

## 2007 Verification Statistics for NWS Ruskin

Please keep in mind the following when interpreting the statistics:

- 2007 had county-based warnings. If a single polygon covers parts of four counties, it counts as four separate warnings. A single severe weather report would mean one county verified and three counties unverified.
- 2008 statistics will be polygon-based. However, county-based verification can still be computed.
- If a severe event occurs and no one reports it, the warning is considered unverified.
- Our office has a very hard time gathering reports in rural areas. Most of our 3,000 SKYWARN Spotters live in the population centers.



### NATIONAL WEATHER SERVICE SEVERE WEATHER STATISTICS

Period: 1/1/07 - 12/31/07

WFOs: TBW

#### Summaries:

<u>WARNINGS</u>		<u>EVENTS</u>	
SEVERE AND TORNADO COMBINED		SEVERE AND TORNADO COMBINED	
All severe warnings issued	: 182	All severe events	: 82
All severe warnings verified	: 67	All warned severe events	: 63
All unverified severe warnings	: 115	All unwarned severe events	: 19
Tornado warnings issued	: 22	Tornado events	: 12
Tornado warnings verified	: 11	Tornado events warned	: 7
Tornado warnings verified by tornado	: 6	Tornados warned by tornado warning	: 7
Tornado warnings verified by wind/hail	: 5	Tornados warned by tstm warning	: 0
Tornado warnings not verified	: 11	Tornado events unwarned	: 5
Tstm warnings issued	: 160	Tstm events	: 70
Tstm warnings verified	: 56	Tstm events warned	: 56
Tstm warnings verified by tornado	: 0	Tstms warned by tornado warning	: 2
Tstm warnings verified by wind/hail	: 56	Tstms warned by tstm warning	: 54
Tstm warnings not verified	: 104	Tstm events unwarned	: 14
False Alarm Rate (FAR)	: .632	Average leadtime	: 9.6
		Percent of events w/lead time > 0	: 65.9
		Probability of Detection (POD)	: .768
		Critical Success Index (CSI)	: .331

NOTE: All data is subject to modification

## Definitions

**Probability of Detection (POD):** This is the percentage of all severe weather events which were warned for (a perfect score would be 100%). For example, if we issued 60 warnings and there were 100 total severe weather events reported (60 warned, 40 unwarned), the POD would be 60%.

$$\text{POD} = \text{warned events} / (\text{warned events} + \text{unwarned events}) \\ 60 / (60 + 40) = 60 / 100 = 60\%$$

**False Alarm Ratio (FAR):** This ratio measures how often we issue false alarms, or in other words, a measure of 'crying wolf'. Ideally we want this number to be 0.0%. Some of our false alarms will be from storms that may appear severe, or are borderline severe. Some false alarms will be from storms that are severe, but the severe weather occurred where no one was around to observe the event (classic case of 'if the tree falls in the forest and nobody hears it, does it make any noise?').

(from above example)

$$\text{FAR} = \text{unverified warnings} / (\text{verified warnings} + \text{unverified warnings}) \\ 40 / (60 + 40) = 40 / 100 = 40\%$$

Overwarning will achieve a high POD, but at the expense of a high FAR. If warnings are rarely or never issued, the FAR will be low but so will the POD. Overall success can be expressed by the Critical Success Index, which is a function of both POD and FAR.

**Critical Success Index (CSI):** CSI is the ratio of warned events to the total number of events + the number of unwarned events. As with the POD, 100% is a perfect score. As an example, if there were 80 warnings issued, and 60 warnings had verified severe weather while 40 did not have verified severe weather (in addition, there were 20 severe weather events that went unwarned), then the CSI would be:

$$\text{CSI} = \text{warned events} / (\text{warned events} + \text{unwarned events} + \text{unverified warnings}) \\ 60 / (60 + 20 + 40) = 60 / 120 = 50\%$$

**Average Lead Time:** This is simply the length of time from when we issue the warning until our first report of severe weather in the warned area. This time can be anything from 0 minutes up to the total valid time of the warning.