U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
1325 East-West Highway
Silver Spring, Maryland 20910-3283

March 24, 1995 W/OM11

TO: All Holders of Operations Manual

SUBJECT: Transmittal Memorandum for Operations Manual Issuance 95-2

1. Material Transmitted:

WSOM Chapter C-40, Severe Local Storm Watches, Warnings, and Statements.

2. Summary:

This constitutes a major rewrite of WSOM Chapter C-40. Advancements in telecommunications technology have allowed the incorporation of a Universal Generic Code (UGC) into the headers of many National Weather Service (NWS) public products. Many of these changes are the result of technological refinements. For example, use of the PC-based software SRWARN has greatly simplified and expedited encoding of necessary routing and alerting information for warnings and statements while greatly reducing the errors in these codes. Some specific changes include:

a. The term "county" in the WSOM Chapter refers to all

counties, parishes, politically independent cities, and municipalities for which severe local storm warnings are issued.

b. UGCs are included on examples of all appropriate products.

c. The text has been refined for ease of readability.

d. Special and severe weather statements have been restructured to emphasize short-term forecast information, making use of observations and reports to heighten public perception of personal risk.

e. Contractions are eliminated in all products, excluding those referencing forecast models. Three-digit location identifiers and acronyms are retained, however.

f. Short-Term Forecasts (Product Category NOW) have been introduced into the stream of information provided by an expanding number of warning offices. Use of the NOW, and its relationship to other products, is addressed throughout the Chapter.

3. Relationship to Other Instructions:

This Chapter supersedes WSOM Chapter C-40, Transmittal Issuance 86-1, dated February 4, 1986, and the following OMLs filed with C-40:

OML 9-89, dated December 4, 1989;
OML 10-89, dated December 1, 1989;

OML 6-91, dated April 1, 1991; and
OML 5-92, dated September 1, 1992.

Elbert W. Friday, Jr.
Assistant Administrator
for Weather Services

Issue Date	*Org. Code*	**NATIONAL WEATHER SERVICE**	*Part*	*Chap.*
3-24-95	*W/OM11*	***Operations Manual***	*C*	*40*

SEVERE LOCAL STORM WATCHES,
WARNINGS, AND STATEMENTS

Table of Contents:

NOTE: In implementing this Chapter, negotiations between the NWS and the National Weather Service Employees Organization have been completed. The generic set of proposals for implementing WSOM issuances involving new or modified products and/or services apply. Please inform the steward assigned to your office about this new Chapter.

1. Introduction. This Chapter outlines the format and procedures for preparing, issuing, and disseminating severe local storm watches, warnings, and statements to inform the public of impending significant and/or severe convective weather. It should be understood that written instructions cannot cover every situation. There may be times when routine duties must be temporarily suspended so that urgent products can be prepared and disseminated in a timely fashion. Personnel must use initiative and professional judgment in specific weather situations while appreciating that the National Weather Service (NWS) has no greater responsibility than to prepare and disseminate critical information about impending severe weather.

The uniqueness of severe local storm climatology in Alaska, Hawaii, and Puerto Rico may make compliance with some of these guidelines counterproductive. Consequently, the Alaska, Pacific, and Southern (for Puerto Rico) Regions are afforded greater latitude in modifying these guidelines for their severe weather warning programs, provided they are coordinated with National Weather Service Headquarters (WSH).

2. Transition to the Modernized and Restructured NWS. The NWS is undergoing modernization and associated restructuring (MAR). Office designations and responsibilities change during different stages of the transition. This Chapter describes functions of each type of office as the NWS transitions to modernization: Weather Service Forecast Office (WSFO), Weather Service Office (WSO), Next Generation Radar (NEXRAD) WSFO (NWSFO), and NEXRAD WSO (NWSO).

Guidance outlined in this Chapter will be valid through that period of the MAR characterized by the introduction of the Weather Surveillance Radar-1988 Doppler (WSR-88D), the Automated Surface Observing System, and the new series of geostationary satellites. During this period, NWSFOs and NWSOs should use their new technology to prepare more detailed real-time and short-term forecasts of ongoing severe local storm events. This Chapter addresses the severe local storm responsibilities of each office (WSFO, WSO, NWSFO, and NWSO) during the transition to the modernized and restructured NWS.

New products or procedures most likely will be introduced during the transition. One change is the decentralization of severe local storms watches. The effects of the initial phase of the decentralization process will be profound. Either a rewrite or amendment, by means of an Operations Manual Letter, will accommodate changes as they unfold.

3. Multi-tier Concept. The NWS severe local storm warning program should use, when appropriate, a multi-tier concept of products to increase public awareness and promote a proper response. General descriptions of these products follow. Greater details and product samples are included later in the Chapter.

Outlook. An outlook is used to indicate that a hazardous weather or hydrologic event may develop. It is intended to provide information to those who need considerable lead time to prepare for the event.

Watch. A watch is used when the risk of a hazardous weather or hydrologic event has increased significantly, but its occurrence, location, and/or timing is still uncertain. It is intended to provide enough lead time so that those who need to set their plans in motion can do so.

Warning. A warning is issued when a hazardous weather or hydrologic event is occurring, is imminent, or has a very high probability of occurring. A warning is used for conditions posing a threat to life or property.

Short Term Forecast. A product used to convey information regarding weather or hydrologic events in the next few hours. The short-term forecast, or Nowcast (NOW), eliminates the need for short-term special weather statements.

Statements. Warning offices using the NOW should use the special weather statement (Automation of Field Operations and Services [AFOS] product category SPS) only to describe long-fuse events, including any appropriate meteorological reasoning, and to clear counties from watches. Very concise severe weather statements (AFOS product category SVS) are used in conjunction with short-term forecasts to describe severe weather events.

Offices not issuing short-term forecasts use a variety of statements to give details on convectively active situations. A

special weather statement amplifies watches and potentially active or active (but not presently severe) situations. Severe weather statements should be issued during severe weather conditions, i.e., when a warning is in progress, to report on severe events and to provide appropriate response recommendations.

4. Definitions.

a. County Warning Area (CWA). All counties assigned to a WSO, NWSO, WSFO, or NWSFO for the purpose of warnings issuance and hazard awareness responsibility. Offices with CWA responsibility are hereinafter referred to as "warning offices." A complete listing of all CWAs is provided in WSOM Chapter C-47, County Warning Areas. Ongoing changes to CWAs are announced in AFOS product WSHPNSWSH and in transmittal memoranda.

b. Density/Risk of Severe Thunderstorms. The relative coverage and/or threat for severe thunderstorms in a specified area. The following describes the possible density/risk of severe thunderstorms in an outlook area.

(1) APPROACHING. A non-severe category that indicates an area of strong convection; used to highlight areas where strong thunderstorms are anticipated but not expected to become severe.

(2) SLIGHT risk. Severe thunderstorms are expected; the severe storms may not have a mesoscale organization or may be isolated in areal extent. Between 2 and 5 percent coverage, or 4-10 manually digitized radar (MDR) blocks, of severe thunderstorms per 100,000 square miles. A slight risk generally implies that severe weather events are expected to be isolated or localized.

(3) MODERATE risk. Severe thunderstorms are expected and are anticipated to be more organized on the mesoscale. They will be more numerous or widespread than in the SLIGHT category. The potential for personal injury and/or significant property damage is significantly enhanced. Between 6 and 10 percent coverage or 11-21 MDR blocks of severe thunderstorms per 100,000 square miles. A moderate risk indicates the possibility of a significant severe weather episode.

(4) HIGH risk. Severe thunderstorms are expected and are anticipated to be widespread. A dangerous situation exists with the strong potential for killer tornadoes, devastating windstorms, and widespread property damage. This category generally is confined for use in anticipated tornado outbreaks. More than 10 percent coverage or more than 21 MDR blocks of severe thunderstorms per 100,000 square miles. A high risk is rare and implies the possibility of a major severe weather outbreak.

c. Call to Action. That part of a warning or statement (sentence or paragraph) recommending action that people at risk need to take to secure lives and/or property.

d. Downburst. A strong downdraft that induces an outburst of damaging winds on or near the ground. Downbursts are further detailed as either:

(1) Microburst. A convective downdraft with an affected outflow area of less than 2.5 miles wide and peak winds lasting less than 5 minutes. Microbursts may induce dangerous horizontal/vertical wind shears, which can adversely affect aircraft performance and cause property damage.

(2) Macroburst. A convective downdraft with an affected outflow area of at least 2.5 miles wide and peak winds lasting between 5 and 20 minutes. Intense macrobursts may cause tornado-force damage of up to F3 intensity.

e. Enhanced Risk Perception. Tendency for individuals to seek further confirmation of their personal risk before taking action (warnings and statements should present critical weather information in a manner that fosters this confirmation and more).

f. Funnel Cloud. A rotating visible extension of cloud pendant to a cumulus/cumulonimbus with circulation not reaching the ground.

g. Preliminary Watch Notification (AFOS Product Category SAW). A message prepared by the National Severe Storms Forecast Center (NSSFC) to alert offices that a watch is forthcoming.

h. Public Severe Weather Outlook (AFOS Product Category PWO). A message prepared by NSSFC for consumption by the media, emergency managers, and the public when a significant severe weather episode is anticipated. The PWO outlines the primary areas to be affected by severe weather, the expected timing of the event, and a brief synopsis of the meteorological elements that will produce the severe weather. A severe weather outlook also may be prepared and disseminated by WSFO/NWSFOs for their forecast areas using the product category SPS.

i. Redefining Statement (Areal Outline) (AFOS Product Category SLS). A rewording of the tornado or severe thunderstorm watch area for use in mass media dissemination. It is expressed in terms of whole counties and, in the case of coastal areas, adjoining lake and/or coastal waters between well known landmarks. Cities or well known geographic landmarks within a state may be included. Additionally, a computer-generated redefining statement, AFOS product category SEV, is issued by NSSFC and sent to NWS offices. It is expressed in terms of whole counties and adjoining lake/coastal waters.

j. Severe Local Storm. A convective storm that usually covers a relatively small geographic area, or moves in a narrow path, and is sufficiently intense to threaten life and/or property. Examples include severe thunderstorms with large hail, damaging wind, or tornadoes. Although cloud-to-ground lightning is not a criteria for severe local storms, it is acknowledged to be highly dangerous and a leading cause of deaths, injuries, and damage from thunderstorms. A thunderstorm need not be severe to generate frequent cloud-to-ground lightning. Additionally, excessive localized convective rains are not classified as severe storms but often are the product of severe local storms. Such rainfall may result in related phenomena (flash floods) that threaten life and property (see WSOM Chapter E-20, Flood/Flash Flood Watch and Warning Program).

k. Mesoscale Discussion (AFOS Product Identifier SWOMCD). A product prepared by NSSFC that communicates the current judgment of NSSFC concerning severe weather potential or other mesoscale phenomena of significance.

l. Severe Storm Reporting Network. A network of strategically located or mobile, often volunteer, spotters or emergency management officials (i.e., police, fire, etc.) who promptly report the occurrence or sighting of severe local storms (see WSOM Chapter B-21, Severe Storm Reporting Networks).

m. Severe Thunderstorm. A thunderstorm that produces a tornado, winds of at least 50 knots (58 mph), and/or hail at least 0.75 inch in diameter. Structural wind damage may imply the occurrence of a severe thunderstorm. A thunderstorm wind equal to or greater than 35 knots (40 mph) and/or hail of at least 0.5 inch is defined as approaching severe (APCHG).

n. Convective Outlook Narrative (AFOS Product Identifiers SWODY1 and SWODY2). A written outlook by NSSFC containing technical information about the possibility and favored areas of severe local storms and other thunderstorm occurrences within the conterminous 48 states.

o. Convective Outlook Graphic (AFOS Product Identifiers NMCGPH940 and NMCGPH980). Graphical representations of the SWODY1 and SWODY2 products depicting areas of anticipated severe and other thunderstorms for the 0- to 24- and 24- to 48-hour periods, respectively.

p. Severe Weather Statement (AFOS Product Category SVS). At warning offices issuing NOWs (see "q." below), the SVS is a brief (should be no more than three lines of text), concise, unnumbered public release to provide specific information on observed severe weather. At warning offices not issuing NOWs, the SVS is used to describe existing severe weather or to follow up a warning, including combined tornado/severe thunderstorm and special marine warnings (see WSOM Chapter D-51, Marine Services for Coastal, Offshore, and High Seas), by giving additional details concerning the convective situation.

q. Short-Term Forecast (AFOS Product Category NOW). At warning offices issuing NOWs, the NOW eliminates the need for short-term applications of special weather statements (see "s." below), most severe weather statements (see "p." above), and several other types of public products. Issued at frequent intervals, NOWs give the status and a short-term forecast of weather conditions. When used frequently during active weather, they provide timely and sometimes vital information about a potential or existing hazard. See OML 2-93 to WSOM Chapter C-21 and section 7.5 of this Chapter for further details concerning NOWs.

r. Special Marine Warning (AFOS Product Category SMW). Unnumbered public releases by local warning offices

with marine responsibility to warn mariners of existing or imminent local convective storms possessing sustained winds or frequent gusts of 34 knots or more, either confined to coastal waters or no longer affecting land. See also WSOM Chapter D-51.

s. Special Weather Statement (AFOS Product Category SPS). **At warning offices issuing NOWs** (except where local communications constraints apply and alternatives are not possible), the SPS should not be used to describe short-term convective conditions. See section 7.7 for a description of SPSs in modernized offices.

At warning offices not issuing NOWs, the SPS is an unnumbered public release issued at frequent intervals to amplify watches and convectively active situations. An SPS is used to provide additional or updated information about a watch or an area of nonsevere weather. As weather becomes more active, the SPS should be issued more frequently. The statement should convey what weather changes are expected in the near future and call for appropriate responses.

Regardless of whether an office uses the NOW, WSFO/NWSFOs and, at regional discretion, NWSOs should use the SPS both to issue a severe weather outlook and to clear counties from a severe local storm watch.

t. Squall Line. A solid or broken line of thunderstorms or squalls. The line may extend across several hundred miles.

u. Status Report (AFOS Product Category WWA). A brief message issued by NSSFC that describes current evaluation and judgment regarding a watch in effect.

v. Tornado. A violently rotating column of air, usually pendant to a cumulonimbus, with circulation reaching the ground. It nearly always starts as a funnel cloud and may be accompanied by a loud roaring noise. On a local scale, it is the most destructive of all atmospheric phenomena.

w. Tornado/Severe Thunderstorm Warning (AFOS Product Categories TOR/SVR). Unnumbered releases issued by local warning offices to warn the public of an existing, imminent, or suspected tornado/severe thunderstorm.

x. Tornado/Severe Thunderstorm and Special Marine Warning (AFOS Product Categories TOR/SVR). Unnumbered releases issued by local coastal warning offices to warn the public and marine interests of existing or imminent severe, or suspected severe, local storms affecting adjoining coastal land and water areas simultaneously.

y. Tornado/Severe Thunderstorm Watch (AFOS Product Category SEL). A release for the public, marine, and aviation interests prepared by NSSFC, indicating that tornadoes/severe thunderstorms are possible. A tornado watch implies that both severe thunderstorms and tornadoes are possible.

z. Wall Cloud. A local, usually abrupt, lowering of a rainfree cumulonimbus base forming a low hanging accessory cloud that is usually 1 to 4 miles in diameter. The wall cloud is usually situated in the right rear quadrant of the cumulonimbus with respect to storm motion, below an intense updraft associated with a strong or severe thunderstorm. Rotating wall clouds often precede tornado development.

aa. Warning Verification Messages (AFOS Product Category WVM). An AFOS product sent from NOAA Weather Wire Service (NWWS) up-link sites to a warning office documenting the NWWS transmission time of the office's warning.

bb. Waterspout. A violently rotating column of air usually pendant to a cumulus/cumulonimbus, over a body of water, with its circulation reaching the water.

5. Responsibilities.

5.1 Weather Service Headquarters. Responsibility for the severe local storm warning service rests with the Assistant Administrator for Weather Services. Staff assistance is provided by the Director, Office of Meteorology.

5.2 Regional Headquarters.

5.2.1 Program Management. Regional Headquarters shall implement national policies and develop and implement regional policies in the severe local storm warning program. They shall maintain general oversight of severe local

storm warning services provided by all NWS warning offices in their Region, and they shall provide quality control over products issued and services rendered. They should provide critiques of office performance during significant severe local storm events, including the review of and, as needed, the requiring of updates to the Station/Office Duty Manual (SDM/ODM). This also includes the review of pertinent WSOM Chapters. Regional Headquarters should oversee a program of periodic drills designed to test the ability of various offices to meet severe local storm threats. Also, Regional Headquarters shall ensure that each warning office develops and maintains the proper level of public awareness. Community awareness plans should be developed according to the Federal Emergency Management Agency/National Oceanic and Atmospheric Administration (NOAA) Agreement on Community Disaster Preparedness and WSOM Chapter C-49, Warning Coordination and Hazard Awareness.

5.2.2 Report Significant Weather-Related Events to WSH. Regional Headquarters should follow guidelines in WSOM Chapter J-02, Special Reports on Weather-Related and Other Major Events.

5.2.3 Survey Areas Damaged by Severe Local Storms. Regional Headquarters should follow the NOAA Administrative Order 28-17 and WSOM Chapter J-06, Natural Disaster Surveys, and should notify WSH, Warning and Forecast Branch (W/OM11), when a Regional survey team is being formed.

5.3 National Severe Storms Forecast Center. The Director, NSSFC, is responsible for national severe local storm forecasting and for operation of the Center.

The NSSFC performs four major severe weather activities.

5.3.1 Issuance, Cancellation, and Coordination of Severe Weather Watches. NSSFC's primary responsibility is to issue and cancel severe thunderstorm and tornado watches. Section 6 describes these and other NSSFC products. Advance coordination, as time permits, between NSSFC, WSFO/NWSFOs, the National Meteorological Center (NMC), and the National Hurricane Center (NHC) will be with the understanding that the ultimate authority for severe local storm watches rests with NSSFC.

a. NSSFC shall maintain a continuous watch for the possibility of severe local storm development in the conterminous United States, adjacent coastal waters, and on the U.S. portions of the Great Lakes. Any special rawinsondes needed to assist NSSFC in carrying out its forecast responsibilities shall be requested according to instructions in WSOM Chapter B-90, Special Warning Program Observations. NSSFC should furnish WSH, Operations Division (W/OM1), with forecast verification reports. See WSOM Chapter C-72, National Watch/Warning Verification Program, for NSSFC watch/warning verification responsibilities.

b. NSSFC should coordinate watches with offices having public forecast responsibility. On those few occasions when widespread and destructive tornadoes are expected, NSSFC should, if time is available, discuss with WSFOs the proposed terminology to be used to describe adequately the threat to the public. NSSFC shall issue a Public Weather Outlook (AFOS product category PWO) when widespread and destructive tornadoes and/or widespread and destructive windstorms (derechos) are expected. NSSFC should contact WSFO/NWSFOs before canceling a watch in or near their areas of forecast responsibility.

c. NSSFC should coordinate with NHC before issuing a tornado watch if tropical cyclone-related tornadoes are anticipated. To assist NHC, this coordination should be done about 2 hours before the next scheduled tropical cyclone advisory issuance time if possible (also see WSOM Chapter C-41, Hurricane Warnings).

d. NSSFC should coordinate, as needed, with NMC to ensure consistency between NSSFC and NMC products.

5.3.2 Preparation and Issuance of Convective SIGMETs (Significant Meteorological Information). NSSFC shall prepare regularly scheduled and, as required, special advisories identifying the location, intensity, and trend of significant convective weather important to aviation interests. (See WSOM Chapter D-22, In-flight Aviation Weather Advisories.)

5.3.3 Communications. NSSFC shall enter all textual messages in AFOS for communication to NWS offices and transmit them directly to the Weather Message Switching Center (WMSC) via a computer-to-computer link for relay on communication circuits. In addition, all messages are relayed through the Systems Monitoring and Coordination Center (SMCC) and/or NWS Telecommunication Gateway (NWSTG) for further dissemination.

NSSFC, or its backup, shall up-link all watches and watch cancellations directly onto the NWWS via AFOS. The identifier shall be "MKCSELx," where x = 0 through 9, and corresponds to the last digit in the watch number.

Severe weather outlook narratives, product identifiers SWODY1 and SWODY2, also shall be entered directly onto the NWWS by NSSFC or its backup.

5.3.4 Forecast Development. NSSFC shall direct the Techniques Development Unit to develop operational techniques for improving forecasts of severe weather.

5.4 Weather Service Forecast Offices/NEXRAD Weather Service Forecast Offices. County warning functions of WSFOs are described in section 5.5.

5.4.1 Coordination with NSSFC, Adjacent WSFOs/NWSFOs, and WSOs/NWSOs. WSFOs/NWSFOs should contact NSSFC, their WSOs/NWSOs, and adjacent WSFOs/ NWSFOs, as needed, to discuss severe local storm possibilities or to discuss watches/warnings issued.

5.4.2 Transmission of Safety Messages over NWWS and NOAA Weather Radio (NWR). Offices with county warning responsibility should transmit safety precautions (AFOS product category PNS), if time permits, prior to a watch on potential severe weather days. Otherwise, safety precautions should be transmitted over NWWS following the first issuance of a watch or after the first warning if a warning precedes a watch and 24 hours or more has elapsed since the last watch or warning in the state. These messages may be broadcast on NWR if deck space is available.

5.4.3 Preparation of Severe Weather Outlooks. WSFO/NWSFOs and, at Regional discretion, NWSOs should issue severe weather outlooks as a separate issuance using AFOS product category SPS. This is especially important in advance of an expected major outbreak. This outlook should explain that it is preliminary and may be revised. The convective outlook, as received from NSSFC, shall not be transmitted on NWR but should be used as guidance for preparing the severe weather outlook.

5.4.4 Preparation and Dissemination of Watch Redefining Statements. Designated offices shall create and transmit on the regional distribution circuit a separate product "CCCSLSXX" (CCC = local node identifier and XX = State Identifier) for that portion of a watch in their state(s). Selected offices, as designated by regional headquarters, also shall create and transmit a product "CCCSLSXX" for state(s) containing adjacent WSFO/NWSFO county areas of responsibility. This product shall identify the watch number and include only the counties affected. This product is intended for transmission on the Family of Services and NWWS.

5.4.5 Amendment of Forecasts. WSFOs/NWSFOs should amend appropriate aviation, public, and marine forecasts, as time permits, when a watch is issued. (See WSOM Chapters C-10, State Forecasts; C-11, Zone and Local Forecasts; D-21, Aviation Terminal Forecasts; and D-22, In-flight Aviation Weather Advisories.)

5.4.6 Assistance for WSOs/NWSOs. WSFOs/NWSFOs should assist their WSOs/NWSOs, as needed, in preparing warnings, severe or special weather statements, or, if applicable, NOWs.

5.4.7 Watch Cancellations (AFOS Product Category SEL). NSSFC or its designated backup shall enter all watch cancellations directly on NWWS via AFOS (see section 5.3.3). Although warning offices are not required to take further action, they may disseminate a severe weather statement (SVS) giving additional weather information. Offices issuing NOWs may convey similar information using the NOW. Watch cancellations also should be transmitted over NWR and other appropriate communications means. Watch cancellations should be aired on NWR for a period of not less than 1 hour.

5.4.8 Preparation of Draft Text and Data for Storm Data. WSFOs/NWSFOs shall furnish Storm Data material in accordance with WSOM Chapters F-42, Storm Data and Related Reports, and C-72, National Watch/Warning Verification Program.

5.4.9 WSFOs/NWSFOs in Alaska and Pacific Regions. Severe thunderstorms are relatively rare in the Alaska and Pacific Regions. When they are imminent or do occur, severe local storm warnings in the Alaska and Pacific Regions are issued through appropriate warning products. For thunderstorms approaching severe thresholds, special weather statements should be issued to provide information on the potential threat. Alaska and Pacific Region warning offices

using NOWs may convey similar information using that product.

5.5 Weather Service Offices/NEXRAD Weather Service Offices. WSOs/NWSOs (and WSFOs with WSO functions) issue warnings and statements for county warning areas assigned in WSOM Chapter C-47. These offices shall ensure that appropriate warnings, watches, statements (including redefining statements), and, as applicable, short-term forecasts are transmitted on their NWR and other necessary communication circuits.

5.5.1 Preparation and Dissemination of Severe Storm Warnings, Statements, and Short Term Forecasts. Responsibility for issuing severe thunderstorm and tornado warnings cannot be delegated outside the NWS, except as stated in WSOM Chapter C-05, Release of Forecasts by Other Federal Agencies. WSOs/NWSOs shall prepare and disseminate warnings, statements, and, if applicable, short-term forecasts as clearly and rapidly as possible following the guidelines in this Chapter and in WSOM Chapters C-66, Dissemination of Public Warnings; D-25, Support to Air Traffic Facilities; D-26, Aviation Weather Warnings and Pilot Briefings; and D-51, Marine Services for Coastal, Offshore and High Seas.

5.5.2 Clearance of Non-threatened Parts of Watch Areas. WSOs/NWSOs may issue a special weather statement to clear parts of NSSFC watch areas. WSOs/NWSOs first should coordinate with their parent WSFO/NWSFO. By Regional Operations Manual Letter, regional Headquarters may restrict the authority to clear watch areas to WSFOs/NWSFOs.

5.5.3 Maintenance of Station Readiness. Each meteorologist in charge or official in charge shall maintain a level of office and community awareness and preparedness consistent with the risk of on-station emergencies, local weather hazards, and available resources.

Awareness activities shall include but not be limited to:

a. maintaining an up-to-date Severe Local Storms Action Plan in the SDM/ODM (WSOM Chapter A-13, Station/Office Duty Manual). All operational station personnel shall review this Plan at least annually.

b. conducting emergency warning drills as outlined in WSOM Chapter A-17, Emergency Drills, before and preferably during each severe storm season to ensure all operational staff members are proficient in warning procedures. The media and other members of the hazards community (e.g., emergency management, law enforcement, fire officials, schools, hospitals, volunteer organizations, etc.) should participate in selected exercises to test the complete system operation.

c. maintaining a severe local storm spotter network. Cooperative severe local storm spotter networks, such as amateur radio (ham) networks, should be established and maintained by appropriate spotter training and communications drills each year (see WSOM Chapter C-49, Warning Coordination and Hazard Awareness Program).

d. practice messages. If a practice severe weather warning is accidentally released, issue as quickly as possible a retraction under the same warning heading as that which was accidentally transmitted. Indicate the nature of the error or mistake. All practice messages shall contain the word "test" in the text of the message.

Example:

LAXSVRLAX
WUUS1 KLAX 241800
CAC037-241900-

BULLETIN - IMMEDIATE BROADCAST REQUESTED
SEVERE THUNDERSTORM WARNING...test...test...test
NATIONAL WEATHER SERVICE LOS ANGELES CA
1000 AM PST MON OCT 24 1994

THIS IS A manual MESSAGE...NO SEVERE WEATHER EXISTS.

test...test...test...test

5.5.4 Disaster Awareness. All warning offices are responsible for public safety education, cooperation with outside agencies and organizations, and providing assistance to communities and counties in their CWA regarding the development of local warning systems and spotter networks (see WSOM Chapter C-49).

5.5.5 Investigate Storm Damage. All warning offices should investigate reports of severe local storm damage in their CWA to determine the adequacy of warnings issued and to determine any needed improvements in warning methodology, the use of spotter networks, terminology, and dissemination. Post-storm surveys, when appropriate, should be conducted in accordance with WSOM Chapter J-06 and coordinated with Regional Headquarters.

a. Within 1 week after storm-related fatalities, numerous injuries, or appreciable property damage in the WSO/WSFO (NWSO/NWSFO) CWA or the WSFO/NWSFO county area of forecast responsibility, the affected office should prepare a summary of pertinent meteorological data, a discussion of office activities during the severe weather situation, and accounts of severe storm damage. Include copies of all newspaper articles, warnings, watches, and statements pertaining to the event. Include distribution and dissemination times of NWS public products. When specific acts of individuals or groups are known to have saved lives and/or property, these should be included in the report. If a NOAA or Regional Headquarters on-site survey is being made, this information should be given instead to the survey team for inclusion in its report. These reports should be forwarded to Regional Headquarters upon request. Regional Headquarters should forward appropriate reports to WSH, Attention: Operations Division (W/OM1).

b. Each warning office should participate in gathering information on severe local storms according to WSOM Chapter F-42 and regional directives. Evaluations, along with all other pertinent material, should be sent to their area manager.

5.5.6 Special Reports on Significant Weather-Related Events. Special reports on significant weather-related events should be prepared and transmitted according to WSOM Chapter J-02 and instructions from Regional Headquarters.

5.5.7 Office Records. Record keeping should be kept to a minimum, consistent with retaining the essential facts. For such AFOS products as warnings, watches, forecasts, short-term forecasts (if applicable), and statements, refer to WSOM Chapter D-90, Weather Support for Accident Investigations and Litigation, section 4.2.1. For such non-AFOS records as severe weather logs, warnings checklists, and notes on significant actions, retain at the NWS office for 2 years. The transmission time of warnings on NWWS circuits either can be observed, obtained from AFOS message logs, or extracted from warnings verification messages. Non-AFOS records should be kept when a severe weather watch is within the county warning area, when a severe weather warning is issued, or when a destructive severe local storm occurs in the county warning area.

5.5.8 Backup for Radar Remotes. WSOs and WSFOs equipped with radar remotes should notify: (a) the radar office supplying the remote and (b) adjacent radar stations whenever its remote is inoperative. Upon notification, radar offices should furnish data to the WSO/WSFO on significant weather until the remote (dedicated line) becomes operational.

5.5.9 Backup Warning Communications. Detailed backup procedures are outlined in WSOM Chapters B-50, Weather Radar Stations, and J-03, Backup Operations and Site Evacuations. If AFOS-related computer systems or associated communications lines fail, but the warning office otherwise remains capable of monitoring severe weather conditions, contact the designated backup office to prepare and disseminate time-critical messages before attempting a restart of the failed system. Do not delay requesting backup during a warning situation. If staff resources are available, both actions should be done simultaneously. Plan ahead for this possibility.

5.6 Radar Offices.

5.6.1 Radar Surveillance. Radar surveillance is a critical part of the severe local storm warning program. Federal Meteorological Handbook Numbers 7, Weather Radar Observations, and 11, Doppler Weather Radar Observations, describe observations and reporting procedures.

5.6.2 Notification of Other Offices. WSR-88D-equipped offices should be proactive in passing along critical radar information to offices not so equipped or to those with a disabled radar. The resolution and data-gathering capacity of the WSR-88D are crucial to the provision of timely and effective watches, warnings, short-term forecasts, and statements.

When radar indicates potential or existing severe weather in or near another office's county warning area, the affected office should be notified by the most expedient means. Give special attention to events occurring within about 20 nautical miles of another radar since they may be in that radar's ground clutter. If AFOS is used, acknowledgment should be requested. If acknowledgment is not received within a few minutes, another means of communication should be used.

5.6.3 Warnings. Radar indications of existing, imminent, or potentially severe weather, such as those revealed on conventional radar by the Lemon or WRIST techniques or on Doppler radar by velocity or reflectivity signatures that are generally accepted as severe weather indicators, should be brought to the attention of warning offices immediately. When a tornadic signature is observed, the responsible office shall issue a tornado warning, provided other storm-scale meteorological conditions are consistent with tornadogenesis. However, there may be times when the warning office cannot be contacted and radar indications are such that a warning is imperative. Under these conditions, a backup office shall be notified or the radar office shall issue the warning for the other office's county warning area in accordance with regional guidelines.

6. NSSFC Products.

6.1 Convective Outlook (AC). The AC is a forecast of thunderstorms for the conterminous 48 states that is prepared as both narrative and graphic products and covers periods up to 52 hours in advance. The convective outlook serves as guidance to NWS field offices for use in the preparation of local forecast products; to advise the public, media, and other interests of the possibility of severe weather; and to assist with preliminary planning for additional staffing should severe weather be anticipated. In addition to a forecast of general thunderstorms, the AC delineates areas in which there is a slight, moderate, or high risk of severe thunderstorms. Areas where thunderstorms may approach severe limits (where "approaching" is defined as winds at least 35 knots and/or hail at least 1/2-inch in diameter) are also included. The convective outlook narrative message is transmitted to NWS forecast offices via AFOS and is entered on the Family of Services circuit via NWSTG.

6.1.1 Convective Outlook Narrative (AFOS Product Identifiers SWODY1 and SWODY2). The convective outlook narrative message is written in plain language, using two-letter postal state identifiers to specify states or parts of states included in areas where there is a slight, moderate, or high risk of severe thunderstorms. The text gives the meteorological reasoning that supports the forecast and, to the extent possible, provides information concerning the timing of the most active severe weather during the forecast period.

A second day convective outlook (AFOS product identifier SWODY2) includes a discussion and forecast of severe thunderstorms only. General thunderstorm areas are not included and risk categories are not assigned.

Examples:

MKCSWODY1
ACUS1 KMKC 171438
MKC AC 171500

CONVECTIVE OUTLOOK...REF AFOS NMCGPH940

VALID 171500 - 181200Z

THERE IS A SLIGHT RISK OF SEVERE THUNDERSTORMS TO THE RIGHT OF A LINE FROM BGS HOB RTN COS SNY VTN BRD EAU LSE OMA MCK LBL CDS BGS.

THERE IS A SLIGHT RISK OF SEVERE THUNDERSTORMS TO THE RIGHT OF A LINE FROM AQQ DHN BHM HSV MGL CSV TYS AHN AYS CTY.

GENERAL THUNDERSTORMS ARE FORECAST TO THE RIGHT OF A LINE FROM IPL FAT RBL MFR DLS PUW MSO BIL 60 NE MOT...CONTINUED...SSM DBQ FRI ICT ADM FTW HDO PSX...BVE PNS TCL MSL LEX AVP PSM.

DECIDED TO TRIM DOWN SLIGHT RISK OUTLOOK IN PLAINS. BEST RISK AREA WOULD APPEAR TO

BE AHEAD OF COLD FRONT CURRENTLY PUSHING SOUTHEAST ACROSS MN. WATER VAPOR LOOP AND NEW ETA MODEL SUPPORT CONTINUED DIGGING OF SHORT WAVE TROUGH AS IT APPROACHES UPPER MISSISSIPPI VALLEY AND WESTERN GREAT LAKES. DO NOT THINK AIRMASS HAS HAD SUFFICIENT TIME TO RECOVER ADEQUATE LOW LEVEL MOISTURE TO SUPPORT OTHER THAN VERY ISOLATED STRONG/SEVERE THUNDERSTORMS. THUS...HAVE REDUCED AREA OUTLOOK. SECONDARY BAND OF 30 KNOT MID LEVEL WINDS ACROSS CO INTO CENTRAL HIGH PLAINS IS STRONGER THAN PROGGED. DECENT DIRECTIONAL SHEAR ALONG WESTERN EDGE OF CLOUDINESS CURRENTLY OVER SOUTHERN PLAINS AGAIN MAY BE SUFFICIENT TO SUPPORT ISOLATED SEVERE THUNDERSTORMS IN MARGINAL TO MODERATELY UNSTABLE AIRMASS.

HAVE ADDED SLIGHT RISK OF SEVERE THUNDERSTORMS OVER PORTIONS OF SOUTHEAST U.S. AM CONCERNED ABOUT LINGERING LOW LEVEL MOISTURE OVER NORTHEAST AL AND GA. WATER VAPOR IMAGERY AND 700 MILLIBAR ANALYSIS INDICATE PRONOUNCED MID LEVEL DRYING WHILE VISUAL IMAGERY SUGGESTS SOME BREAKS IN LOWER CLOUDS MAY DEVELOP...THUS ALLOWING POCKETS OF SURFACE HEATING. SURFACED BASED LIS ALREADY ABOUT MINUS 5 AND WITH SURFACE TEMPS INTO LOWER 80S LIS COULD REACH MINUS 8 RANGE. ALSO THINK SHORT WAVE TROUGH DIGGING INTO UPPER MISSISSIPPI VALLEY MAY TEND TO NUDGE QUASISTATIONARY UPPER TROUGH OVER SOUTHEASTERN U.S. NORTHEASTWARD...PROVIDING ADDITIONAL UPWARD VERTICAL VELOCITIES.

..ANTHONY.. 08/17/92

MKCSWODY2
ACUS2 KMKC 171714
MKC DY2 171800

2ND DAY SEVERE OUTLOOK...REF AFOS NMCGPH980

VALID 181200 - 191200 ..GENERAL THUNDERSTORM FORECAST NOT INCLUDED..

NO SEVERE THUNDERSTORMS FORECAST.

MID/UPPER LEVEL TROUGH EXPECTED TO CONTINUE SOUTHEASTWARD INTO THE GREAT LAKES REGION AS MID LEVEL RIDGING CONTINUES TO DOMINATE THE INTERMOUNTAIN REGION. COLD FRONTAL BOUNDARY WILL MOVE SOUTHEAST ACROSS THE GREAT LAKES REGION...AND SLOWLY SOUTH ACROSS THE CENTRAL PLAINS AND MID MISSISSIPPI VALLEY. UPPER LEVEL JET OF 70/80 KNOTS FORECAST TO BE ON BACKSIDE OF UPPER LEVEL TROUGH MOVING SOUTH ACROSS WI. THIS WILL BRING COLDER MID LEVEL TEMPS OVER THE CENTRAL/EASTERN GREAT LAKES...DESTABILIZING AIRMASS DURING PERIOD OF MAXIMUM HEATING. STRONG THUNDERSTORMS COULD DEVELOP DURING THE AFTERNOON AND EARLY EVENING HOURS ACROSS PORTIONS OF LOWER MI...NORTHERN IN...AND NORTHERN OH AS UPPER LEVEL DIFFLUENCE AND MID LEVEL DRY INTRUSION ENHANCES UPWARD VERTICAL VELOCITIES. BUT...RELATIVELY WEAK FLOW AND ONLY MARGINAL INSTABILITY SHOULD INHIBIT SEVERE THUNDERSTORM DEVELOPMENT.

QUASI-STATIONARY FRONTAL BOUNDARY WILL STILL BE HANGING AROUND THE EASTERN COASTAL SECTIONS AND AIRMASS IS EXPECTED TO BE UNSTABLE WITH LIS AROUND -4. LACK OF SUFFICIENT LOW LEVEL FLOW WILL INHIBIT SEVERE THUNDERSTORM DEVELOPMENT.

..MCCARTHY.. 08/17/92

6.1.2 Convective Outlook Graphic. A two-panel graphic convective outlook is transmitted daily on the Digital Facsimile Circuit (DIFAX). The chart is prepared from the 0700 Coordinated Universal Time (UTC) (AFOS Product SWODY1) and 0800 UTC (SWODY2) convective outlook products and represents two 24-hour forecast periods. The left-hand panel covers the period from 1200 UTC on the day of issuance to 1200 UTC the following day. The same two products are transmitted as single-panel graphics on AFOS (graphics product identifiers 940 and 980).

6.1.3 Convective Outlook Issuances (AFOS Product Identifiers SWODY1 and SWODY2). A convective outlook (SWODY1) is issued daily at 0700 UTC and is valid for a 24-hour period starting at 1200 UTC. This product is updated at 1500 UTC and covers the period 1500 UTC to 1200 UTC. At 1930 UTC, a second update is issued for the period 2000 UTC to 1200 UTC. Amendments are issued as required.

A second day outlook (SWODY2) is issued at 0800 UTC and 1800 UTC and covers the 24-hour period beginning at 1200 UTC the following day.

6.2 Public Severe Weather Outlook (AFOS Product Category PWO). When NSSFC anticipates an especially significant and/or widespread outbreak of severe weather, it may issue a public severe weather outlook that stresses the seriousness of the situation, defines the threat area, and provides information on the timing of the outbreak. The lead time on this release should be limited to 36 hours. NSSFC, along with its backup offices only, shall transmit this statement to the NWWS. NSSFC should, if necessary, issue an updated AC before the statement is released.

Example:

MKCPWOMKC
WOUS36 KMKC 260900
PUBLIC SEVERE WEATHER OUTLOOK
NATIONAL WEATHER SERVICE KANSAS CITY MO
400 AM CDT FRIDAY APRIL 26 1991

...OUTBREAK OF TORNADOES AND SEVERE THUNDERSTORMS EXPECTED TODAY
INTO TONIGHT OVER MUCH OF THE CENTRAL UNITED STATES...

THE NATIONAL SEVERE STORMS FORECAST CENTER IN KANSAS CITY MISSOURI IS FORECASTING AN OUTBREAK OF SEVERE THUNDERSTORMS AND TORNADOES TODAY INTO TONIGHT OVER MUCH OF THE CENTRAL AND SOUTHERN PLAINS AND THE LOWER MISSOURI VALLEY.

THE STATES WHICH ARE MOST LIKELY TO EXPERIENCE THE BRUNT OF THE SEVERE THUNDERSTORM AND TORNADO ACTIVITY INCLUDE MOST OF OKLAHOMA AND KANSAS...PARTS OF NORTH CENTRAL TEXAS...AND PARTS OF SOUTHERN NEBRASKA.

A LOW PRESSURE AREA OVER NORTHEAST COLORADO IS FORECAST TO DEEPEN RAPIDLY AND MOVE NORTHEAST INTO THE DAKOTAS BY TONIGHT. A STRONG COLD FRONT WILL MOVE EAST ACROSS MUCH OF THE GREAT PLAINS TODAY INTERACTING WITH A WARM AND MOIST AIRMASS.

A STRONG UPPER LEVEL JET STREAM IS FORECAST TO EXTEND FROM NEW MEXICO ACROSS THE TEXAS PANHANDLE INTO KANSAS AND IOWA...WHILE STRONG SOUTHERLY WINDS AT THE SURFACE BRING WARM AND MOIST AIR NORTHWARD ACROSS MUCH OF THE CENTRAL UNITED STATES. THIS SITUATION LIKELY WILL RESULT IN AN OUTBREAK OF SEVERE THUNDERSTORMS AND DAMAGING TORNADOES FROM NEBRASKA ACROSS KANSAS AND OKLAHOMA INTO NORTHERN TEXAS.

THERE IS ALSO A LIKELIHOOD OF A FEW SEVERE THUNDERSTORMS THIS AFTERNOON INTO TONIGHT OVER PORTIONS OF NORTHERN NEBRASKA...SOUTHERN SOUTH DAKOTA...SOUTHERN MINNESOTA...IOWA...MISSOURI...AND ARKANSAS.

IT IS EMPHASIZED THAT THIS IS A POTENTIALLY DANGEROUS WEATHER SITUATION FOR PARTS OF OKLAHOMA...KANSAS...NORTHERN TEXAS...AND SOUTHERN NEBRASKA. DESTRUCTIVE TORNADOES ARE POSSIBLE WITH THIS WEATHER SYSTEM AS THUNDERSTORMS DEVELOP OVER THE PLAINS DURING THE AFTERNOON AND EVENING HOURS.

ALL PERSONS IN THE THREATENED AREA ARE URGED TO REVIEW SAFETY RULES...AND LISTEN TO RADIO...TV...OR NOAA WEATHER RADIO FOR LATER STATEMENTS AND POSSIBLE WATCHES OR WARNINGS. THIS IS A POTENTIALLY DANGEROUS WEATHER SITUATION FOR THE AFFECTED AREAS AND SHOULD BE MONITORED CLOSELY.

...LARRY WILSON...

NATIONAL SEVERE STORMS FORECAST CENTER

6.3 Severe Local Storm Watch (WW) (AFOS Product Category SEL).

Tornado and severe thunderstorm watches shall be issued according to criteria in section 5.3.1 and transmitted on AFOS. When possible, watches should be released early enough to be included in state/area, local, zone, and appropriate marine forecasts.

Watches should be issued as far in advance as possible. They should refer to an average area of around 25,000 square miles. Reasonable effort should be made to have each public watch independent of any previously issued watch. However, subsequent severe storm watches that overlap existing watch areas should not alter the valid period of the earlier watch, except when specifically stated in the new issuance.

Each watch shall contain information for the general public, marine, and aviation interests in discrete, sequential sections. When a section is not applicable, it should be omitted. Watches shall be numbered sequentially, beginning with number 1 for the first issuance of each calendar year.

Watches shall use a state identifier [Universal Generic Code (UGC)] that will be generated automatically by NSSFC. (See following example in section 6.3.1 and decoding instructions in section 7.1.a.)

The watch text shall begin with the most serious type of severe weather expected--tornado/severe thunderstorm--followed by the area(s) affected, with subdivisions of each state and the Great Lakes entered on a separate line. Funnel clouds will not be mentioned in severe weather watches. For major outbreak situations, NSSFC may accentuate the watch text as appropriate.

Watch areas should be delineated in terminology readily visualized by the public (i.e., by naming larger cities/towns well known to people in the watch area). The term "adjoining lakes/coastal waters" shall be included when the watch affects coastal areas. Watch anchor points shall lie within the watch area. The day of the week and the valid local time of the watch should be mentioned as shown in section 6.3.1. Distances from reference points should be expressed to the nearest 5 statute miles.

A mean wind vector (5,000 ft. above ground level to tropopause) for the watch area should be included for each watch. The format should be "Mean Wind Vector DDDFF," where DDD is the direction to the nearest 5 degrees and FF the wind speed to the nearest 5 knots. The mean wind vector may be used to estimate general thunderstorm cell movement (except for storms exhibiting deviant storm motion).

6.3.1 Product Format (AFOS Product Category SEL). The combined public and aviation severe storm watch format by section is as follows.

a. Type of severe weather watch, watch area, valid period, type of severe weather possible, watch axis, meaning of a watch, and a call to action.

b. Other watch information that identifies other watches in the same geographical area that are being replaced or canceled by the new watch.

c. Type of severe weather expected and intensities. This includes hail size (in inches, except in tornado watches associated with hurricanes), turbulence, surface wind speed in knots, maximum height of thunderstorm tops (in hundreds of feet), and mean wind vector that approximates cell movement.

d. Discussion of the meteorological reasoning (parameters and factors) that support the watch issuance and forecast for severe weather.

e. "Other thunderstorms" refers to other watches in effect and identifies area(s) where additional watches may be required later.

Example:

:370,0990 400,0981 400,0955 370,0963:WWUS9 KMKC 261710
MKC WW 261710
KSZ000-270100-

BULLETIN - IMMEDIATE BROADCAST REQUESTED
TORNADO WATCH NUMBER 183
NATIONAL WEATHER SERVICE KANSAS CITY MO
1210 PM CDT FRI APR 26 1991

.A...THE NATIONAL SEVERE STORMS FORECAST CENTER HAS ISSUED A TORNADO WATCH FOR

PARTS OF CENTRAL AND EASTERN KANSAS

EFFECTIVE THIS FRIDAY AFTERNOON AND EVENING UNTIL 800 PM CDT.

THIS IS A PARTICULARLY DANGEROUS SITUATION WITH THE POSSIBILITY OF VERY DAMAGING TORNADOES. ALSO LARGE HAIL...DANGEROUS LIGHTNING...AND DAMAGING THUNDERSTORM WINDS CAN BE EXPECTED.

THE TORNADO WATCH AREA IS ALONG AND 65 STATUTE MILES EAST AND WEST OF A LINE FROM 45 MILES EAST SOUTHEAST OF MEDICINE LODGE KANSAS TO 45 MILES NORTHEAST OF CONCORDIA KANSAS.

REMEMBER...A TORNADO WATCH MEANS CONDITIONS FAVOR TORNADOES AND 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.

.B...OTHER WATCH INFORMATION...THIS TORNADO WATCH REPLACES SEVERE THUNDERSTORM WATCH NUMBER 181. WATCH NUMBER 181 WILL NOT BE IN EFFECT AFTER 100 PM CDT.

.C...TORNADOES AND A FEW SEVERE THUNDERSTORMS WITH HAIL SURFACE AND ALOFT TO 3 INCHES. EXTREME TURBULENCE AND SURFACE WIND GUSTS TO 75 KNOTS. A FEW CUMULONIMBUS WITH MAX TOPS TO 600. MEAN WIND VECTOR 23040.

.D...LINE TOWERING CUMULUS DEVELOPING FROM SOUTHWEST OF CNK TO BETWEEN RSL AND SLN AT MOMENT. EXPECT RAPID THUNDERSTORM DEVELOPMENT WITHIN NEXT HOUR ALONG DRY LINE/COLD FRONT WITH SUPERCELLS AND TORNADO DEVELOPMENT LIKELY.

.E...OTHER THUNDERSTORMS...CONTINUE WW NUMBER 182. WW LIKELY TO BE REQUIRED WITHIN NEXT HOUR OR TWO OVER PORTIONS OF WESTERN AND CENTRAL OK. WW LIKELY TO BE REQUIRED LATER THIS AFTERNOON OVER PORTIONS OF EASTERN KS AND WESTERN MO.

...JOHNS

6.3.2 Watch Graphic. Watches should be delineated using one of the two methods shown in exhibit C-40-1. The terminology used should be easily visualized by the public, including the names of cities or large towns known to people in the state and within the watch area. Anchor points shall lie within the watch area.

Method A: Define area as a rectangle, usually 50 to 70 miles either side of a line from point A to point B.

Method B: Define area as a parallelogram, usually 50 to 70 miles north and south or east and west of a line from point A to point B.

See exhibit C-40-1 for illustrations of each type of description.

6.4 Preliminary Notification of Forthcoming Watch (AWW) (AFOS Product Category SAW). The SAW is an alerting message that a severe weather watch is about to be issued. NSSFC shall enter the SAW onto AFOS and uplink it to NWWS. If section B of the forthcoming watch is to be used to cancel or replace a previous watch, an additional statement containing the appropriate information should be added to the message.

Distances of the axis coordinates should be given in statute miles, while the aviation coordinates should be stated in nautical miles. Valid times should be in UTC. The watch half-width always should be given. The AWW also should contain hail size (except tornado watches associated with hurricanes), surface and aloft, surface wind gusts in knots, maximum tops, and the mean wind vector.

Example:

MKCSAW3
:450, 0770 445, 0731 415, 0733 420, 0765:WWUS40 KMKC 041913
MKC AWW 041913
WW 689 SEVERE TSTM NY LO 042000Z - 050200Z
AXIS..90 STATUTE MILES EITHER SIDE OF LINE..
4 0ESE BGM/BINGHAMPTON NY/ - 15WNW MSS/MASSENA NY/
..AVIATION COORDS.. 80NM EITHER SIDE /38NE AVP - 55NW SLK/
HAIL SURFACE AND ALOFT..2 1/2 INCHES. WIND GUSTS..70 KNOTS.
MAX TOPS TO 450. MEAN WIND VECTOR 270/30.

6.5 Watch Cancellation (WW) (AFOS Product Category SEL). NSSFC shall issue an unnumbered watch cancellation message whenever it cancels a watch. The text shall specify the number and the area of the canceled watch. An AWW (AFOS product category SAW) also shall be issued for a watch cancellation.

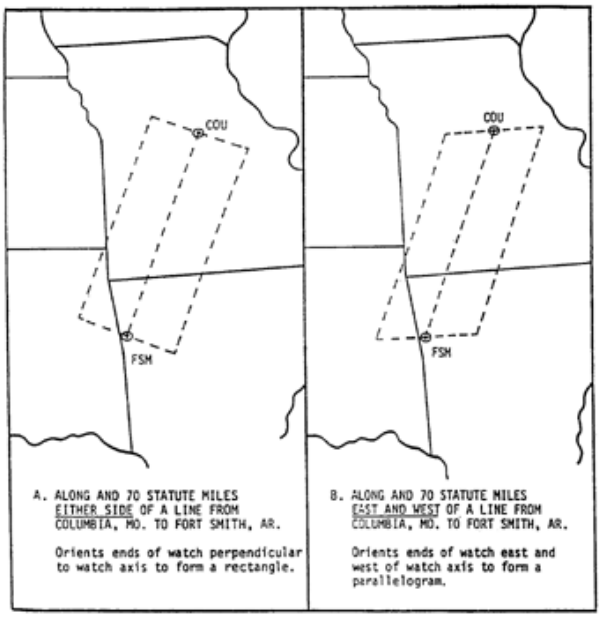

Exhibit C-40-1: Two Ways by which NSSFC Defines Watch Areas.

/wsom/manual/IMAGES/c401.gif

Example:

MKCSEL3
WWUS9 KMKC 262110
BULLETIN
TORNADO WATCH CANCELLATION
NATIONAL WEATHER SERVICE KANSAS CITY MO
410 PM CDT FRI APR 26 1991

THE NATIONAL SEVERE STORMS FORECAST CENTER HAS CANCELED TORNADO
WATCH NUMBER 183 ISSUED AT 1210 PM CDT FOR

PARTS OF CENTRAL AND EASTERN KANSAS

. . JOHNS . .

6.6 Status Reports (WWA) (AFOS Product Category WWA). The Severe

Local Storms Unit (SELS) of NSSFC should issue periodic watch status reports while a watch is in effect. A WWA should be issued at least 1 hour prior to watch expiration. The status report should describe, in plain language, current evaluation of the severe weather situation and whether the watch will expire or be reissued. A status report is not issued if a cancellation or replacement has been issued at least 1 hour prior to the expiration time of the original watch. The status report also may include guidance information on where the severe weather threat has ended within the watch.

Example:

MKCWWAMKC
WWUS8 KMKC 261830
STATUS REPORT ON WW NR 182/183

LITTLE CHANGE IN RADAR AND SATELLITE IMAGERY PAST HOUR THROUGH WATCH AREA AND WITH SOME DECREASE EXPECTED NEXT HOUR PRESENT INDICATIONS ARE THAT WEATHER WATCH 183 WILL NOT BE EXTENDED. WEATHER WATCH NUMBER 182 NO LONGER IS IN EFFECT WEST OF A LINE FROM OMA TO ICT.

...WILSON...

6.7 SELS Mesoscale Discussion (AFOS Product Identifier SWOMCD). A mesoscale discussion is issued as a routine/daily, but nonscheduled, short-term (0-6 hours) product to communicate the current judgment of SELS to the user community. It also provides guidance on other short-term mesoscale phenomena that may be of significance (e.g., heavy snow potential, formation/dissipation of dense fog, etc.).

Example:

MKCSWOMCD
ACUS3 KMKC 170947
MKC MCD 170947

SELS MESOSCALE DISCUSSION FOR...EASTERN ND/NORTHERN MN...
CONCERNING...CONVECTIVE TRENDS

LINE OF THUNDERSTORMS HAS BEEN STEADILY INTENSIFYING SINCE 08Z ALONG/JUST AHEAD OF SURFACE COLD FRONT FROM EAST CENTRAL ND INTO NORTH CENTRAL MN. STRONGEST THUNDERSTORMS ARE SOUTH OF GFK AND SOUTHEAST OF TVF. AIRMASS IN VICINITY AND AHEAD OF THUNDERSTORM LINE IS ONLY MARGINALLY UNSTABLE WITH SURFACE LIS AROUND ZERO. HOWEVER...FAVORABLE MOISTURE CONVERGENCE PATTERN AND INCREASING UPWARD VERTICAL VELOCITY FROM SHORT WAVE TROUGH CROSSING MANITOBA AT THIS MOMENT ARE PROVIDING FAVORABLE DYNAMIC SUPPORT FOR THUNDERSTORM ACTIVITY. PRESSURE FALLS AHEAD OF FRONT ACROSS MN/SOUTHEAST ND SUGGEST LOW LEVEL SUPPORT WILL CONTINUE FAVORABLE FOR THUNDERSTORMS TO CONTINUE PROPAGATING EAST AND EAST-SOUTHEAST THROUGH SOUTHEAST ND/NORTH CENTRAL AND WEST CENTRAL MN OVER THE NEXT 2 TO 4 HRS. EXPECT THUNDERSTORMS TO REMAIN BELOW SEVERE LEVELS DUE TO LACK OF INSTABILITY AND RATHER WEAK LOW LEVEL INFLOW.

..SAMMLER.. 08/17/92

7. WSFO/WSO (NWSFO/NWSO) Severe Storm Products.

7.1 Communications Headers for Severe Storm Products.

a. Communications Heading and Generic Codes. Computers automatically disseminate products verbatim to a variety of users, including the general public. This is accomplished by using a combination of UGCs, Mass News

Disseminators (MND), and World Meteorological Organization (WMO) headers. Any deviation from proper format will result in erroneous or incomplete dissemination. In backup operations, the AFOS product identifier of the warning must be the same as the office with primary responsibility. The following describes the encoding procedures for warnings, statements, and the decoding of watches automatically generated by NSSFC.

In the future, the dummy WMO header (TTAAOO on the second line of the header) will not be used. Instead, authentic WMO headers will be used. A list of authentic WMO headers is given below. Future hardware and software development may result in changes to some of these WMO headers.

Product	WMO Header
Tornado Warning (TOR)	WFUS1
Flash Flood Warning (FFW)	WRUS1
Severe Thunderstorm Warning (SVR)	WUUS1
Short-Term Forecast (NOW)	FXUS21
Severe Weather Statement (SVS)	WWUS34
Special Weather Statement (SPS)	WWUS35
Redefining Statement (SLS)	WWUS32
Local Storm Report (LSR)	WWUS30

The UGC (for warnings, watches, statements, etc.) consists of six alphanumeric characters followed by an expiration date/time in UTC. Each code group (including date/time) is terminated with a dash (-).

There are two minor variations to the code: one version, using a "C," is for products issued on a county-by-county basis (short-fused warnings only); the other, using a "Z," is for products issued by zone or for part or all of a state (watches, statements, etc.). Warnings issued for basic marine areas utilize the zone format. See WSOM Chapters D-51 and D-52, Marine Services for the Great Lakes.

Explanation of Code Elements:

SSCNNN-DDHHMM (for warnings)

or SSZNNN-DDHHMM- (for statements, watches, warnings for basic marine areas, etc.)

where:

SS	= Two letter state identifier
C	= The number NNN that follows represents a county or
Z	= The number NNN that follows represents a zone or part or all of a state
NNN	= (After "C") the number of the county# or

	= (After "Z") the number of the zone or part or all of the state##
DD	= Expiration date (UTC)
HH	= Expiration hour (UTC)
MM	= Expiration minute (UTC)
-	= Code separator/end of address
>	= Identifies multiple, consecutively numbered counties or zones. For example, ALZ002>006 implies Alabama zones 2, 3, 4, 5, and 6.

The county is represented by a Federal Information Processing Standard (FIPS) number issued by the Census Bureau. Each county within a state has a unique FIPS number (001, 003, etc.) although the numbers are repeated from state to state. The FIPS numbers and corresponding counties are found in WSOM Chapter C-47.

The zone numbers are identical to those defined in Appendix A of WSOM Chapter C-11. For the initial stages of implementation of the UGC in watches, the NNN should be set to 000 (see examples of watches for details).

Examples of UGCs in Warnings:

1. Examples for Individual Counties

Code	County
MEC003-	Aroostook County, Maine
KYC101-	Henderson County, Kentucky
COC041-	El Paso County, Colorado
VAC760-	Richmond, Virginia (politically independent city)
MOC510-	St. Louis, Missouri (politically independent city)

2. More Than One County in the Same State

If a warning is for more than one county in the same state, add the appropriate county number(s) (with each group separated by a dash). Note that the "SSC" does not need to precede each county number set after the first grouping. Also, the county number sets do not have to be in numerical sequence.

Example:

ILC043-089-191650- Warning for DuPage and Kane Counties, Illinois, expires on the 19th of the month at 1650 UTC.

3. Counties in More Than One state

If a warning is for counties in more than one state, add the appropriate state identifier and county names.

Example:

SDC127-NEC043-173-IAC193-040030- Warning for Union County, South Dakota; Dakota and Thurston Counties, Nebraska; and Woodbury County, Iowa; expiring on the 4th of the month at 0030 UTC.

4. Coastal or Great Lakes Environments

A UGC has been developed to direct products affecting coastal or Great Lakes marine environments.

Example:

TXZ511-310030- Warning for the Texas coastal waters between High Island and Port O'Connor.

WIZ502-150100- Warning for Wisconsin/Lake Michigan nearshore waters between Kenosha and Sheboygan.

Examples of UGCs in Statements:

NEZ001>004-019>022-054>056-231800- Statement coded for the Nebraska Panhandle

TXZ103-104-118>120-133-134-150500- Statement coded for the Dallas-Fort Worth, Texas, area

MEZ023>030-501-071100- Statement coded for the coastal areas of Maine and adjacent coastal waters

Examples of UGCs for Watches:

Severe storm watches issued by NSSFC cover large areas, frequently containing all or parts of several states. Watches use the "Z" form of the UGC. The "NNN" following the "Z" shall consist of three zeros (000). The SSZ000 is used to indicate that a part or all of a state falls within the watch area.

1. Examples of UGCs for Individual States

CAZ000- (a part of) California
TXZ000- (a part of) Texas
VAZ000- (a part of) Virginia

2. Example of UGCs for More Than One State

SCZ000-GAZ000-FLZ000-160200- Watch area encompasses (all or parts of) South Carolina, Georgia, and Florida and expires on the 16th of the month at 0200 UTC (10 p.m., EDT, on the 15th).

Although the code does not refer specifically to coastal waters, the phrase "AND ADJOINING LAKE/COASTAL WATERS" shall be used in the text of the watch to designate those affected lake or marine areas.

3. UGCs for the Great Lakes

LSZ000- (a part of) Lake Superior
LMZ000- (a part of) Lake Michigan
LHZ000- (a part of) Lake Huron
LEZ000- (a part of) Lake Erie
LOZ000- (a part of) Lake Ontario

Example including Great Lakes

WIZ000-MIZ000-LSZ000-LMZ000-022315- Watch area encompasses (all or parts of) Wisconsin, Michigan, and (all or parts of) Lake Superior and Lake Michigan. I t is valid through the second of the month at 2315 UTC (6:15 p.m., CDT).

b. Mass News Disseminator Heading. The MND heading is plain-language information that appears beneath the WMO/UGC headings. It denotes the type of product that has been issued, the issuing office, and the date/time of product issuance. See WSOM Chapter C-63, NOAA Weather Wire Service Dissemination. The issuance time shall be the time the product is entered into the first communications system for dissemination [(i.e., NWR, AFOS, NWWS,

Auxiliary Backup Terminal (ABT), Remote Terminal for AFOS, etc.)]. The issue time shall be a three- or four-digit number, such as 730 PM (not 0730 PM) or 1030 PM. A space shall exist between the time and AM or PM.

When a warning is issued by a backup office, the name of the office with primary warning responsibility shall be provided in the second line of the MND heading. The three-letter identifier of the issuing office appears in the dummy WMO header but also should be spelled out following the primary warning office in the MND (see example below). Guidelines regarding corrected and amended products are given in the following sections.

(1) Corrections. Although no effort should be spared to eliminate mistakes when composing a product, errors will still occur on occasion. Minor typographical errors, which do not affect the message of the product, should not be corrected. Numerous retransmissions of products with such minor corrections may adversely affect communications systems already operating near capacity. When significant errors are detected, a corrected product shall be transmitted as soon as possible. The correction shall contain the same time in the MND heading as in the original product. Besides reducing confusion among the users, this practice will also prevent duplicate warnings from contaminating the NSSFC data base.

When a correction is transmitted, include a word or two explaining the correction. Do not simply add "CORRECTED" to the line containing the product title. Usually, adding a brief explanation will reduce broadcaster/user anxiety caused by trying to find out what was corrected. The word "...CORRECTED" shall be added to the line containing the product title. A line containing an explanation for the correction shall be added below the MND heading (also see WSOM Chapter C-11). The following terms should be used when explaining corrections.

Product Element in Error	Term in COR Explanation
Type of product issued	STATEMENT/WARNING TYPE
UGC, WMO, MND Heading	HEADER INFO
Time of product issuance	ISSUE TIME
Time of warning expiration	EXPIRATION TIME
Severe weather event time	EVENT TIME
Area for which warning issued	WARNED AREA
Location of (severe) storm	STORM LOCATION
Severe weather event location	EVENT LOCATION
Movement (speed or direction)	MOVEMENT
Call to action statements	CALL TO ACTION
Other	Free Text, as needed

(2) Amendments. Amendments to short-fused convective warnings and their accompanying statements shall not be issued. A new warning or statement should be issued whenever updated information is received. Forecasts that are updated for the issuance or cancellation of a watch shall contain the same format as shown above. See section 8.2 for examples of MND headings for updated forecasts.

Examples of MND Headings for Warnings and Statements:

Tornado Warning - Normal Issuance

TORNADO WARNING
NATIONAL WEATHER SERVICE GOODLAND KS
310 PM MDT MON SEP 12 1994

Severe Thunderstorm Warning - Backup Issuance

SEVERE THUNDERSTORM WARNING

NATIONAL WEATHER SERVICE COLUMBIA MO
ISSUED BY NATIONAL WEATHER SERVICE ST LOUIS MO
122 AM CDT TUE APR 19 1994

Severe Thunderstorm Warning - Corrected Issuance - Expiration Time

SEVERE THUNDERSTORM WARNING...CORRECTED
NATIONAL WEATHER SERVICE DES MOINES IA
1115 PM CDT SUN JUN 26 1994
(Blank Line)

CORRECTED EXPIRATION TIME
(Blank Line)

TEXT OF MESSAGE

Severe Weather Statement - Corrected Issuance - Statement Type

SEVERE WEATHER STATEMENT...CORRECTED
NATIONAL WEATHER SERVICE MEMPHIS TN
1120 PM CDT SAT JUN 4 1994
(Blank Line)
CORRECTED STATEMENT TYPE
(Blank Line)
TEXT OF MESSAGE

Severe Weather Statement - Corrected Issuance - Storm Movement

SEVERE WEATHER STATEMENT...CORRECTED
NATIONAL WEATHER SERVICE MILWAUKEE WI
346 PM CDT FRI MAY 27 1994
(Blank Line)
CORRECTED MOVEMENT
(Blank Line)
TEXT OF MESSAGE

Example of a Completed Header - Severe Thunderstorm Warning:

ZCZC SDFSVRSDF
WUUS1 KSDF 292330
INC061-KYC111-300030-
(Blank Line)

BULLETIN - IMMEDIATE BROADCAST REQUESTED
SEVERE THUNDERSTORM WARNING
NATIONAL WEATHER SERVICE LOUISVILLE KY
730 PM EDT TUE MAR 29 1994
(Blank Line)
TEXT OF MESSAGE
(Blank Line)

&
(Blank Line)

NOTE: The single ampersand (&) after the text is an SRWARN delimiter indicating to NSSFC that a severe weather report is in the text of the message. When using softwAre other than SRWARN, this delimiter should be inserted manually. Use this symbol only if the message includes a SEVERE weather report, i.e., a tornado,

hail larger than 3/4 inch diameter, wind gust 58 mph or stronger. In segmented NOWs, the ampersand must follow the "$$" at the end of the message.

The single ampersand is used in all warning office short-fuse products that include a severe weather report, i.e., warnings, statements, and the NOW. Some NOWs also include a double ampersand (&&) as a delimiter for cable television use.

7.2 Severe Weather Outlooks. Severe weather outlooks are issued using the AFOS product category SPS by WSFOs/NWSFOs and, at Regional Headquarters discretion, by NWSOs. A severe weather outlook is used to inform the public about expected severe weather for the forthcoming convective period, i.e., beginning about 6 hours from issuance time. As such, technical terminology not generally used or understood by the local public and media should not be included. Severe weather outlooks, when required, should be issued roughly in conjunction with the routine and updated forecast package.

Example:

OKCSPSOKC
WWUS35 KOKC 051130
OKZ004>077-TXZ083>090-051530-

SEVERE WEATHER OUTLOOK
NATIONAL WEATHER SERVICE OKLAHOMA CITY OK
630 AM CDT TUE APR 5 1994

THERE IS A MODERATE RISK OF SEVERE THUNDERSTORMS ACROSS WESTERN OKLAHOMA THIS AFTERNOON AND EVENING. THE MODERATE RISK AREA IS WEST OF A LINE FROM ENID TO CALUMET TO LAWTON.

EARLY THIS MORNING A DRYLINE WAS LOCATED IN THE EASTERN OKLAHOMA AND TEXAS PANHANDLES. AHEAD OF THE DRYLINE...MOIST UNSTABLE AIR WAS SPREADING ACROSS THE STATE FROM THE SOUTH. A VIGOROUS UPPER LEVEL DISTURBANCE IN CENTRAL NEW MEXICO WAS MOVING EAST.

DURING THE MORNING THE DRYLINE WILL MOVE SLOWLY EAST TO NEAR THE TEXAS/OKLAHOMA BORDER. AFTERNOON HEATING WILL COMBINE WITH THE UPPER LEVEL SYSTEM TO PRODUCE SEVERE THUNDERSTORMS ALONG AND AHEAD OF THE DRYLINE BY MID AFTERNOON. THE STORMS WILL MOVE AND SPREAD EAST DURING THE LATE AFTERNOON AND EVENING HOURS.

LATEST SURFACE AND UPPER AIR DATA SUGGEST THAT LARGE DAMAGING TORNADOES WILL BE POSSIBLE THIS AFTERNOON. LARGE HAIL AND DAMAGING STRAIGHT LINE WINDS WILL BE LIKELY AS WELL.

PEOPLE IN WESTERN OKLAHOMA ARE ADVISED TO KEEP A HIGH STATE OF READINESS THIS AFTERNOON. SPOTTER GROUPS AND EMERGENCY MANAGEMENT OFFICIALS IN THE MODERATE RISK AREA SHOULD BE READY FOR ACTIVATION BY MID AFTERNOON.

STAY TUNED TO NOAA WEATHER RADIO OR LOCAL RADIO OR TV FOR THE LATEST INFORMATION ON THIS DEVELOPING SEVERE WEATHER EVENT.

7.3 Severe Weather Watch Products.

7.3.1 Redefining Statement (AFOS Product Category SLS). Each WSFO/NWSFO, unless otherwise designated by Regional Headquarters, shall prepare the redefining statement or areal outline. The SLS may be composed using the automated SEV from NSSFC or one generated by a local applications program. The use of either automated product does not remove the WSFO/NWSFO's responsibility for the content of the SLS that is disseminated to the public. If the WSFOs/NWSFO is unable to prepare and issue the SLS for NWWS transmission, then, through coordination, either the paired NWWS up-link site or the designated service backup office should prepare the SLS for NWWS

transmission.

a. The redefining statement shall be called (STATE) AREAL OUTLINE FOR TORNADO (or SEVERE THUNDERSTORM) WATCH NUMBER ###, where ### is the appropriate watch number and "STATE" represents the appropriate state name. The issuance time (i.e., the time appearing in the MND header) should be the same for the watch and the redefining statement. A conversion to the time zone of the affected areas is desirable. The redefining statement should not change the watch area; however, minor changes may be made by the WSFO/NWSFO to reflect local needs (e.g., addition or deletion of counties).

A special redefining statement for the Great Lakes or adjoining coastal areas shall not be issued. When necessary, a phrase, such as "AND ADJOINING LAKE/COASTAL WATERS BETWEEN _____ AND _____," as delimited by marine break points (see WSOM Chapter D-51 for a listing of marine break points), should be included in redefining and special/severe weather statements.

b. The redefining statement should describe the parts of the state affected by the watch in terms of whole counties or, in the case of watches affecting coastal waters, marine break points. Very large counties may be subdivided to allow a more precise definition of the watch area. The WSFO/NWSFO has the final responsibility for making minor adjustments, if appropriate, in the boundaries of the basic watch to account for zone forecast boundaries, large cities, metropolitan areas, or other significant geographical features on the periphery of a watch area. As a general policy, all of a large city or forecast zone on or near the boundary of a watch should either be included in the watch or left out completely. A multicounty metropolitan area/zone forecast may be divided by a watch boundary if the watch is issued when storms are already present in the area, and it is obvious that the storms will not enter some of the counties or have already moved through a part of the area and are not expected to redevelop. Splitting a metropolitan area or forecast zone also may be considered appropriate when a watch follows a warning already in effect for one or more counties in the area/zone but not all counties, and no severe weather is expected to redevelop in the warned counties.

When forecast zones, large cities, or bodies of water that straddle state boundaries are affected by a watch, WSFOs/NWSFOs should assure their respective state redefining statements are coordinated. If any disagreement cannot be resolved concerning a cross-border zone, large city, or body of water, the WSFO/NWSFO with forecast responsibility shall have authority either to include or exclude the area in question.

Example:

FTWSLSTX
WWUS32 KFTW 062145

AREAL OUTLINE FOR SEVERE THUNDERSTORM WATCH NUMBER 303
NATIONAL WEATHER SERVICE FORT WORTH TX
445 PM CDT WED JUL 6 1994

IN TEXAS
THIS WATCH INCLUDES 32 COUNTIES

TXC011-045-065-075-087-101-107-125-129-153-179-189-191-211-
219-269-279-303-345-375-381-393-437-483-070300-

IN NORTHWEST TEXAS 25 COUNTIES...

ARMSTRONG	BRISCOE	CARSON	CASTRO
CHILDRESS	COLLINGSWORTH	COTTLE	CROSBY
DICKENS	DONLEY	FLOYD	GRAY
HALE	HALL	HEMPHILL	HOCKLEY
KING	LAMB	LUBBOCK	MOTLEY
POTTER	RANDALL	ROBERTS	SWISHER
WHEELER			

$$

TXC023-077-155-197-275-485-487-070300-

IN NORTH-CENTRAL TEXAS 7 COUNTIES

BAYLOR	CLAY	FOARD	HARDEMAN
KNOX	WICHITA	WILBARGER	

$$

CHISLSIL
WWUS32 KCHI 111959

AREAL OUTLINE FOR SEVERE THUNDERSTORM WATCH NUMBER 243
NATIONAL WEATHER SERVICE CHICAGO IL
300 PM CDT WED MAY 11 1994

IN ILLINOIS AND NORTHWESTERN INDIANA
THIS WATCH INCLUDES 12 COUNTIES AND 2 BASIC MARINE AREAS...

ILC201-141-103-007-037-111-089-097-043-031-ILZ501-LMZ501-120100-

IN ILLINOIS 10 COUNTIES AND 2 BASIC MARINE AREAS...

WINNEBAGO	OGLE	LEE	BOONE
DEKALB	MCHENRY	KANE	DUPAGE

COOK AND ADJOINING COASTAL WATERS
SOUTHERN LAKE MICHIGAN

$$

INC089-127-120100-

IN NORTHWEST INDIANA 2 COUNTIES...

LAKE AND PORTER AND ADJOINING COASTAL WATERS

$$

c. Local offices should review the state redefining statement to assure timeliness and completeness. If necessary, they may issue special weather statements to describe the watch locally. If the office issues NOWs, this information may be contained in the next NOW release. Proper wording of statements is necessary so the public will understand that their local counties are not the only ones comprising the watch but that they are only a part of the total watch area (see section 7.5).

7.3.2 Severe Storm Watches. WSFOs/NWSFOs no longer reissue severe local storm watches. NSSFC shall transmit severe thunderstorm and tornado watches in their entirety over NWWS using AFOS product category SELx; x = 0-9.

7.4 Severe Storm Warnings (AFOS Product Categories TOR and SVR). Offices with county warning responsibility are responsible for issuing public tornado and severe thunderstorm warnings. In meeting this responsibility, mesoscale analysis, storm morphology, current severe storm radar analysis techniques (i.e., reflectivity, velocity, and/or storm motion signatures generally accepted as severe weather indicators), and available remote sensing information should be combined with ground truth (spotter, emergency management/public reports) and professional judgment to ensure

the highest probability of detection (POD) and lowest false alarm ratio (FAR) possible.

In general, if there is (1) a reliable report, (2) radar indication, or (3) other hydrometeorological data which indicate(s) severe convective phenomena are imminent or occurring, and an expectation that such phenomena will persist, then a warning shall be issued for the affected county(ies) or portion of county(ies).

When writing warnings, use better known towns or cities to communicate with an audience unfamiliar with smaller geographical features of the area. Remember that the general public usually learns of a potential weather threat by hearing about it, rather than by reading about it. The warning must be reconstructed in their minds, and only if they are able to do so successfully will they react appropriately.

When severe weather threatens an area, it is necessary to communicate the warning as quickly as possible. Remember, however, less specificity may reduce warning effectiveness and may prompt questions from media or emergency management officials. A more specific, detailed warning can significantly enhance public response.

7.4.1 Warning Format (AFOS Product Categories TOR and SVR). The format for tornado and severe thunderstorm warnings contains five basic parts: (a) communications headings (i.e., PIL heading, WMO heading, UGCs); (b) MND heading; (c) plain language description of warned area; (d) basis for the warning; and (e) call to action.

It is essential that the instructions for items a, b, and c be followed precisely. Greater flexibility is permitted for d and e. Both the basis for the warning and the call to action should be as clear and complete as time and available information allow.

The immediacy of the situation often dictates the amount of detail covered in the warning. Even an abbreviated version should contain the anticipated storm track with expected storm effects, present storm location, and a message that additional details will follow. If a call to action statement is not incorporated into the warning, it should be included in a detailed and timely follow-up severe weather statement.

SRWARN (on the ABT) or another Personal Computer (PC) linked to AFOS is the primary warnings preparation and dissemination software used by the NWS. Warning offices may use other PC-based warning software as approved by Regional Headquarters as long as the software complies with national policy for reliability and output format. AFOS itself may be used in an emergency or in those situations where a warning must be entered on a backup device. If a work file or applications program has been lost, an abbreviated warning may be used, containing the generic code, type of warning, and warned county(ies). If a warning is issued in this manner, a severe weather statement should follow providing greater detail as soon as possible.

a. Communications Headings. Communications headings should be composed as described in section 7.1.a. For warnings, the UGC heading should identify the county(ies) in the warning area. The UGC for statements should include the zones that may be affected by the event.

b. MND Headings. The MND heading should be prepared according to the instructions given in WSOM Chapter C-63 and in section 7.1.b of this Chapter. Instructions for warnings prepared by backup offices are also contained in section 7.1.b.

c. Affected Area and Expiration Time. The names of counties and the name of the state and part of the state in which the county or counties are located should be used and spelled out completely in the warning with no abbreviations, except for AM/PM and the time zone. The time, 12 AM, should be referred to as midnight and the time, 12 PM, noon.

The valid period for a warning should be kept as short as possible. From 30 to 45 minutes is best. Issue a new warning to extend a warning valid time.

The part of the state normally should be one of the nine-part divisions (i.e., northeast, central, east-central, etc.). A modified arrangement, as appropriate, may be used for irregularly shaped states and well known geographic areas.

When issuing warnings, either use whole counties or, as size, shape, or orientation of the county or threatened area makes it appropriate to do so, use parts of counties. In cases where large cities are contained within large counties (i.e., Miami, Phoenix, Salt Lake City), explicitly state the city's name in the warning, i.e., "EASTERN DADE COUNTY,

INCLUDING THE MIAMI METROPOLITAN AREA." Also, warn for as small an area as data and meteorological expertise allow. Do not issue blanket, multiple county warnings.

The names of cities or towns in the direct path of the storm should be added to enhance public perception of risk and response. See section 7.4.5 for a description of affected areas in combined tornado/severe thunderstorm and special marine warnings.

d. Basis for the Warning, Threat Confirmation, and Event Location. The following discussion applies to severe and special weather statements as much as to warnings. Included in this section are guidelines that should be followed in preparing warnings and statements. Remember, warning offices issuing short-term forecasts should not be using special weather statements to describe short-term situations. For additional details about the short-term forecast, refer to section 7.5.

When a severe thunderstorm warning is issued in a tornado watch area, the possibility of tornadoes shall be mentioned in the body of the warning. Briefly discuss the basis for the warning. Reports of damage, large hail, radar indication, etc., are vital to confirm the threat in the minds of the public. The more specific, descriptive, or graphic the basis, the more effective the warning.

Highlight the most critical weather information in severe weather warnings. The most important information should be presented in the first paragraph of warnings and statements. This information should include the area of greatest threat (including communities in the path of the storm), the location of the severe storm, and any ground truth of the threat. All severe weather issuances should be clear and concise to avoid misunderstanding.

Where there is serious doubt about the validity of a tornado report or radar indication, carefully consider whether a warning is needed. If a warning is issued, such terms as "hook echo," "mesocyclone," "wall cloud," or other terminology not generally understood should be avoided. Action should be taken to secure information for use in follow-up statements/short-term forecasts.

For severe thunderstorm and special marine warnings (AFOS product category SVR), offices should include reported wind speeds or an estimation of wind gusts above the threshold value for severe thunderstorms.

Appropriate Use of Adjectives. Use "HEAVY" and "VERY HEAVY" only to describe the rate of precipitation. These terms are not indicators of the severity of a storm, only of its precipitation rate. The phrase "STRONG THUNDERSTORMS WITH HEAVY/VERY HEAVY RAIN" is appropriate.

When discussing a severe thunderstorm, use the terms "SEVERE" or "DANGEROUS." Terms such as "VIOLENT" and "INTENSE" may be used to describe the events associated with a severe thunderstorm but not the storm itself. For non-severe storms, there are two things to consider. (1) If you detect a thunderstorm with heavy or very heavy rain but no evidence of severe phenomena, then refer to the event as a "THUNDERSTORM WITH HEAVY/VERY HEAVY RAIN." It is not necessary to qualify every thunderstorm with descriptors of rainfall rate. (2) The word "THUNDERSTORM" by definition implies an outbreak of lightning and thunder and strong, gusty winds. However, storms that are approaching severe criteria (but not yet severe) may be described using such terms as "STRONG/VERY STRONG."

Do not Minimize Threat. Words, such as "MAY" or "POSSIBLE," are wrongly used in the text of warnings. For example, "THIS STORM MAY PRODUCE..." or "LARGE HAIL AND/OR DAMAGING WINDS ARE POSSIBLE..." are discouraged. Any thunderstorm of sufficient strength to warrant a severe thunderstorm warning is likely to produce the severe phenomena. Use more emphatic terms.

Lightning. Lightning is a leading weather-related killer. The term "VIVID LIGHTNING" is not recommended in statements or warnings. It invites people to go outside and observe the bright, beautiful, colorful display--the very opposite of the intended purpose of the issuance. Instead, use descriptors that express the danger, such as "FREQUENT," "CLOUD TO GROUND," or "DEADLY."

Excessive Words. When discussing the movement of storms, keep the words and numbers simple. It is better to say, "THE STORM WAS MOVING EAST AT 35 MPH" than to say, "THE STORM WAS MOVING TOWARD THE EAST/MOVING EASTERLY AT 30 TO 35 MPH." Also, do not use imprecise terms, such as "ABOUT" or

"AROUND." They do not add to the value of the text.

Clarity. More complex words frequently can be replaced by the more simple and the more precise. "PART" should be used instead of "PORTION."

For areas of precipitation, use the phenomena name itself, e.g., "THUNDERSTORMS," "SHOWERS," or "RAIN AND SNOW MIXED."

Tense. Write all statements in the past or future tense (short-term forecasts should be written according to WSOM Chapter C-21 guidelines). Although the product is transmitted almost immediately via NWWS and within a very few minutes via NWR, it may be several minutes from the time the product is transmitted until a person receives it on commercial radio, television, or NWR. A product written in the present tense will sound dated almost immediately. The only time the present tense is appropriate is during a live NWR broadcast.

Paragraph Size. Whenever possible, limit paragraph size to six lines of copy. Short paragraphs improve organization and broadcaster readability.

Run-On Sentences. Break down paragraphs into short, declarative sentences. Sentences of more than 15 to 20 words are difficult to read and understand.

History. Warnings, statements, and short-term forecasts must stand on their own. One cannot assume the listener has been exposed to previous issuances. Make the wording as complete as possible, assuming no prior knowledge of events or conditions. However, do not elaborate on storm history unless it is relevant to the present and short-term future.

Event Location. Locate each event based on a well-known reference point, such as a larger city or town or a community closest to the storm. Do not use small towns or county names alone. The shape and location of counties is not generally known by the public, and many people cannot identify the counties adjacent to them. Most visitors, travelers, and newcomers do not know the county in which they are located.

As a suggestion, develop a list of cities for use as anchor points in your office's county area of responsibility. County seats, and perhaps one or two other large cities in a county, are candidates for this list. When describing a storm, use the name of a city in the path of that storm. If a smaller community is directly in the path of the storm, use that community name in conjunction with that of a larger city, e.g., "THE STORM WAS 5 MILES SOUTHWEST OF BLACK DUCK, AND BLACK DUCK IS 20 MILES WEST OF VIRGINIA CITY." The same principle applies to suburbs. The addition of eight or ten words, such as this, can make the difference between knowing and not knowing if you are in a threatened area.

Giving a forecast path of the storm and what the user can expect (hail size, wind, etc.) for the next 15 to 30 minutes will greatly enhance the warning's effectiveness. The threatened cities/towns should be identified in the first paragraph.

e. Calls to Action. SRWARN software provides excellent calls to action for severe weather warnings. However, it is best not to use several at a time and best not to use the same ones over and over in succession. They become jaded to the listeners when used indiscriminately. Should you prepare your own calls to action, avoid such bland statements as "TAKE SHELTER." "SHELTER" is a relative term, and those in an automobile or mobile home could make a fatal mistake by assuming they are suitably sheltered. In short, be creative and specific. Here are two possibilities.

TORNADO: IF YOU ARE IN THE PATH OF THIS TORNADO ...GO TO A BASEMENT SHELTER OR A CENTRAL INTERIOR ROOM ON THE LOWEST FLOOR. ABANDON CARS AND MOBILE HOMES FOR A REINFORCED BUILDING...A DITCH...OR CULVERT.

SEVERE THUNDERSTORM: IF YOU ARE IN OR NEAR THE CITIES OF AMARILLO AND VEGA...GET TO A REINFORCED SHELTER AND PREPARE FOR STRONG DAMAGING WINDS...LARGE HAIL...VERY HEAVY RAIN...AND FREQUENT CLOUD TO GROUND LIGHTNING.

Remember, should a severe thunderstorm warning be issued for an area under a tornado watch, the phrase "REMEMBER, THUNDERSTORMS CAN AND OCCASIONALLY DO PRODUCE A TORNADO WITH LITTLE OR NO ADVANCE WARNING," or one conveying that meaning, shall be used.

Inadvertent Localizing. When writing calls to action, avoid inadvertently localizing a threat. For example, "PEOPLE IN THIS AREA ARE URGED TO..." can be interpreted to mean the area covered by the radio station or, worse yet, where the listener is located and not the location of the event. The same is true for "HEAVY RAINS WILL RESULT IN SOME LOCAL FLOODING." It is better to say, "IF YOU ARE IN THE THREATENED/WARNED AREA YOU SHOULD...." In the case of flooding, you can say, "HEAVY RAINS WILL PRODUCE SCATTERED/ ISOLATED/CONCENTRATED AREAS OF FLOODING." Another possibility is "...AND HEAVY RAIN WILL QUICKLY FLOOD A LOW-LYING AREA." If you can specifically identify the area or stream, etc., in a few short words, do so. Also, see WSOM Chapter E-20, Section 8, on Urban/Small Stream Flood Advisories.

Examples:

Basis--Doppler Radar Signature

INDTORIND (AFOS PIL Heading)
WFUS1 KIND 082357 (WMO Heading)
INC157-090030- (Universal Generic Code)

BULLETIN - EBS ACTIVATION REQUESTED
TORNADO WARNING
NATIONAL WEATHER SERVICE INDIANAPOLIS IN
657 PM CDT WED JUN 8 1994

THE NATIONAL WEATHER SERVICE IN INDIANAPOLIS HAS ISSUED A TORNADO WARNING EFFECTIVE UNTIL 730 PM CDT FOR PEOPLE IN THE FOLLOWING LOCATIONS...

IN WEST-CENTRAL INDIANA

VIGO COUNTY

PEOPLE IN TERRE HAUTE SHOULD PREPARE IMMEDIATELY FOR A TORNADO. AT 655 PM CDT...NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A TORNADO DEVELOPING 9 MILES SOUTHWEST OF TERRE HAUTE NEAR PRAIRIETON. MOVEMENT WAS NORTHEAST AT 20 MILES AN HOUR. THE COMMUNITY OF ALLENDALE IS DIRECTLY IN THE PATH OF THIS STORM.

IF YOU ARE IN THE PATH OF A TORNADO...TAKE SHELTER IN A STORM CELLAR OR BASEMENT. IF NO BASEMENT IS AVAILABLE...MOVE INSIDE A SMALL INTERIOR ROOM SUCH AS A BATHROOM OR CLOSET. COVER YOURSELF WITH BLANKETS OR A MATTRESS FOR PROTECTION FROM FLYING DEBRIS. AVOID WINDOWS.

Basis--Spotter Report

PITTORPIT
WFUS1 KPIT 202132
PAC125-202215-

BULLETIN - EBS ACTIVATION REQUESTED
TORNADO WARNING
NATIONAL WEATHER SERVICE PITTSBURGH PA
532 PM EDT MON JUN 20 1994

THE NATIONAL WEATHER SERVICE IN PITTSBURGH HAS ISSUED A TORNADO WARNING EFFECTIVE UNTIL 615 PM EDT FOR PEOPLE IN THE FOLLOWING LOCATIONS...

IN SOUTHWESTERN PENNSYLVANIA

NORTHERN WASHINGTON COUNTY

A TORNADO IS EXPECTED TO MOVE ACROSS THE BUFFALO AND WESTLAND AREA BY 615 PM EDT. AT 531 PM EDT...STORM SPOTTERS REPORTED A TORNADO 11 MILES NORTHWEST OF WASHINGTON NEAR BUFFALO. THE TORNADO WAS MOVING NORTHEAST AT 30 MILES AN HOUR. PEOPLE IN BUFFALO AND WESTLAND ARE IN THE PATH OF THIS STORM AND SHOULD TAKE COVER IMMEDIATELY.

IF YOU ARE IN A HOME OR APARTMENT...GET TO A BASEMENT IF ONE IS AVAILABLE. GET UNDER A WORKBENCH OR STURDY TABLE. IF A BASEMENT IS NOT AVAILABLE...SEEK SHELTER IN THE INNERMOST PORTION OF THE BUILDING ON THE LOWEST FLOOR. PROTECT YOUR BODY FROM FLYING DEBRIS WITH CUSHIONS OR BLANKETS. AVOID WINDOWS AND MOBILE HOMES.

Basis--Doppler Radar Signature

JANSVRJAN
WUUS1 KJAN 222242
MSC085-222330-

BULLETIN - IMMEDIATE BROADCAST REQUESTED
SEVERE THUNDERSTORM WARNING
NATIONAL WEATHER SERVICE JACKSON MS
542 PM CDT FRI APR 22 1994

THE NATIONAL WEATHER SERVICE IN JACKSON HAS ISSUED A SEVERE THUNDERSTORM WARNING EFFECTIVE UNTIL 630 PM CDT FOR PEOPLE IN THE FOLLOWING LOCATIONS...

IN SOUTHWESTERN MISSISSIPPI

LINCOLN COUNTY

A SEVERE THUNDERSTORM WITH DAMAGING WINDS IN EXCESS OF 60 MILES AN HOUR IS EXPECTED TO MOVE ACROSS LINCOLN COUNTY BETWEEN 545 PM AND 630 PM CDT. DOPPLER RADAR INDICATED DAMAGING WINDS OF 60 MILES AN HOUR ASSOCIATED WITH THIS STORM. AT 540 PM CDT...THE STORM WAS LOCATED 15 MILES SOUTHWEST OF BROOKHAVEN NEAR AUBURN. MOVEMENT WAS NORTHEAST AT 45 MILES AN HOUR. THE STORM WILL BE NEAR BROOKHAVEN BY 600 PM.

THIS IS A DANGEROUS STORM. IF YOU ARE IN ITS PATH...YOU SHOULD PREPARE FOR DAMAGING WIND IN EXCESS OF 55 MPH AND DEADLY LIGHTNING. PEOPLE OUTSIDE SHOULD MOVE TO A SHELTER...PREFERABLY INSIDE A STRONG BUILDING BUT STAY AWAY FROM WINDOWS.

Basis--Spotter Report

PHXSVRPHX
WUUS1 KPHX 262354
AZC025-270030-

BULLETIN - IMMEDIATE BROADCAST REQUESTED
SEVERE THUNDERSTORM WARNING
NATIONAL WEATHER SERVICE PHOENIX AZ
454 PM MST FRI AUG 26 1994

THE NATIONAL WEATHER SERVICE IN PHOENIX HAS ISSUED A SEVERE THUNDERSTORM WARNING EFFECTIVE UNTIL 530 PM MST FOR PEOPLE IN THE FOLLOWING LOCATIONS...

IN SOUTHWESTERN ARIZONA

NORTHWESTERN MARICOPA COUNTY

A SLOW-MOVING SEVERE THUNDERSTORM WILL REMAIN IN THE WICKENBURG VICINITY THROUGH 630 PM MST. HAIL AS LARGE AS QUARTERS...DAMAGING WINDS...AND BRIEF HEAVY RAINFALL CAN BE EXPECTED WITH THIS STORM. SPOTTERS REPORTED NICKEL SIZE HAIL ON THE SOUTH SIDE OF WICKENBURG AT 550 PM. MOVEMENT OF THE STORM WAS NORTH AT 5 MILES AN HOUR.

IF YOU ARE IN A SEVERE THUNDERSTORM'S PATH...MOVE INSIDE A STRONG BUILDING. DO NOT STAND BY WINDOWS. DON'T USE TELEPHONES OR ELECTRICAL APPLIANCES UNLESS IN AN EMERGENCY UNTIL THE STORM HAS PASSED. HEAVY RAINS MAY QUICKLY FLOOD ROADS SO DON'T DRIVE INTO AREAS WHERE WATER COVERS THE ROAD.

&

Quick Warning Format
Basis--Spotter Report

ARBTORDTW
WFUS1 KDTX 122204
MIC049-122230-

BULLETIN - EBS ACTIVATION REQUESTED
TORNADO WARNING
NATIONAL WEATHER SERVICE DETROIT MI
504 PM CDT SUN JUN 12 1994

THE NATIONAL WEATHER SERVICE IN DETROIT HAS ISSUED A TORNADO WARNING EFFECTIVE UNTIL 530 PM CDT FOR PEOPLE IN THE FOLLOWING LOCATIONS...

IN EASTERN MICHIGAN

GENESEE COUNTY

TORNADO SPOTTED 2 MILES WEST OF FLINT...MOVING EAST AT 30 MILES AN HOUR...WILL MOVE ACROSS THE CITY OF FLINT BY 515 PM CDT.

PEOPLE IN FLINT SHOULD TAKE COVER IN A BASEMENT OR STRONG BUILDING NOW!

ADDITIONAL DETAILS WILL FOLLOW.

7.4.2 Preformatting and Reviewing Warning Messages. All field offices should make use of NWS-standard hardware and software to issue warnings. SRWARN is the preferred software for warnings issuance: its use enhances the speed of issuance and makes its proper distribution trouble-free. It is used on an office ABT or similar PC linked to AFOS and, therefore, does not adversely load the AFOS mainframe. It is the quickest and most reliable means for issuing warnings. Aside from SRWARN and other PC-based warning software approved by Regional Headquarters, warnings still may be issued directly from the warning preformat in AFOS or, alternatively, on an ABT.

Warnings should be proofread before issuance. Unproofed products may contain contradictory statements, appear sloppy on automated display devices, and confuse the public. The message is degraded if it does not have a professional appearance and does not read smoothly. Remove extraneous characters, such as preformat alternate word choices, brackets, carats, and arrows. When editing, check for clarity, understanding, and completeness of thought. It may take an extra 30 seconds, but it is well worth the effort.

7.4.3 Funnel Clouds. When a funnel cloud is reported, offices may issue a severe weather statement, a tornado warning, a special weather statement, or, if appropriate, the information may be included in a short-term forecast. The product of choice depends mainly on the potential threat to the public and whether or not the office involved issues short-term forecasts. A wide variety of convective situations can lead to the development of a funnel cloud. These conditions range from the innocuous "high-based" funnel clouds associated with fair-weather cumulus to the funnel cloud of a developing tornado associated with a mesocyclone. NWS staff should utilize all available data sources and their best professional judgment to assess the threat posed by a funnel cloud and select the correct product for documenting it.

Regardless of the convective situation, avoid remarks that overtly minimize the threat, such as "THE FUNNEL CLOUD WILL NOT TOUCH THE GROUND" or "THERE IS NO NEED TO BECOME ALARMED OR TO TAKE PROTECTIVE ACTION ON THE APPROACH OF A FUNNEL CLOUD." Do not refer to the funnel cloud as a tornado aloft.

7.4.4 Tornado/Severe Thunderstorm and Flash Flood Warning (AFOS Product Categories TOR/SVR/FFW). If a flash flood is expected to accompany a tornado or severe thunderstorm, a combined tornado or severe thunderstorm and flash flood warning may be issued under AFOS product categories TOR, SVR, or FFW based on the forecaster's judgment of the greatest threat. Depending on the greatest threat, the product may be titled TORNADO AND FLASH FLOOD WARNING (TOR), SEVERE THUNDERSTORM AND FLASH FLOOD WARNING (SVR), FLASH FLOOD AND TORNADO WARNING (FFW), or FLASH FLOOD AND SEVERE THUNDERSTORM WARNING (FFW). Expiration times for both events should be included in the text of the warning message. The expiration time in the header block shall be understood to be when the longer of the two warnings (usually the FFW) expires. When the shorter term warning expires, a severe weather statement (or flash flood statement, reflecting the warning still in effect) should be issued to note the end of the shorter term warning and the continuance of the longer term warning.

Examples:

Tornado/Flash Flood Warning, Tornado is Primary Threat
Basis--Spotter Report and Radar Data

NEWTORSHV
WFUS1 KSHV 092210
LAC015-100000-

BULLETIN - EBS ACTIVATION REQUESTED
TORNADO AND FLASH FLOOD WARNING
NATIONAL WEATHER SERVICE SHREVEPORT LA
510 PM CDT MON MAY 9 1994

THE NATIONAL WEATHER SERVICE IN SHREVEPORT HAS ISSUED A TORNADO WARNING EFFECTIVE UNTIL 600 PM CDT AND A FLASH FLOOD WARNING EFFECTIVE UNTIL 700 PM CDT FOR PEOPLE IN THE FOLLOWING LOCATIONS...

IN NORTHWESTERN LOUISIANA

BOSSIER PARISH

A SEVERE THUNDERSTORM WITH A TORNADO AND FLASH FLOOD PRODUCING RAINFALL WILL MOVE ACROSS BOSSIER CITY BY 530 PM AND INTO NORTHEASTERN BOSSIER PARISH BY 600 PM CDT. AT 506 PM...SPOTTERS REPORTED A TORNADO IN SOUTHWEST BOSSIER CITY MOVING NORTHEAST AT 20 MILES AN HOUR. TORRENTIAL RAINFALL FROM THIS STORM WILL PRODUCE EXTENSIVE STREET FLOODING IN BOSSIER CITY.

DO NOT USE YOUR CAR TO TRY TO OUTRUN A TORNADO. CARS ARE NO MATCH FOR THE WINDS OF A TORNADO. IF YOU ARE CAUGHT IN THE PATH OF A TORNADO...LEAVE THE CAR AND GO TO A STRONG BUILDING. IF NO STRUCTURE IS NEARBY...SEEK SHELTER IN A DITCH OR LOW SPOT...BUT BEWARE OF FLOODING.

&

Flash Flood and Severe Thunderstorm Warning, Flash Flood is Primary Threat Basis--Doppler Radar Signature

DSMFFWDSM
WRUS1 KDSM 210055
IAC125-210300-

BULLETIN - EBS ACTIVATION REQUESTED
FLASH FLOOD AND SEVERE THUNDERSTORM WARNING
NATIONAL WEATHER SERVICE DES MOINES IA
755 PM CDT MON JUN 20 1994

THE NATIONAL WEATHER SERVICE IN DES MOINES HAS ISSUED A SEVERE THUNDERSTORM WARNING EFFECTIVE UNTIL 845 PM CDT AND A FLASH FLOOD WARNING EFFECTIVE UNTIL 1000 PM CDT FOR PEOPLE IN THE FOLLOWING LOCATIONS...

IN SOUTH-CENTRAL IOWA

MARION COUNTY

A SEVERE THUNDERSTORM 9 MILES WEST OF KNOXVILLE AT 753 PM WILL MOVE SLOWLY EAST ACROSS MARION COUNTY. RADAR INDICATES HAIL THE SIZE OF NICKELS AND TORRENTIAL RAINFALL WITH THIS STORM. PEOPLE IN KNOXVILLE AND FLAGLER ARE IN THE PATH OF THIS STORM AND SHOULD PREPARE FOR EXTENSIVE STREET FLOODING AND LARGE HAIL.

IF YOU ARE IN A SEVERE THUNDERSTORM'S PATH...MOVE INSIDE A STRONG BUILDING. DO NOT STAND BY WINDOWS. DON'T USE TELEPHONES OR ELECTRICAL APPLIANCES UNLESS IN AN EMERGENCY UNTIL THE STORM HAS PASSED. HEAVY RAINS MAY QUICKLY FLOOD ROADS SO DON'T DRIVE INTO AREAS WHERE WATER COVERS THE ROAD.

7.4.5 Tornado/Severe Thunderstorm and Special Marine Warning (AFOS Product Categories TOR/SVR). Issue a combined tornado/severe thunderstorm and special marine warning if a severe thunderstorm or tornado is expected to move from or over a large body of water (bay, gulf, ocean). The phrase "AND ADJOINING COASTAL WATERS BETWEEN _____ AND _____" shall be added to the list of counties included in the warning. SRWARN includes marine generic codes that provide marine break points. When using non-SRWARN technology, follow guidelines under Event Location (section 7.4.1.d) for selection or inclusion of well-known coastal landmarks, such as a coastal city, point, cape, island, beach, inlet, bay, sound, river, port, etc. Even when using SRWARN, such landmarks should be included in the warning text. See WSOM Chapter D-51 for official marine break points.

Issue a tornado and special marine warning if a waterspout is likely to move onshore. The warning should give the location of the waterspout and its speed and direction of movement if known. The warning should avoid minimizing remarks, such as "THE WATERSPOUT WILL NOT MOVE ONSHORE" or "THERE IS NO NEED TO TAKE PROTECTIVE ACTION ON THE APPROACH OF A WATERSPOUT."

7.4.6 Special Marine Warnings (AFOS Product Category SMW). Issue separate SMWs when local storm-producing sustained winds or frequent gusts of 34 knots or more are confined to water areas or have moved over water (SVR/TOR has been canceled). Note that because the wind threshold is 34 knots, SMWs also may be issued under certain conditions addressed by special weather statements. See section 7.7.

Issue a special marine warning if a waterspout is likely to remain over water.

See WSOM Chapters D-51 and D-52 for more details on severe local storms in coastal and lake areas.

7.4.7 Radar Data as a Basis for Warnings. When radar evidence is sufficient, in the judgment of the responsible official, to identify a severe storm, issue warnings immediately. Obtain spotter reports and other ground truth from the threatened area to include in short-term forecasts, follow-up statements, and/or warnings as an impetus for public

response.

7.4.8 Warning Adjacent Areas or States. As a last resort (i.e., catastrophic communications failure at an adjacent office), an office may issue a warning for counties adjoining its CWA. This practice should only be undertaken if a warning is needed and there is no time or means available to coordinate with the responsible office. Avoid issuing duplicate warnings by notifying the other office as soon as possible. Warning coordination procedures should be established between offices having adjoining areas of responsibility, to minimize the chance of conflicts between adjacent offices. Reconfirm these procedures annually. Document them in the Station/Office Duty Manual and test them during drills. The AFOS product identifier should be the same as the office with primary responsibility.

7.4.9 High Wind Warning. See WSOM Chapter C-44, Non-Precipitation Weather Hazards.

7.5 Short Term Forecast (AFOS Product Category NOW). The NOW is intended as the primary way to provide a short-term forecast of hydrometeorological conditions to the public and other users. The NOW is being issued by many warning offices with accepted WSR-88Ds and other selected offices. Regional discretion allows for some variation in methodology, but basic guidelines for its use in convective situations are supplied below.

The NOW gives a concise forecast, in plain language, of the most significant weather over the forecast area during the next few hours (up to 6 hours in benign situations but perhaps only an hour during the most active periods). The NOW eliminates the need for short-term SPSs, as well as other products not addressed in WSOM Chapter C-40 (e.g., radar narrative summaries, most flash flood statements, most hurricane local statements, etc.). Warning offices routinely issuing NOWs should only use SPSs (in convective situations) to clear part of a severe local storm watch and to issue long-term products, such as local thunderstorm outlooks. SVSs should be used to describe an urgent threat, to cancel a warning, or to extend a watch.

Warning offices should strive to maintain the integrity of the NOW as weather becomes increasingly more active and significant. Communications requirements of some users may cause them to have difficulty receiving the NOW using the NOW product category through normal means. Should alternatives fail to resolve this situation, e.g., using facsimile telephone service, receiving the product via NOAA Weather Radio, etc., offices may utilize the SPS product category to transmit the NOW.

Some basic NOW guidelines include the following:

o Use clear, non-technical language.
o Keep the NOW short (less than 1 minute of reading time).
o Address only the most important conditions.
o Avoid mentioning past conditions unless they add credibility.
o Use headlines according to Regional instructions.
o Brief call-to-action statements are allowed, though discouraged, in the most volatile situations.
o Issue as often as practicable--the more volatile the weather, the more frequent the issuance.

A comprehensive overview of the NOW is provided in OML 2-93 to WSOM Chapter C-21, appropriate ROMLs, and other WSH guidance.

Use of UGCs. UGCs for NOWs use the zones format only. When encoding, reference those zones affected or potentially affected by the significant weather element described in the NOW.

Examples:

Non-severe

BOSNOWBOS
FXUS21 KBOS 311955

SHORT-TERM FORECAST FOR EASTERN MA AND ADJACENT WATERS
NATIONAL WEATHER SERVICE TAUNTON MA
355 PM EDT SUN JULY 31 1994

MAZ005>007-013>019-501-502-312300-

.NOW...
...STRONG THUNDERSTORMS APPROACHING BOSTON...
STRONG THUNDERSTORMS WILL BRING HEAVY RAINFALL...FREQUENT CLOUD TO GROUND LIGHTNING...STRONG WINDS...AND SMALL HAIL TO BOSTON BETWEEN 5 AND 6 PM THIS SUNDAY AFTERNOON. AT 345 PM...HEAVY RAIN AND WIND GUSTING TO 50 MPH WAS OCCURRING AT LOWELL. THE THUNDERSTORMS WILL MOVE INTO THE COASTAL WATERS ALONG THE SOUTH SHORE BETWEEN 6 AND 7 PM.

Severe

OKCNOWOKC
FXUS21 KOKC 232355
SHORT-TERM FORECAST

NATIONAL WEATHER SERVICE OKLAHOMA CITY OK
655 PM CDT SAT JULY 23 1994
OKZ004>021-240300-

.NOW...
SEVERE THUNDERSTORMS WITH LARGE HAIL AND HIGH WINDS WILL MOVE ACROSS THE COMMUNITIES OF CLINTON...WEATHERFORD...AND CORDELL BETWEEN 7 AND 8 PM. A STORM PRODUCING BASEBALL SIZE HAIL AT FOSS STATE PARK IN SOUTHERN CUSTER COUNTY AT 650 PM WILL MOVE INTO CLINTON BY 7 PM AND BE NEAR WEATHERFORD BY 730 PM. ANOTHER SEVERE STORM BROUGHT GOLF BALL SIZE HAIL AND WIND GUSTS TO 75 MPH TO DILL CITY...10 MILES WEST OF CORDELL...AT 653 PM. THIS STORM WILL REACH CORDELL BY 7 PM.

NOTE: The above examples include format changes enabling national electronic media to ingest and display the NOW. Please refer to national policy regarding the formatting and use of the NOW for cable television. Also note that the ampersand (&) included in the example above is NOT the double ampersand (&&) used in the NOW.

7.6 Severe Weather Statements (AFOS Product Category SVS).

SVSs take on a more urgent function in offices using the NOW. At such offices, the SVS no longer should be used to consolidate or summarize information from a number of warnings in progress. Instead, the SVS should (1) provide a very brief report (no more than two to three lines of text) of imminent danger, to (2) cancel all or part of a short-fused warning or (3) to extend a watch for an hour or two. The NOW should be used throughout severe weather events to provide follow-up, non-urgent information.

Warning offices not issuing NOWs should issue SVSs to report observed severe weather, cancel all or part of a short-fused warning, and provide follow-up information on warnings. A SVS also may be used to highlight significant convective weather that is intensifying and may become severe. These statements should be written to maintain a heightened level of public awareness while providing information aimed at strengthening the public's perception of personal risk. In addition, SVSs should include reference to existing watches and warnings. As a minimum, try to issue at least one SVS midway through the valid period of a warning and another at or near expiration.

SVSs usually are limited to the county warning area but should be coordinated with adjacent offices when appropriate. Hurricane local statements (AFOS product category HLS--see WSOM Chapter C-41) during a hurricane or tropical storm can be used to take the place of severe, special, marine, and flash flood statements. However, hazard-specific statements also may be used to highlight critical information between HLS issuances.

Use of UGCs. UGCs for SVSs use the zones format only. When encoding, reference those zones affected or potentially affected by the significant weather element described in the statement.

Headlines and Lead Sentences. A headline is a phrase (not necessarily a complete sentence) that may be used to catch

the eye of the reader scanning printed copy or to catch the listeners' attention. If used, headlines should be very brief; no more than a total of two lines per message. The lead sentence of the first paragraph should cover the subject of the headline as it pertains to a short-term forecast. Other critical information, such as reports of severe weather and damage, should follow later in the paragraph.

Calls to Action. Since the SVS is issued during severe weather, it is important to include a specific, very brief call to action. Refer to appropriate responses for such specific phenomena as large hail, high wind, or tornadoes.

Closing Statement. It is desirable, although not required, to encourage people to "LISTEN TO COMMERCIAL RADIO, TV, OR NOAA WEATHER RADIO FOR LATER STATEMENTS AND POSSIBLE WARNINGS" or "CONTINUE TO LISTEN TO THIS STATION FOR LATER STATEMENTS AND POSSIBLE WARNINGS." Either type of message is effective because it is a part of the call to action. When possible, it is recommended that the anticipated issuance time of the next statement be provided. (NOTE: SVSs issued by warning offices that provide short-term forecasts should not use closing statements since the SVS is issued only on an as-needed basis.)

Examples:

Office Issuing NOWs

BHMSVSBHM
WWUS34 KBHM 262143
ALZ024>027-033>036-262230-

SEVERE WEATHER STATEMENT
NATIONAL WEATHER SERVICE BIRMINGHAM AL
443 PM CDT TUE APR 26 1994

...TORNADO WARNING UNTIL 515 PM CDT FOR EASTERN BIBB COUNTY...

A TORNADO IS EXPECTED TO BE NEAR THE SIX MILE COMMUNITY BY 500 PM CDT. AT 441 PM...SPOTTERS REPORTED A TORNADO 3 MILES EAST OF CENTREVILLE. PEOPLE IN THE PATH OF THIS STORM SHOULD TAKE COVER NOW!

&

STLSVSSTL
WWUS34 KSTL 192306
MOZ060>063-200000-

SEVERE WEATHER STATEMENT
NATIONAL WEATHER SERVICE ST LOUIS MO
606 PM CDT SUN JUN 19 1994

...SEVERE THUNDERSTORM WARNING UNTIL 645 PM CDT FOR FRANKLIN COUNTY...

PEOPLE BETWEEN WASHINGTON AND UNION SHOULD PREPARE NOW FOR VERY LARGE HAIL. AT 604 PM...SPOTTERS REPORTED TENNIS BALL SIZE HAIL 6 MILES WEST OF UNION. MOVEMENT WAS NORTHEAST AT 30 MILES AN HOUR.

&

SLCSVSSLC
WWUS34 KSLC 062331
UTZ003-070000-

SEVERE WEATHER STATEMENT
NATIONAL WEATHER SERVICE SALT LAKE CITY UT

531 PM MDT WED JUL 6 1994

...SEVERE THUNDERSTORM WARNING FOR WESTERN SALT LAKE COUNTY HAS BEEN CANCELED...

THUNDERSTORMS OVER WESTERN PARTS OF THE SALT LAKE CITY METRO AREA HAVE DECREASED IN INTENSITY SINCE 515 PM. AS A RESULT...THE SEVERE THUNDERSTORM WARNING ISSUED AT 505 PM MDT HAS BEEN CANCELED.

Offices Not Issuing NOWs

RDUSVSCLT
WWUS34 KCLT 292047
NCZ056-068>071-292130-

SEVERE WEATHER STATEMENT
NATIONAL WEATHER SERVICE CHARLOTTE NC
447 PM EDT FRI APR 29 1994

...SEVERE THUNDERSTORM WARNING UNTIL 515 PM EDT FOR CATAWBA...
LINCOLN...CLEVELAND...AND GASTON COUNTIES...

SEVERE THUNDERSTORMS NEAR A HICKORY-SHELBY LINE AT 445 PM EDT WILL MOVE TO A CATAWBA-GASTONIA LINE BY 515 PM.

DAMAGING WINDS IN EXCESS OF 60 MILES AN HOUR ARE LIKELY WITH THESE STORMS. VERY HEAVY RAINFALL AND FREQUENT CLOUD TO GROUND LIGHTNING ALSO CAN BE EXPECTED. PEOPLE IN THE PATH OF THESE STORMS SHOULD TAKE COVER INSIDE A STRONG BUILDING AND STAY AWAY FROM WINDOWS.

STAY TUNED TO NOAA WEATHER RADIO OR LOCAL RADIO OR TV FOR THE LATEST SEVERE WEATHER INFORMATION.

BISSVSFAR

WWUS34 KFAR 282131

NDZ039-282200-

SEVERE WEATHER STATEMENT

NATIONAL WEATHER SERVICE FARGO ND

431 PM CDT TUE JUN 28 1994

...TORNADO WARNING FOR EASTERN CASS COUNTY UNTIL 500 PM...

A TORNADO IS EXPECTED IN THE FARGO AREA BY 500 PM. AT 429 PM... SPOTTERS REPORTED A LARGE TORNADO DOING DAMAGE IN MAPLETON. MOVEMENT OF THE TORNADO WAS EAST AT 25 MILES AN HOUR. PEOPLE ALONG INTERSTATE 94 IN WEST FARGO AND IN FARGO ARE IN THE PATH OF THIS STORM AND SHOULD TAKE COVER IMMEDIATELY.

IF YOU ARE IN THE PATH OF THIS STORM...MOVE TO A STORM CELLAR OR BASEMENT. IF NONE IS AVAILABLE...SEEK SHELTER IN AN INTERIOR ROOM ON THE LOWEST FLOOR OF A STRONG BUILDING. IF YOU ARE CAUGHT OUTDOORS AND CANNOT GET TO A REINFORCED BUILDING...TAKE COVER IN A DITCH OR DEPRESSION BUT BEWARE OF FLOODING.

STAY TUNED TO NOAA WEATHER RADIO OR LOCAL RADIO OR TV FOR THE LATEST INFORMATION REGARDING THIS LIFE-THREATENING WEATHER EVENT.

&

FTWSVSABI
WUUS34 KABI 132255
TXZ127-132330-

SEVERE WEATHER STATEMENT
NATIONAL WEATHER SERVICE ABILENE TX
555 PM CDT FRI MAY 13 1994

...SEVERE THUNDERSTORM WARNING FOR TAYLOR COUNTY UNTIL 630 PM CDT...

A SEVERE THUNDERSTORM WILL BRING LARGE HAIL OVER TAYLOR COUNTY BETWEEN 555 PM AND 630 PM CDT. AT 552 PM...OBSERVERS AT DYESS AFB REPORTED GOLF BALL SIZE HAIL AND TORRENTIAL RAIN FROM THE STORM.

PEOPLE IN THE ABILENE METRO AREA SHOULD MOVE INSIDE A STRONG BUILDING UNTIL THE STORM PASSES. DAMAGING WIND AND HAIL...DEADLY LIGHTNING... AND TORRENTIAL RAIN ALL ARE LIKELY WITH THIS STORM. STAY AWAY FROM WINDOWS AND DO NOT USE THE TELEPHONE OR ELECTRICAL APPLIANCES UNLESS IN AN EMERGENCY.

STAY TUNED TO NOAA WEATHER RADIO OR YOUR LOCAL RADIO/TV STATION FOR THE LATEST NFORMATION ON THIS SEVERE WEATHER EVENT.

&

7.6.1 Statements to Extend Watches. WSFO/NWSFOs may extend watches 1 or 2 hours using an SVS. They should make every effort to contact NSSFC and affected WSOs/NWSOs before issuing a watch extension. Transmit statements extending watches on AFOS, NWWS, NWR, and other appropriate circuits as needed.

Example:

TOPSVSTOP
WWUS34 KTOP 150200
KSZ007>012-019>025-033>040-048>057-150400-

SEVERE WEATHER STATEMENT
NATIONAL WEATHER SERVICE TOPEKA KS
900 PM EDT WED JUN 15 1994

...TORNADO WATCH NUMBER 232 EXTENDED UNTIL 1100 PM FOR NORTHEASTERN KANSAS...

THE TORNADO WATCH ORIGINALLY SCHEDULED TO EXPIRE AT 900 PM CDT HAS BEEN EXTENDED UNTIL 1100 PM CDT. AN AREA OF NUMEROUS SHOWERS AND THUNDERSTORMS WILL MOVE ACROSS EXTREME NORTHEAST KANSAS BY 1000 PM. MEANWHILE...ANOTHER AREA OF DEVELOPING THUNDERSTORMS OVER CENTRAL KANSAS WILL MOVE INTO THE WATCH AREA BY 930 PM CDT.

KEEP UP ON THE LATEST WEATHER INFORMATION BY STAYING TUNED TO RADIO...TELEVISION...OR NOAA WEATHER RADIO. BE READY TO TAKE APPROPRIATE ACTION SHOULD A WARNING BE ISSUED OR THREATENING WEATHER BE OBSERVED.

7.7 Special Weather Statements (AFOS Product Category SPS). Warning offices issuing short-term forecasts (AFOS product category NOW) should not use SPSs to describe short-term convective conditions. In such offices, the SPS is

used only to describe longer-term conditions or to clear counties from a severe local storm watch.

Warning offices not issuing NOWs should issue SPSs to inform the public of conditions where increased public awareness is desired about significant, but not yet severe, weather. Statements may include minor urban or small stream flooding information as well as certain winter events (see WSOM Chapters E-20; C-42, Winter Weather Warnings; and C-44, Non-Precipitation Weather Hazards). When potentially hazardous conditions or severe weather watches affect coastal waters, follow guidelines under section 7.4.1.d for selection or inclusion of well known coastal landmarks. A special marine warning (AFOS product category SMW) also should be issued if sustained winds or frequent gusts are reported or expected to be 34 knots or greater and the conditions are expected to continue for 2 hours or less (see WSOM Chapter D-51).

The SPS should summarize current conditions with the most prominent features described first. Any severe weather watches should be mentioned either in the lead statement or within the body of the statement. Also, the SPS should be used to clear a portion of a severe local storm watch.

Use of UGCs. UGCs for SPSs use the zones format only. When encoding, reference those zones affected or potentially affected by the significant weather element described in the statement.

7.7.1 Statements to Clear Watch Areas. WSFOs/NWSFOs (or WSOs/NWSOs at Regional Headquarters option) may issue SPSs to cancel parts of severe weather watch areas, providing severe weather is not in progress in the part of the watch area to be cleared. Statements should be coordinated among affected warning offices and NSSFC.

Statements about watch cancellations can be confusing if the SPS mentions only the cleared area. Include some comment about where the watch remains in effect. It is more important to know what is covered by a watch than to know what is not. A brief explanation justifying the action also is helpful.

Example of Special Weather Statement to Clear Part of a Watch:

CAESPSCAE
WWUS35 KCAE 192225
SCZ001>014-018>021-200100-

SPECIAL WEATHER STATEMENT
NATIONAL WEATHER SERVICE COLUMBIA SC
625 PM EDT MON SEP 19 1994

...SEVERE THUNDERSTORM WATCH HAS BEEN CANCELED FOR PARTS OF NORTHWEST SOUTH CAROLINA...

THE SEVERE THUNDERSTORM WATCH ISSUED AT 300 PM EDT HAS BEEN CANCELED FOR OCONEE...PICKENS...GREENVILLE...ANDERSON...ABBEVILLE... MCCORMICK...AND GREENWOOD COUNTIES. SEVERE THUNDERSTORMS HAVE MOVED THROUGH THESE COUNTIES AND ARE NOT EXPECTED TO THREATEN AGAIN THIS EVENING.

THE SEVERE THUNDERSTORM WATCH REMAINS IN EFFECT FOR SPARTANBURG... CHEROKEE...YORK...LAURENS...UNION...CHEETER...NEWBERRY...AND FAIRFIELD COUNTIES. PEOPLE IN THESE COUNTIES SHOULD PAY CLOSE ATTENTION TO WEATHER DEVELOPMENTS AS THE THUNDERSTORMS APPROACH. BE READY TO QUICKLY MOVE TO SHELTER IF SEVERE WEATHER IS OBSERVED OR A WARNING IS ISSUED FOR YOUR AREA.

Examples of Special Weather Statements by Offices Not Issuing NOWs:

ATLSPSATL
WWUS35 KATL 160100
GAZ001>065-160200-

SPECIAL WEATHER STATEMENT

NATIONAL WEATHER SERVICE ATLANTA GA
800 PM EST WED NOV 16 1994

...TORNADO WATCH FOR NORTHERN GEORGIA UNTIL 1000 PM EST...

PEOPLE IN NORTHWEST GEORGIA...INCLUDING THE ATLANTA METRO AREA...CAN EXPECT PERIODS OF HEAVY RAIN...SMALL HAIL...STRONG GUSTY WIND...AND FREQUENT LIGHTNING THROUGH 900 PM EST. AT 755 PM...A LINE OF STRONG THUNDERSTORMS EXTENDED FROM DALTON TO CARROLLTON AND WAS MOVING EAST AT 25 MILES AN HOUR.

A TORNADO WATCH REMAINS IN EFFECT FOR NORTHERN GEORGIA UNTIL 1000 PM EST. REMEMBER...A TORNADO WATCH MEANS THAT CONDITIONS ARE FAVORABLE FOR TORNADOES AND SEVERE THUNDERSTORMS IN AND NEAR THE WATCH AREA. STAY TUNED TO NOAA WEATHER RADIO OR LOCAL RADIO/TV FOR THE LATEST WEATHER INFORMATION.

PHXSPSPHX
WWUS35 KPHX 170215
AZZ004-008-170400-

SPECIAL WEATHER STATEMENT
NATIONAL WEATHER SERVICE PHOENIX AZ
715 PM MST FRI SEP 16 1994

...STRONG THUNDERSTORMS APPROACHING PHOENIX FROM THE NORTH...

THUNDERSTORMS LIKELY WILL BRING GUSTY WIND AND HEAVY RAINFALL TO PEOPLE IN PARADISE VALLEY...SCOTTSDALE...EAST PHOENIX...AND TEMPE BY 800 PM MST. SOME STREET FLOODING MAY OCCUR IN THESE AREAS BETWEEN 730 AND 930 PM. THE REST OF THE PHOENIX METROPOLITAN AREA WILL HAVE SIMILAR CONDITIONS BY 9 PM.

AT 711 PM MST...RADAR AND EYEWITNESS REPORTS INDICATED THAT A STRONG THUNDERSTORM WITH HEAVY RAIN WAS JUST NORTH OF SCOTTSDALE AIRPORT. MOVEMENT WAS SOUTH AT 10 MILES AN HOUR.

STAY TUNED TO NOAA WEATHER RADIO OR LOCAL RADIO/TV FOR THE LATEST WEATHER INFORMATION.

LBBSPSSJT
WWUS35 KSJT 222135
TXZ064>066-070>073-076>078-154-168>170-232300-

SPECIAL WEATHER STATEMENT
NATIONAL WEATHER SERVICE SAN ANGELO TX
435 PM CDT SUN MAY 22 1994

...TORNADO WATCH UNTIL 900 PM CDT FOR THE CONCHO VALLEY AND EDWARDS PLATEAU...

CONDITIONS WILL REMAIN FAVORABLE FOR RAPID THUNDERSTORM DEVELOPMENT OVER THE CONCHO VALLEY AND EDWARDS PLATEAU THIS AFTERNOON AND EVENING. THUNDERSTORMS WHICH DEVELOP WILL BE CAPABLE OF PRODUCING TORNADOES...LARGE HAIL...DAMAGING WINDS...HEAVY RAINFALL...AND FREQUENT LIGHTNING. AT 430 PM CDT...SCATTERED RAIN SHOWERS EXTENDED FROM NEAR BIG LAKE TO WEST OF OZONA.

PEOPLE IN THE CONCHO VALLEY AND EDWARDS PLATEAU SHOULD CLOSELY MONITOR THE CHANGING WEATHER CONDITIONS THIS AFTERNOON AND EVENING. BE READY FOR QUICK ACTION IF SEVERE WEATHER IS OBSERVED OR A WARNING IS ISSUED. LISTEN TO NOAA WEATHER RADIO...LOCAL RADIO...OR TELEVISION FOR UPDATES AND POSSIBLE WARNINGS.

7.8 Combined Weather Statement and Radar Summary (AFOS Product

Categories SVS and SPS). Only WSFOs/WSOs that issue regularly scheduled radar summaries and do not issue NOWs may issue a combined weather statement and radar summary under the heading of SEVERE (or SPECIAL) WEATHER STATEMENT AND RADAR SUMMARY. Prior coordination with other offices is necessary if areas outside the originating office's area of responsibility are described in the narrative of the statement. Make these issuances brief and emphasize the most significant storms with the local statement information preceding the radar summary information. As the MAR progresses, offices are encouraged to eliminate the Radar Narrative Summary in favor of the NOW.

7.9 Storm Reports (AFOS Product Category LSR). Offices may use local storm reports (LSR) as an effective means of relaying observations about severe or other very significant events (tornadoes, hail, heavy rainfall, damaging wind, etc.) to the media, emergency management, WSH, NSSFC, and adjacent offices. Most properly, LSR are used to enhance the credence of warnings and to provide documentation of severe weather events not otherwise documented in severe weather or flood/flash flood warnings, severe weather/flash flood statements, or NOWs. LSRs should be issued as close to real time as possible and should include: type of phenomena; date/time of occurrence when known (including time zone); location of event, including state, county, direction and distance (in statute miles) from a well known site; source of report; damage, deaths, and/or injuries (if any); and any other useful information. It is not necessary to transmit storm reports separately if they have been included in prior statements/short-term warnings and forecasts.

A national standard format for LSRs is provided below. Because the LSR is decoded electronically, it is imperative that it is formatted correctly. All fields of data should begin at the prescribed column of the page.

The following is a breakdown of the different fields used in each report, along with the columns used for each:

Description	Column #
Time of event	01-08, line 1
Date of event	01-08, line 2
Location of event (i.e., 10 W TROY)n	12-36, line 1
County involved	12-36, line 2
State	38-39, line 1
Type/Magnitude of event	43-79, line 1
Fatalities and injuries	43-79, line 2
Remarks	43-79, Multiple Lines

NOTES:

1. The dates and times used for each event should be in the same time zone as described in the product header.

2. Report locations should be anchored to a town if possible. Otherwise, county names can be used.

3. Event type/magnitudes should use one of the following formats:

A. __.__ **INCH HAIL** (i.e., 2 INCH HAIL, .75 INCH HAIL)
B. _____ **MPH WIND GUST** (i.e., 68 MPH WIND GUST)
C. **WIND DAMAGE**
D. **TORNADO**
E. Other types of events may be worded as desired by individual.

4. Fatality and injury information should be included only if applicable. This information should be formatted as follows:

A. ***** ___DEAD *****
B. * INJ *****
C. * DEAD, INJ *****

5. Multiple report types from the same location should be logged separately, e.g., 1.75 INCH HAIL and TORNADO at Goodland, Kansas, should be recorded as two separate entries in LSR.

Example:

STLLSRMCI ALL
WWUS30 KEAX 230800

PRELIMINARY LOCAL STORM REPORT
NATIONAL WEATHER SERVICE KANSAS CITY MO
300 AM CDT FRI JUL 23 1993

TIME(CDT)	.....CITY LOCATION.... ....COUNTY LOCATION....	STATE	...EVENT/REMARKS
0934 PM 07/22/93	JACKSON KANSAS CITY	MO	1 INCH HAIL HAIL COVERED THE GROUND UP TO 3 INCHES DEEP. NUMEROUS CARS AND HOMES DAMAGED.
1005 PM 07/22/93	3 E PLEASANT HILL CASS	MO	TORNADO *** 3 DEAD, 25 INJ *** 10-15 HOMES DESTROYED.
1008 PM 07/22/93	1 S BLUE SPGS JACKSON	MO	2. 75 INCH HAIL *** 2 INJ *** MINOR INJURIES OCCURRED IN LOCAL PARK. SEVERAL CARS DAMAGED.
1008 PM 07/22/93	BLUE SPGS JOHNSON	MO KS	68 MPH TSTM GUST TREES AND POWER LINES DOWN.
1130 PM 07/22/93	NR OLATHE JOHNSON	KS	WIND DAMAGE TREES BLOWN DOWN.
0010 AM 07/23/93	KEARNEY CLAY	MO	FLOODING 3-4 INCHES OF RAIN CAUSED FLOODING OF SEVERAL LOW-LYING AREAS.

12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789
0 1 2 3 4 5 6 7

8. Public and Marine Forecasts.

8.1 The Convective Outlook in Forecasts. In general, field offices should use convective outlook information as guidance in local, area/state, and marine forecasts. For public releases, this can be done by using a phrase, such as "A FEW SEVERE THUNDERSTORMS WITH LARGE HAIL AND DAMAGING WINDS THIS AFTERNOON." The specific area affected and the time interval, in general terms, should be stated.

8.2 Watch Information in Forecasts. Include watch information in local, state/area, zone, or marine forecasts when a

severe weather watch is in effect or expected to be in effect for the forecast area during the period covered by the forecast. Should it be necessary to split a zone or metropolitan/city forecast with a watch boundary, place the county names in the zone/local forecast headline.

Examples:

a. In a State/Area Forecast:

CLESFPOH
FPUS1 KCLE 231822 AMD
OHZ001>088-240000-

STATE FORECAST FOR OHIO...UPDATED
NATIONAL WEATHER SERVICE CLEVELAND OH
222 PM EDT SAT APR 23 1994

UPDATED FOR TORNADO WATCH

...A TORNADO WATCH IS IN EFFECT FOR SOUTHWEST OHIO UNTIL 800 PM EDT THIS EVENING...

SCATTERED THUNDERSTORMS WITH TORNADOES...HAIL...AND DAMAGING WINDS IN SOUTHWEST OHIO UNTIL 530 PM. ELSEWHERE...WIDELY SCATTERED SHOWERS AND THUNDERSTORMS ENDING TONIGHT. LOWS IN THE 50S EXCEPT....

b. In a Zone Forecast:

MIAZFPFL
FPUS5 KMIA 141745 AMD

FLORIDA ZONE FORECASTS...UPDATED
NATIONAL WEATHER SERVICE MIAMI FL
1245 PM EST THU MAR 31 1994

UPDATED FOR TORNADO WATCH

FLZ042-043-048-049-142300-

CITRUS-SUMTER-HERNANDO-PASCO AND ADJOINING COASTAL WATERS FROM
CRYSTAL BAY TO ANCLOTE KEYS
1245 PM EST THU MAR 31 1994

...TORNADO WATCH IS IN EFFECT UNTIL 6 PM...

.THIS AFTERNOON...THUNDERSTORMS LIKELY...SOME SEVERE WITH TORNADOES...LARGE HAIL...AND LOCALLY DAMAGING WINDS UNTIL 6 PM. HIGHS IN THE UPPER 80S. SOUTH WIND 10-20 MPH AND GUSTY. RAIN CHANCE IS 60 PERCENT. .TONIGHT...THUNDERSTORMS ENDING EARLY TONIGHT BECOMING....

Update state/area, zone, local, and marine forecasts to include the watch information as soon as possible after issuance of severe weather watches. Under the following conditions, updating is at the discretion of the forecaster.

Severe Thunderstorm Watch	Thunderstorms mentioned in forecast
Tornado Watch	Severe thunderstorms mentioned in forecast

Offices should add the phrase "WITH LARGE HAIL AND DAMAGING WINDS" to the term "SEVERE THUNDERSTORMS" when it is used in the forecasts. This addition will give the public a better appreciation of the

threat.

Example:

MOZ001>004-011>013-292300...
ATCHISON-NODAWAY-WORTH-GENTRY-HOLT-ANDREW-DE KALB
215 PM CST FRI APR 29 1984

...TORNADO WATCH IN EFFECT UNTIL 9 PM FOR HOLT...ATCHISON...AND NODAWAY COUNTIES...

.REST OF THIS AFTERNOON...(text of forecast)

Do not update forecasts to include watch information if the time to prepare and disseminate the updated forecasts would hamper warning operations; for example, when lead time is less than 1 hour or when severe storms are already in existence at the time the watch is issued.

8.3 Warnings in Forecasts. Tornado or severe thunderstorm warnings do not necessitate updating local forecasts. Severe weather warnings should not be included in zone, state/area, or marine forecasts. Never use a routine forecast issuance in lieu of a warning.

WSOM Issuance
95-2 3-24-95