NATIONAL WEATHER SERVICE INSTRUCTION 10-512 MAY 1, 2007

Operations and Services
Public Weather Services, NWSPD 10-5

NATIONAL SEVERE WEATHER PRODUCTS SPECIFICATION

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SUMMARY OF REVISIONS: This directive supersedes NWSI 10-512, dated March 28, 2005. The following changes were made to this instruction:

- 1) Modifications made to Outlook Probabilities
- 2) Added Watch Hazard Probabilities
- 3) Station relative points removed from Convective Outlook text into Points Product Outlook
- 4) Added information for NDFD Product Information
- 5) Added information on Day 4-8 Severe Weather Outlook

signed	4/26/07	
Dennis McCarthy	Date	
Director, Office of Climate,		
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1. <u>Introduction</u>. This procedural instruction describes the narrative and graphical severe weather products issued by the Storm Prediction Center (SPC) for the contiguous United States (CONUS).

2. <u>Categorical Convective Outlook</u>

- 2.1 <u>Mission Connection</u>. SPC issues narrative and graphical Categorical Convective Outlooks to provide CONUS Weather Forecast Offices (WFOs), the public, media and emergency managers with the potential for severe convection through Day 8 and general convection through Day 2.
- 2.2 Issuance Guidelines.
- 2.2.1 <u>Creation Software</u>. SPC will use the National Center's AWIPS (NAWIPS) editor for text products, and the SPC graphics editor for graphical products.
- 2.2.2 <u>Issuance Criteria</u>. Categorical Outlooks are a scheduled product in UTC time and calendar day.
- 2.2.3 Issuance Time. Products are issued at times listed in Table 1.
- 2.2.4 Valid Time. Product valid times are listed in Table 1.
- 2.2.5 <u>Product Expiration Time</u>. Product expiration time is 1200 UTC the next calendar day. See Table 1

	SPC Convective Outlook Schedule				
Issuance Time (UTC)	Valid Time (UTC)	AWIPS ID Text Graphic	WMO Graphic Header	WMO Text Header	Product Description
0600	1200 Day 1 to 1200 Day 2 (0-24 hour period)	SWODY1 940	PGWE46	ACUS01 KWNS	Text providing meteorological reasoning for severe weather categorical and probabilistic graphics for Day 1
0600 (Daylight) 0700 (Standard)	1200 Day 2 to 1200 Day 3 (24-48 hour period)	SWODY2 98O	PGWI47	ACUS02 KWNS	Text providing meteorological reasoning for severe weather categorical and probabilistic graphics for Day 2
0730 (Daylight) 0830 (Standard)	1200 Day 3 to 1200 Day 4 (48-60 hour period)	SWODY3 990	PGWK48	ACUS03 KWNS	Text providing meteorological reasoning for severe weather categorical and probabilistic graphics for Day 3
0900 (Daylight) 1000 (Standard)	1200 Day 4 to 1200 Day 9 (60- 180 hour period)	SWOD48 TBD	PGNM98	ACUS48 KWNS	Text providing meteorological reasoning for areas where there is at least a 30% probability for severe thunderstorms during Days 4 through 8.
1300	1300 Day 1 to 1200 Day 2 (23 hour period)	SWODY1 940	PGWE46	ACUS01 KWNS	Text providing meteorological reasoning for severe weather categorical and probabilistic graphics for Day 1
1630	1630 Day 1 to 1200 Day 2 (19.5 hour period)	SWODY1 940	PGWE46	ACUS01 KWNS	Text providing meteorological reasoning for severe weather categorical and probabilistic graphics for Day 1
1730	1200 Day 2 to 1200 Day 3 (24-48 hour period)	SWODY2 98O	PGWI47	ACUS02 KWNS	Text providing meteorological reasoning for severe weather categorical and probabilistic graphics for Day 2
2000	2000 Day 1 to 1200 Day 2 (16 hour period)	SWODY1 940	PGWE46	ACUS01 KWNS	Text providing meteorological reasoning for severe weather categorical and probabilistic graphics for Day 1
0100	0100 Day 1 to 1200 Day 2 (11 hour period)	SWODY1 940	PGWE46	ACUS01 KWNS	Text providing meteorological reasoning for severe weather categorical and probabilistic graphics for Day 1

Table 1: Issuance time, valid time, product ID and content of SPC Convective Outlook products.

- 2.3 <u>Technical Description</u>. Categorical outlooks should follow the format and content described in this section.
- 2.3.1 <u>Mass News Disseminator Broadcast Line</u>. None.
- 2.3.2 <u>Mass News Disseminator Header</u>. The SWO MND header is "DAY (1, 2 OR 3) CONVECTIVE OUTLOOK".

2.3.3 Content. The Categorical Convective Outlook defines areas of Slight, Moderate and/or High risk of severe thunderstorms. Severe thunderstorms are storms that produce hail three-quarters of an inch in diameter or larger, convective winds of 50 kts (58 mph) or greater and/or tornadoes. A convective day is defined as a 24 hour or less period beginning at 1200 UTC of one calendar day, or scheduled issuance time, and ending at 1200 UTC the next calendar day (i.e. 1200 UTC today to 1200 UTC tomorrow), also known as the current 24 hour period. Two letter postal state identifiers are used to specify all or parts of states in Moderate or High risk areas (see Section 5.2). SPC will issue a Public Severe Weather Outlook when a Moderate or High risk is forecast (refer to Section 5.3.3). Convective Outlook narratives will reference Public Severe Weather Outlooks when necessary. SPC should issue narrative and graphical forecasts at the same time.

The Day 1 and Day 2 Outlooks also define areas where there is at least a 10% or greater probability of (general) thunderstorms. SPC has the option to use "SEE TEXT" for areas where convection may approach or slightly exceed severe criteria (wind gusts 50 knots or greater or hail 3/4 inch diameter size or greater). The contour for "General Thunder" in the graphical forecast refers to a 10% or greater probability of non-severe or near-severe convection. Day 3 Outlooks do not forecast the 10 percent probability of general thunderstorms. SPC may issue a MDT or High risk for the Day 2 Outlook and a MDT Risk for the Day 3 Outlook, highlighting the possibility for extreme severe weather events.

Day 1 Probability to Categorical Outlook Conversion

(SIGNIFICANT SEVERE area needed where denoted by hatching - otherwise default to next lower category)

Outlook Probability	TORN	WIND	HAIL
2%	SEE TEXT	NOT USED	NOT USED
5%	SLGT	SEE TEXT	SEE TEXT
10%	SLGT	NOT USED	NOT USED
15%	MDT	SLGT	SLGT
30%	HIGH	SLGT	SLGT
45%	HIGH	MDT	MDT
60%	HIGH	HIGH	MDT

Figure 1: Day 1 Probability to Categorical Outlook Conversion

Day 2 Probability to Categorical Outlook Conversion

(SIGNIFICANT SEVERE area needed where denoted by hatching otherwise default to next lower category)

Outlook Probability	Combined TORN, WIND, and HAIL
5%	SEE TEXT
15%	SLGT
30%	SLGT
45%	MDT
60%	HIGH

Figure 2: Day 2 Probability to Categorical Outlook Conversion

Day 3 Probability to Categorical Outlook Conversion

(SIGNIFICANT SEVERE area needed where denoted by hatching - otherwise default to next lower category)

Outlook Probability	Combined TORN, WIND, and HAIL
5%	SEE TEXT
15%	SLGT
30%	SLGT
45%	MDT

Figure 3: Day 3 Probability to Categorical Outlook Conversion

2.3.4 Format.

```
ACUS0i (i=1,2,or 3) KWNS ddhhmm
SWODYn
SPC AC ddhhmm
DAY (1,2,3) CONVECTIVE OUTLOOK
NWS STORM PREDICTION CENTER NORMAN OK
time am/pm time_zone day mon dd yyyy
VALID DDHHMM - DDHHMMZ
...THERE IS A (SLGT, MDT, HIGH) RISK OF SVR TSTMS <valid time>
<location>...
There may be one or more areas headlined for the appropriate area of risk.
Broad narrative providing a technical discussion of the overall severe
weather pattern.
...AREA OF CONCERN #1...
AREAS OF HIGHEST RISK ARE DISCUSSED FIRST (HIGH RISK, MDT RISK, SLGT RISK).
THE FORECAST PROVIDES A NARRATIVE TECHNICAL DISCUSSION.
... AREA OF CONCERN #2...
NARRATIVE TECHNICAL DISCUSSION
$$
..FORECASTER(S) NAME.. MM/DD/YY
NOTE: THE NEXT DAY 1 OUTLOOK IS SCHEDULED BY timeZ
```

Figure 4: Categorical Outlook Format

- 2.4 <u>Updates, Amendments and Corrections</u>. Updates are scheduled (see issuance times). SPC will correct outlooks for format and grammatical errors. SPC will amend outlooks when it is recognized that the current forecast does not or will not reflect the ongoing or future convective development.
- 2.5 <u>Graphics PGWE46, PGWI47 and PGWK48</u>. These are the corresponding graphics to the text products and the formats of these products follow Redbook Graphic standards.

3. Probabilistic Convective Outlook

- 3.1 <u>Mission Connection</u>. SPC issues probabilistic convective outlooks to provide CONUS WFOs, the public, media, and emergency managers with specific severe weather threats during the next 72 hours. SPC assigns each threat with a percent likelihood of occurrence.
- 3.2 Issuance Guidelines.
- 3.2.1 <u>Creation Software</u>. SPC will use the National Centers AWIPS (NAWIPS) editor for text products, and the SPC graphics editor for graphical products.

- 3.2.2 <u>Issuance Criteria</u>. Probabilistic Convective Outlooks are a scheduled product.
- 3.2.3 <u>Issuance Time</u>. See Table 2.
- 3.2.4 <u>Valid Time</u>. See Table 2.

SPC PROBABLISTIC FORECAST PRODUCTS									
Issuance Times (UTC)	Valid Times (UTC)	AWIPS ID	WMO Graphic Header	Product Description					
0600	1200 Day 1 to 1200 Day 2 (0-24 hour period)	OH1 OW1 OT1	PENE00 PWNE00 PGNE00	Hail Probabilities Wind Probabilities Tornado Probabilities					
0600 (Daylight) 0700 (Standard)	1200 Day 2 to 1200 Day 3 (24-48 hour period)	OA2	PGNI00	All Severe Probabilities					
0730 (Daylight) 0830 (Standard)	1200 Day 3 to 1200 Day 4 (48-60 hour period)	OA3	PZNK00	All Severe Probabilities					
1300	1300 Day 1 to 1200 Day 2 (23 hour period)	OH1 OW1 OT1	PENE00 PWNE00 PGNE00	Hail Probabilities Wind Probabilities Tornado Probabilities					
1630	1630 Day 1 to 1200 Day 2 (19.5 hour period)	OH1 OW1 OT1	PENE00 PWNE00 PGNE00	Hail Probabilities Wind Probabilities Tornado Probabilities					
1730	1200 Day 2 to 1200 Day 3 (24-48 hour period)	OA2	PGNI00	All Severe Probabilities					
2000	2000 Day 1 to 1200 Day 2 (16 hour period)	OH1 OW1 OT1	PENE00 PWNE00 PGNE00	Hail Probabilities Wind Probabilities Tornado Probabilities					
0100	0100 Day 1 to 1200 Day 2 (11 hour period)	OH1 OW1 OT1	PENE00 PWNE00 PGNE00	Hail Probabilities Wind Probabilities Tornado Probabilities					

Table 2: SPC Probabilistic Outlook Issuance time, valid time, ID and content

- 3.2.5 <u>Product Expiration Time</u>. Product expiration time is 1200 UTC the next convective day. See Table 2.
- 3.3 <u>Technical Description</u>. Probabilistic outlooks should follow the format and content described in this section.
- 3.3.1 <u>Mass News Disseminator Broadcast Line</u>. Not applicable.
- 3.3.2 <u>Mass News Disseminator Header</u>. Not applicable.

3.3.3 <u>Content.</u> SPC will issue probabilistic convective outlooks in graphic format. The Day 1 Outlook will consist of separate graphics for tornadoes, hail, and (convective) damaging winds. The Day 2 and Day 3 Outlooks will have probabilities for all severe thunderstorm threats in one graphic. These outlooks provide numerical probabilities of severe weather within 25 statute miles of any point within a given forecast area. The probability thresholds/contours in each graphic are as follows:

Day 1 Outlook for tornadoes: 2%, 5%, 10%, 15%, 30%, 45% and 60%

Day 1 Outlook for (convective) damaging winds: 5%, 15%, 30%, 45% and 60%

Day 1 Outlook for severe hail: 5%, 15%, 30%, 45% and 60%

Day 2 Outlooks (combined events): 5%, 15%, 30%, 45% and 60%

Day 3 Outlooks (combined events): 5%, 15%, 30% and 45%

SPC will include a hatched area on individual probabilistic graphical products indicating a 10% (or greater) chance of tornadoes that could produce EF2 or greater damage, two inch or greater diameter hail, and/or sixty five knot or greater convective wind gusts within 25 miles of any one point of a forecast area. A hatched area on the Day 2 or Day 3 Outlooks would indicate a 10% (or greater) probability for a significant wind, hail and/or tornado event.

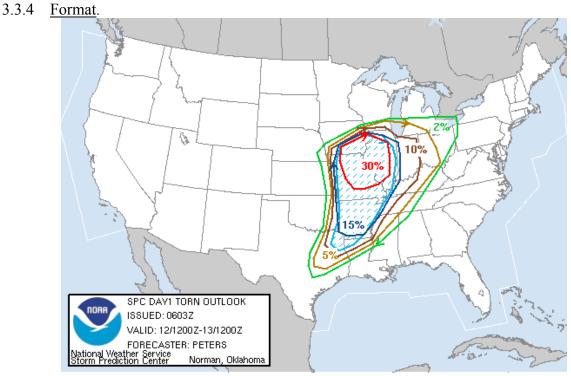


Figure 5: Day One Outlook - Tornado

3.4 <u>Updates, Amendments and Corrections</u>. Updates are scheduled (see issuance times). SPC will amend when it is recognized that the current forecast does not or will not reflect the ongoing or future convective development.

4. 4-8 Day Severe Thunderstorm Outlook

- 4.1 <u>Mission Connection</u>. SPC issues narrative and graphical 4-8 Severe Thunderstorm Outlook to provide CONUS Weather Forecast Offices (WFOs), the public, media and emergency managers with the potential for severe convection during the 4-8 Day period. This product will help its users to adequately prepare several days in advance of an expected severe weather episode.
- 4.2 Issuance Guidelines.
- 4.2.1 <u>Creation Software</u>. SPC will use the National Center's AWIPS (NAWIPS) editor for text products, and the SPC graphics editor for graphical products.
- 4.2.2 <u>Issuance Criteria</u>. The 4-8 Day Convective Outlook is a scheduled product in UTC time and calendar day.
- 4.2.3 <u>Issuance Time</u>. Product is issued once daily at 1000 UTC during Standard time and 0900 UTC during Daylight Time. See Table 1.
- 4.2.4 Valid Time. Product is valid from 1200 UTC on Day 4 to 1200 UTC on Day 9.
- 4.2.5 Product Expiration Time. Product expiration time is 1200 UTC the next calendar day.
- 4.3 <u>Technical Description</u>. Day 4-8 outlooks should follow the format and content described in this section.
- 4.3.1 Mass News Disseminator Broadcast Line. None
- 4.3.2 <u>Mass News Disseminator Header</u>. The SWO MND header is "DAY 4-8 CONVECTIVE OUTLOOK".
- 4.3.3 <u>Content</u>. The Day 4-8 Convective Outlook product will consist of one graphic with an area (s) where severe weather is anticipated during the period. The severe weather threat areas will be depicted with a closed line and a label indicating the dates of the expected threat where there is at least a 30% probability for severe thunderstorms during day 4-8 period. One or two short paragraphs will accompany the graphic to briefly describe the area depicted and occasionally describe the key reasons for the forecast.

4.3.4 Format.

```
ACUS48 KWNS ddhhmm
SWOD48
SPC AC ddhhmm

DAY 4-8 CONVECTIVE OUTLOOK
NWS STORM PREDICTION CENTER NORMAN OK
time am/pm time_zone day mon dd yyyy

VALID DDHHMM - DDHHMMZ
...DISCUSSION...

A short 2-4 sentence paragraph to briefly describe the area depicted and occasionally describe the key reasons for the forecast.

$$
...FORECASTER(S) NAME... MM/DD/YY
```

Figure 6: Day 4-8 Convective Outlook Text Product Format

4.4 <u>Updates, Amendments and Corrections</u>. SPC will correct outlooks for format and grammatical errors. SPC will not amend the 4-8 Day Convective Outlook.

5. SPC Points Product

- 5.1 <u>Mission Connection</u>. SPC issues the Points Product to provide CONUS WFOs, the public, media, and emergency managers with the latitude and longitude locations of the points that make up the SPC Categorical and Probabilistic Convective Outlook areas.
- 5.2 <u>Issuance Guidelines</u>.
- 5.2.1 <u>Creation Software</u>. SPC uses automated software.
- 5.2.2 <u>Issuance Criteria</u>. Points Products are scheduled products.
- 5.2.3 <u>Issuance Time</u>. See Table 3.
- 5.2.4 Valid Time. See Table 3.
- 5.2.5 <u>Product Expiration Time</u>. Product expiration time is 1200 UTC the next day.

SPC POINTS FORECAST PRODUCTS						
Issuance Times (UTC)	Valid Times (UTC)	AWIPS ID	WMO Text Header	Product Description		
0600	1200 Day 1 to 1200 Day 2 (0-24 hour period)	PTSDY1	WUUS01 KWNS	Text provides latitude/longitude for each point creating the convective categorical and probabilistic graphics for Day 1includes list of anchor points with range/azimuth in statute miles relative to a point		
0600 (Daylight) 0700 (Standard)	1200 Day 2 to 1200 Day 3 (24-48 hour period)	PTSDY2	WUUS02 KWNS	Text provides latitude/longitude for each point creating the convective categorical and probabilistic graphics for Day 2includes list of anchor points with range/azimuth in statute miles relative to a point		
0730 (Daylight) 0830 (Standard)	1200 Day 3 to 1200 Day 4 (48-60 hour period)	PTSDY3	WUUS03 KWNS	Text provides latitude/longitude for each point creating the convective categorical and probabilistic graphics for Day 3includes list of anchor points with range/azimuth in statute miles relative to a point		
1300	1300 Day 1 to 1200 Day 2 (23 hour period)	PTSDY1	WUUS01 KWNS	Text provides latitude/longitude for each point creating the convective categorical and probabilistic graphics for Day 1includes list of anchor points with range/azimuth in statute miles relative to a point		
1630	1630 Day 1 to 1200 Day 2 (19.5 hour period)	PTSDY1	WUUS01 KWNS	Text provides latitude/longitude for each point creating the convective categorical and probabilistic graphics for Day 1includes list of anchor points with range/azimuth in statute miles relative to a point		
1730	1200 Day 2 to 1200 Day 3 (24-48 hour period)	PTSDY2	WUUS02 KWNS	Text provides latitude/longitude for each point creating the convective categorical and probabilistic graphics for Day 2includes list of anchor points with range/azimuth in statute miles relative to a point		
2000	2000 Day 1 to 1200 Day 2 (16 hour period)	PTSDY1	WUUS01 KWNS	Text provides latitude/longitude for each point creating the convective categorical and probabilistic graphics for Day 1includes list of anchor points with range/azimuth in statute miles relative to a point		
0100	0100 Day 1 to 1200 Day 2 (11 hour period)	PTSDY1	WUUS01 KWNS	Text provides latitude/longitude for each point creating the convective categorical and probabilistic graphics for Day 1includes list of anchor points with range/azimuth in statute miles relative to a point		

Table 3: Issuance time, valid time, product ID and content of SPC Points Forecast products.

- 5.3 <u>Technical Description</u>. The SPC Points Product should follow the format and content described in this section.
- 5.3.1 <u>Mass News Disseminator Broadcast Line</u>. Not applicable.
- 5.3.2 <u>Mass News Disseminator Header</u>. DAY (1, 2, or 3) CONVECTIVE OUTLOOK AREAL OUTLINE

5.3.3 <u>Content.</u> SPC will issue three separate products for the Day 1, Day 2, and Day 3 outlooks. The Day 1 product provides the points for the Probabilistic Outlooks for tornado, large hail and damaging winds, and the associated Categorical Outlook. The Day 2 and 3 products list the points for the Probabilistic Outlook for all severe (tornadoes, large hail, and convective damaging winds combined) weather events and the associated Categorical Outlook. Points for areas of extreme events are also part of this product.

Possible values in the product include:

Probability: 0.05, 0.15, 0.25, 0.35, 0.45, 0.60,

also 0.02 and 0.10 for tornado probability.

Significant Severe: SIGN

Categorical: TSTM, SLGT, MDT, HIGH

Lat/lon values themselves are in decimal degrees, for example: 29450281 is 29.45N and -102.81W. 99999999 is equivalent to "...CONT..." connecting the previous point to the following point. For example:

 0.05
 29450281
 32590195
 35550068
 37480057
 38290123
 38480333

 39070480
 40250518
 42580209
 46060143
 48050263
 49150265

 9999999
 48729380
 46749177
 42609035
 41508994
 36608550

 35208574
 33688795
 33509118
 33249404
 27990024

0.05 is the 5% probability line, described by the following lat/lon points. **29450281** is 29.45N and -102.81W and is the first point in this line **49150265 9999999 48729380** is 49.15N -102.65W ...CONT... 48.72N -93.80W **27990024** is 27.99N and -100.24W and is the last point in the series.

5.3.4 Format.

```
WUUS01 KWNS ddhhmm
PTSDY1
DAY 1 CONVECTIVE OUTLOOK AREAL OUTLINE
NWS STORM PREDICTION CENTER NORMAN OK
1155 PM CST THU FEB 09 2006
VALID TIME 101200Z - 111200Z
PROBABILISTIC OUTLOOK POINTS DAY 1
... TORNADO ...
       27759671 28769742 29989747 30769656 31179488 30899293
0.02
       30499075 30768839 30988675 30898534 30498441 30038423
       29508444
&&
... HAIL ...
       27569677 28369842 29679973 30579965 31199843 31609712
       31709456 31219192 31048953 31108586 30758471 30308430
       29338474
&&
... WIND ...
       27919643 27739717 27699781 27939837 29029834 30319737
       31129489 31138492 30948436 30438396 29388456
33
CATEGORICAL OUTLOOK POINTS DAY 1
... CATEGORICAL ...
TSTM
      30850563 32240156 32799807 32859739 32889688 33289493
       34479311 34749227 35048999 34778763 34688679 34368518
       33608441 32768370 30828332 29368389
33
GEN TSTMS ARE FCST TO THE RIGHT OF A LINE FROM 80 SE ELP BGS MWL FTW
DAL 40 SE PRX HOT LIT MEM MSL HSV RMG ATL MCN VLD 50 WSW CTY.
```

Figure 7: Day 1 SPC Points Product Format

5.4 <u>Updates, Amendments and Corrections</u>. Updates are scheduled (see issuance times). SPC will amend outlooks for format errors. SPC will amend when it is recognized that the current forecast does not or will not reflect the ongoing or future convective development.

6. SPC NDFD Forecast Products

6.1 <u>Mission Connection</u>. SPC issues the NDFD Forecast Product to provide CONUS WFOs, partners, and users with the graphical display that make up the SPC Categorical and Probabilistic Convective Outlook areas.

6.2 <u>Issuance Guidelines</u>.

SPC NDFD FORECAST PRODUCTS							
Issuance Times (UTC)	Valid Times (UTC)	WMO Header (grib2)	Product Description				
0600	1200 Day 1 to 1200 Day 2 (0-24 hour period)	LEU198 KWNS LFU198 KWNS LGU198KWNS LHU198KWNS LIU198 KWNS LJU198 KWNS LMU198 KWNS	Tornado Probabilities Hail Probabilities Dmg Wind Probabilities Sig Tor Probabilities Sig Hail Probabilities Sig Dmg Wind Probabilities Categorical Outlook				
0600 (Daylight) 0700 (Standard)	1200 Day 2 to 1200 Day 3 (24-48 hour period)	LKU298 KWNS LLU298 KWNS LMU298 KWNS	Total Prob. of Severe Thunderstorms Total Prob. of Extreme Severe Thunderstorms Categorical Outlook				
0730 (Daylight) 0830 (Standard)	1200 Day 3 to 1200 Day 4 (48-72 hour period)	LKU398 KWNS LLU398 KWNS LMU398 KWNS	Total Prob. of Severe Thunderstorms Total Prob. of Extreme Severe Thunderstorms Categorical Outlook				
1300	1300 Day 1 to 1200 Day 2 (23 hour period)	LEU198 KWNS LFU198 KWNS LGU198 KWNS LHU198 KWNS LIU198 KWNS	Tornado Probabilities Hail Probabilities Dmg Wind Probabilities Sig Tor Probabilities Sig Hail Probabilities Sig Dmg Wind Probabilities				
1630	1630 Day 1 to 1200 Day 2 (19.5 hour period)	LMU198 KWNS LEU198 KWNS LFU198 KWNS LGU198 KWNS LHU198 KWNS LIU198 KWNS LJU198 KWNS	Categorical Outlook Tornado Probabilities Hail Probabilities Dmg Wind Probabilities Sig Tor Probabilities Sig Hail Probabilities Sig Dmg Wind Probabilities Categorical Outlook				
1730	1200 Day 2 to 1200 Day 3 (24-48 hour period)	LKU298 KWNS LLU298 KWNS LMU298 KWNS	Total Prob. of Severe Thunderstorms Total Prob. of Extreme Severe Thunderstorms Categorical Outlook				
2000	2000 Day 1 to 1200 Day 2 (16 hour period)	LEU198 KWNS LFU198 KWNS LGU198 KWNS LHU198 KWNS LIU198 KWNS LJU198 KWNS LMU198 KWNS	Tornado Probabilities Hail Probabilities Dmg Wind Probabilities Sig Tor Probabilities Sig Hail Probabilities Sig Dmg Wind Probabilities Categorical Outlook				
0100	0100 Day 1 to 1200 Day 2 (11 hour period)	LEU198 KWNS LFU198 KWNS LGU198 KWNS LHU198 KWNS LIU198 KWNS LJU198 KWNS LMU198 KWNS	Tornado Probabilities Hail Probabilities Dmg Wind Probabilities Sig Tor Probabilities Sig Hail Probabilities Sig Dmg Wind Probabilities Categorical Outlook				

Table 4: Issuance time, valid time, product ID and content of SPC NDFD Forecast products (only entire CONUS Grid (U) listed).

- 6.2.1 Creation Software. SPC uses automated software.
- 6.2.2 <u>Issuance Criteria</u>. SPC NDFD Forecasts Products are scheduled products.
- 6.2.3 Issuance Time. See Table 4.
- 6.2.4 Valid Time. See Table 4.
- 6.2.5 Product Expiration Time. Product expiration time is 1200 UTC the next day.
- 6.3 Technical Description.
- 6.3.1 Mass News Disseminator Broadcast Line. Not applicable.
- 6.3.2 Mass News Disseminator Header. Not applicable.
- 6.3.3 <u>Content.</u> SPC will issue three separate products for the Day 1, Day 2, and Day 3 outlooks. The Day 1 product provides the NDFD graphical products for the Probabilistic Outlooks for tornado, large hail and damaging winds, and the associated Categorical Outlook. The Day 2 and 3 products provides the NDFD graphical products for the Probabilistic Outlook for all severe (tornadoes, large hail, and convective damaging winds combined) weather events and the associated Categorical Outlook. NDFD graphics for areas of extreme events are also part of this product.
- 6.4 <u>Updates, Amendments and Corrections</u>. Updates are scheduled (see issuance times). SPC will amend outlooks for format errors. SPC will amend when it is recognized that the current forecast does not or will not reflect the ongoing or future convective development.

7. Public Severe Weather Outlook (WMO header WOUS40, AWIPS ID PWOSPC).

- 7.1 <u>Mission Connection</u>. Public Severe Weather Outlooks alert the CONUS WFOs, public, media, and emergency managers to a potentially significant or widespread severe weather outbreak. These outlooks also define the threat area and provide information on the timing of the outbreak.
- 7.2 Issuance Guidelines.
- 7.2.1 <u>Creation Software</u>. SPC will use the National Centers AWIPS (NAWIPS) text editor.
- 7.2.2 <u>Issuance Criteria</u>. When a potential exists for a significant or widespread convective outbreak, which is implied with tornado and/or damaging wind probabilities indicative of a moderate or high risk, a PWO will be issued.
- 7.2.3 <u>Issuance Time</u>. The Public Severe Weather Outlook is an event driven product (see 6.3.3 for more details). The PWO is issued between 1000 and 1100 UTC, if the 0600 UTC Day 1 Outlook initiates a MDT or HIGH risk; between 1300 and 1400 UTC, if the 1300 UTC Day 1

Outlook initiates the MDT or HIGH risk. The PWO is then updated between 1700 and 1800 UTC. The PWO may be written if the 2000 UTC Day 1 Outlook is upgraded to HIGH risk. The PWO is not issued for "hail only" MDT risk.

- 7.2.4 <u>Valid Time</u>. The valid time is from the time of issuance to expiration.
- 7.2.5 <u>Product Expiration Time</u>. The product expiration time will be the time of the next PWO issuance or 1200 UTC the next day if no other issuances are expected.
- 7.3 <u>Technical Description</u>. Public Weather Outlooks should follow the format and content described in this section.
- 7.3.1 Mass News Disseminator Broadcast Line. None.
- 7.3.2 <u>Mass News Disseminator Header</u>. The PWO MND header is "PUBLIC SEVERE WEATHER OUTLOOK."
- 7.3.3 <u>Content</u>. SPC will issue a Public Severe Weather Outlook when it forecasts any of the following conditions:
 - a. A High risk of severe thunderstorms in the Categorical Day 1 Outlook;
 - b. A Moderate risk of severe storms that contains at least a 15% probability of tornadoes, or a 45% probability of (convective) damaging winds.
- 7.3.4 Format.

WOUS40 KWNS ddhhmm PWOSPC STZ000>099-CWZ000>099-ddhhmm-

PUBLIC SEVERE WEATHER OUTLOOK NWS STORM PREDICTION CENTER NORMAN OK time am/pm time_zone day mon dd yyyy

....HEADLINE OF PARTICULARLY DANGEROUS SITUATION (LOCATION AND TIMING)...

A NARRATIVE PLAIN LANGUAGE DISCUSSION OF THE PARTICULARLY DANGEROUS CONVECTIVE THREAT. THE SPC FORECASTER SHOULD DEFINE THE LOCATION...TIMING AND REASONING FOR THIS OUTLOOK. THE REASONING SHOULD BE KEPT IN TERMS THE PUBLIC WILL UNDERSTAND. INCLUDE CALL TO ACTION STATEMENTS AS REQUIRED.

\$\$

...FORECASTER NAME...

Figure 8: Public Severe Weather Outlook Format

7.4 <u>Updates, Amendments and Corrections</u>. Updates are scheduled (see issuance times). SPC will correct outlooks for format and grammatical errors. PWOs will not be amended.

8. Watch County List (WMO header NWUS64, AWIPS ID WCL [A-J]).

- 8.1 <u>Mission Connection</u>. SPC issues Watch County Lists to collaborate with CONUS WFOs on proposed counties, parishes, independent cities and/or adjacent coastal water marine zones to be included in a convective watch. The AWIPS Message Handling System is used to keep the Watch County List product internal to the NWS.
- 8.2 Issuance Guidelines.
- 8.2.1 Creation Software. SPC will use the National Centers AWIPS (NAWIPS) text editor.
- 8.2.2 <u>Issuance Criteria.</u> SPC forecasts weather conditions expected to approach or exceed Severe Thunderstorm or Tornado Watch issuance criteria (see Sections 11.2.2).
- 8.2.3 Issuance Time. Watch County Lists are non-scheduled, event driven products.
- 8.2.4 <u>Valid Time</u>. Not applicable. Watch County Lists are an internal product.
- 8.2.5 <u>Product Expiration Time</u>. Not applicable.
- 8.3 <u>Technical Description</u>. Watch county lists will follow the format and content described in this section.
- 8.3.1 <u>Mass News Disseminator Broadcast Line</u>. Not applicable.
- 8.3.2 <u>Mass News Disseminator Header</u>. Not applicable.
- 8.3.3 <u>Content.</u> CONUS WFOs and SPC are partners in the convective watch process. In the spirit of partnership, WFOs and SPC work toward a consensus convective watch area and duration before, during and at the end of convective watches. This partnership is defined as collaboration.

SPC uses the Watch County List (WCL) to alert affected WFOs to a proposed convective watch. WFOs may call the SPC and propose a new watch area. SPC will provide the watch type and proposed counties or parishes and independent cities segmented by state and adjacent coastal water marine zones and a proposed expiration time. Adjacent coastal water marine zones refer to near shore responsibility (out to 20 nautical miles for oceans). All U.S. Great Lakes marine zones may be included in proposed convective watches.

SPC generates and sends the list through AWIPS to the affected WFOs. SPC will list WFOs in the proposed watch in the ATTN Line. AWIPS software decodes this list into a graphical display of counties and independent cities in each WFO's county warning area. The list and graphical display on AWIPS serve as the basis for a mandatory collaboration conference call between SPC and the affected WFOs prior to a watch issuance. SPC will attempt to individually contact affected WFO(s) which were unable to participate in the collaboration conference call. The affected WFOs and SPC will collaborate on the watch type, the final list of proposed counties or parishes, independent cities and marine zones to be included in the

initial convective watch area. If a consensus cannot be reached through collaboration or SPC is unable to contact an affected WFO(s) during the collaboration call or individually, SPC will decide on the final list of counties or parishes, independent cities and marine zones for all affected WFOs for the initial convective watch area.

8.3.4 Format.

NWUS64 KWNS ddhhmm WCLx

.(TORNADO OR SEVERE THUNDERSTORM) WATCH \boldsymbol{x} COORDINATION COUNTY LIST FROM THE NWS STORM PREDICTION CENTER EFFECTIVE UNTIL HHMM UTC.

STC001-003-ddhhmm-

ST

. STATE 1 COUNTIES INCLUDED ARE

LIST OF COUNTIES

STATE 1 INDEPENDENT CITIES INCLUDED ARE

LIST OF INDEPENDENT CITIES

\$\$

STC001-003-ddhhmm-

ST

. STATE 2 COUNTIES INCLUDED ARE

LIST OF COUNTIES

STATE 2 INDEPENDENT CITIES INCLUDED ARE

LIST OF INDEPENDENT CITIES \$\$

CW

. ADJACENT COASTAL WATERS INCLUDED ARE

LIST OF MARINE ZONES

\$\$

ATTN...WFO...CCC...CCC... (ALARM/ALERT INFORMATION, WFOS AFFECTED BY THE PROPOSED WATCH).

Figure 9: Watch County List Format

8.4 <u>Updates, Amendments and Corrections</u>. Updates are not applicable. SPC will correct lists for format errors. WCLs will not be amended.

- 9. Watch Outline Update Message (WMO header WOUS64, AWIPS ID WOU#).
- 9.1 <u>Mission Connection</u>. SPC issues Watch Outline Update Messages (WOU) to provide CONUS WFOs, emergency managers, the media and the general public with the names of all counties or parishes, independent cities and marine zones in a convective watch area. The WOU product defines the initial list of counties in a watch. The Aviation Watch Notification (SAW) and Public Watch Notification (SEL) products describe an approximation of the watch area via a parallelogram, and these two products refer the user to the WOU product for the actual watch area
- 9.2 Issuance Guidelines.
- 9.2.1 <u>Creation Software</u>. SPC will use the National Centers AWIPS (NAWIPS) software to create WOUs.
- 9.2.2 <u>Issuance Criteria</u>. SPC will issue an initial WOU for every CONUS convective watch. SPC will issue updated WOUs as needed when changes are made to Watch County Notification (WCN) messages issued by WFOs to update counties within active convective watches. SPC will issue a final WOU to notify users that a watch has been cancelled or allowed to expire. The cancellation WOU message is issued when all WFOs in the effected watch issue WCNs that cancel the counties within their respective CWAs.
- 9.2.3 <u>Issuance Time</u>. SPC will issue initial WOUs at the same time the Aviation Watch Notification Message is issued. SPC will issue updated WOUs as needed for active convective watches when WCNs are received from WFOs. SPC will issue final WOUs at the watch expiration time, or when all counties are cleared through the WCN product issued by the WFOs.
- 9.2.4 Valid Time. WOUs are valid until the product is updated, cancelled or expires.
- 9.2.5 Product Expiration Time. The product expiration time is the watch expiration time.
- 9.3 <u>Technical Description</u>. WOUs will follow the format and content described in this section.
- 9.3.1 MND Broadcast Line. SPC will use "BULLETIN IMMEDIATE BROADCAST REQUESTED" in WOUs only for the initial issuance of this watch product. The term "BULLETIN" is used when information is sufficiently urgent to warrant breaking into a normal broadcast.
- 9.3.2 MND Header. The WOU MND header is "TORNADO (or SEVERE THUNDERSTORM) WATCH OUTLINE UPDATE FOR W(S or T) nnnn" where "nnnn" is the watch number. The watch number will be a consecutive number beginning with number 1 at the start of each calendar year.
- 9.3.3 <u>Content</u>. SPC will issue WOUs for the time zone(s) in the defined watch area. WOUs will be segmented by states and associated marine areas. WOUs will include all counties or parishes, independent cities and adjacent coastal water marine zones in a watch area. Adjacent coastal water marine zones refer to near shore responsibility (out to 20 nautical miles for

oceans). All Great Lakes marine zones within the United States will be included in convective watches. The initial WOU automatically generates the initial Watch County Notification Messages (WCN) for the affected WFOs. As a result of a collaboration call with WFOs whose County Warning Area (CWA) is part of a proposed convective watch, the counties or parishes, independent cities and marine zones listed in the initial WOU will match those listed in the initial WCNs issued by the affected WFOs.

The content of the WOU updates are collected from the latest WCNs issued by the WFOs and issued as needed. WOU updates will include all counties or parishes, independent cities and marine zones which remain in or have been added to the watch area since the initial issuance or update. SPC will issue a final WOU when all counties are cleared through a WFO WCN to inform national and regional partners and users that the convective watch is no longer in effect for any portion of the watch area. SPC will collaborate with affected WFOs when counties or parishes, independent cities, or marine zones are transferred from an existing convective watch to a new watch (e.g. watch replacement), or added to an ongoing watch.

9.3.4 Format.

WOUS64 KWNS ddhhmm WOUn

BULLETIN - IMMEDIATE BROADCAST REQUESTED (Initial Issuance Only)
TORNADO (or SEVERE THUNDERSTORM) WATCH OUTLINE UPDATE FOR W(S or T) nnnn
NWS STORM PREDICTION CENTER NORMAN OK
time am/pm time_zone day mon dd yyyy

TORNADO (or SEVERE THUNDERSTORM) WATCH nnnn IS IN (or REMAINS IN) EFFECT UNTIL hhmm AM/PM XDT FOR THE FOLLOWING LOCATIONS:

STC001-003-ddhhmm-

/k.aaa.cccc.pp.s.####.yymmddThhnnZ_B-yymmddThhnnZ_E/

ST

. STATE 1 COUNTIES INCLUDED ARE

LIST OF COUNTIES

STATE 1 INDEPENDENT CITIES INCLUDED ARE

LIST OF CITIES

\$\$

nMZ001-003-ddhhmm-

/k.aaa.cccc.pp.s.####.yymmddThhnnZ_B-yymmddThhnnZ_E/

CW

. ADJACENT COASTAL WATERS INCLUDED ARE

LIST OF MARINE ZONES

99

ATTN...WFO...CCC...CCC... (ALARM/ALERT INFORMATION, WFOS AFFECTED BY THE WATCH).

Figure 10: Watch Outline Update Message

(Watch No Longer in Effect- Final Update)

WOUS64 KWNS ddhhmm WOUn

TORNADO (or SEVERE THUNDERSTORM) WATCH OUTLINE UPDATE FOR W(S or T) nnnn NWS STORM PREDICTION CENTER NORMAN OK time am/pm time_zone day mon dd yyyy

TORNADO (or SEVERE THUNDERSTORM) WATCH nnnn IS NO LONGER IN EFFECT.

STZ000-nMZ000-ddhhmm-

 $/k.aaa.cccc.pp.s.\#\#\#.yymmddThhnnZ_B-yymmddThhnnZ_E/$

NO COUNTIES (OR PARISHES, INDEPENDENT CITIES) REMAIN IN THE WATCH.

NO MARINE ZONES REMAIN IN THE WATCH (if Marine Zones were in the original watch area) \$\$

ATTN...WFO...CCC...CCC... (ALARM/ALERT INFORMATION, WFOS ORIGINALLY AFFECTED BY THE WATCH).

Figure 11: Example of an updated Watch Outline Update

9.4 <u>Updates, Amendments and Corrections</u>. SPC will correct WOUs for areal omissions, expiration time, and watch type errors as needed. WOUs are updated at least at the top of each hour.

10. Aviation Watch Notification Message (WMO header WWUS30, AWIPS ID SAW#).

- 10.1 <u>Mission Connection</u>. SPC issues Aviation Watch Notification Messages to provide an areal threat alert for the aviation meteorology community to forecast organized severe thunderstorms that may produce tornadoes, large hail and/or convective damaging winds as indicated in Public Watch Notification Messages. The SAW product is an approximation of the area in a watch, for the official area covered by a watch see the corresponding WOU product.
- 10.2 Issuance Guidelines.
- 10.2.1 <u>Creation Software</u>. SPC will use the National Centers AWIPS (NAWIPS) text editor.
- 10.2.2 <u>Issuance Criteria</u>. A convective watch is in effect.
- 10.2.3 <u>Issuance Time</u>. Aviation Watch Notification Messages are non-scheduled, event driven products.
- 10.2.4 <u>Valid Time</u>. The valid time is from the time of issuance to expiration or cancellation time.
- 10.2.5 Product Expiration Time. The expiration time is at the end of the watch valid time.

- 10.3 <u>Technical Description</u>. Aviation Watch Notification Messages will follow the format and content described in this section.
- 10.3.1 Mass News Disseminator Broadcast Line. Not applicable.
- 10.3.2 Mass News Disseminator Header. Not applicable.
- 10.3.3 <u>Content.</u> SPC will issue the SAW after the proposed convective watch area has been collaborated with the affected WFO CWA defining the approximate areal outline of the watch. SPC forecasters may define the area as a rectangle or parallelogram (X miles either side of line from point A to point B), or (X miles north and south or east and west of line from point A to point B). Distances of the axis coordinates should be in statute miles. The aviation coordinates reference navigational aid VHF Omni-Directional Range (VOR) locations and state distances will be in nautical miles. SPC will provide valid times in UTC. The watch half width will be in statute miles. The Aviation Watch Notification Message will contain hail size in inches or half inches (forecaster discretion for tornado watches associated with hurricanes) surface and aloft, surface convective wind gusts in knots, maximum cloud tops, and the Mean Storm Motion Vector, and replacement information, if necessary.

10.3.4 Format.

WWUS30 KWNS ddhhmm
SAWn
SPC AWW ddhhmm
WWnnnn SEVERE TSTM ST LO DDHHMMZ - DDHHMMZ
AXIS...XX STATUTE MILES EITHER SIDE (or North and South, or East and West) OF A LINE
XXDIR CCC/LOCATION ST/ - XXDIR CCC/LOCATION ST
..AVIATION COORD.. XX NM EITHER SIDE /XXDIR CCC - XXDIR CCC
HAIL SURFACE AND ALOFT..X X/X INCHES. WIND GUSTS..XX KNOTS.
MAX TOPS TO XXX. MEAN STORM MOTION VECTOR DIR/SPEED

LAT...LON

THIS IS AN APPROXIMATION TO THE WATCH AREA. FOR A COMPLETE DEPICTION OF THE WATCH SEE WOUS64 KWNS FOR WOUN.

Figure 12: Aviation Severe Weather Watch Notification Message Format

10.4 <u>Updates, Amendments and Corrections.</u> Updates and amendments are not applicable. SPC will correct watches for format and grammatical errors.

11. <u>Public Severe Thunderstorm Watch Notification Message (WMO header WWUS20, AWIPS ID SEL#).</u>

11.1 <u>Mission Connection</u>. SPC issues Public Severe Thunderstorm Watch Notification Messages to alert CONUS WFOs, the public, media and emergency managers to organized thunderstorms forecast to produce six and more hail events of 3/4 inch (penny) diameter and/or greater or convective damaging winds of 50 knots (58 mph) or greater. The SEL product is an approximation of the area in a watch, for the official area covered by a watch see the corresponding WOU product.

- 11.2 Issuance Guidelines.
- 11.2.1 <u>Creation Software</u>. SPC will use the National Centers AWIPS (NAWIPS) text editor.
- 11.2.2 <u>Issuance Criteria</u>. SPC should issue a Public Severe Thunderstorm Watch Notification Message when there is a forecast of six or more hail events of 3/4 inch (penny) diameter or greater or convective damaging winds of 50 knots (58 mph) or greater. The forecast event minimum thresholds should be at least 2 hours over an area at least 8,000 square miles. Below these thresholds, SPC in collaboration with affected WFO CWAs may issue for smaller areas and for shorter periods of time when conditions warrant, and for convective watches along coastlines, and near the Canadian and Mexican borders.
- 11.2.3 <u>Issuance Time</u>. Public Severe Thunderstorm Watch Notification Messages are non-scheduled, event driven products.
- 11.2.4 <u>Valid Time</u>. The valid time is from the time of issuance to expiration or cancellation time.
- 11.2.5 <u>Product Expiration Time</u>. The expiration time is the end of the watch valid time.
- 11.3 <u>Technical Description</u>. Public Severe Thunderstorm Watch Notification Messages will follow the format and content described in this section.
- 11.3.1 <u>Mass News Disseminator Broadcast Line</u>. Public Severe Thunderstorm Watch Notification Messages will include the broadcast line "URGENT IMMEDIATE BROADCAST REQUESTED". The term "URGENT" is used when the information may wait until a stop-set to be broadcast.
- 11.3.2 <u>Mass News Disseminator Header</u>. The Public Severe Thunderstorm Watch Notification Message MND header is "SEVERE THUNDERSTORM WATCH nnnn."
- 11.3.3 <u>Content</u>. A Public Severe Thunderstorm Watch Notification Message will contain the approximate area description and axis, watch expiration time, a description of hail size and thunderstorm wind gusts expected, the definition of a watch, a call to action statement, a list of other valid watches, a list of watches cancelled/replaced by a new watch, a brief discussion of meteorological reasoning, and technical information for the user community (see example).

SPC will include the term "coastal waters" when the watch affects coastal waters within 20 nm of the Pacific/Atlantic coast, Gulf of Mexico, or Great Lakes areas within the United States. Adjacent coastal waters refers to a WFO's marine zone responsibility (out to 20 nautical miles for oceans and Gulf of Mexico), and the Great Lakes within the United States. SPC will coordinate with affected WFOs to determine which counties or parishes, independent cities, and/or marine zones are in the initial watch and meteorological reasoning prior to a watch being issued. SPC will issue a watch cancellation message (under SEL, SAW and WOU products) when there are no counties or parishes, independent cities and/or marine zones remaining in the watch area prior to the expiration time, after WFOs have cleared all counties via WCNs. The text of the message will specify the number and area of the cancelled watch.

SPC will enhance a Public Severe Thunderstorm Watch Notification Message by using the words, "THIS IS A PARTICULARLY DANGEROUS SITUATION" in two kinds of conditions; 1) when conditions are favorable for widespread significant non-tornadic severe weather events (convective winds greater than 65 knots and/or hail diameter greater than 2.0 inches). The second situation occurs when a well defined large bow echo has developed, there is evidence of destructive convective winds occurring at the surface, the bow echo is moving at 48 knots or greater, and/or downstream conditions suggest the bow echo will be maintained or intensifies for the duration of the watch.

11.3.4 Format.

WWUS20 KWNS ddhhmm SELn SPC WW ddhhmm STZ000>099-CWZ000>099-ddhhmm-

URGENT - IMMEDIATE BROADCAST REQUESTED SEVERE THUNDERSTORM WATCH NUMBER nnnn NWS STORM PREDICTION CENTER NORMAN OK time am/pm time_zone day mon dd yyyy

THE STORM PREDICTION CENTER HAS ISSUED A SEVERE THUNDERSTORM WATCH FOR PORTIONS OF

PORTION OF STATE
PORTION OF STATE
AND ADJACENT COASTAL WATERS (IF REQUIRED)

EFFECTIVE (TIME PERIOD) UNTIL hhmm am/pm time_zone.

...THIS IS A PARTICULARLY DANGEROUS SITUATION (IF NECESSARY)...

HAIL TO X INCHES IN DIAMETER...THUNDERSTORM WIND GUSTS TO XX MPH... AND DANGEROUS LIGHTNING ARE POSSIBLE IN THESE AREAS.

NARRATIVE DESCRIPTION OF APPROXIMATE WATCH AREA USING A LINE AND ANCHOR POINTS. DISTANCES TO EITHER SIDE OF THE LINE WILL BE IN STATUTE MILES. THIS SECTION INDICATES THE WATCH IS AREA IS AN APPROXIMATION AND "FOR A COMPLETE DEPICTION OF THE WATCH SEE THE ASSOCIATED WATCH OUTLINE UPDATE (WOUS64 KWNS WOUN)."

CALL TO ACTION STATEMENTS

OTHER WATCH INFORMATION...OTHER WATCHES IN EFFECT AND IF THIS WATCH REPLACES A PREVIOUS WATCH.

NARRATIVE DISCUSSION OF REASON FOR THE WATCH.

AVIATION...BRIEF DESCRIPTION OF SEVERE WEATHER THREAT TO AVIATORS. HAIL SIZE WILL BE GIVEN IN INCHES AND WIND GUSTS IN KNOTS. MAXIMUM STORM TOPS AND A MEAN STORM VECTOR WILL ALSO BE GIVEN.

...FORECASTER NAME

Figure 13: Public Watch Notification Message Format (for Severe Thunderstorms).

11.4 <u>Updates, Amendments and Corrections</u>. Updates are not applicable. SPC will correct watches for format and grammatical errors.

12. <u>Public Tornado Watch Notification Message (WMO header WWUS20, AWIPS ID SEL).</u>

12.1 <u>Mission Connection</u>. SPC issues Public Tornado Watch Notification Messages to alert CONUS WFOs, the public, media and emergency managers to organized thunderstorms forecast to produce two or more tornadoes or any tornado which could produce EF2 or greater

damage. The SEL product is an approximation of the area in a watch, for the official area covered by a watch see the corresponding WOU product.

- 12.2 Issuance Guidelines.
- 12.2.1 <u>Creation Software</u>. SPC will use the National Centers AWIPS (NAWIPS) text editor.
- 12.2.2 <u>Issuance Criteria</u>. SPC should issue a Public Tornado Watch Notification Message when there is a forecast of multiple weak tornadoes or any tornado which could produce EF2 or greater damage. The forecast event minimum thresholds should be at least 2 hours over an area at least 8,000 square miles. Below these thresholds, SPC in collaboration with affected WFOs and their CWAs may issue for smaller areas and for shorter periods of time when conditions warrant, and for convective watches along coastlines, and near the Canadian and Mexican borders.
- 12.2.3 <u>Issuance Time</u>. Public Tornado Watch Notification Messages are non-scheduled, event driven products.
- 12.2.4 <u>Valid Time</u>. The valid time is from the time of issuance to expiration or cancellation time.
- 12.2.5 Product Expiration Time. The expiration time is the end of the watch valid time.
- 12.3 <u>Technical Description</u>. Public Tornado Watch Notification Messages will follow the format and content described in this section.
- 12.3.1 <u>Mass News Disseminator Broadcast Line</u>. Public Tornado Watch Notification Messages will include the broadcast line "URGENT IMMEDIATE BROADCAST REQUESTED." The term "URGENT" is used when the information may wait until a stop-set to be broadcast.
- 12.3.2 <u>Mass News Disseminator Header</u>. The Public Tornado Watch Notification Message MND header is "TORNADO WATCH nnnn."
- 12.3.3 <u>Content.</u> A Public Tornado Watch Notification Message will contain the area description and axis, watch expiration time, the term "damaging tornadoes", a description of the largest hail size and strongest thunderstorm wind gusts expected, the definition of a watch, a call to action statement, a list of other valid watches, a list of watches cancelled or replaced by new watches, a brief discussion of meteorological reasoning, and technical information for the user community (see example). Mention of hail size associated with tropical cyclones is optional.

SPC will include the term "coastal waters" when the watch affects coastal waters within 20 nm of the Pacific/Atlantic coast, Gulf of Mexico, or Great Lakes within the United States. Adjacent coastal waters refer to a WFO's marine responsibility (out to 20 nautical miles for oceans and Gulf of Mexico) and the Great Lakes within the United States. SPC will coordinate with affected WFOs to determine which counties or parishes, independent cities and/or marine zones are in the initial watch and meteorological reasoning prior to a watch being issued. SPC will issue a watch cancellation message (under SEL, SAW and WOU products) whenever a

watch is cancelled prior to the expiration time. The text of the message will specify the number and area of the cancelled watch. SPC may enhance a Public Tornado Watch Notification Message by using the words "THIS IS A PARTICULARLY DANGEROUS SITUATION" when there is a likelihood of multiple strong (damage of EF2 or EF3) or violent (damage of EF4 or EF5) tornadoes. SPC will refer to tornadoes as "destructive" for PDS Tornado Watches.

12.3.4 Format.

WWUS20 KWNS ddhhmm SELn SPC WW ddhhmm STZ000>099-CWZ000>099-ddhhmm-

URGENT - IMMEDIATE BROADCAST REQUESTED TORNADO WATCH NUMBER nnnn NWS STORM PREDICTION CENTER NORMAN OK time am/pm time_zone day mon dd yyyy

THE STORM PREDICTION CENTER HAS ISSUED A TORNADO WATCH FOR PORTIONS OF

PORTION OF STATE
PORTION OF STATE
AND ADJACENT COASTAL WATERS (IF REQUIRED)

EFFECTIVE (TIME PERIOD) UNTIL hhmm am/pm time_zone.

...THIS IS A PARTICULARLY DANGEROUS SITUATION (IF NECESSARY)...

DESTRUCTIVE TORNADOES...HAIL TO X INCHES IN DIAMETER...THUNDERSTORM WIND GUSTS TO XX MPH...AND DANGEROUS LIGHTNING ARE POSSIBLE IN THESE AREAS.

NARRATIVE DESCRIPTION OF APPROXIMATE WATCH AREA USING A LINE AND ANCHOR POINTS. DISTANCES TO EITHER SIDE OF THE LINE WILL BE IN STATUTE MILES. THIS SECTION INDICATES THE WATCH IS AREA IS AN APPROXIMATION AND "FOR A COMPLETE DEPICTION OF THE WATCH SEE THE ASSOCIATED WATCH OUTLINE UPDATE (WOUS64 KWNS WOUN)."

CALL TO ACTION STATEMENTS

OTHER WATCH INFORMATION...OTHER WATCHES IN EFFECT AND IF THIS WATCH REPLACES A PREVIOUS WATCH.

NARRATIVE DISCUSSION OF REASON FOR THE WATCH.

AVIATION...BRIEF DESCRIPTION OF SEVERE WEATHER THREAT TO AVIATORS. HAIL SIZE WILL BE GIVEN IN INCHES AND WIND GUSTS IN KNOTS. MAXIMUM STORM TOPS AND A MEAN STORM VECTOR WILL ALSO BE GIVEN.

...FORECASTER NAME

Figure 14: Public Watch Notification Message Format (for Tornadoes)

12.4 <u>Updates, Amendments and Corrections</u>. Updates are not applicable. SPC will amend Public Watch Notification Messages for format and grammatical errors.

13. Watch Hazard Probabilities

- 13.1 <u>Mission Connection</u>. SPC issues Watch Hazard Probabilities to provide affected users with probabilities of tornado and severe weather events of all active convective watches.
- 13.2 Issuance Guidelines.
- 13.2.1 Creation Software. SPC uses automated software.
- 13.2.2 Issuance Criteria. A convective watch is in effect.
- 13.2.3 Issuance Time. Watch Hazard Probabilities are non-scheduled, event driven products.
- 13.2.4 Valid Time. The valid time is listed in the products (WOU, SAW, or SEL).
- 13.2.5 <u>Product Expiration Time</u>. The expiration time is listed in the product (WOU, SAW, or SEL).
- 13.3 <u>Technical Description</u>. Watch Hazard Probabilities will follow the format and content described in this section.
- 13.3.1 Mass News Disseminator Broadcast Line. Not applicable.
- 13.3.2 Mass News Disseminator Header. Not applicable.
- 13.3.3 <u>Content</u>. SPC will issue Watch Hazard Probabilities to provide CONUS WFOs, the public, media and emergency managers with a set of seven severe weather probabilities for all issued convective watches.

The minimum tornado watch probability of two or more tornadoes is 30%. However, if a WFO requests a tornado watch issuance or the probability of one or more strong to violent (EF2-EF5) is 10% or greater, a 20% probability is permissible for the watch issuance.

The minimum severe thunderstorm watch probability of six or more severe weather events is 40%. However, if a WFO requests a severe thunderstorm watch, or if the probability of one or more winds events greater than 65 knots and/or the probability of one or hailstones greater than two inches in diameter is 40% or greater, a 30% probability is permissible for watch issuance.

13.3.4 Format.

```
WWUS40 KWNS DDHHMM
WWP7
TORNADO WATCH PROBABILITIES FOR WT 0987
NWS STORM PREDICTION CENTER NORMAN OK
1235 PM CDT THU JUL 28 2005
WT 987 PDS
PROBABILITY TABLE:
PROB OF 2 OR MORE TORNADOES
                                                : >95%
PROB OF 1 OR MORE STRONG /F2-F5/ TORNADOES
                                               : 25%
PROB OF 10 OR MORE SEVERE WIND EVENTS
                                                : 60%
PROB OF 1 OR MORE WIND EVENTS >= 65 KNOTS
                                                   30%
                                                 : 50%
PROB OF 10 OR MORE SEVERE HAIL EVENTS
PROB OF 1 OR MORE HAIL EVENTS >= 2 INCHES : 40%
PROB OF 6 OR MORE COMBINED SEVERE HAIL/WIND EVENTS: 80%
33
ATTRIBUTE TABLE:
                                           : 2.5
MAX HAIL /INCHES/
MAX WIND GUSTS SURFACE /KNOTS/
                                           : 550
MAX TOPS /X 100 FEET/
MEAN STORM MOTION VECTOR / DEGREES AND KNOTS/ : 27030
PARTICULARLY DANGEROUS SITUATION
FOR A COMPLETE GEOGRAPHICAL DEPICTION OF THE WATCH AND
WATCH EXPIRATION INFORMATION SEE WOUS64 KWNS FOR WOU7.
```

Figure 15: Watch Hazards Probabilities Product

13.4 <u>Updates, Amendments and Corrections</u>. Updates are not applicable. SPC will amend Public Watch Notification Messages for format and grammatical errors.

14. Watch Corner Points Message (WMO header WWUS60, AWIPS ID SEVSPC).

- 14.1 <u>Mission Connection</u>. SPC issues Watch Corner Points Messages to provide affected users with outline latitude/longitude coordinates of all active convective watches. The Watch Corner Point Message product is an approximation of the area in a watch, for the official area covered by a watch see the corresponding WOU product.
- 14.2 Issuance Guidelines.
- 14.2.1 Creation Software. SPC uses automated software.
- 14.2.2 Issuance Criteria. A convective watch is in effect.
- 14.2.3 <u>Issuance Time</u>. Watch Corner Points Messages are both event driven and scheduled products.

- 14.2.4 Valid Time. The valid time is until the issuance of the next scheduled update.
- 14.2.5 <u>Product Expiration Time</u>. The expiration time is at the end of the watch valid time.
- 14.3 <u>Technical Description</u>. Watch corner points messages will follow the format and content described in this section.
- 14.3.1 Mass News Disseminator Broadcast Line. Not applicable.
- 14.3.2 Mass News Disseminator Header. Not applicable.
- 14.3.3 <u>Content</u>. SPC will issue Watch Corner Points Messages to provide CONUS WFOs, the public, media and emergency managers with approximate outline latitude/longitude coordinates of all issued watches. These points are used for the radar summary chart that appears on AWIPS and web services when watches are valid or in effect. The county information listed in the initial WOU is considered the precise definition of the watch area.

14.3.4 Format.

(Watches in Effect)

WWUS60 KWNS ddhhmm SEVSPC

SEVR 971126 1801 WT0792 2300 02903.09250 03135.09136 03135.08822 02903.08941 02903.08941;

SEVR 971126 1801 WT0793 0000 02957.08110 03248.08751 03248.08456 02957.08621 02903.08941 02903.08941;

(No Watch in Effect)

WWUS60 KWNS ddhhmm SEVSPC

FILE CREATED DD-MMM-YY AT HH:MM:SS UTC NO WATCHES CURRENTLY ACTIVE

Figure 16: Watch Corner Points Message Format

14.4 <u>Updates, Amendments and Corrections.</u> Updates are scheduled (see issuance times). SPC will correct messages for format errors.

15. Watch Status Message (WMO header WOUS20, AWIPS ID WWASPC).

15.1 <u>Mission Connection</u>. SPC issues Watch Status Messages to provide CONUS WFOs, media, emergency managers and the public with an assessment of the severe weather threat within each active convective watch area.

- 15.2 Issuance Guidelines.
- 15.2.1 <u>Creation Software</u>. SPC uses the National Centers AWIPS (NAWIPS) text editor.
- 15.2.2 Issuance Criteria. A convective watch is in effect.
- 15.2.3 <u>Issuance Time</u>. SPC should issue a Watch Status Message at approximately 30 minutes past the hour for each active convective watch area.
- 15.2.4 <u>Valid Time</u>. The status message is valid for one hour.
- 15.2.5 <u>Product Expiration Time</u>. The expiration time is one hour after the issuance time.
- 15.3 <u>Technical Description</u>. Watch status messages will follow the format and content described in this section.
- 15.3.1 Mass News Disseminator Broadcast Line. Not applicable.
- 15.3.2 Mass News Disseminator Header. Not applicable.
- 15.3.3 <u>Content.</u> SPC uses the Watch Status Message to help CONUS WFOs, media, emergency management, and the public determine portions of a convective watch where the severe weather continues. This message will include a recommended list of what counties or parishes, independent cities and marine zones should remain in the watch area, and a geographical linear description of the continued severe weather hazard using known points. SPC should refer users to related mesoscale convective discussions (product SWOMCD) for additional information on mesoscale features related to the severe weather hazard, and local convective watch products for the official list of counties, parishes, independent cities and marine zones cleared from the watch area.

The second segment of the product, following the "&&"begins with: "STATUS REPORT W(S or T) #", where # is the watch number (e.g. 1, 21, 321, 1021). The WS or WT depicts if the watch is a Severe Thunderstorm or Tornado watch respectively. The remainder of this product is formatted similar to the WOU product, i.e., UGC code for each state with a county listing segmented by "\$\$", except for a lack of VTEC code. Marine zones will be included as applicable.

15.3.4 Format.

WOUS20 KWNS ddhhmm WWASPC SPC WW-A ddhhmm STZ000-STZ000-STZ000-ddhhmm

STATUS REPORT ON WT (or WS) nnnn

SEVERE WEATHER THREAT CONTINUES TO THE RIGHT OF A LINE FROM XX DIR CCC...XX DIR CCC...XX DIR CCC...XX

THE SEVERE WEATHER THREAT CONTINUES FOR THE FOLLOWING AREAS

&&

STC001-003-ddhhmm-

ST

. STATE 1 COUNTIES INCLUDED ARE

LIST OF COUNTIES

STATE 1 INDEPENDENT CITIES INCLUDED ARE

LIST OF CITIES

\$\$

MZ001-003-ddhhmm-

CW

. ADJACENT COASTAL WATERS INCLUDED ARE

LIST OF MARINE ZONES

\$\$

FOR ADDITIONAL INFORMATION...SEE MESOSCALE DISCUSSION XXX.

THE WATCH STATUS MESSAGE IS FOR GUIDANCE PURPOSES ONLY. PLEASE REFER TO LOCAL SPECIAL WEATHER STATEMENTS FOR OFFICIAL INFORMATION ON COUNTIES...INDEPENDENT CITIES AND MARINE ZONES CLEARED FROM SEVERE THUNDERSTORM AND TORNADO WATCHES.

SS

Figure 17: Watch Status Message Format

15.4 <u>Updates, Amendments and Corrections</u>. Updates should be issued near the bottom of each hour. SPC will amend messages for format and grammatical errors.

16. <u>Hourly Severe Weather Report Log (WMO headers NWUS22, PMNA00, AWIPS ID STAHRY).</u>

- 16.1 <u>Mission Connection</u>. SPC issues Hourly Severe Weather Report Logs to provide WFOs, the public, media and emergency managers with hourly text and graphical reports of severe weather events within the CONUS.
- 16.2 Issuance Guidelines.
- 16.2.1 Creation Software. SPC uses automated software.
- 16.2.2 <u>Issuance Criteria</u>. WFOs issue new Preliminary Local Storm Reports (LSR) since the last hourly report.
- 16.2.3 <u>Issuance Time</u>. SPC will issue a report each hour.
- 16.2.4 Valid Time. Reports are valid upon issuance.
- 16.2.5 <u>Product Expiration Time</u>. Not applicable.
- 16.3 <u>Technical Description</u>. Hourly reports will follow the format and content described in this section.
- 16.3.1 Mass News Disseminator Broadcast Line. None.
- 16.3.2 <u>Mass News Disseminator Header</u>. The Hourly Report MND header is "SPC HOURLY TORNADO AND SEVERE THUNDERSTORM REPORTS."
- 16.3.3 <u>Content</u>. SPC issues hourly report logs to inform the public, the media and emergency managers to severe weather events on a national scale. SPC updates this log on an hourly basis and lists all events since 1200 UTC. Severe weather events reported in Preliminary Storm Reports (LSR) are automatically included in hourly report logs. Events reported in other products as Severe Weather Statements (SVS) or other sources may be manually inserted into hourly report logs. These reports are considered preliminary information. Final severe weather event information is found in monthly Storm Data reports (see NWSI 10-1605 "Storm Data Preparation") filed by each WFO and published by the National Climatic Data Center (NCDC).

16.3.4 Format.

000					
NWUS22 KWNS 270607					
STAHRY					
SPC TORNADO AND SEVERE THUNDERSTORM REPORTS					
UNOFFICIAL - FOR OFFICIAL REPORTS, SEE PUBLICATION 'STORM DATA'					
FOR 06CST SUN MAR 26 2006 THRU 00CST MON MAR 27 2006					
EVENT LOCATION REMARKS (CST)TIME					
TORNADO REPORTSTORNADO REPORTS					
NONE REPORTED					
LRG HAIL/STRONG WIND RPTSLRG HAIL/STRONG WIND RPTS					
NONE REPORTED					
OTHER SEVERE REPORTSOTHER SEVERE REPORTS					
1 A 75 LA CROSSE KS (34 SW RSL) 26/2020 DDC/LSR 3853 9931					

Figure 18: Hourly Report Log Format

16.4 <u>Updates, Amendments and Corrections</u>. This product is issued hourly and is not updated. SPC will correct reports for format and grammatical errors.

17. <u>Daily Severe Weather Report Log (WMO headers NWUS20, PMNE00, AWIPS ID STADTS).</u>

- 17.1 <u>Mission Connection</u>. SPC issues Daily Severe Weather Report Logs to provide CONUS WFOs, the public, media and emergency managers with text and graphical reports of severe weather events on a national scale for the previous day.
- 17.2 Issuance Guidelines.
- 17.2.1 Creation Software. SPC uses automated software.
- 17.2.2 <u>Issuance Criteria</u>. SPC issues this report log daily at 1200 UTC.
- 17.2.3 <u>Issuance Time</u>. The issuance time will be 1200 UTC. SPC will issue an update at 1800 UTC.

- 17.2.4 Valid Time. Reports are valid upon issuance.
- 17.2.5 <u>Product Expiration Time</u>. Not applicable.
- 17.3 <u>Technical Description</u>. Daily reports will follow the format and content described in this section.
- 17.3.1 Mass News Disseminator Broadcast Line. None.
- 17.3.2 <u>Mass News Disseminator Header</u>. The Daily Report MND header is "SPC DAILY TORNADO AND SEVERE THUNDERSTORM REPORTS."
- 17.3.3 <u>Content</u>. SPC issues daily report logs in a text and graphical format to display all severe weather reports across the CONUS for use by the media and emergency managers. These reports are considered preliminary information. Final severe weather event information is found in monthly Storm Data reports (see NWSI 10-1605 "Storm Data Preparation") filed by each WFO and published by the National Climatic Data Center (NCDC).

17.3.4 Format.

000					
NWUS20 KWNS	261755				
STADTS					
SPC TORNADO AND SEVERE THUNDERSTORM REPORTS					
	UNOFFICIAL - FOR OFFICIAL REPORTS, SEE PUBL	LICATION 'S	TORM DATA'		
	FOR 06CST SAT MAR 25 2006 THRU 06CST	SUN MAR 26	2006		
EVENT	LOCATION REMARKS		(CST)TIME		
TORN	ADO REPORTSTORNADO REPORTS	TORNADO REP	ORTS		
NONE R	EPORTED				
LRG	HAIL/STRONG WIND RPTSLRG HAIL/STR	RONG WIND R	PTS		
14 G 63	OR (0 BNO)		25/1522		
	MPH 2 SSE NEW PRINCETO				
15 G 61	CALDWELL ID (23 WNW BOI)		25/1545		
	CANYON COUNTY SHERRIFS DEPT HAD REPORTS OF DIM	MEBOI/LSR	436611668		
	SIZED HAIL AND WINDS U				
3 WNDG	BOISE ID (2 N BOI)		25/1630		
	TREES DOWN IN VETERANS MEMORIAL PARK AND	BOI/LSR	436111623		
	BRANCHES SNAPPED. TREE				
16 G 52	12 NNE BOISE ID (13 NNE BOI)		25/1630		
	UPDATEDSPOTTER REPORTED WINDS OF AT LEAST	BOI/LSR	437711613		
	60-70 MPH		07.11		
1 WNDG	NAMPA ID (16 W BOI)		25/1630		
	ROOFS BLOWN OFF HOUSES. WHEEL LINE BLOWN INTO	BOI/LSR	435811656		
2	ROAD CAUSED AN ACCIDEN		25 /1 620		
2 WNDG	11 NW VALE OR (54 SSE BKE)	DOT /	25/1630		
	6-8 INCH TREE BRANCHES DOWN, HEAVY RAIN AND	BOI/LSR	441011740		
17 0 50	WATER OVER ROADS IN MA		25 /1012		
17 G 59	TWIN FALLS ID (0 SSE TWF)	DOT /T OD	25/1913		
4 INTO	KTWF MEASURED 27048G59 KT	BOI/LSR	424811448		
4 WNDG	TWIN FALLS ID (4 N TWF)		25/1930		

NWSI 10-512 MAY 1, 2007

AIR CONDITIONER BLOWN OFF ROOF ESTIMATED WINDS PIH/LSR OF 60 TO 70 MPH POCATELLO ID (6 ESE PIH)	25/1930 425611446 25/2000 427511349 25/2000 25/2014 25/2035 428811247 25/2055 428811247 25/2100 431911235
TWIN FALLS ID (4 N TWF) IN GOODINGSHOW ROOM WINDOWS BLOWN OUT. NORTHBOI/LSR OF SHOSHONE CITY 10 ME MINIDOKA ID (19 NE BYI) MESSURED WIND SPEED OF 64 MPH. PIH/LSR 1 E MALTA ID (26 SE BYI) MPH. 1 E MALAD CITY ID (3 ENE MLD) 60 MPH POCATELLO ID (6 ESE PIH) AIR CONDITIONER BLOWN OFF ROOF ESTIMATED WINDS PIH/LSR OF 60 TO 70 MPH POCATELLO ID (6 ESE PIH) TRANSFORMER BLOWN OUT PIH/LSR BLACKFOOT ID (21 NE PIH) POWER OUT LAST REPORTED WIND 40 MPH WITH GUSTS PIH/LSR TO 53 ROCKFORD ID (17 N PIH)	425611446 25/2000 427511349 25/2000 25/2014 25/2035 428811247 25/2055 428811247 25/2100 431911235
IN GOODINGSHOW ROOM WINDOWS BLOWN OUT. NORTHBOI/LSR OF SHOSHONE CITY 10 ME MINIDOKA ID (19 NE BYI) MESSURED WIND SPEED OF 64 MPH. PIH/LSR 1 E MALTA ID (26 SE BYI) MPH. 1 E MALAD CITY ID (3 ENE MLD) 60 MPH POCATELLO ID (6 ESE PIH) AIR CONDITIONER BLOWN OFF ROOF ESTIMATED WINDS PIH/LSR OF 60 TO 70 MPH POCATELLO ID (6 ESE PIH) TRANSFORMER BLOWN OUT PIH/LSR BLACKFOOT ID (21 NE PIH) POWER OUT LAST REPORTED WIND 40 MPH WITH GUSTS PIH/LSR TO 53 ROCKFORD ID (17 N PIH)	425611446 25/2000 427511349 25/2000 25/2014 25/2035 428811247 25/2055 428811247 25/2100 431911235
OF SHOSHONE CITY 10 ME MINIDOKA ID (19 NE BYI) MESSURED WIND SPEED OF 64 MPH. PIH/LSR 1 E MALTA ID (26 SE BYI) MPH. 1 E MALAD CITY ID (3 ENE MLD) 60 MPH POCATELLO ID (6 ESE PIH) AIR CONDITIONER BLOWN OFF ROOF ESTIMATED WINDS PIH/LSR OF 60 TO 70 MPH POCATELLO ID (6 ESE PIH) TRANSFORMER BLOWN OUT PIH/LSR BLACKFOOT ID (21 NE PIH) POWER OUT LAST REPORTED WIND 40 MPH WITH GUSTS PIH/LSR TO 53 ROCKFORD ID (17 N PIH)	25/2000 427511349 25/2000 25/2014 25/2035 428811247 25/2055 428811247 25/2100 431911235
MINIDOKA ID (19 NE BYI) MESSURED WIND SPEED OF 64 MPH. PIH/LSR 1 E MALTA ID (26 SE BYI) MPH. 1 E MALAD CITY ID (3 ENE MLD) 60 MPH POCATELLO ID (6 ESE PIH) AIR CONDITIONER BLOWN OFF ROOF ESTIMATED WINDS PIH/LSR OF 60 TO 70 MPH POCATELLO ID (6 ESE PIH) TRANSFORMER BLOWN OUT PIH/LSR BLACKFOOT ID (21 NE PIH) POWER OUT LAST REPORTED WIND 40 MPH WITH GUSTS PIH/LSR TO 53 ROCKFORD ID (17 N PIH)	427511349 25/2000 25/2014 25/2035 428811247 25/2055 428811247 25/2100 431911235
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1 E MALTA ID (26 SE BYI) MPH. 1 E MALAD CITY ID (3 ENE MLD) 60 MPH POCATELLO ID (6 ESE PIH) AIR CONDITIONER BLOWN OFF ROOF ESTIMATED WINDS PIH/LSR OF 60 TO 70 MPH POCATELLO ID (6 ESE PIH) TRANSFORMER BLOWN OUT PIH/LSR BLACKFOOT ID (21 NE PIH) POWER OUT LAST REPORTED WIND 40 MPH WITH GUSTS PIH/LSR TO 53 ROCKFORD ID (17 N PIH)	25/2000 25/2014 25/2035 428811247 25/2055 428811247 25/2100 431911235
MPH. 1 E MALAD CITY ID (3 ENE MLD) 60 MPH POCATELLO ID (6 ESE PIH) AIR CONDITIONER BLOWN OFF ROOF ESTIMATED WINDS PIH/LSR OF 60 TO 70 MPH POCATELLO ID (6 ESE PIH) TRANSFORMER BLOWN OUT PIH/LSR BLACKFOOT ID (21 NE PIH) POWER OUT LAST REPORTED WIND 40 MPH WITH GUSTS PIH/LSR TO 53 ROCKFORD ID (17 N PIH)	25/2014 25/2035 428811247 25/2055 428811247 25/2100 431911235
POCATELLO ID (6 ESE PIH) AIR CONDITIONER BLOWN OFF ROOF ESTIMATED WINDS PIH/LSR OF 60 TO 70 MPH POCATELLO ID (6 ESE PIH) TRANSFORMER BLOWN OUT PIH/LSR BLACKFOOT ID (21 NE PIH) POWER OUT LAST REPORTED WIND 40 MPH WITH GUSTS PIH/LSR TO 53 ROCKFORD ID (17 N PIH)	25/2035 428811247 25/2055 428811247 25/2100 431911235
POCATELLO ID (6 ESE PIH) AIR CONDITIONER BLOWN OFF ROOF ESTIMATED WINDS PIH/LSR OF 60 TO 70 MPH POCATELLO ID (6 ESE PIH) TRANSFORMER BLOWN OUT PIH/LSR BLACKFOOT ID (21 NE PIH) POWER OUT LAST REPORTED WIND 40 MPH WITH GUSTS PIH/LSR TO 53 ROCKFORD ID (17 N PIH)	428811247 25/2055 428811247 25/2100 431911235 25/2120
AIR CONDITIONER BLOWN OFF ROOF ESTIMATED WINDS PIH/LSR OF 60 TO 70 MPH POCATELLO ID (6 ESE PIH) TRANSFORMER BLOWN OUT PIH/LSR BLACKFOOT ID (21 NE PIH) POWER OUT LAST REPORTED WIND 40 MPH WITH GUSTS PIH/LSR TO 53 ROCKFORD ID (17 N PIH)	428811247 25/2055 428811247 25/2100 431911235 25/2120
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TRANSFORMER BLOWN OUT PIH/LSR BLACKFOOT ID (21 NE PIH) POWER OUT LAST REPORTED WIND 40 MPH WITH GUSTS PIH/LSR TO 53 ROCKFORD ID (17 N PIH)	428811247 25/2100 431911235 25/2120
BLACKFOOT ID (21 NE PIH) POWER OUT LAST REPORTED WIND 40 MPH WITH GUSTS PIH/LSR TO 53 ROCKFORD ID (17 N PIH)	25/2100 431911235 25/2120
POWER OUT LAST REPORTED WIND 40 MPH WITH GUSTS PIH/LSR TO 53 ROCKFORD ID (17 N PIH)	431911235 25/2120
TO 53 ROCKFORD ID (17 N PIH)	25/2120
ROCKFORD ID (17 N PIH)	
ESTIMATED WIND GUSTS TO 60 MPH PIH/LSR	431811255
BLACKFOOT ID (21 NE PIH)	25/2125
POWER OUT TREES DOWN WITH SNOW. PIH/LSR	431911235
BELLEVUE ID (2 SE SUN)	25/2135
POWER POLE AND LINE DOWN AT MILE POST 109 SOUTHPIH/LSR	434711426
OF BELLEVUE BLOCKING R	
HOLBROOK ID (17 W MLD)	25/2145
POCATELLO ID (6 ESE PIH)	25/2145
	25/2200
	431911235
	05/0000
	25/2208
	429211246
TO FENCE	
	ESTIMATED WIND GUSTS TO 60 MPH. PIH/LSR

Figure 19. Daily Report Log Format

How to read an SPC report log:

Event Number: 80 (in chronological order, the 80th severe event received during this 24 hour period).

Event: "*TORN" Tornado.

Location: Occurred 2 SW Duster, TX. Referenced to the closest airport, the

Tornado occurred 28 miles west-southwest of Stephenville, TX.

Date/Time: 10/2145 Occurred on the 10th day of the month at 2145 CST.

Details: They are calling this a possible tornado. Further investigation may or may not support this. The event resulted in the hospitalization of several people.

Source: FTW/LSR. Preliminary Local Storm Report issued by the National Weather Service office at Fort Worth, Texas.

17.4 <u>Updates, Amendments and Corrections</u>. SPC issues a scheduled update at 1800 UTC. SPC will rerun the program, at times, to add additional data from late LSRs into this report.

18. Monthly Tornado Statistics (WMO header NWUS21, AWIPS ID STAMTS).

- 18.1 <u>Mission Connection</u>. SPC issues Monthly Tornado Summary to provide WFOs, the public, media and emergency managers with a preliminary number of tornado reports on a national scale.
- 18.2 Issuance Guidelines.
- 18.2.1 Creation Software. SPC will use the National Centers AWIPS (NAWIPS) text editor.
- 18.2.2 Issuance Criteria. This summary is a scheduled product.
- 18.2.3 Issuance Time. SPC will issue this summary Monday through Friday at 1200 UTC.
- 18.2.4 Valid Time. Summaries are valid upon issuance.
- 18.2.5 Product Expiration Time. Not applicable.
- 18.3 <u>Technical Description</u>. Summaries will follow the format and content described in this section.
- 18.3.1 Mass News Disseminator Broadcast Line. None.
- 18.3.2 MND Header. The Monthly Summary MND header is "STATISTICS FOR TORNADO TOTALS AND TORNADO RELATED DEATHS."
- 18.3.3 <u>Content</u>. This summary tabulates the preliminary number of tornado reports listed in WFO LSR(s) issued during the previous month. These numbers consist of reported and confirmed tornadoes. SPC will create the count of tornadoes when Storm Data is made available by the NWS Verification Branch. The National Verification Program, the National

Climatic Data Center, and SPC will confirm the total number of tornadoes, and provide the final update to the monthly summary.

The monthly summary will include final data from each of the last three years, and a three year average. The summary will also include the number of killer tornadoes and number of deaths for the current year and average from the previous three years.

18.3.4 Format.

ZCZC STAMTS ALL NWUS21 KWNS 281938 TORNADO TOTALS AND RELATED DEATHS...THROUGH 12 PM CST 03/28/2006 NWS STORM PREDICTION CENTER NORMAN OK 0138 PM CST TUE MAR 28 2006 ...NUMBER OF TORNADOES...

NUMBER OF TORNADO DEATHS

TORNADO DEATHS

3YR

3YR KILLER TORNADOES 3YR PREL SEG PREL SEG FIN FIN AV 06 05 04 03 AV 06 05 04 03 AV 45 – 32 28 3 0 10 1 4 0 0 1 1 2 JAN FEB 14 MAR 193 6 9 11 - 0 0 2 1 8 18 - 0 0 1 0 62 54 50 43 49 11 1 0 8 3 6 1 0 2. - 137 106 125 157 129 - 0 8 0 3 - 0 1 0 APR 0 389 - 0 7 41 16 - 134 115 509 543 0 5 15 7 MAY 281 268 292 280 - 0 2 2 1 -0 2 2 JUN - 299 1 - 117 125 124 167 139 - 0 0 0 0 - 0 0 0 JUL 44 116 - 4 3 0 2 - 3 1 - 111 124 179 AUG 0 1 - 131 119 297 32 165 - 1 8 0 3 - 1 5 0 SEP - - 20 17 79 26 53 - 0 3 1 1 - 0 1 1 OCT 1 - 133 150 53 102 - 29 4 0 11 -5 4 0 3 NOV DEC - 16 - 26 1 14 - 0 1 0 1 SUM 253 - 1200 975 1819 1376 1455 12 39 36 54 45 7 20 20 23 22 ..MCCARTHY..03/28/2006

Figure 19: Monthly Tornado Statistics Format

The statistics are broken down by month and contains final data for the last three years. A "-" in a column means the data is missing or not yet available.

The SPC includes all reports of tornadoes, including "unconfirmed," "possible," "suspected" and duplicate reports from Local Storm Reports issued by WFOs in the PRELIM numbers. The "SEG" column lists the number of counties where tornadoes occurred (if one tornado is on the ground in two counties, 'SEG' gets incremented by two for that tornado).

When the digital Storm Data database arrives from the NWS Office of Climate, Water and Weather Services, FINAL numbers go in that column (labeled "FIN"). The FINAL numbers are considered actual tornadoes by combining like segments to define one tornado.

Along the bottom of the report are totals for the columns and a simplified re-cap. In the example, there were 1254 preliminary (PRELIM) reports of tornadoes in 1999, versus 1481 actual tornadoes FINAL through Dec 1, 1999.

18.4 <u>Updates, Amendments and Corrections</u>. SPC should update this report at least twice per month. SPC will correct reports for inaccurate statistical information, when possible.

19. Killer Tornado Statistics (WMO header NWUS23, AWIPS ID STATIJ).

- 19.1 <u>Mission Connection</u>. SPC issues Killer Tornado Statistics to provide WFOs, the public, media and emergency managers with a list of the dates, locations and number of deaths due to tornadoes since the start of the calendar year on a national scale.
- 19.2 Issuance Guidelines.
- 19.2.1 Creation Software. SPC will use the National Centers AWIPS (NAWIPS) text editor.
- 19.2.2 Issuance Criteria. SPC issues a new list of statistics following new killer tornado events.
- 19.2.3 Issuance Time. This list is non-scheduled, event driven.
- 19.2.4 Valid Time. Lists are valid upon issuance.
- 19.2.5 <u>Product Expiration Time</u>. Not applicable.
- 19.3 <u>Technical Description</u>. Lists will follow the format and content described in this section.
- 19.3.1 Mass News Disseminator Broadcast Line. None.
- 19.3.2 <u>Mass News Disseminator Header</u>. The Statistics MND header is "(YEAR) KILLER TORNADOES
- 19.3.3 <u>Content</u>. This summary will list the dates, times, locations, and number of deaths from killer tornadoes from Jan 1 of the current calendar to the time of the latest report, whether the deaths occurred in a tornado or severe thunderstorm watch, near a watch, or with no watch in effect, the watch number where the death occurred, and the F-scale damage, if available. The summary should list the circumstances in which each death occurred. The summary will also list the number of tornado deaths by state.

19.3.4 Format.

```
ZCZC STATIJ ALL
NWUS23 KWNS 281942
2006 PRELIMINARY KILLER TORNADOES
NWS STORM PREDICTION CENTER NORMAN OK
0142 PM CST TUE MAR 28 2006
         TIME
## DATE CST LOCATION DEATHS A B C D WATCH F CIRCUMSTANC
01 JAN 13 1010 BELLEVILLE AL 02 MAR 11 2144 ST. MARY MO
                                   1 0 0 0 WT017 F1 01H
                                   2 0 0 0 WT064 F3 02V
06 MAR 12 2110 RENICK MO 4 4 0 0 0 WT077 F3 02M 02H
07 MAR 12 2215 MARIONVILLE MO 1
                                   1 0 0 0 WT077 F3 01H
TOTALS:
                               11 11 0 0 0
BY STATE: AL 01 MO 10
BY CIRCUMSTANCE: 06H 02V 03M
..MCCARTHY..03/28/2006
```

Figure 20: Killer Tornado Statistics Format

The killer tornadoes are listed in the chronological order of occurrence, by DATE and CST TIME. LOCATION is the one listed in the Preliminary Local Storm Report (see NWSI 10-517 Section 5 "Multiple Purpose Weather Products Specification") or the location listed in the monthly Storm Data report filed by each WFO. Each event will be numbered according to the actual tornado rather than segment when crossing state borders. This list may be updated as Storm Data information is available through the NCDC. "DEATHS" is the number of deaths in the whole tornado path -- not just the given location. The ABCD column letters represent the number of deaths:

A = In tornado watch

B = In severe thunderstorm watch

C = "Close" to the watch (15 minutes or 25 miles)

D = No watch in effect

If the tornado was in a watch, the watch type and number is given. For example, WT0012 is Tornado Watch number 12. If known, the F-scale damage rating of the tornado is listed; if not,

a "?" mark is entered. The deaths are broken down by the following circumstances of the victims, if known:

H = House (permanent foundation)

M = Mobile home (a.k.a. "manufactured home")

O = Outdoors (not inside any vehicle, mobile home or permanent building)

P = Permanent structure (school, garage, factory, store, warehouse, etc.)

V = Vehicle (includes parked RVs)

Information for the killer tornadoes list comes from Preliminary Local Storm Reports or Public Information Statements (PNS) issued by WFOs, supplemented by NWS event memorandums and media accounts and monthly Storm Data Reports filed by the WFOs. Since killer tornado information, especially death counts, circumstances and F scale, is often not complete until many days later, these numbers are subject to change as more information becomes available.

19.4 <u>Updates, Amendments and Corrections</u>. SPC will update this report as the information becomes available and is deemed reliable. SPC may also verify the information as Storm Data is updated through the NCDC.

20. <u>Operations Administrative Message (WMO header NOUS74, AWIPS ID ADMSPC).</u>

20.1 <u>Mission Connection</u>. SPC issues Operations Administrative Messages to inform WFOs of changes in SPC operational status (going to or from backup operations) or communications issues (i.e. advance notice of upcoming test convective watches).

21. **Backup Operations**

21.1 <u>Backup.</u> Storm Prediction Center emergency backup operations are supported by the Air Force Weather Agency as specified within a Memorandum of Understanding between the National Weather Service and the Air Force. When emergency backup operations are active, only select high priority products for protection of life and property are routinely disseminated. Transitions to (or from) emergency backup status or to a backup exercise are announced via an administrative message. Additional information on Storm Prediction Center backup can be found in NWSI 10-2201.

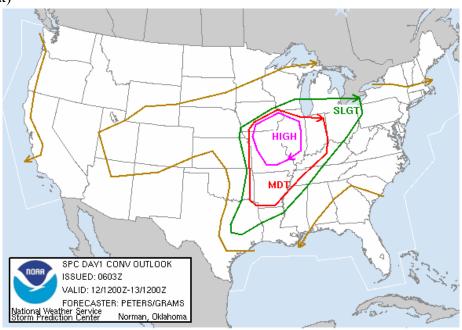
APPENDIX A - Examples

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1. <u>Introduction</u>. This appendix provides WFOs and the public with examples of national severe weather products.

2. <u>Categorical Convective Outlook (Graphic)</u>.

(Day One Outlook)



3. <u>Categorical Convective Outlook (Narrative)</u>.

SPC AC 120603

DAY 1 CONVECTIVE OUTLOOK NWS STORM PREDICTION CENTER NORMAN OK 1203 AM CST SUN MAR 12 2006

VALID 121200Z - 131200Z

...THERE IS A HIGH RISK OF SVR TSTMS FOR THIS AFTERNOON AND EVENING ACROSS PARTS OF CENTRAL/NRN MO INTO SERN IA AND PARTS OF WRN/CENTRAL IL...

...THERE IS A MDT RISK OF SVR TSTMS EXTENDING FROM AR NWD TO SRN IA AND EWD INTO THE LOWER OH RIVER VALLEY...

...THERE IS A SLGT RISK OF SVR TSTMS EXTENDING FROM NERN TX TO THE MID MS/OH RIVER VALLEYS AND SRN GREAT LAKES REGION...

...SIGNIFICANT OUTBREAK OF TORNADOES IS FORECAST THIS AFTERNOON AND EVENING ACROSS PARTS OF THE LOWER MO AND MID MS RIVER VALLEYS...

STRONG MID/UPPER LEVEL TROUGH WITH 100+ KT MID LEVEL JET...

CURRENTLY MOVING EWD ACROSS THE LOWER CO RIVER VALLEY...WILL TRACK

NEWD OVER THE CENTRAL/SRN PLAINS TODAY REACHING THE WRN GREAT LAKES

REGION BY 12Z MONDAY. 60-120 METER HEIGHT FALLS EXPECTED WITH THIS

TROUGH AS IT TRACKS NEWD WILL AID IN THE DEVELOPMENT OF A STRONG SSWLY LLJ /50+ KT/ FROM THE ARKLATEX REGION TO THE MID MS RIVER VALLEY BY THIS AFTERNOON. FURTHER STRENGTHENING /60-80 KT/ OF THIS LLJ IS EXPECTED SECOND HALF OF FORECAST PERIOD AS IT VEERS TO SWLY FROM THE MID MS RIVER VALLEY TOWARD THE UPPER OH RIVER VALLEY/ LOWER GREAT LAKES REGION.

IN THE LOW-LEVELS...A SURFACE FRONT IS EXPECTED TO INITIALLY EXTEND FROM LOWER MI SWWD ACROSS THE MID MS RIVER VALLEY TO OK...AND THEN WNWWD TO A SURFACE LOW OVER ERN CO. THIS BOUNDARY WILL RETREAT NWD AS A WARM FRONT TODAY IN RESPONSE TO STRONG SURFACE PRESSURE FALLS TRANSLATING FROM THE CENTRAL PLAINS TOWARD THE GREAT LAKES REGION. SURFACE LOW IS PROGGED TO TRACK EWD ACROSS NRN KS REACHING FAR NRN MO BY 00Z...WITH THE WARM FRONT EXTENDING EWD ACROSS NRN PARTS OF IL/IN/OH. INCREASING LOW-LEVEL CONVERGENCE IN THE VICINITY OF THE SURFACE LOW AND SWD ALONG A PRE-FRONTAL TROUGH/DRY LINE ACROSS FAR ERN PARTS OF KS/OK INTO NERN TX ARE EXPECTED TO BE THE FOCI FOR THUNDERSTORM INITIATION THIS AFTERNOON. BROAD ZONE OF RICH MOISTURE RETURN...ALREADY UNDERWAY AT THIS TIME...WILL CONTINUE SPREADING NWD TODAY FROM THE SERN PLAINS/LOWER MS RIVER VALLEY TO THE MID MS/OH RIVER VALLEYS. SURFACE DEWPOINTS IN THE UPPER 60S SHOULD REACH AS FAR NORTH AS SERN MO/PARTS OF SRN IL...WITH LOWER 60S DEWPOINTS EXTENDING FROM THE MID MS RIVER VALLEY EWD TO WRN PA.

WHILE CONSIDERABLE CONVECTION...SOME POSSIBLY SEVERE...ASSOCIATED WITH A LEAD SRN PLAINS SHORT WAVE IMPULSE SHOULD BE ONGOING AT 12Z SUNDAY ACROSS LOWER OH RIVER VALLEY...MUCH OF THE EAST CENTRAL PLAINS AND MID MS RIVER VALLEY ARE EXPECTED TO BE RELATIVELY FREE OF CONVECTION/PRECIPITATION. WITH INSOLATION...STEEP MID-LEVEL LAPSE RATES ON NOSE OF RETURNING ELEVATED MIXED LAYER...AND SURFACE DEW POINTS IN THE 60S...SHOULD CONTRIBUTE TO MIXED LAYER CAPE ON THE ORDER OF 2000 J/KG IN SURFACE WARM SECTOR. DEEP LAYER SHEAR WILL BE MORE THAN SUFFICIENT FOR SUPERCELLS...WITH INITIAL ACTIVITY LIKELY BEING DISCRETE FROM THE SURFACE LOW SWD ALONG THE DRY LINE. STRONG LLJ WILL CONTRIBUTE TO LARGE HODOGRAPHS SUPPORTING TORNADOES...SOME STRONG TO SIGNIFICANT ACROSS CENTRAL/ NRN MO INTO SERN IA AND WRN/CENTRAL IL. IN ADDITION...GIVEN STEEP LAPSE RATES AND MODERATE INSTABILITY...LARGE HAIL WILL BE LIKELY ALONG WITH DAMAGING WINDS.

INITIAL ACTIVITY IS EXPECTED TO EVOLVE INTO A SQUALL LINE THIS EVENING SPREADING EWD FROM THE MID MS RIVER VALLEY TO THE OH RIVER VALLEY WITH DAMAGING WINDS BEING THE GREATER THREAT INTO THE OVERNIGHT PERIOD INTO IND/WRN KY.

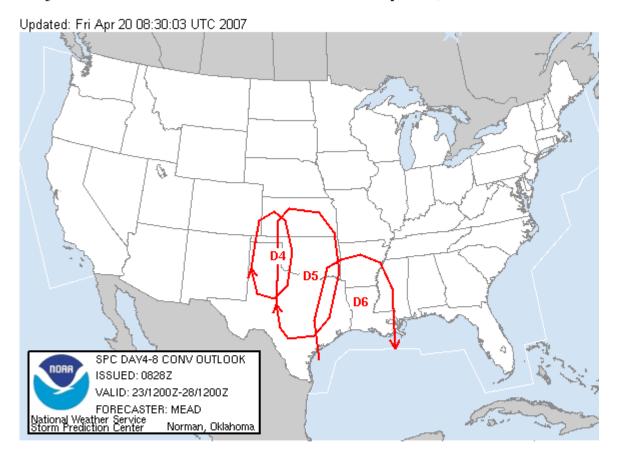
..PETERS/GRAMS.. 03/12/2006

CLICK TO GET WUUS01 PTSDY1 PRODUCT

NOTE: THE NEXT DAY 1 OUTLOOK IS SCHEDULED BY 1300Z

4. <u>4-8 Day Convective Outlook (Graphic)</u>

Day 4-8 Convective Outlook Issued on Apr 20, 2007



Note: A severe weather area depicted in the Day 4-8 period indicates a 30% or higher probability for severe thunderstorms within 25 miles of any point.

D4: Mon, Apr 23, 2007 - Tue, Apr 24, 2007	D7: Thu, Apr 26, 2007 - Fri, Apr 27, 2007
D5: Tue, Apr 24, 2007 - Wed, Apr 25, 2007	D8: Fri, Apr 27, 2007 - Sat, Apr 28, 2007
D6: Wed, Apr 25, 2007 - Thu, Apr 26, 2007	(All days are valid from 12 UTC - 12 UTC)

Figure 21

5. <u>4-8 Day Convective Outlook (Narrative)</u>

ZCZC SPCSWOD48 ALL ACUS48 KWNS 200828 SPC AC 200828

DAY 4-8 CONVECTIVE OUTLOOK

NWS STORM PREDICTION CENTER NORMAN OK
0328 AM CDT FRI APR 20 2007

VALID 231200Z - 281200Z

--ORGANIZED SEVERE WEATHER EPISODES WILL BE POSSIBLE OVER THE SRN/CNTRL HIGH PLAINS MONDAY...APRIL 23RD...THE SRN/CNTRL PLAINS TUESDAY...APRIL 24TH AND THE ARKLATEX INTO LOWER MS VALLEY WEDNESDAY...APRIL 25TH.--

...DISCUSSION...

DESPITE SLIGHT DIFFERENCES IN TIMING...LATEST MEDIUM RANGE GUIDANCE IS RELATIVELY CONSISTENT IN INTENSIFYING UPPER TROUGH OVER THE ROCKIES ON DAY 4 /APRIL 23RD/...SHIFTING IT E INTO THE CNTRL/SRN PLAINS ON DAY 5 /APRIL 24TH/...AND THEN DEAMPLIFYING IT AS IT TRANSLATES EWD THROUGH THE REMAINDER OF THE EXTENDED PERIOD. VERTICAL SHEAR WILL CORRESPONDINGLY INCREASE ACROSS A SUFFICIENTLY MOIST WARM SECTOR SUCH THAT IT APPEARS THAT MULTIPLE SEVERE STORM EPISODES WILL BE POSSIBLE.

THE GREATEST SEVERE WEATHER POTENTIAL APPEARS TO BE ON MONDAY...APRIL 23RD OVER THE CNTRL/SRN HIGH PLAINS...TUESDAY...APRIL 24TH OVER THE SRN INTO CNTRL PLAINS AND THEN ON WEDNESDAY...APRIL 25TH OVER THE ARKLATEX INTO LOWER MS VALLEY. THEREAFTER...SOME SEVERE WEATHER POTENTIAL WILL EXIST ALONG THE CNTRL/ERN GULF COAST...THOUGH UNCERTAINTY IN EVOLUTION OF SYNOPTIC SYSTEM IS SUCH THAT NO ADDITIONAL DAYS WILL BE DELINEATED.

..MEAD.. 04/20/2007

6. SPC Points Product.

WUUS01 KWNS 242000 PTSDY1

DAY 1 CONVECTIVE OUTLOOK AREAL OUTLINE NWS STORM PREDICTION CENTER NORMAN OK 0256 PM CDT TUE APR 24 2007

VALID TIME 242000Z - 251200Z

PROBABILISTIC OUTLOOK POINTS DAY 1

... TORNADO ...

- 0.02 29620205 31840009 32829969 34159878 36099883 36799895 37439938 38560042 38090265 38050340 38680379 39790269 39900075 40429732 41399221 40059052 39508808 38848564 37958418 36688449 36088692 35588921 33819081 32059225 29659495 28589620 26289945 0.05 29550170 33779847 35549836 36789867 37619929 38279974 38710060 38390214 38280314 38770342 39260258 39360172 39509970 40169713 40909286 39849131 39048841 38398803 37448813 36758853 35928920 33509150 31049381 29099597 27789751 26449956 0.10 29500136 33379826 35499756 37319785 38319929 38949924
- 39759814 40179578 40499340 39289233 38749194 36299189 34829230 33299242 31799365 29989600 27459954
- 0.10 39060283 39150244 39090206 38990200 38820243 38760293

NWSI 10-512 MAY 1, 2007

```
38850315 39060283
       30249988 32459837 33369742 34759578 34969526 35409451
0.15
       35059336 33139327 31769445 30429616 29259925 29769996
      39719785 39919645 39729543 39329501 38109484 37649701
0.15
       38449807 39129831 39719785
0.30
       30309950 31689830 32449704 33389538 32929425 31979466
       30609634 29699874 29879941 30309950
SIGN
      31789866 33809690 34729571 35339445 35059328 33169330
       31689449 29879683 29119908 29749991 30499968 30759941
       31789866
       39129842 39759783 39839654 39229472 37729465 37549634
SIGN
       37549693 37719740 38259817 39129842
ፊ&
... HAIL ...
       29650201 32140011 34599916 36349962 37050198 37290333
       38660379 40300339 41580106 42179536 41689109 40798770
       39788436 39667747 39077554 36917640 36718008 36128201
       35358552 34898760 34738965 32249172 29769453 28639565
       27089750 26179916
0.15
      29550170 31799985 34789887 36459924 37859953 38520131
       39180149 40100082 41409705 41449484 40819111 39948973
       38978842 38558631 37058608 36158712 35918911 32429238
       31179365 29319563 27699758 26449946
0.30
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       38169835 39319913 39989816 40219512 39169315 37159202
       34349268 32549350 31259478 28449757 27209939
       31489929 33889802 35379766 36979761 38769791 39179792
0.45
       39619766 39819588 38129409 35659433 32829516 30829700
       30599807 30879869 31489929
       29460151 31209974 33579842 36749822 38179875 38399992
SIGN
       38640023 39699947 40219785 39899520 38909460 35769417
       32989427 30559601 28429775 27069950 29460151
33
... WIND ...
       29650209 32159992 34169930 35429924 37469976 37990069
0.05
       38360159 39970166 40769832 41209418 40038854 38928357
       39177826 38437605 36997636 36558088 35538498 34898735
       34688957 31619218 28899546 28299609 27129746 26239913
       29510177 31729960 34019867 36439857 37739919 38790129
0.15
       39130053 39839895 40029561 40039285 39519138 38548923
       37588699 37288639 36098722 36088908 32369224 29379563
       27789740 26479946
       30559488 28449842 29009984 29990072 31629920 33109814
0.30
       35349755 37089730 38879742 39519664 39659344 38689113
       38459108 37039121 33329237 30559488
       34069739 35319705 38379651 39359554 39049450 36309293
0.45
       34099320 32199425 30209681 29419808 30229957 30809976
       31529897 32459824 33229788 34069739
&&
CATEGORICAL OUTLOOK POINTS DAY 1
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A-6

... CATEGORICAL ...

HIGH	31669833 29859935	33369540 30209948	32959433 31669833	31969465	30629634	29729868
MDT	29200108	32869880	35109778	36909769	38059785	38959804
	39579780	39889595	38389395	36069290	33169293	31759409
	30109599	27489954				
SLGT	29480125	32709939	34779862	36599924	37859945	38530128
	38290314	38760342	39270254	39430135	40040097	41399740
	41399441	39949122	38538963	37718720	37398653	36188712
	36148914	33539142	32239259	29639532	27859744	26449949
TSTM	35417465	33747922	33438106	33078530	33218761	33349009
	29979238	28959306	99999999	29420244	31390109	32720034
	34539995	36020006	36660134	35450376	32870522	32550789
	33791015	34841184	36931277	37581309	40771190	41100955
	40170572	40940405	42620260	43879693	43929262	43228958
	41378664	40228330	40157685	40607191		

&&

THERE IS A HIGH RISK OF SVR TSTMS TO THE RIGHT OF A LINE FROM 35 ESE BWD 20 S PRX 40 SSW TXK 30 S GGG CLL 20 NW SAT 35 NNW HDO 30 SE JCT 35 ESE BWD.

THERE IS A MDT RISK OF SVR TSTMS TO THE RIGHT OF A LINE FROM 15 SW DRT 45 W MWL 10 E CHK 35 WNW PNC HUT 25 WNW SLN 10 WNW CNK 25 SW FNB 30 SW SZL 20 SE HRO 10 WSW ELD 50 SSW SHV 40 SE CLL LRD.

THERE IS A SLGT RISK OF SVR TSTMS TO THE RIGHT OF A LINE FROM 20 WNW DRT 25 NE ABI 15 WNW FSI 35 WSW AVK 30 ENE DDC 50 NW GCK 25 NE LHX 40 SSE LIC 15 W ITR 20 ENE GLD 25 WSW MCK OLU 40 WSW DSM UIN 10 E BLV OWB 30 NNW BWG 25 W BNA 15 NE DYR 20 ESE LLQ 40 WSW MLU HOU CRP 75 S LRD.

GEN TSTMS ARE FCST TO THE RIGHT OF A LINE FROM 55 ENE HSE 15 WNW CRE 15 W OGB 15 WNW LGC TCL 10 S GWO 20 NW 7R4 80 SW 7R4 ...CONT... 45 SSW 6R6 35 W SJT 45 WNW ABI 20 ENE CDS 25 SW GAG 10 E GUY 20 NNW TCC 45 SSE SRR 15 ESE SVC 35 SSW SOW 20 SSW FLG 45 ESE SGU 10 S CDC SLC 45 SW RKS 15 NNE 4FC 45 ESE CYS 30 ESE CDR 20 NNW FSD RST 15 WNW MSN 20 ESE VPZ 25 NW CMH CXY 45 SSW BID.

7. Public Severe Weather Outlook.

WOUS40 KWNS 031532 PWOSPC ARZ000-KSZ000-MOZ000-OKZ000-032330-

PUBLIC SEVERE WEATHER OUTLOOK NWS STORM PREDICTION CENTER NORMAN OK 0932 AM CST TUE FEB 03 2004

VALID 031532Z - 032330Z

...OUTBREAK OF SEVERE THUNDERSTORMS INCLUDING A FEW STRONG TORNADOES OVER PARTS OF THE CENTRAL PLAINS TODAY THROUGH TONIGHT.

THE NWS STORM PREDICTION CENTER IN NORMAN OK IS FORECASTING THE DEVELOPMENT OF A FEW STRONG TORNADOES OVER PARTS OF THE CENTRAL PLAINS LATER TODAY THROUGH TONIGHT.

THE AREAS MOST LIKELY TO EXPERIENCE THIS ACTIVITY INCLUDE

NORTHWEST ARKANSAS FAR EASTERN KANSAS WESTERN AND CENTRAL MISSOURI EASTERN OKLAHOMA

OTHER SEVERE THUNDERSTORMS WITH DAMAGING WIND...HAIL AND ISOLATED TORNADOES WILL EFFECT PARTS OF NEBRASKA...IOWA...
ILLINOIS...INDIANA...KENTUCKY...TENNESSEE...ALABAMA...MISSISSIPPI...
LOUISIANA AND TEXAS LATER TODAY AND EARLY MONDAY.

A STRONG LOW PRESSURE AREA NOW IN NORTHWEST KANSAS WILL MOVE TO WESTERN IOWA THIS EVENING BEFORE CONTINUING NORTHEAST INTO SOUTHERN MINNESOTA EARLY MONDAY. ASSOCIATED WITH THE LOW...A BAND OF HIGH LEVEL WINDS WITH SPEEDS IN EXCESS OF 100 MPH WILL OVERSPREAD KANSAS...OKLAHOMA...MISSOURI AND ARKANSAS LATER TODAY. THESE WINDS WILL SERVE TO STRENGTHEN THUNDERSTORMS LIKELY TO FORM THIS AFTERNOON IN A ZONE OF INCREASING WARMTH AND MOISTURE INFLOW SOUTH AND EAST OF THE LOW. BECAUSE THE THUNDERSTORMS WILL DEVELOP IN AN ENVIRONMENT WITH WINDS THAT CHANGE IN DIRECTION AND SPEED WITH HEIGHT...AND BECAUSE THE STORMS WILL LIKELY LAST FOR SEVERAL HOURS...CONDITIONS WILL BE FAVORABLE FOR A FEW STRONG TORNADOES IN ADDITION TO LARGE HAIL AND HIGH WINDS.

THIS IS A PARTICULARLY DANGEROUS. THOSE IN THE THREATENED AREA ARE URGED TO REVIEW SEVERE WEATHER SAFETY RULES AND TO LISTEN TO RADIO AND TELEVISION AND NOAA WEATHER RADIO FOR POSSIBLE WATCHES...WARNINGS AND STATEMENTS LATER TODAY.

THIS IS POTENTIALLY A VERY DANGEROUS SITUATION. THOSE IN THE THREATENED AREA ARE URGED TO REVIEW SEVERE WEATHER SAFETY RULES AND TO LISTEN TO RADIO...TELEVISION...AND NOAA WEATHER RADIO FOR POSSIBLE WATCHES...WARNINGS...AND STATEMENTS LATER TODAY.

..CORFIDI.. 02/03/2004

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8. Watch County List.

NWUS64 KWNS 102117 WCLA

.SEVERE THUNDERSTORM WATCH A COORDINATION COUNTY LIST FROM THE NWS STORM PREDICTION CENTER EFFECTIVE UNTIL 0500 UTC.

ILC007-031-037-043-063-089-091-093-097-099-103-111-141-197-201-110500-

IL

. ILLINOIS COUNTIES INCLUDED ARE

BOONE COOK DE KALB
DUPAGE GRUNDY KANE
KANKAKEE KENDALL LAKE
LA SALLE LEE MCHENRY
OGLE WILL WINNEBAGO

\$\$

INC073-089-091-111-127-131-149-110500-

TN

. INDIANA COUNTIES INCLUDED ARE

JASPER LAKE LA PORTE NEWTON PORTER PULASKI

STARKE \$\$

WICO21-025-027-055-059-079-089-101-105-127-131-133-110500-

WΙ

. WISCONSIN COUNTIES INCLUDED ARE

COLUMBIA DANE DODGE

JEFFERSON KENOSHA MILWAUKEE

OZAUKEE RACINE ROCK

WALWORTH WASHINGTON WAUKESHA

\$\$

LMZ644-645-646-665-740-741-742-743-744-745-746-766-867-868-110500-

CW

. ADJACENT COASTAL WATERS INCLUDED ARE

NEARSHORE WATERS BY PORT WASHINGTON TO NORTH POINT LIGHTHOUSE...

NEARSHORE WATERS FROM NORTH POINT LIGHTHOUSE TO WIND POINT...

NEARSHORE WATERS FROM WIND POINT TO WINTHROP HARBOR ILLINOIS...

WISCONSIN ADJACENT OPEN WATERS OF LAKE MICHIGAN TO MID LAKE

WINTHROP HARBOR TO WILMETTE HARBOR IL

WILMETTE HARBOR TO NORTHERLY ISLAND IL

NORTHERLY ISLAND TO CALUMET HARBOR IL

CALUMET HARBOR IL TO GARY IN

GARY TO BURNS HARBOR IN

BURNS HARBOR TO MICHIGAN CITY IN

MICHIGAN CITY IN TO NEW BUFFALO MI

LAKE MICHIGAN/WINTHROP HARBOR IL EASTWARD TO THE MID-POINT OF THE LAKE AND SOUTHWARD TO NEW BUFFALO MI BEYOND 5 NM OFFSHORE

LAKE MICHIGAN/NEW BUFFALO TO HOLLAND MI 5 NM OFF SHORE TO MID-LINE

OF LAKE

LAKE MICHIGAN HOLLAND TO WHITEHALL MI 5 NM OFF SHORE TO MID-LINE OF LAKE

\$\$

ATTN...WFO...LOT...GRR...MKX...IWX...

9. Watch Outline Update Message

Initial Issuance

WOUS64 KWNS 102120 WOU6

BULLETIN - IMMEDIATE BROADCAST REQUESTED
SEVERE THUNDERSTORM WATCH OUTLINE UPDATE FOR WS 876
NWS STORM PREDICTION CENTER NORMAN OK
320 PM CST THU FEB 10 2005

SEVERE THUNDERSTORM WATCH 9876 IS IN EFFECT UNTIL 1100 PM CST FOR THE FOLLOWING LOCATIONS

ILC007-031-037-043-063-089-091-093-097-099-103-111-141-197-201-110500-

/O.NEW.KWNS.SV.A.0876.050210T2120Z-050211T0500Z/

IL

. ILLINOIS COUNTIES INCLUDED ARE

BOONE COOK DE KALB
DUPAGE GRUNDY KANE
KANKAKEE KENDALL LAKE
LA SALLE LEE MCHENRY
OGLE WILL WINNEBAGO

\$\$

INC073-089-091-111-127-131-149-110500-/O.NEW.KWNS.SV.A.0876.050210T2120Z-050211T0500Z/

IN

INDIANA COUNTIES INCLUDED ARE

JASPERLAKELA PORTENEWTONPORTERPULASKI

STARKE \$\$

WIC021-025-027-055-059-079-089-101-105-127-131-133-110500-/O.NEW.KWNS.SV.A.0876.050210T2120Z-050211T0500Z/

WΙ

WISCONSIN COUNTIES INCLUDED ARE

COLUMBIA DANE DODGE

JEFFERSON KENOSHA MILWAUKEE OZAUKEE RACINE ROCK WALWORTH WASHINGTON WAUKESHA

\$\$

LMZ644-645-646-665-740-741-742-743-744-745-746-766-867-868-110500-

/O.NEW.KWNS.SV.A.0876.050210T2120Z-050211T0500Z/

CW

. ADJACENT COASTAL WATERS INCLUDED ARE

NEARSHORE WATERS BY PORT WASHINGTON TO NORTH POINT LIGHTHOUSE...

NEARSHORE WATERS FROM NORTH POINT LIGHTHOUSE TO WIND POINT...

NEARSHORE WATERS FROM WIND POINT TO WINTHROP HARBOR ILLINOIS...

WISCONSIN ADJACENT OPEN WATERS OF LAKE MICHIGAN TO MID LAKE

WINTHROP HARBOR TO WILMETTE HARBOR IL

WILMETTE HARBOR TO NORTHERLY ISLAND IL

NORTHERLY ISLAND TO CALUMET HARBOR IL

CALUMET HARBOR IL TO GARY IN

GARY TO BURNS HARBOR IN

BURNS HARBOR TO MICHIGAN CITY IN

MICHIGAN CITY IN TO NEW BUFFALO MI

LAKE MICHIGAN/WINTHROP HARBOR IL EASTWARD TO THE MID-POINT OF THE LAKE AND SOUTHWARD TO NEW BUFFALO MI BEYOND 5 NM OFFSHORE

LAKE MICHIGAN/NEW BUFFALO TO HOLLAND MI 5 NM OFF SHORE TO MID-LINE OF LAKE

LAKE MICHIGAN HOLLAND TO WHITEHALL MI 5 NM OFF SHORE TO MID-LINE OF LAKE

\$\$

ATTN...WFO...LOT...GRR...MKX...IWX...

Hourly Update

WOUS64 KWNS 102201 WOU6

SEVERE THUNDERSTORM WATCH OUTLINE UPDATE FOR WS 9876 NWS STORM PREDICTION CENTER NORMAN OK 401 PM CST THU FEB 10 2005

SEVERE THUNDERSTORM WATCH 9876 IS IN EFFECT UNTIL 1100 PM CST FOR THE FOLLOWING LOCATIONS

ILC007-031-037-043-063-089-091-093-097-099-103-111-141-197-201-110500-

/O.CON.KWNS.SV.A.0876.000000T0000Z-050211T0500Z/

TT.

. ILLINOIS COUNTIES INCLUDED ARE

BOONE COOK DE KALB
DUPAGE GRUNDY KANE
KANKAKEE KENDALL LAKE
LA SALLE LEE MCHENRY
OGLE WILL WINNEBAGO

\$\$

INC073-089-091-111-127-131-149-110500-/O.CON.KWNS.SV.A.0876.000000T0000Z-050211T0500Z/

IN

. INDIANA COUNTIES INCLUDED ARE

JASPER LAKE LA PORTE NEWTON PORTER PULASKI

STARKE

\$\$

WIC021-025-027-055-059-079-089-101-105-127-131-133-110500-/O.CON.KWNS.SV.A.0876.000000T0000Z-050211T0500Z/

WΙ

. WISCONSIN COUNTIES INCLUDED ARE

COLUMBIA DANE DODGE

JEFFERSON KENOSHA MILWAUKEE

OZAUKEE RACINE ROCK

WALWORTH WASHINGTON WAUKESHA

\$\$

LMZ644-645-646-665-740-741-742-743-744-745-746-766-867-868-110500-

/O.CON.KWNS.SV.A.0876.000000T0000Z-050211T0500Z/

CW

. ADJACENT COASTAL WATERS INCLUDED ARE

NEARSHORE WATERS BY PORT WASHINGTON TO NORTH POINT LIGHTHOUSE...

NEARSHORE WATERS FROM NORTH POINT LIGHTHOUSE TO WIND POINT...

NEARSHORE WATERS FROM WIND POINT TO WINTHROP HARBOR ILLINOIS...

WISCONSIN ADJACENT OPEN WATERS OF LAKE MICHIGAN TO MID LAKE

WINTHROP HARBOR TO WILMETTE HARBOR IL

WILMETTE HARBOR TO NORTHERLY ISLAND IL

NORTHERLY ISLAND TO CALUMET HARBOR IL

CALUMET HARBOR IL TO GARY IN

GARY TO BURNS HARBOR IN

BURNS HARBOR TO MICHIGAN CITY IN

MICHIGAN CITY IN TO NEW BUFFALO MI

LAKE MICHIGAN/WINTHROP HARBOR IL EASTWARD TO THE MID-POINT OF THE LAKE AND SOUTHWARD TO NEW BUFFALO MI BEYOND 5 NM OFFSHORE

LAKE MICHIGAN/NEW BUFFALO TO HOLLAND MI 5 NM OFF SHORE TO MID-LINE OF LAKE

LAKE MICHIGAN HOLLAND TO WHITEHALL MI 5 NM OFF SHORE TO MID-LINE OF LAKE

\$\$

ATTN...WFO...LOT...GRR...MKX...IWX...

Final

WOUS64 KWNS 110501 WOU6

TORNADO WATCH OUTLINE UPDATE FOR WT 876 NWS STORM PREDICTION CENTER NORMAN OK 1101 PM CST THU FEB 10 2005

TORNADO WATCH 9876 IS NO LONGER IN EFFECT.

ILZ000-INZ000-WIZ000-LMZ000-271700-/O.CAN.KWNS.TO.A.0876.000000T0000Z-0301127T1700Z/

NO COUNTIES OR PARISHES REMAIN IN THE WATCH.

NO MARINE ZONES REMAIN IN THE WATCH.

ATTN...WFO...LOT...GRR...MKX...IWX...

\$\$

10. <u>Aviation Watch Notification Message</u>.

WWUS30 KWNS 171510 SAW4 SPC AWW 171510 WW 1234 SEVERE TSTM CO KS 171510Z - 172300Z

AXIS..60 STATUTE MILES EAST AND WEST OF LINE..

55W LBL/LIBERAL KS/ - 80NNE RSL/RUSSELL KS/
..AVIATION COORDS.. 50NM E/W /48W LBL - 67NNW SLN/

HAIL SURFACE AND ALOFT..2 INCHES. WIND GUSTS..60 KNOTS.

MAX TOPS TO 500. MEAN STORM MOTION VECTOR 24035.

LAT...LON 37020305 39929936 39929711 37020088

THIS IS AN APPROXIMATION TO THE WATCH AREA. FOR A COMPLETE DEPICTION OF THE WATCH SEE WOUS64 KWNS FOR WOU4.

11. Public Watch Notification Message (Tornado and Severe Thunderstorm).

WWUS20 KWNS 102120 SEL6 SPC WW 102120 ILZ000-INZ000-WIZ000-LMZ000-110500-

URGENT - IMMEDIATE BROADCAST REQUESTED SEVERE THUNDERSTORM WATCH NUMBER 876 NWS STORM PREDICTION CENTER NORMAN OK 320 PM CST THU FEB 10 2005

THE NWS STORM PREDICTION CENTER HAS ISSUED A SEVERE THUNDERSTORM WATCH FOR PORTIONS OF

NORTHEAST ILLINOIS
NORTHWEST INDIANA
SOUTHEAST WISCONSIN
SOUTHERN LAKE MICHIGAN

EFFECTIVE THIS THURSDAY AFTERNOON AND EVENING FROM 320 PM UNTIL 1100 PM CST.

HAIL TO 2 INCHES IN DIAMETER...THUNDERSTORM WIND GUSTS TO 70 MPH...AND DANGEROUS LIGHTNING ARE POSSIBLE IN THESE AREAS.

THE SEVERE THUNDERSTORM WATCH AREA IS APPROXIMATELY ALONG AND 60 STATUTE MILES EAST AND WEST OF A LINE FROM 40 MILES EAST SOUTHEAST OF MARSEILLES ILLINOIS TO 30 MILES NORTH NORTHWEST OF MILWAUKEE WISCONSIN. FOR A COMPLETE DEPICTION OF THE WATCH SEE THE ASSOCIATED WATCH OUTLINE UPDATE (WOUS64 KWNS WOU6).

REMEMBER...A SEVERE THUNDERSTORM WATCH MEANS CONDITIONS ARE FAVORABLE FOR SEVERE THUNDERSTORMS IN AND CLOSE TO THE WATCH AREA. PERSONS IN THESE AREAS SHOULD BE ON THE LOOKOUT FOR THREATENING WEATHER CONDITIONS AND LISTEN FOR LATER STATEMENTS AND POSSIBLE WARNINGS. SEVERE THUNDERSTORMS CAN AND OCCASIONALLY DO PRODUCE TORNADOES.

DISCUSSION...S CENTRAL WI SQUALL LINE EXPECTED TO CONTINUE EWD... WHERE LONG/HOOKED HODOGRAPHS SUGGEST THREAT FOR EMBEDDED SUPERCELLS/POSSIBLE TORNADOES. FARTHER S...MORE WIDELY SCATTERED SUPERCELLS WITH A THREAT FOR TORNADOES WILL PERSIST IN VERY STRONGLY DEEP SHEARED/LCL ENVIRONMENT IN N IL.

AVIATION...A FEW SEVERE THUNDERSTORMS WITH HAIL SURFACE AND ALOFT TO 2 INCHES. EXTREME TURBULENCE AND SURFACE WIND GUSTS TO 60 KNOTS. A FEW CUMULONIMBI WITH MAXIMUM TOPS TO 500. MEAN STORM MOTION VECTOR 24035.

...SPC

12. Watch Status Message.

WOUS20 KWNS 102220

WWASPC

SPC WW-A 102230

ILZ000-INZ000-WIZ000-LMZ000-102340-

STATUS REPORT ON WW 876

SEVERE WEATHER THREAT CONTINUES RIGHT OF A LINE FROM 15 SW JVL TO 20 NE JVL TO 35 WNW MKE TO 40 NW MKE.

..SPC..02/10/05

ATTN...WFO...LOT...IWX...MKX...GRR...

&&

STATUS REPORT FOR WS 876

SEVERE WEATHER THREAT CONTINUES FOR THE FOLLOWING AREAS

ILC007-031-037-043-063-089-091-093-097-099-103-111-141-197-201-102340-

ΙL

. ILLINOIS COUNTIES INCLUDED ARE

BOONE COOK DE KALB
DUPAGE GRUNDY KANE
KANKAKEE KENDALL LAKE
LA SALLE LEE MCHENRY
OGLE WILL WINNEBAGO

\$\$

INC073-089-091-111-127-131-149-102340-

IN

. INDIANA COUNTIES INCLUDED ARE

JASPER LAKE LA PORTE NEWTON PORTER PULASKI

STARKE

\$\$

WIC055-059-079-089-101-105-127-131-133-102340-

WΙ

. WISCONSIN COUNTIES INCLUDED ARE

JEFFERSON KENOSHA MILWAUKEE

OZAUKEE WALWORTH RACINE WASHINGTON ROCK WAUKESHA

\$\$

LMZ644-645-646-665-740-741-742-743-744-745-746-766-867-868-102340-

CW

. ADJACENT COASTAL WATERS INCLUDED ARE

NEARSHORE WATERS BY PORT WASHINGTON TO NORTH POINT LIGHTHOUSE...

NEARSHORE WATERS FROM NORTH POINT LIGHTHOUSE TO WIND POINT...

NEARSHORE WATERS FROM WIND POINT TO WINTHROP HARBOR ILLINOIS...

WISCONSIN ADJACENT OPEN WATERS OF LAKE MICHIGAN TO MID LAKE

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WILMETTE HARBOR TO NORTHERLY ISLAND IL

NORTHERLY ISLAND TO CALUMET HARBOR IL

CALUMET HARBOR IL TO GARY IN

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BURNS HARBOR TO MICHIGAN CITY IN

MICHIGAN CITY IN TO NEW BUFFALO MI

LAKE MICHIGAN/WINTHROP HARBOR IL EASTWARD TO THE MID-POINT OF THE LAKE AND SOUTHWARD TO NEW BUFFALO MI BEYOND 5 NM OFFSHORE

LAKE MICHIGAN/NEW BUFFALO TO HOLLAND MI 5 NM OFF SHORE TO MID-LINE OF LAKE

LAKE MICHIGAN HOLLAND TO WHITEHALL MI 5 NM OFF SHORE TO MID-LINE OF LAKE

\$\$