

News from CAUSES (College of Agriculture, Urban Sustainability and Environmental Sciences)

*The highly destructive storms of late June continue to make climate news. **Silva Meybatyan**, Research Associate for Climate Change, describes some of the dynamics behind this weather phenomenon, while DC Master Gardener Coordinator **Sandy Farber Bandier** advises us on how to preserve the trees that suffered widespread damage from the storm.*

WILD WEATHER!

Derechos, the string of wind-storms associated with a band of intense lightning and rain, are most common from May to August in the region stretching from Iowa, across Illinois, and into Ohio River Valley in the upper Midwest of the United States. By September and on through to April, areas of activity, less than in summer, they migrate southward to eastern Texas through Alabama. They occur in the DC area once every four years.



Definition of a derecho

A derecho (pronounced similar to "deh-REY-cho" in English, or pronounced phonetically as "deretjɔ") is a widespread, long-lived strong linear winds in excess of 58 mph associated with a band of rapidly moving showers or thunderstorms crossing a region. Although a derecho can produce destruction similar to that of tornadoes, the damage typically is directed in one direction along a relatively straight swath. As a result, the term "straight-line wind damage" sometimes is used to describe derecho damage.

It is difficult to identify the precise combination of factors that can produce derechos. Derecho development is tied to the formation of bow echoes, which may evolve from a cluster or a single strong convective thunderstorm that stimulated by local surface heating. On Friday, June 29th all-time high temperature records of 100s were established from the Midwest to the Southeast. In Washington, DC the mercury climbed to 104 degrees, breaking the previous records set in 1874 and 2011, and was the hottest June day in 142 years of records. During summer, because the lake waters do not warm as quickly as the surrounding land surfaces, cold weather front tends to form over the Great Lakes region, causing severe thunderstorms. June 29th derecho was formed west of Chicago at 11:00pm. It grew strong and intense racing southeast and at speeds over 60 mph approached the DC area by midnight.



Blue marks indicate reports of damaging wind. Black squares indicate winds of over 75 mph. (National Weather Service)

Millions of people across nine states were affected by the storm. This epic storm downed power lines and trees that blocked the roads, damaged homes and cars, and have left millions without power for days; injured at least 20 and killed 12 people. Also, it stirred up the most daunting question of the 21st century: "Is this one of the consequences of the climate change?" The answer: According to meteorologists (note: they usually do not mention climate change) and scientists, as global temperatures rise, derechos may become more intense and frequent.

- Silva Meybatyan

For more information visit:

http://www.washingtonpost.com/blogs/capital-weather-gang/post/derecho-behind-washington-dcs-destructive-thunderstorm-outbreak-june-29-2012/2012/06/30/gJQA22O7DW_blog.html

<http://www.spc.noaa.gov/misc/AbtDerechos/derechofacts.htm>

What are some of the lessons to be learned from Friday's storm? If one has questionable trees in their landscapes, they should be inspected and assessed for their structural integrity. Hire a certified arborist to do the assessment. Don't know where to

find a certified arborist? Visit the web page of the International Society of Arboriculture at [<http://www.isa-arbor.com/>] to find a search engine that will identify certified arborists near one's locale.

What were the five most commonly damaged trees in urban areas?

- Silver maples
- Callery pears
- Spruces
- Pines
- Siberian elm

The failures of these trees included uprooting, major limb breakage, and trunk breakage. Why did these damages occur so regularly in these trees? The reasons included internal rot, soft wood, poor structural design, shallow root systems, and poor tree management (e.g. tree topping, changing grade of soil over tree roots, etc.).

Don't use this storm as an excuse to "top" trees; it is not a horticulturally accepted practice. During cleanup, take some time to examine trees for reasons why they failed. Inspect trees for the unexpected! Don't assume that one always knows why a tree has failed. This is an opportunity to make sure there are no undetected, exotic insects such as Asian Longhorned Beetle living in those broken branches. - Sandy Farber Bandier