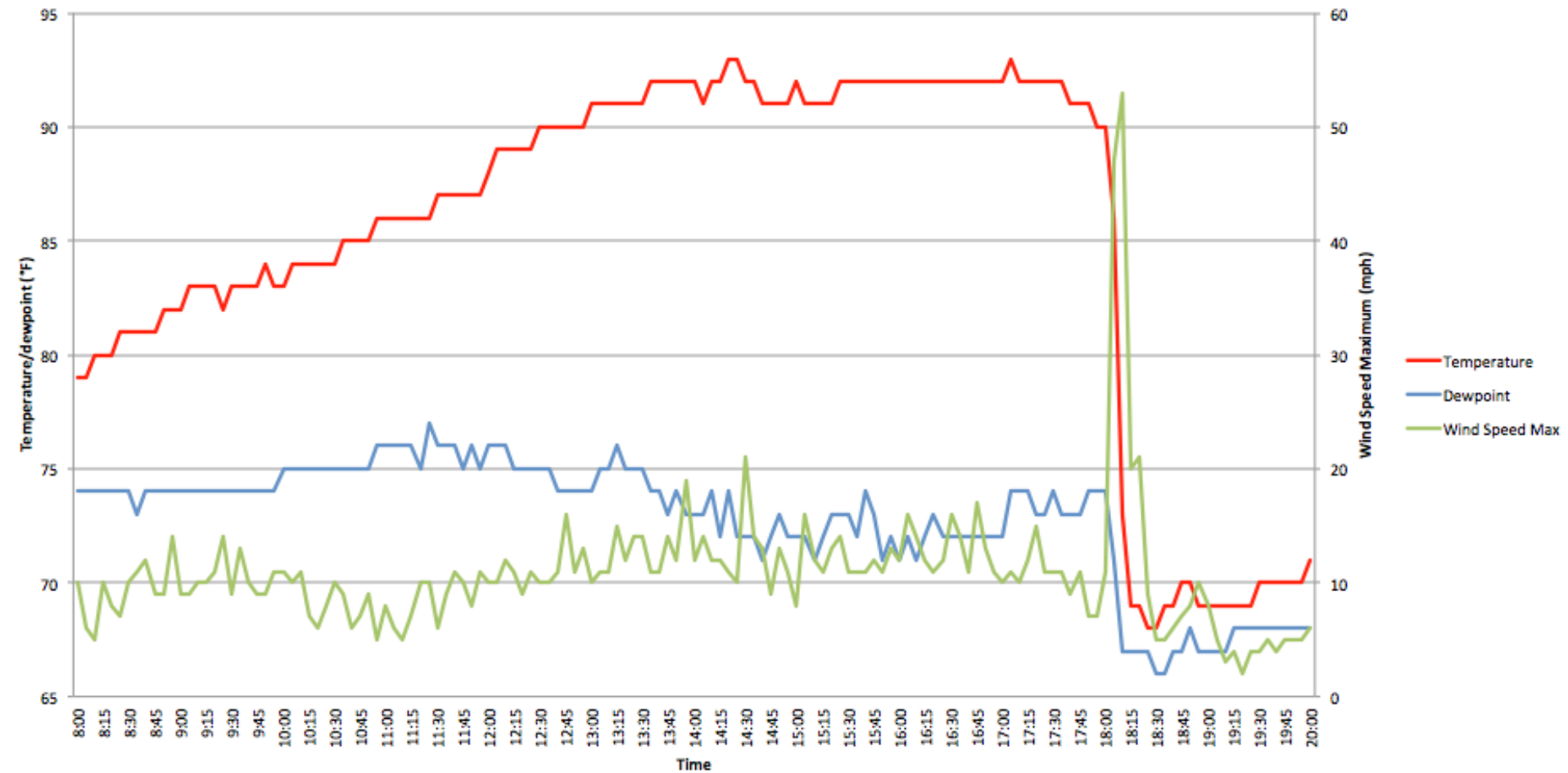
Temperature / Dew Point  
Oswego Lake, Burlington County, NJ (#317)



Office of the New Jersey State Climatologist (NJClimate.org)

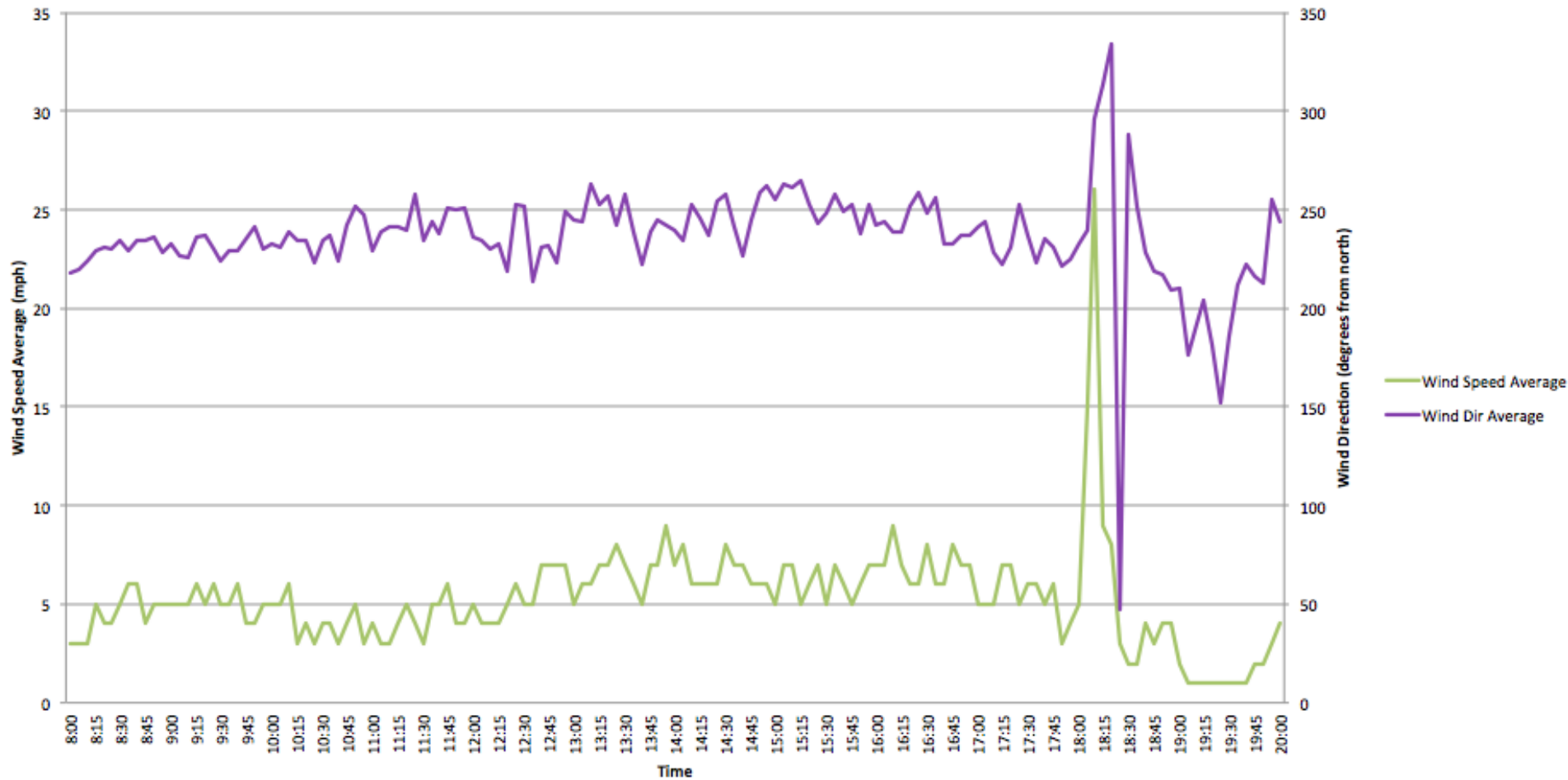
Wind Speed / 1 Hour Wind Speed Max  
Oswego Lake, Burlington County, NJ (#317)

## Sewell, June 23 2015

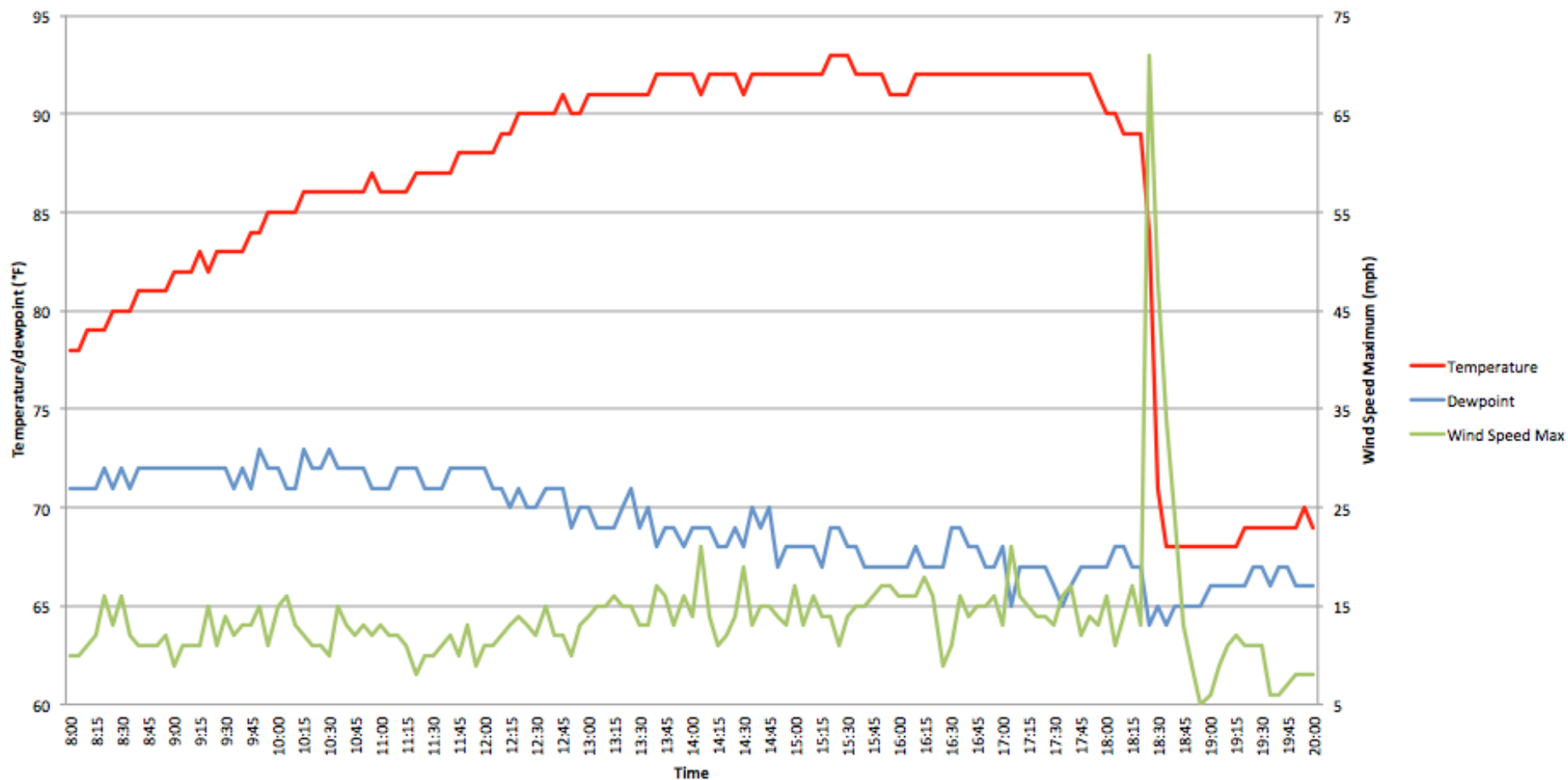




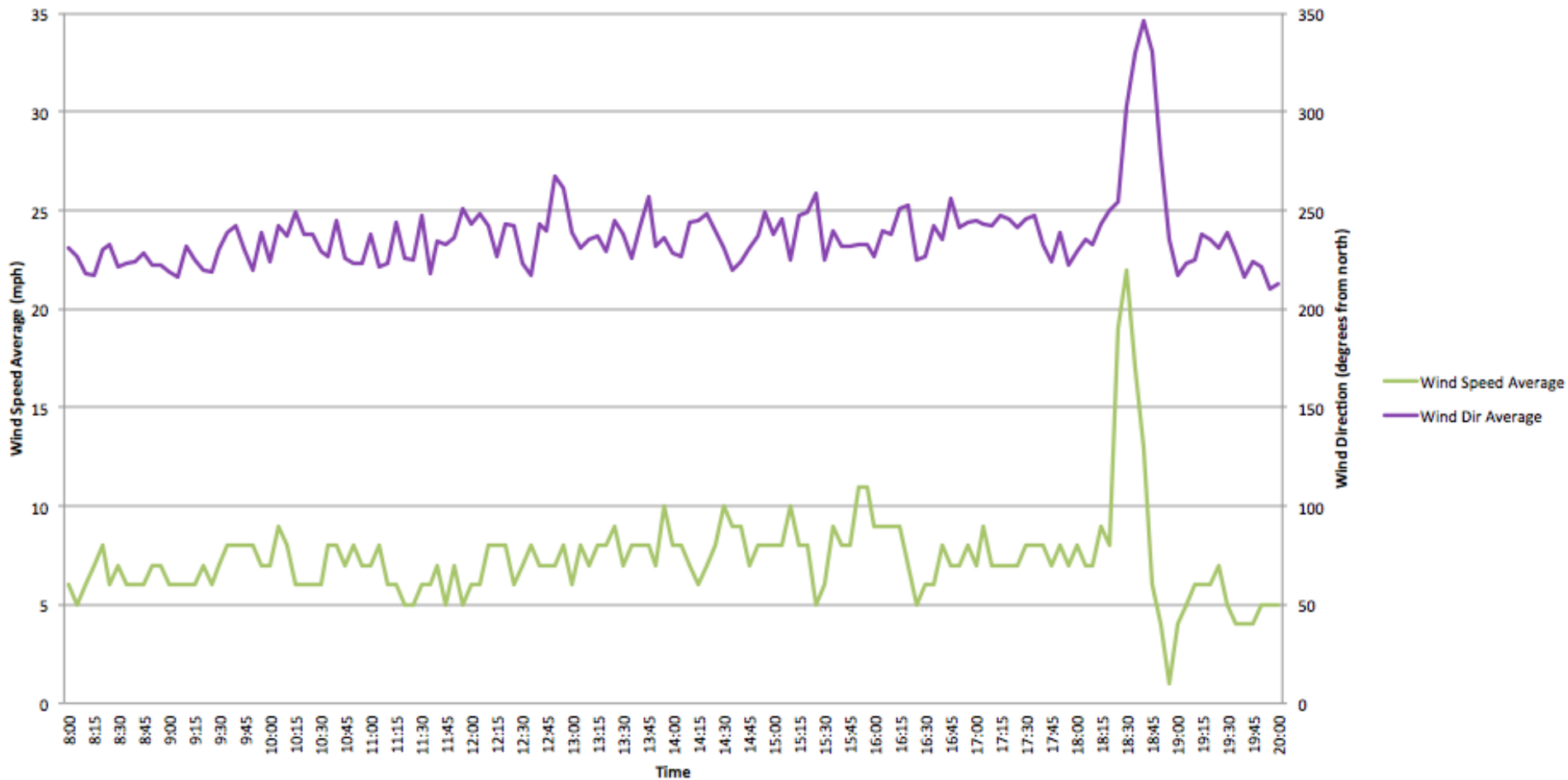
## Sewell, June 23 2015



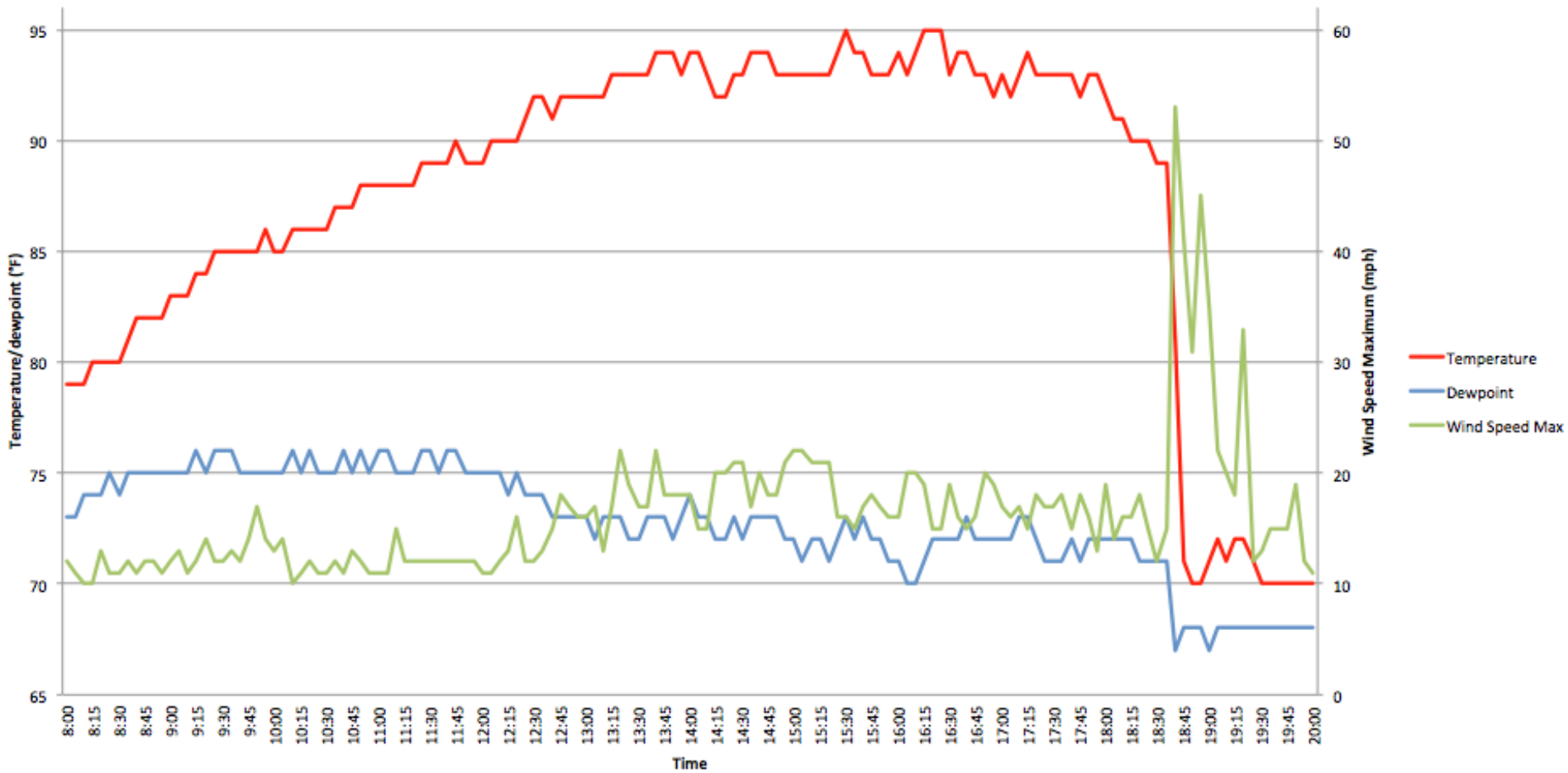
## Hammonton, June 23 2015



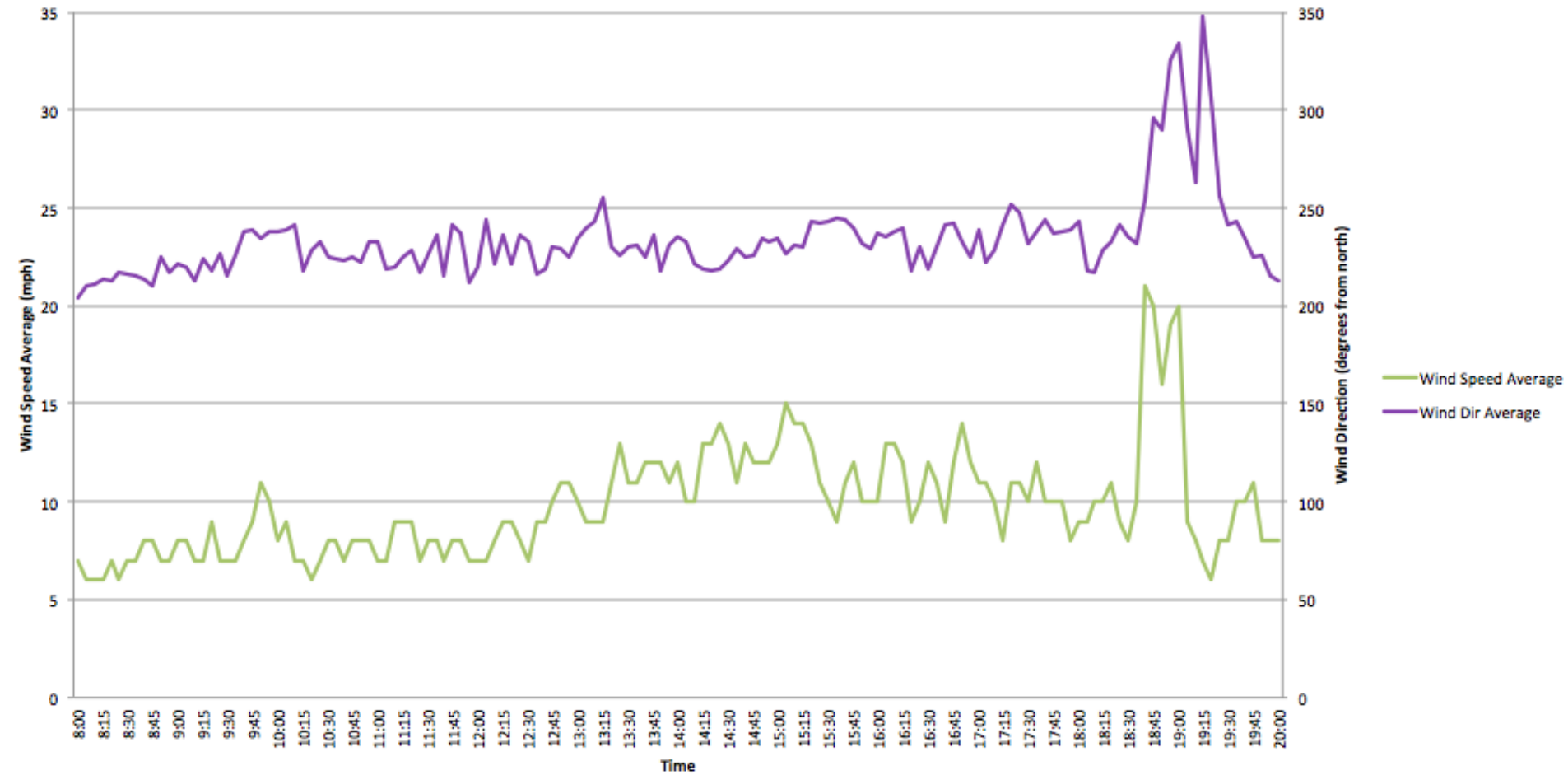
## Hammonton, June 23 2015



## Oswego Lake, June 23 2015



## Oswego Lake, June 23 2015





# PART 3



# Pre-Game Decision

It is now 6:00 PM and the decision was to play the game while keeping an eye on the storm by using hand-held devices with access to <http://njweather.org> while at the game, and by having someone keep an eye on the western sky.

Your new data includes the data after 4:30 PM found in Figures 4-6 in Part II, and the National Weather Service radar images below.

## Radar Loop of the Event

**VIEW SEPARATE RADAR  
LOOP HERE**



# PART 4

## How the scenario played out

- Decision makers informed that Hammonton just had a 71 mph gust with heavy rain falling.
- Sewell has received 0.62” in just 20 minutes. Lightning is seen to the west.
- The game is stopped and everyone is told to get to their cars and see if the storm will quickly pass and the game can be resumed.
- At 7:10 the game was called: field has huge puddles, lightning is still seen to the east, AND power is out within the region. People are told to be careful heading home due to downed trees and power lines.



Williamstown, Gloucester County

# Gloucester County damage



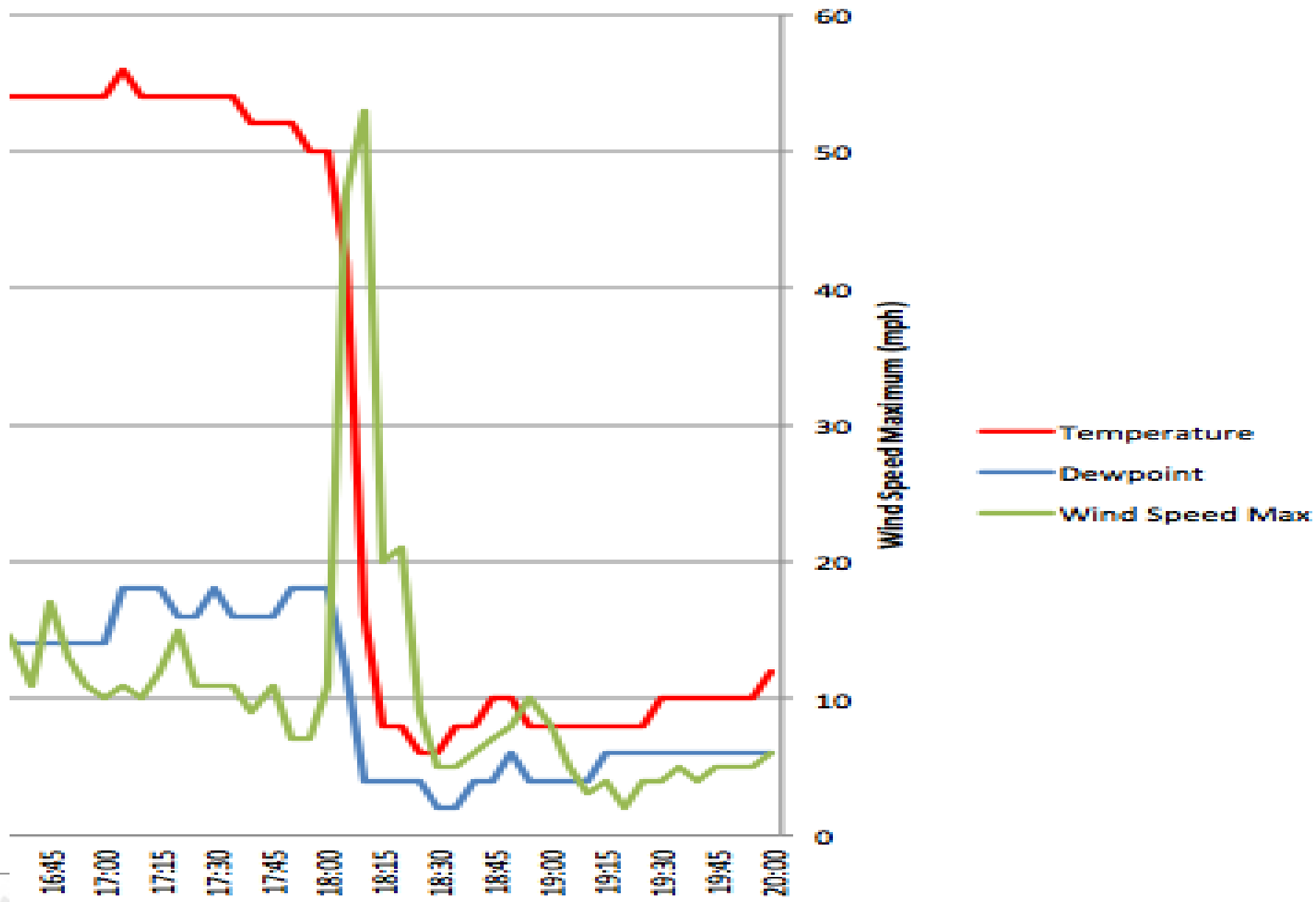
Gibbstown

Paulsboro

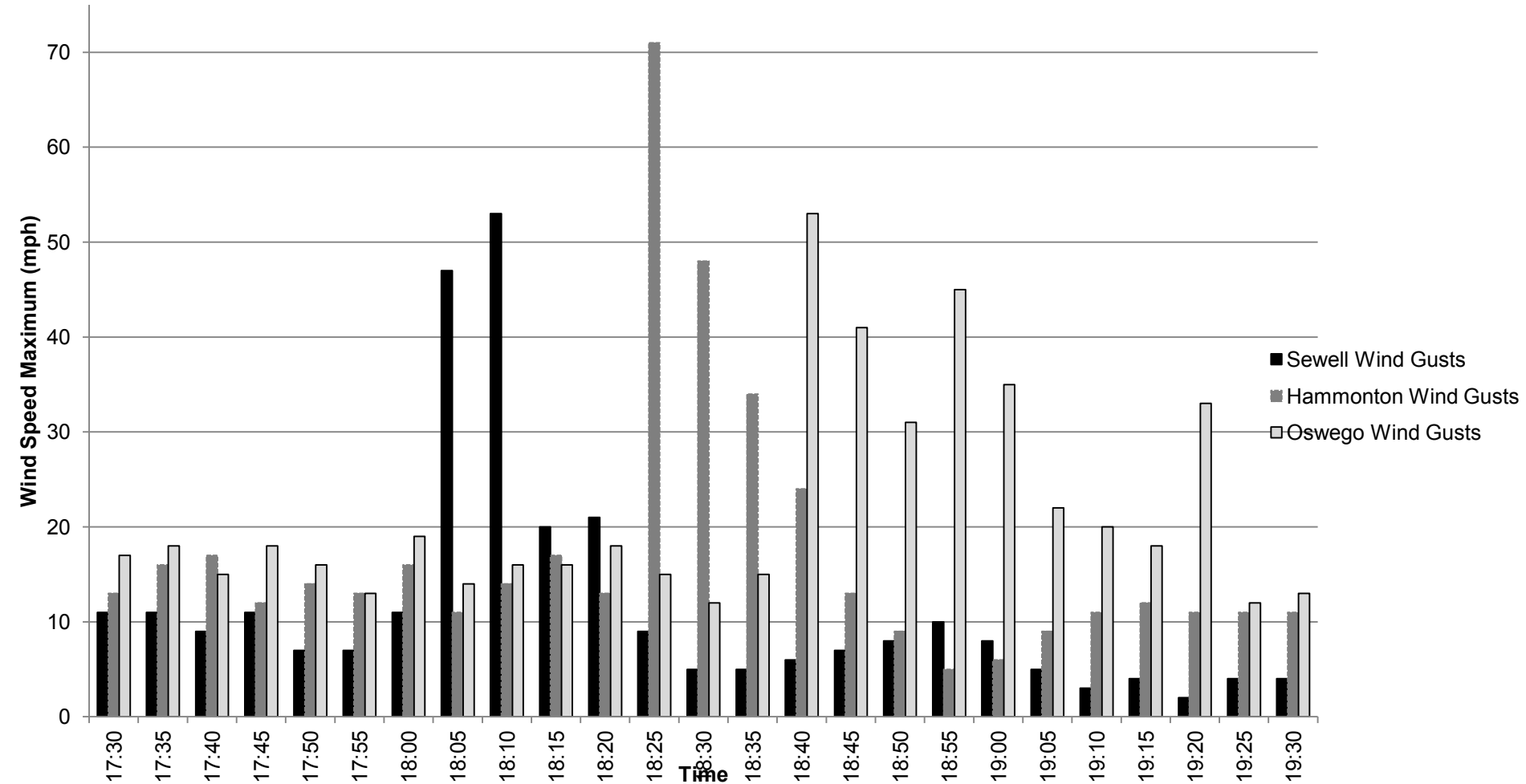


Mantua

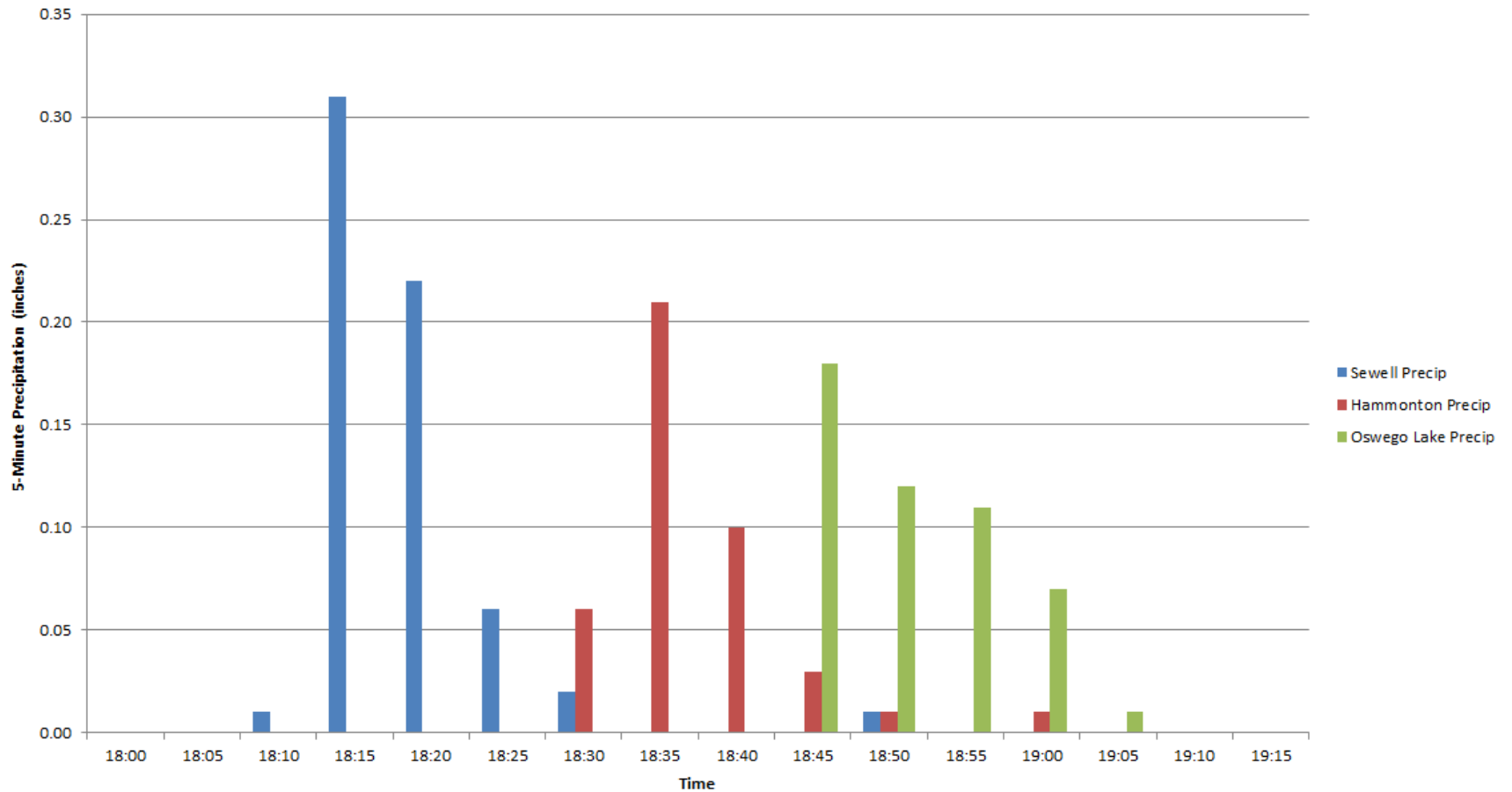




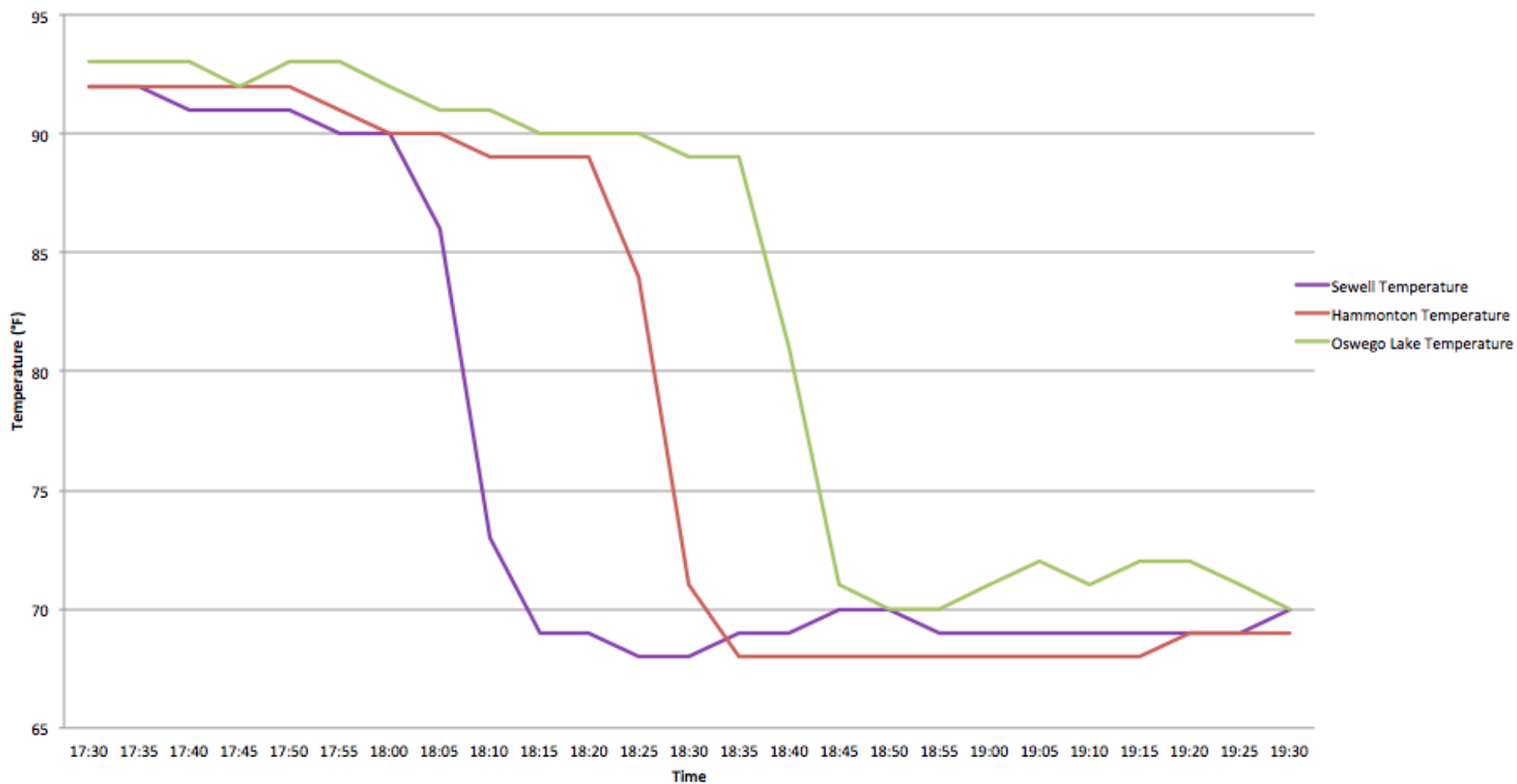
## Wind Gusts at 3 Southern NJ Stations, June 23 2015



### 5-Minute Precipitation Totals at 3 Southern NJ Stations, June 23 2015



### Air Temperature at 3 Southern NJ Stations, June 23 2015



# EXTRA SLIDES

## Game underway

- 6:00 Chatsworth: Partly cloudy, humid, 92°, 19 mph gust. Radar shows squall line moving into NJ from PA.
- 6:15 Dark clouds seen on the western horizon. Radar shows the squall line near Sewell (Gloucester).
- 6:20 Coaches and umps (decision makers) informed that a storm was likely approaching. Winds just gusted over 50 mph at Sewell with heavy rain. Temperature there has fallen 90° to 69° in the past 20 minutes. Chatsworth is 90° with just moderate gusts.

# Game underway

6:30 Decision makers informed that Hammonton just had a 71 mph gust with heavy rain falling. Sewell has received 0.62" in just 20 minutes.

Lightning is seen to the west. The game is stopped and everyone is told to get to their cars and see if the storm will quickly pass and the game can be resumed.



# Storm hits

- 6:40 Storm strikes with vivid lightning, winds gusting to 53 mph. Heavy rain falling
- 6:55 Temperature is 70°, wind continues to gust to 45 mph.
- 7:05 Rain is about to end with 0.49" having fallen in the past 25 minutes.
- 7:10 Game called: field has huge puddles, lightning is still seen to the east, AND power is out within the region. People are told to be careful heading home due to downed trees and power lines.

Should the game have started?