

CHAPTER 2

DEFINITIONS AND CRITERIA

2.1 General. This chapter defines those common meteorological terms, subject to multiple interpretations, that are used by agencies preparing severe local storms forecasts and warnings.

2.2 Severe Local Storm.

A severe local storm is a tornado, waterspout, or a thunderstorm with winds of 50 knots (25 m/s) or greater and/or hail 3/4" (20 mm) or greater in diameter at the ground. Significant wind damage (several downed trees) or sightings of large hail or a tornado can help supplement official observations (METAR and SPECI) to determine where severe local storms occur.

2.3 Severe Local Storms Season(s).

Tornadoes and severe thunderstorms may occur anywhere and at any time of the year. The months and location of greatest frequency of severe thunderstorms and tornadoes shifts from the southeast U.S. in the early Spring, to the southern and central Plains and lower Midwest during the rest of the Spring, and into the northern Plains and upper Midwest during the late Spring and early summer. The lowest frequency of occurrence is west of the Rockies.

2.4 Squall Line.

A squall line refers to a line of strong to severe thunderstorms with strong, gusty winds disruptive to public and transportation (especially aviation) activities. Squall lines are associated with sharp wind shear, including sudden, marked shifts in wind direction and speed.

2.5 Density/Risk of Severe Thunderstorms.

The Storm Prediction Center issues daily severe weather outlooks describing forecast coverage of severe thunderstorms across the conterminous U.S. The terms used and their definitions are:

- Slight risk - 2 to 5 percent coverage within the outlined area in the forecast time frame.
- Moderate risk - 6 to 10 percent coverage within the outlined area in the forecast time.
- High risk - greater than 10 percent coverage within the outlined area in the forecast time.

2.6 Thunderstorm Intensity Categories.

Primary hazards in a thunderstorm are wind, hail, flash flooding, and lightning. Flash flooding and lightning may be mentioned in severe weather watches/warnings, if it will have a significant impact on the general public. The following thunderstorm intensity classes will be used in the forecasting and warning functions of concerned agencies:

- Thunderstorm - Wind gusts less than 50 knots (25 m/s) and hail, if any, of less than 3/4-inch diameter (20 mm) at the surface.
- Severe Thunderstorm - Thunderstorm related surface winds (sustained or gusts) of 50 knots (25 m/s) or greater and/or surface hail 3/4-inch (20 mm) or larger. Wind or hail damage may be used to infer the occurrence/existence of a severe thunderstorm. The word "hail" in a watch bulletin implies hail at the surface as well as aloft, unless a qualifying phrase such as "hail aloft" is used.

NOTE: The USAF uses an additional intensity definition: Moderate Thunderstorm - Wind gusts between 35 and up to 50 knots, and/or hail, if any, of 1/2 in diameter up to 3/4in diameter at the surface.

2.7 Funnel Cloud.

A rotating column of air forming a pendant below a cumulus or cumulonimbus cloud, but not touching the ground or water.

2.8 Tornado.

A violently rotating column of air extending below a cumulonimbus cloud and touching the ground. A tornado is frequently accompanied by a loud, roaring noise and airborne debris.

2.9 Waterspout.

A rotating column of air extending below a cumulus or cumulonimbus cloud and touching water. A waterspout that moves onshore is then considered a tornado.

2.10 Other Warning Criteria.

All phenomena (other than those classified as severe local storms, paragraph 2.1) described in the various warnings, bulletins, and advisories should be categorized as "other warning criteria" and are not called severe weather phenomena. Such other warning criteria will be listed separately in the appropriate NOAA/NWS publications.

2.11 Types of NWS Messages - General Categories:

- **Advisory** Significant impact, but not meeting the warning criteria.
- **Outlook** Forecast of thunderstorm coverage and intensity, covering 24 hr period.
- **Watch** Potential for severe local storms.
- **Warning** Based on reports of actual, suspected, or imminent severe local storms in or near an Office's area of responsibility.

2.12 Convective SIGMETs. Convective SIGMET bulletins are issued hourly at 55 minutes after the hour (H+55), and as required, by AWC for convective storm areas of 3,000 square miles or larger. Special Convective SIGMET bulletins cover the conterminous United States, adjacent coastal waters, and large areas of the Atlantic and Pacific Oceans, Gulf of Mexico, and the Caribbean Sea. For convective storm areas less than 3,000 square miles, the Center Weather Service Unit (CWSU) handles Convective SIGMETs within their Center boundaries by including them in their Center Weather Advisories. These bulletins contain descriptions and trends of current significant thunderstorms and an outlook for periods of up to 6 hours based on these criteria:

- Tornadoes;
- Lines of thunderstorms;
- Embedded thunderstorms;
- Thunderstorm areas with areal coverage of 4/10 (40 percent) or more; and/or
- Hail greater than or equal to 3/4-inch (20 mm) diameter.

2.13 Special Marine Warnings (SMW). SMWs are for hazardous over-water events of short duration (up to 2 hours), and not adequately covered by existing marine warnings and forecasts. These events include convective activity, squalls or wind shift lines, waterspouts, cold air funnels and other localized short-lived phenomena. The nationwide criteria for the SMW issuance is forecast winds of 34 knots or greater and/or a waterspout.