

# AWOC Micro-Climate Study

Jan 11 2012

## *Non-Typical Blizzard that wasn't...but would have been*

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### **Event Synopsis**

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A powerful arctic cold front moved from the Dakotas through Iowa into Illinois during the afternoon of January 11, 2012. As this rearward sloping front progressed across the state, a mid-level band of precip developed. Light snow fell statewide, with amounts ranging from a half an inch west of I-35, to as much as 3.1 inches in Waterloo. These storm totals were rather benign, but the big story was strong postfrontal northwest winds. The following peak wind gusts were recorded:

44 mph	Des Moines
44 mph	Waterloo
46 mph	Mason City
49 mph	Estherville
47 mph	Ames
43 mph	Marshalltown

### **Project Goals**

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The combination of strong winds and falling snow briefly reduced visibilities ranging anywhere from 1.5 to 5 miles. However, there was absolutely no snowpack to be found anywhere in the state, so a majority of the falling snow gathered in fields and ditches. This microclimate study highlights the impact that residual snowpack, or lack-there-of, has on the observable weather. A very similar event occurred just under 4 years earlier on January 29 2008. However, at that time there was abundant snowpack, and blowing snow reduced visibilities at the Mason City airport in northern Iowa to less than ¼ mile for 9 consecutive hours!

The goal of this write up, in combination with the PowerPoint presentation is to show how antecedent conditions can have a major impact on the observed weather. There is not a doubt in my mind that this event would have been a blizzard if we had a typical January with ample snow cover. If that were the case, then the temperatures would likely have been colder, which would have: 1) increased the efficiency of ice microphysics, and 2) the snow would be easier to blow around. More importantly, there would have been additional snow, outside from what fell, to blow around. The bare ground allowed snowflakes to settle in between blades of grass, soybean and corn stubble, and gather in the ditches. The best analogy case which supports this claim was Jan 29, 2008, and these two cases will be compared.

Two powerpoint presentations review the January 11, 2012 case and provide comparisons to Jan 29, 2008.

- [powerpoint](#) (.pptx 27 mb loops)
- [pdf](#) (2 mb no loops)