

ADDING INTENSITY TO STORM PREDICTION CENTER (SPC) OUTLOOKS

BOTTOM LINE UP FRONT

- ☛ SPC is redefining the probabilistic hazard outlooks (tornado, wind, hail) within the Severe Weather (Convective) Outlook for Days 1, 2, and 3 beginning March 3, 2026
- ☛ The Outlook categories (Marginal, Slight, Enhanced, Moderate, and High) **WILL NOT** change and should happen in a similar frequency to the past.
- ☛ Three 'Intensity Levels' or Conditional Intensity Groups (CIG) will replace the existing two-level non-significant and 'significant' (EF2+/65+ knot winds/2+ inch hail) severe weather categories.
- ☛ Intensity information will now be conditional, meaning **IF** a tornado/wind gust/hail occurs, the expected strength/intensity/size will be represented in the hazard outlooks produced by SPC.
- ☛ The threat for isolated 'significant' severe weather can now be accounted for in lower risk levels, while the threat for more intense 'significant' severe weather can also be accounted for at higher levels.

OUTLOOK UPDATE OVERVIEW

New: Conditional Intensities in SPC Outlooks

Key Change: You no longer need a 10% or greater probability area to highlight significant severe potential.

Methodology: Intensity forecasts are now based on storm environment and storm mode.

Definition: These intensities are conditional, meaning: "If a tornado occurs, what is the probability it will be EF2/EF3/EF4+?"



What this Solves

The "Binary" Problem

Current "SIG" treats EF2 and EF5 tornadoes the same.

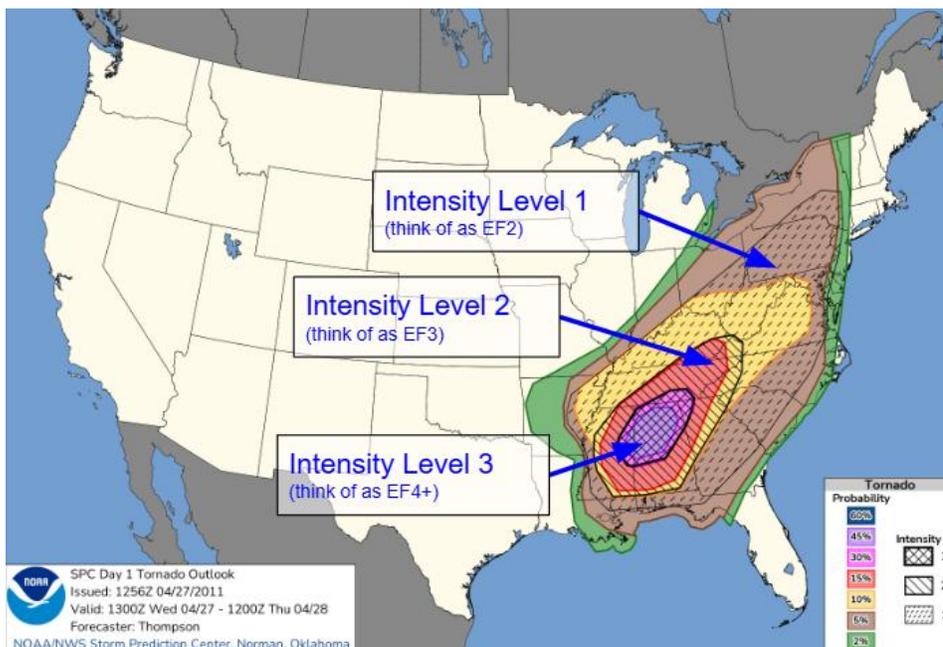
Result: No detail provided about higher-end events.

The "Coverage" Problem

Intensity information was not included when coverage is <10%.

10% "SIG" tornado areas with an ENH categorical outlook incorrectly implied all tornadoes will be EF2+.

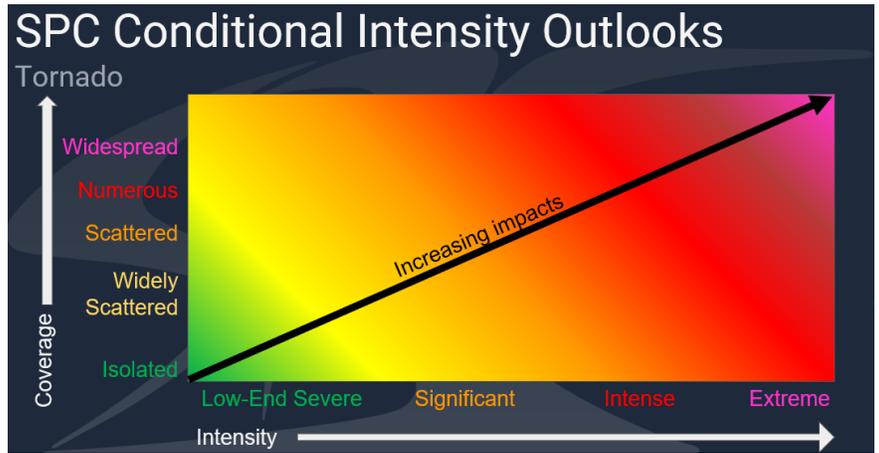
REAL WORLD EXAMPLE – THE APRIL 27, 2011 OUTBREAK



The new Intensity Levels will enhance communication of severe weather threats as forecasters can more accurately convey variations among different Intensity Levels and coverage. For example, the difference between the threat for numerous weak (EF-0/EF-1) tornadoes with an isolated strong tornado possible and a greater threat for 'significant' (EF-2+) tornadoes or 'violent' (EF-4+) tornadoes. Put another way, forecasters can now communicate high impact, low probability events as well as lower impact, high probability events.

HOW COVERAGE AND INTENSITY OF A HAZARD NOW RELATE TO THE OUTLOOK CATEGORY

When thinking about a hazard, low intensity but high coverage will result in some impact (more so to property than to life), so it is not enough impact to warrant a high risk. High intensity events with lower coverage may have significant impact, but likely won't be widespread enough to get a high risk. It is the combination of high intensity and high coverage that will result in impacts substantial enough to support a moderate or high risk. Below is a table displaying how combinations of coverage probability and CIG/Intensity Level will result in the various SPC Outlook Categories:



NEW Probability-To-Category Conversion Charts

TORNADO (days 1-2)					WIND (days 1-2)				HAIL (days 1-2)				Total SEVERE (day 3)					
					90%	3 ENH	4 MDT	5 HIGH	5 HIGH									
					75%	3 ENH	4 MDT	5 HIGH	5 HIGH									
60%	3 ENH	5 HIGH	5 HIGH	5 HIGH	60%	3 ENH	4 MDT	5 HIGH	5 HIGH	60%	3 ENH	4 MDT	4 MDT	60%	3 ENH	4 MDT	4 MDT	
45%	3 ENH	4 MDT	5 HIGH	5 HIGH	45%	3 ENH	3 ENH	4 MDT	5 HIGH	45%	3 ENH	3 ENH	4 MDT	45%	3 ENH	3 ENH	4 MDT	
30%	3 ENH	4 MDT	5 HIGH	5 HIGH	30%	2 SLGT	3 ENH	3 ENH	not used	30%	2 SLGT	3 ENH	3 ENH	30%	2 SLGT	3 ENH	3 ENH	
15%	3 ENH	3 ENH	4 MDT	4 MDT	15%	2 SLGT	2 SLGT	3 ENH	not used	15%	2 SLGT	2 SLGT	3 ENH	15%	2 SLGT	2 SLGT	3 ENH	
10%	2 SLGT	3 ENH	3 ENH	3 ENH	10%	not used	not used	not used	not used	10%	not used	not used	not used	10%	not used	not used	not used	
5%	2 SLGT	2 SLGT	3 ENH	not used	5%	1 MRGL	1 MRGL	2 SLGT	not used	5%	1 MRGL	1 MRGL	2 SLGT	5%	1 MRGL	1 MRGL	2 SLGT	
2%	1 MRGL	1 MRGL	2 SLGT	not used	2%	not used	not used	not used	not used	2%	not used	not used	not used	2%	not used	not used	not used	
	<CIG1	CIG1	CIG2	CIG3		<CIG1	CIG1	CIG2	CIG3		<CIG1	CIG1	CIG2		<CIG1	CIG1	CIG2	

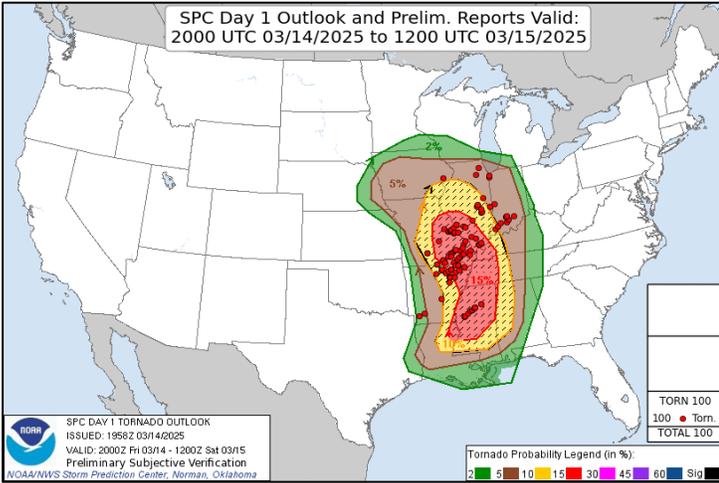


For each hazard type (tornado, wind, and hail) each CIG/Intensity group can be mapped to a reasonable max intensity based on the storm environment and the storm mode forecast. In general Intensity Level 2+ will be reserved for higher end storm environments where primarily supercells are expected to produce significant tornadoes and large hail, or organized MCS or Derecho will produce significant wind damage. Higher intensity events are possible within lower Intensity Level areas, yet the intensity generally associated with each level for each hazard is as follows:

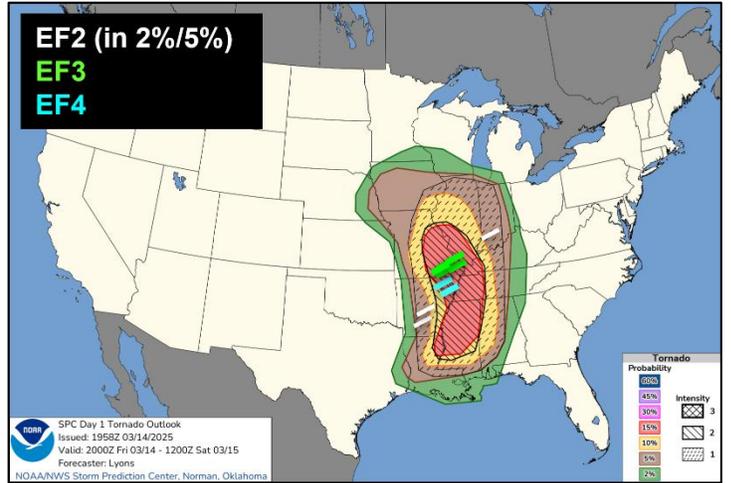
	TORNADO INTENSITY	WIND INTENSITY	HAIL INTENSITY
None Highlighted (<CIG1)	Mostly EF-0 to EF-1	Mostly <74 mph winds	Mostly <2"
Intensity Level 1 (CIG1)	Reasonable max EF2	Peak gusts 74mph+	Largest hail >2"
Intensity Level 2 (CIG2)	Reasonable max EF3	Bow echo/derecho possible	Largest hail >3.5"
Intensity Level 3 (CIG3)	Max EF4+ (Historic Outbreak)	High-end ongoing derecho	

OUTLOOK EXAMPLE COMPARISONS FROM 2025:

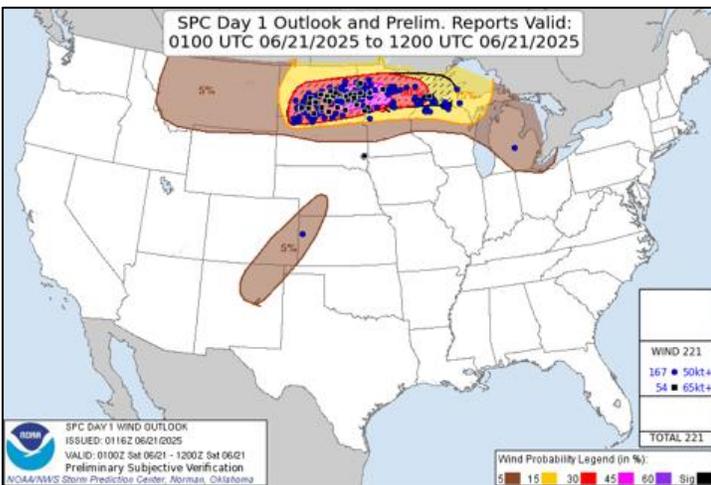
March 14, 2025 Probabilistic Tornado Outlook



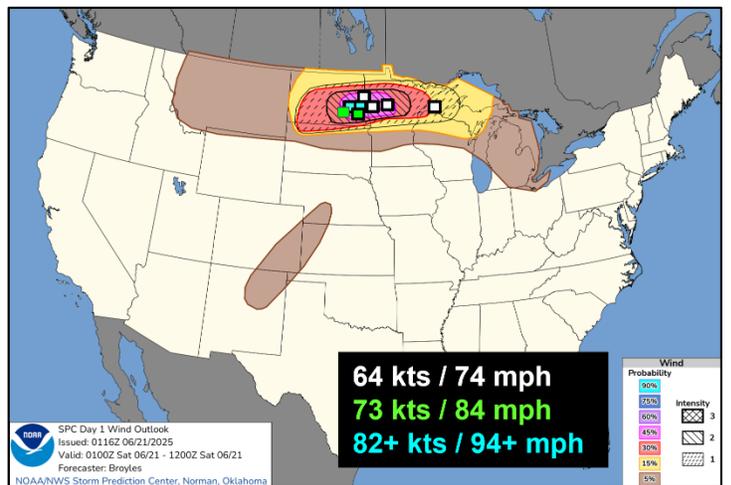
Conditional Intensity Tornado Outlook



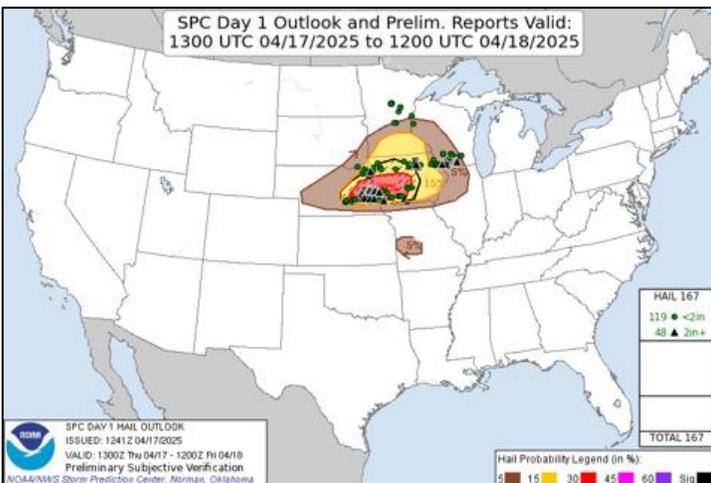
June 21, 2025 Probabilistic Wind Outlook



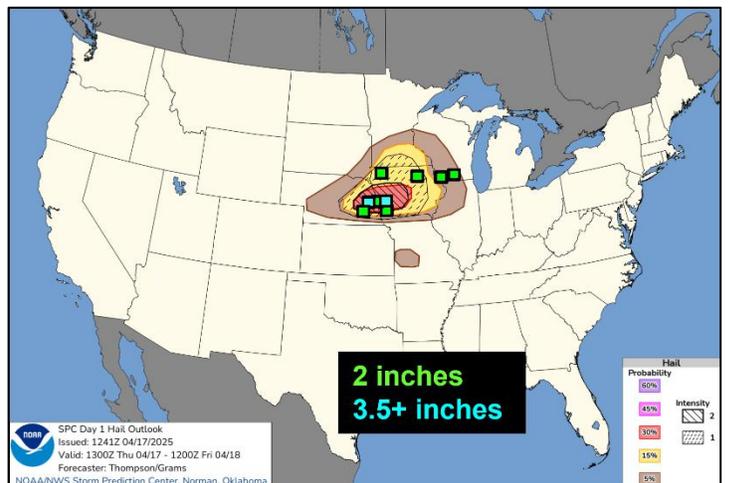
Conditional Intensity Wind Outlook



April 17, 2025 Probabilistic Hail Outlook



Conditional Intensity Hail Outlook



RESOURCES

- For questions about the Conditional Intensity please contact your local National Weather Service Office Warning Coordination Meteorologist. Information can be found via www.weather.gov.
- SPC Outlooks for States/FEMA Regions: www.spc.noaa.gov/partners/outlooks/

