

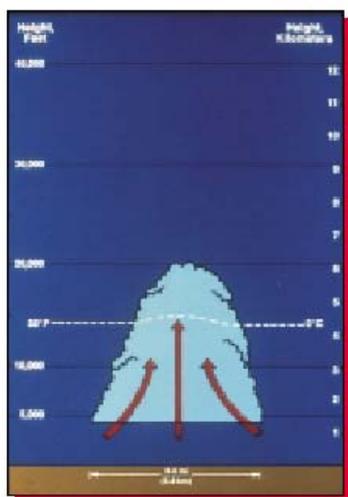
Severe Weather AT Fermilab

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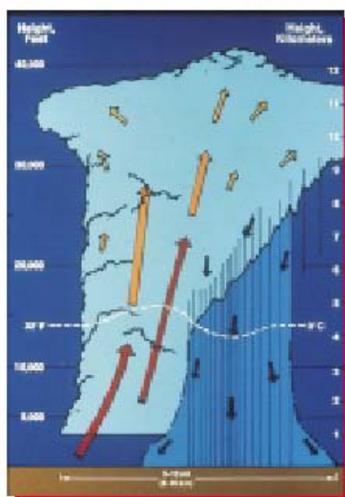
Late spring and early summer are peak severe weather and tornado season for Fermilab. The National Weather Service (NWS) considers a storm to be severe if it produces hail at least 3/4-inch in diameter, winds of 58 mph or stronger, or a tornado. Thunderstorms can build up quickly, and last 10-20 minutes. The weather at Fermilab during the last week of May 2003 was certainly turbulent. But the conditions, based upon information received from the NWS and the monitoring performed by the Fermilab Fire Department never met the established protocol for activating our Sitewide Emergency Warning System (SEWS).

Life Cycle of a Thunderstorm



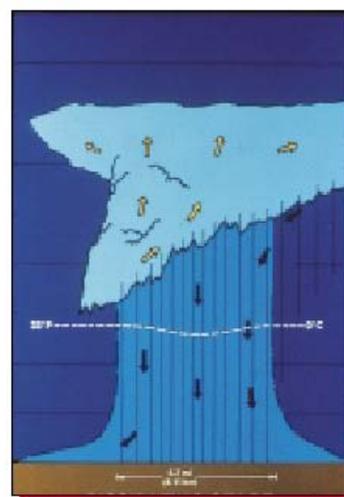
Developing Stage

- Towering cumulus cloud indicates rising air.
- Usually little if any rain during this stage.
- Lasts about 10 minutes.
- Occasional lightning.



Mature Stage

- Most likely time for hail, heavy rain, frequent lightning, strong winds, and tornadoes.
- Storm occasionally has a black or dark green appearance.
- Lasts an average of 10 to 20 minutes but may last much longer in some storms.



Dissipating Stage

- Rainfall decreases in intensity.
- Can still produce a burst of strong winds.
- Lightning remains a danger.

NOAA

There are 4 definitions of severe weather used by the NWS that apply to Fermilab:

Severe Thunderstorm Watch	<i>Conditions are favorable</i> for the development of severe thunderstorms in and close to the watch area. These watches are issued for large areas by the Storm Prediction Center in Norma, Oklahoma, and are usually valid for 4-6 hours.
Severe Thunderstorm Warning	<i>A severe thunderstorm is indicated by Doppler radar or sighted</i> by trained, qualified spotters (organization called SKYWARN – www.skywarn.org). The local Weather Forecast Office in Chicago/Romeoville issues these warnings on a county-by-county basis.
Tornado Watch	<i>Conditions are favorable</i> for the development of severe thunderstorms and tornadoes in and close to the watch area. These watches are issued for large areas by the Storm Prediction Center in Norma, Oklahoma, and are usually valid for 4-6 hours.
Tornado Warning	<i>Doppler radar indicates strong rotation in a thunderstorm or a trained, qualified spotter spots a tornado.</i> The local Weather Forecast Office in Chicago/Romeoville issues these warnings on a county-by-county basis.

At Fermilab, when the NWS issues a Watch or Warning, the Communications Center, where the information is received, disseminates this information to locations such as the Fire Department, Security, Main Control Room, and D0 & CDF Control Rooms. If the tornado watch or warning includes a reference to Kane or DuPage County and one of the following cities – Aurora, Geneva, Naperville, St. Charles, Batavia, West Chicago, Wheaton, or Warrenville, the Communications Center will activate the SEWS. If it is a Watch, the building alarms go off, informing employees of the situation. Should there be a Warning, the outdoor sirens activate as well. Instructions for taking shelter are provided.

At the same time, Fire Department personnel are monitoring the various local fire radio frequencies for the location of the storm, movement, damage, etc. They also monitor the actual weather at Fermilab. If in the opinion of the Shift Captain, Fermilab is directly threatened, he will direct the activation of the SEWS.

The NWS and the National Oceanic and Atmospheric Agency's National Severe Storms Laboratory (NSSL) have developed improved technology for predicting severe weather. But it is not exact. This is especially true for thunderstorms. Thunderstorms may be 10 to 15 miles in diameter, and have average lifetimes of 20 to 30 minutes. There is no computer program that can track individual storms. For this reason we have added thunderstorm watches and warnings in our severe weather notification procedure.

If you would like more information about severe weather, you can check out the NSSL's webpage at <http://www.nssl.noaa.gov>.