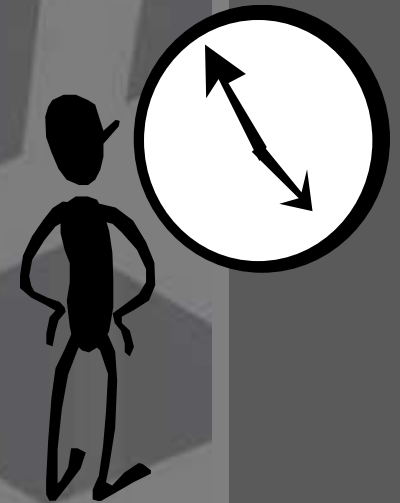


# A Climatological Look at the Timing of Hazardous Weather Conditions During Winter Storms in Duluth, MN

**Rick Hluchan**

*National Weather Service  
WFO Duluth, Minnesota*



NWS Media Day  
28 November 2011



# Methodology

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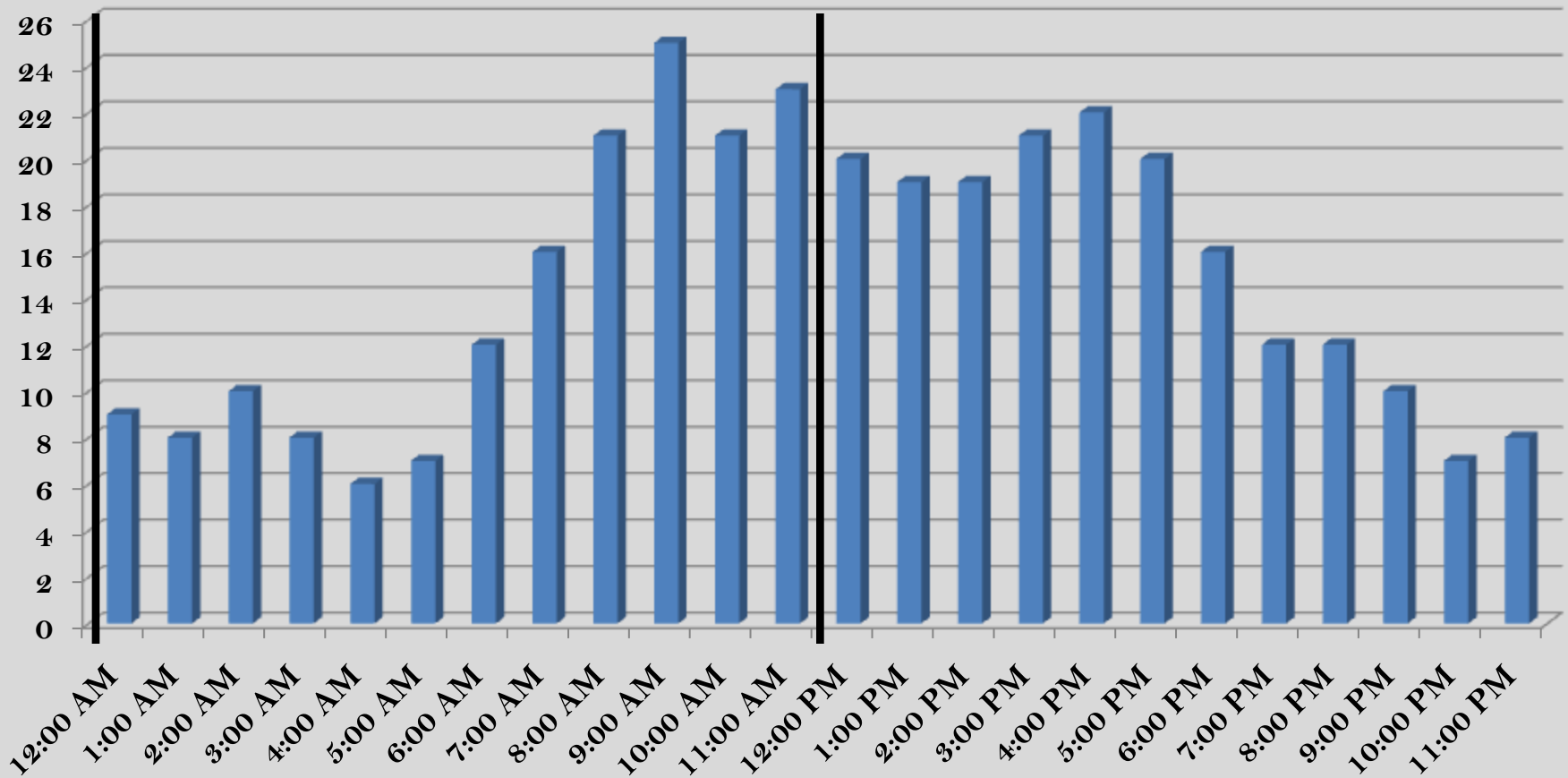
Looked at

- Visibility  $\leq \frac{1}{2}$  SM
- Snow Amounts
- Wind



# Visibilities

Tallied Occurrences of  
**Visibility  $\leq \frac{1}{2}$  SM** During each Event



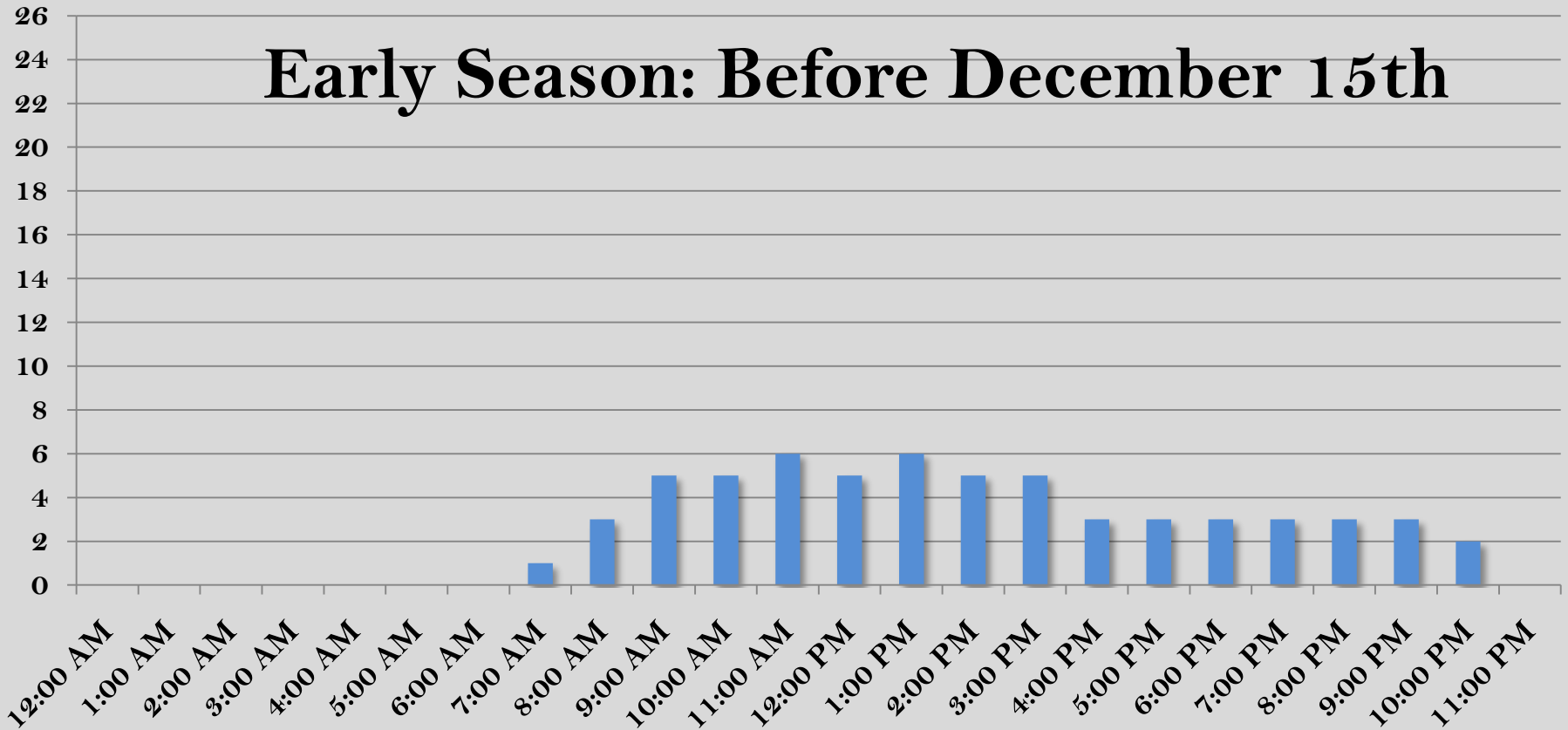
# Visibilities

## Break it Down by Time of Winter



Hours that reported Visibility  $\leq \frac{1}{2}$  SM during an Event

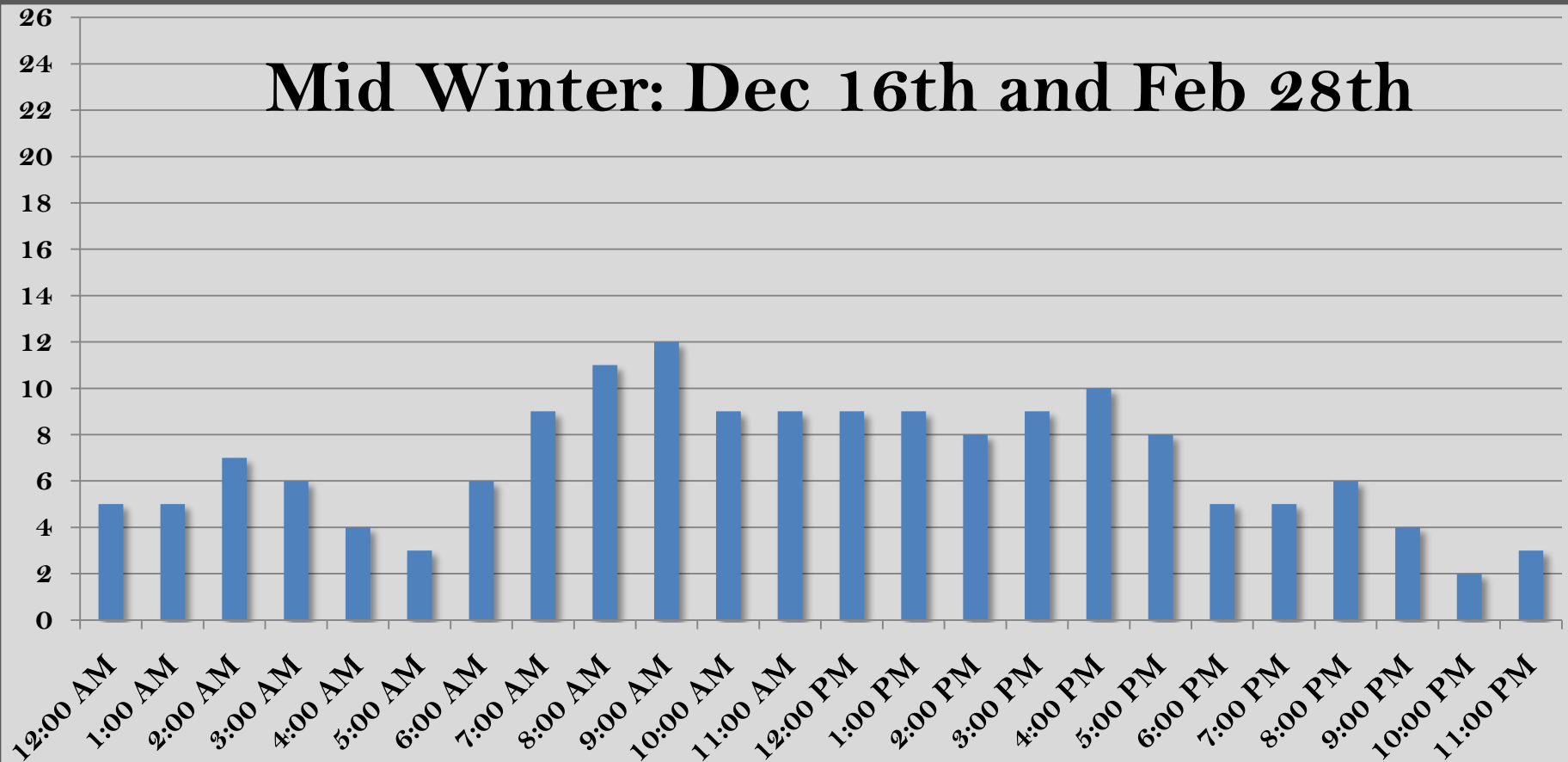
### Early Season: Before December 15th



# Visibilities

## Break it Down by Time of Winter

Hours that reported Visibility  $\leq \frac{1}{2}$  SM during an Event

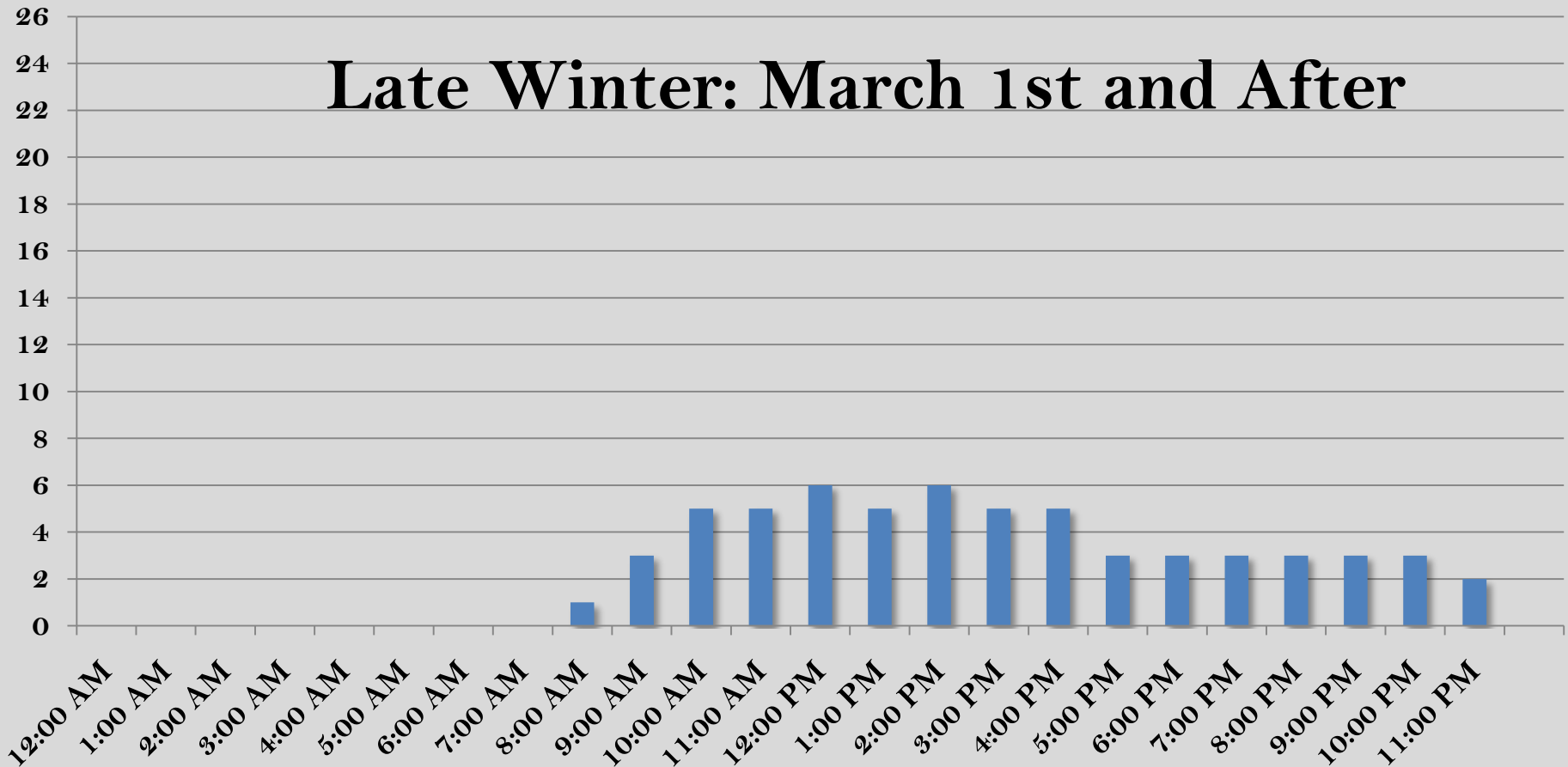


# Visibilities

## Break it Down by Time of Winter

Hours that reported Visibility  $\leq \frac{1}{2}$  SM during an Event

### Late Winter: March 1st and After



# Snow Amounts

Analyzed 6 hr Snow Totals

Is there a time of day that shows higher amounts?



Duluth  
1 March 2007





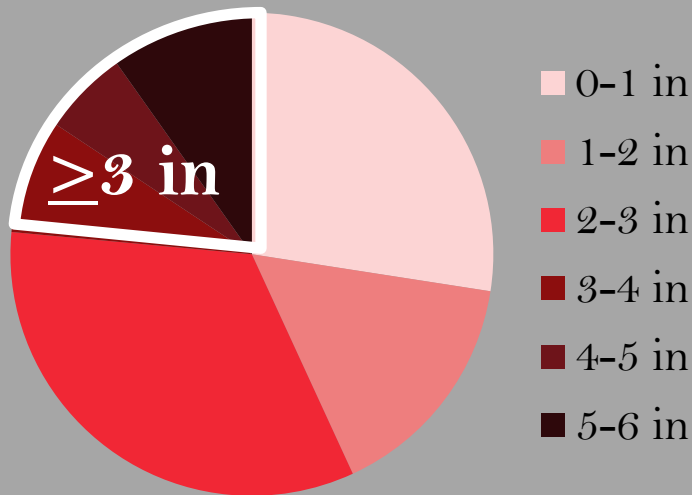
# Snow Amounts



Duluth, 2007

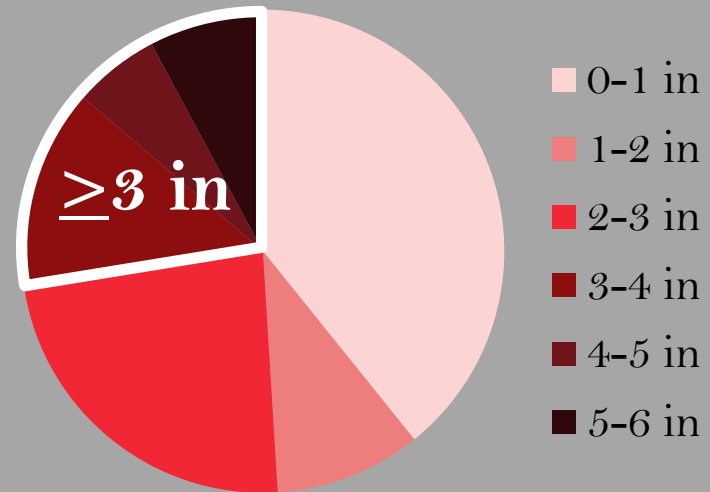
## Daytime

### 6 am - Noon



24%  $\geq 3$  in

### Noon - 6 pm



27%  $\geq 3$  in



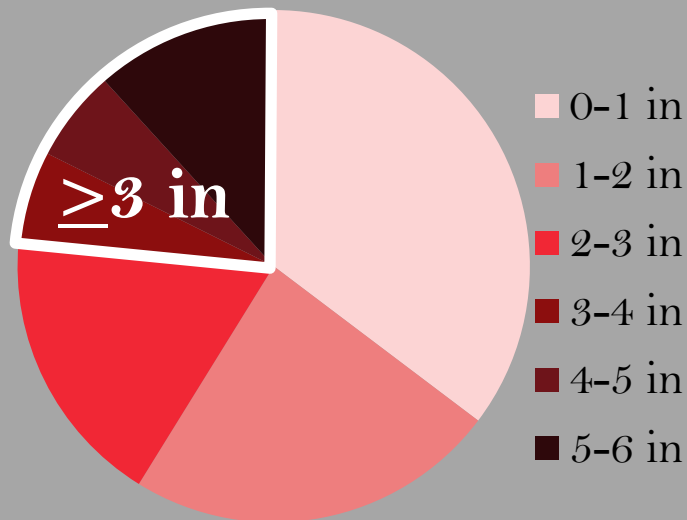


# Snow Amounts

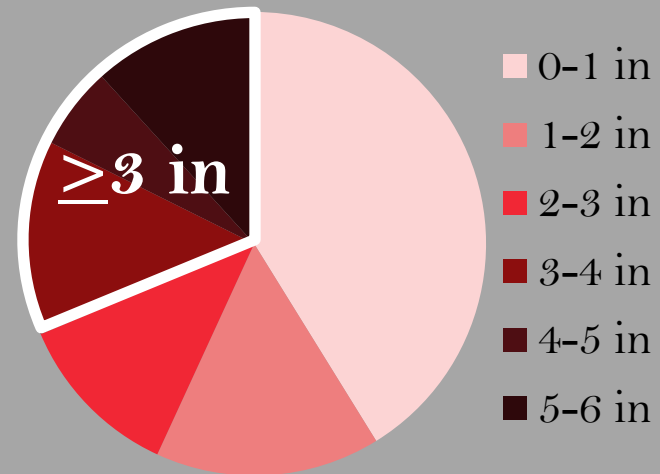


## Nighttime

6 pm - Midnight



Midnight - 6 am



24%  $\geq 3$  in

31%  $\geq 3$  in

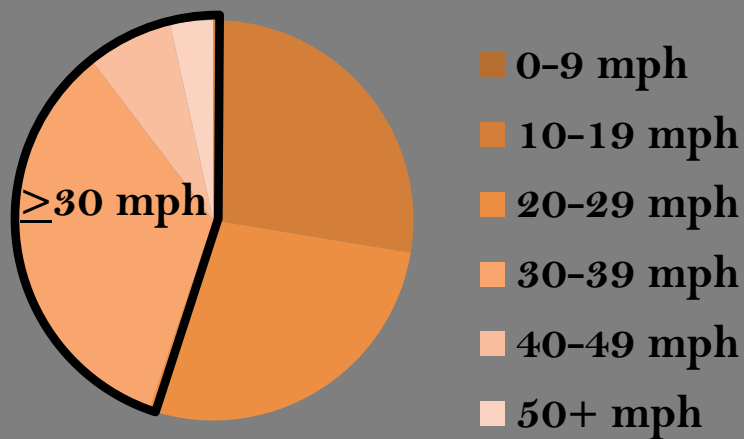


# Peak Wind

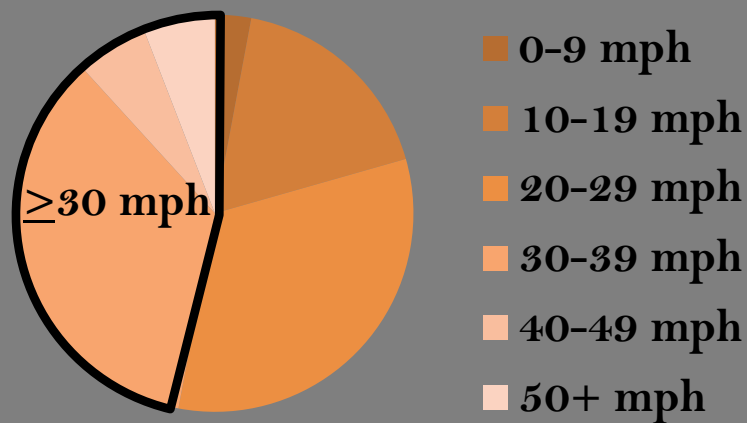


## Daytime

### 6 am - Noon



### Noon - 6 pm



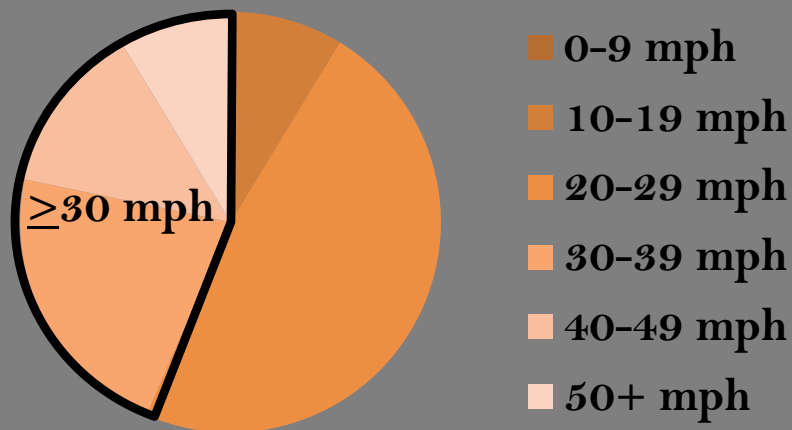
44% ≥30 mph

47% ≥30 mph

# Peak Wind

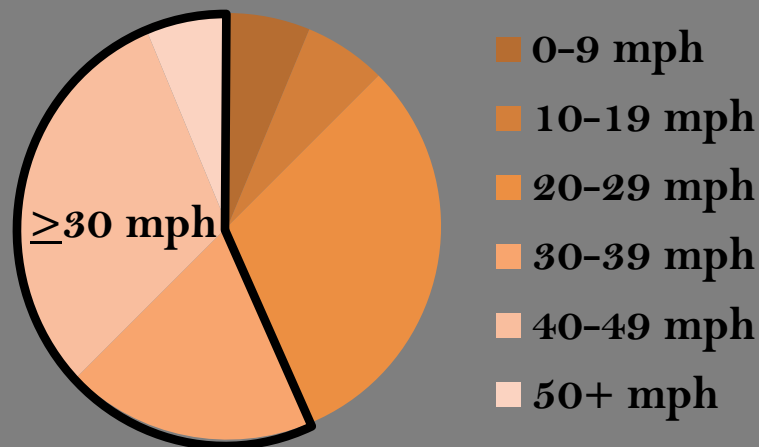
## Nighttime

### 6 pm - Midnight



44%  $\geq 30$  mph

### Midnight - 6 am



56%  $\geq 30$  mph