



<http://www.jhuapl.edu/weather/education/ACONdata.html>

# ATLANTIC COAST OBSERVER NETWORK, MD / DE / DC CHAPTER WITH DATA FROM NEARBY AREAS

## HOT MONTH WITH SEVERE THUNDERSTORMS

Temperatures were slightly cooler than July but still averaged above normal for the sixth consecutive month making this one of the warmest summers ever. NWS stations at Washington National Airport, Dulles, and Baltimore BWI each recorded their warmest summer on record. Precipitation varied across the region from less than two inches to over eight inches. Some thunderstorms brought with them damaging winds and torrential downpours.

August began under partly cloudy to cloudy skies with scattered light rain showers and maximum temperatures generally in the 80's. 90's made their first appearance this month on the 4th and 5th along with thunderstorms. The heaviest rains fell on the 5th in Montgomery County where **David Roth** of **Montgomery Village 1 SW** measured 2.16" and **Kevin Shaw** of **Gaithersburg 1.96"**. East of I-95 from Baltimore south mid to upper 90's were common. **John Zyla** of **Ridge** recorded 100°.

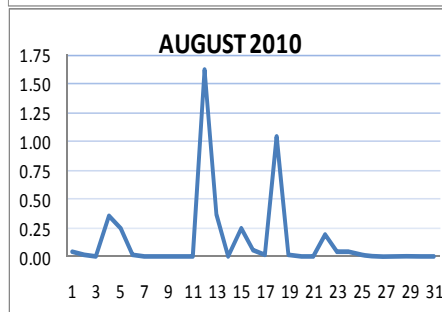
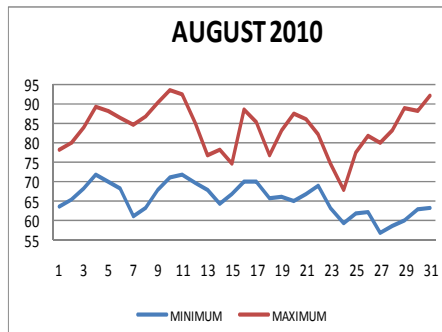
The hottest temperatures at many locations occurred on the 10th in the middle of a three day heat wave. The heat was broken by morning thunderstorms on the 12th. A severe thunderstorm, which moved southeast through Montgomery County into DC, brought with it damaging winds, power outages, and flooding. **Richard Holden** of **Clarksburg 2 ENE** recorded a peak wind gust of 58 MPH. **Kevin Shaw** of **Gaithersburg 2 WNW** recorded 44 MPH at his partly sheltered location. Hail was reported in **Clarksburg** by **Richard Holden** and in **Forest Glen** by **Joe Terry**. Late afternoon thunderstorms brought the daily total to over 3 inches for the following ACON observers: **Joe Terry** of **Forest Glen** 3.32", **Bobby Miller** of **Millers 4 NE** 3.29", **Dan Hanson** of **Pasadena 2N** 3.16", **Tony Scafide** of **Bethesda** 3.09", **Stan Rossen** of **Glenmont 1 NNE** 3.02" and **Jeff Stoudt** of **Laurel 2 E** 3.01". More detailed observations concerning this thunderstorm event from fellow ACON observers can be found in the Observer Comment section.

From the 13th to the 26th maxi-

imum temperatures varied from the 70's to the 90's but humid conditions prevailed. Thunderstorms on the 18th dumped over an inch of rain south of Baltimore at many locations. Over 3 inches were reported by the following ACON observers: **Joe Terry** of **Forest Glen** 3.48", **Rob Cohen** of **Potomac 4 N** 3.32", and **Tony Scafide** of **Bethesda** 3.15".

The last rains fell from the 22nd to the 24th. Amounts were generally less than a third of an inch. **Marty Sharrow** of **Owings Mills** recorded 1.00" on the 23rd.

Pleasant cool conditions occurred from the 27th to the 29th when minimum temperatures fell into the 50's. The month ended with hot temperatures and low to moderate humidity. Mid 90's were common from the 29th to the 31st at many locations. Dry conditions intensified in the northern portions of the two state region.



### ACON MD/DE Network

Daily average temperatures and precipitation based on observation times, not calendar days.

### EXTREMES REPORTED BY

#### ACON OBSERVERS

##### MAXIMUM TEMPERATURE

Ridge	100
Forest Glen	99
Jug Bay Wetlands	99
6 Stations	98

##### MINIMUM TEMPERATURE

Frostburg	49
Davis 3 SE WV	49
Smithsburg 1.5 SW	50
Millers 4 NE	51
Bear 2 SW DE	52

##### WARMEST AVG. TEMP.

Baltimore 2 SE	81.0
Ridge	79.7
Forest Glen	78.5
Oxon Hill	78.5
Bryans Road 2 ESE	78.5

##### COLDEST AVG. TEMP.

Davis 3 SE WV	66.2
Frostburg	69.5
Emmitsburg 2 SE	74.4
Harbeson DEOS 8 S DE	75.0

##### MAXIMUM PRECIPITATION

Jug Bay Wetlands	8.34
Norbeck 1 SE	8.07
Forest Glen	7.94
Potomac 4 N	7.93

##### MINIMUM PRECIPITATION

LaVale	1.19
Newark DEOS DE	1.52
Middletown 6 N DE	1.68
Hagerstown 1 E	1.78

The date for Herb Close's fall weather party is Saturday November 6 at 2 PM.

# OBSERVER COMMENTS FOR AUGUST 2010

## Gary Gallaher of Bear 2 SW, DE

Two periods of heat with the hottest one occurring the last three days of the month. Temperatures did not drop below 60 until the 27th. Dry month. Plants showing moisture stress during the last half of the month.

Summer of 2010 was the second hottest (77.1°, hottest 77.7° in 1973) and the 7th driest (7.74") in station history. The cool temperatures from the 24th to 28th prevented it from being the warmest.

## Nate Mullins of LaVale

August was the 5th warmest and the 3rd driest. The summer was the warmest on record with an average temperature of 75.6°. Old record was 74.2° set in 1991 and tied in 1995.

## Jeff Stoudt of Laurel 2 E

In addition to thunderstorms, there were two episodes of what appeared to be "bay effect" during the 12-13th overnight and also the evening of the 23rd when cooler NE winds blowing the length of the tepid upper Chesapeake spawned locally torrential showers along the west shore which then drifted slowly southwestwards into the Laurel area.

12th - ++TSRA daybreak, 1.49". RA+RA after dusk, 1.52".

## Marty Sharrow of Owings Mills

August was another warmer than normal month. There were a few cool intrusions that brought both more pleasant and seasonable temperatures to the area. Rainfall was more plentiful than in the previous summer months.

7th - Brilliantly sunny, very warm, dry.

12th - Very warm, humid, heavy AM storm.

31st - Sunny, hot and more humid.

## Joe Manfre of Baltimore 2SE

12th - Cloudy, warm, humid, occasional rain & thunderstorms.

15th - Cloudy, mild, humid, occasional rain.

30th - Sunny, hot, moderate humidity.

## Herb Close of Manchester 1S

5th warmest August of 22 years of records here. Warmest is 2002 with 77.0°. Just as in July most of the month's precipitation fell in just one or two days so most of the month was very dry. Hottest summer in 22 years of records with an average temperature of 76.1°. The old record was 75.3° in 2002.

## Ralph Hartsock of Westminster 4 SSE

12th - Heavy early thunderstorms, more PM storms.

16th - Hot, humid—big storms late.

24th - Cloudy and cooler.

## Bobby Miller of Millers 4 NE

4th - Evening thunderstorms.

12th - AM storm total 2.24" in 2 hours, 5 PM storm total 1.05" in one hour.

16th - Dense fog visibility @ 8 AM 1/4 mile. PM sun with scattered thundershowers.

## Eric Glass of Emmitsburg 2 SE

The rains came too late to help my corn—estimated 60% loss, soybeans smaller.

26th — 31st Clear sky, sunny.

30th - Low light ground fog.

## Rich Giannola of JHU/APL

12th - Morning +TSRA (1.50") including 1.39" from 7:00 - 7:30 AM.

## Ron Berger of Norbeck 1 SE

Wettest August in 16 years of records. Old record was 6.95" set in 1994. 90% of the months total of 7.25" came in just three torrential downpour events (4th, 12th-13th, and the 18th).

## Rob Cohen of Potomac 4 N

Precipitation of 7.93" was over twice normal.

12th - Severe thunderstorm 6:40 - 7:30 AM (1.72") and thunderstorm 5:30 PM, much lightning (0.88").

18th - Heavy rain morning, light shower afternoon.

## Rich Giannola of Olney 1 S

4th - Pre-dawn +TSRA especially heavy~ 3:30AM (1.18").

12th - +TSRA ~6:30—7:30 AM (1.78"). Late afternoon and early evening TSRA's totaled 0.45" more.

## Richard Holden of Clarksburg 2 ENE

12th - Heavy rain, marble size hail, PWG 58 MPH.

## Stan Rossen of Glenmont 1 NNE

Third wettest August behind 1990 ( 8.48") and 1979 (7.88") in 35 years.

12th - TRW++. Light rain began 5:53AM and intensified five minutes later. Fifty minutes after the rain began it ended. The barometer was quite erratic during the storm. 5:43 AM 29.76", 6:03 AM 29.82", 6:10 AM 29.79", 6:19 AM 29.86", 6:48 AM 29.79" where it stabilized. Water backed up a storm drain just outside the basement door and flowed under the door and into the basement. By the special 11 AM observation 2.70" had fallen. (Times EST)

## Kevin Shaw of Gaithersburg 2 WNW

Fifth wettest August and the wettest since 2001.

4th - Overnight TS 3:00 - 3:30 AM with max rain rate of 13.71"/hour at 3:10 AM.

12th - 7 AM Severe thunderstorm (1.86") with damaging winds, torrential rains with max rain rate of 14.77"/hour\*\* at 7:05 & 7:10 AM. Late afternoon TS (0.44")

## Joe Terry of Forest Glen

Wettest and windiest August in 15 year station history.

12th - Violent thunderstorm just after dawn, most intense in memory with very frequent and close lightning discharges. It became unusually dark as the storm reached its peak. See picture on page 3. Max rain rate 7.1"/hr \*\* at 0725. 3/8" to 1/2" hail between 0728 and 0733.

18th - Second 3"+ rain day in less than a week. Rain came in three waves during the morning with thunder occurring during the first wave.

## Brian Smith of Oxon Hill

5th - Severe TS 1530 - 1615; with widespread damaging winds. Power off 1600 - 2000. NWS said it was a wet microburst.

12th - +TSRA non severe 0745 - 0820 (1.64")

## John Zyla of Ridge

12th - Thunderstorm 0915 - 1152 (1.37").

18th - Thunderstorm with intense lightning and thunder 01:55 - 0237 (0.97")

\*\* See page 3 for method for calculating maximum rain rates.

Continued on Page 3

Compiled by Gary Gallaher, MD/DE ACON Data Collector and Report Writer, from data received from dedicated observers. Without your observations each month this report will not be possible.

**Max Hutto of Smithsburg 1.5 SW**

9th - Mostly sunny, very hot but not so humid. Breezy, extremely dry.

12th - Overnight thunderstorm, partial clearing, very warm, humid, PM thunderstorm, windy. Day total 1.61".

16th - Mostly cloudy, hot, humid. PM thunderstorm, very windy, 38 mph from the south.

**Greg Keefer of Hagerstown 1 E**

Hottest summer on record with an average temperature of 77.7° which shattered the old record of 76.0° in 1995. It was also the second driest on record with 4.96". Record is 4.49" set in 1966.

**Greg Keefer of Hagerstown 1 E (Cont)**

Third hottest August. Record hottest is 78.3° set in 1995.

10th - 98° one degree shy of the record set in 1913.

12th - Intense thunderstorm between 5 and 6 AM with frequent intense lightning and heavy downpours (1.19"). Thundershower between 4 and 5 PM (0.23").

**Jim Vaughn of Smithsburg 2 NE**

76.7° tied 1996 for the 5th hottest summer. Hottest 77.5° set 2005. Third driest summer with 5.50" of rain. Driest is 5.10" set in 1966. Daily record maximum minimum temperatures set on the 4th, 5th, 6th. Daily record maximum temperatures set on the 10th. Daily record minimum temperature set on the 27th.

**\*\*Maximum Rain Rate Formulas**

Since there are different formulas for calculating maximum rain rate below is the formula used for calculating maximum rain rates noted in Shaw and Terry reports:

**Kevin Shaw** data is from Davis VP2; Formula is:

3600 seconds/hr ÷ (number of seconds between pulses) X 0.01.

If no rain falls for 20 minutes the rate is reset to 0.

**Joe Terry** rate is based on a 5 minute amount X 12



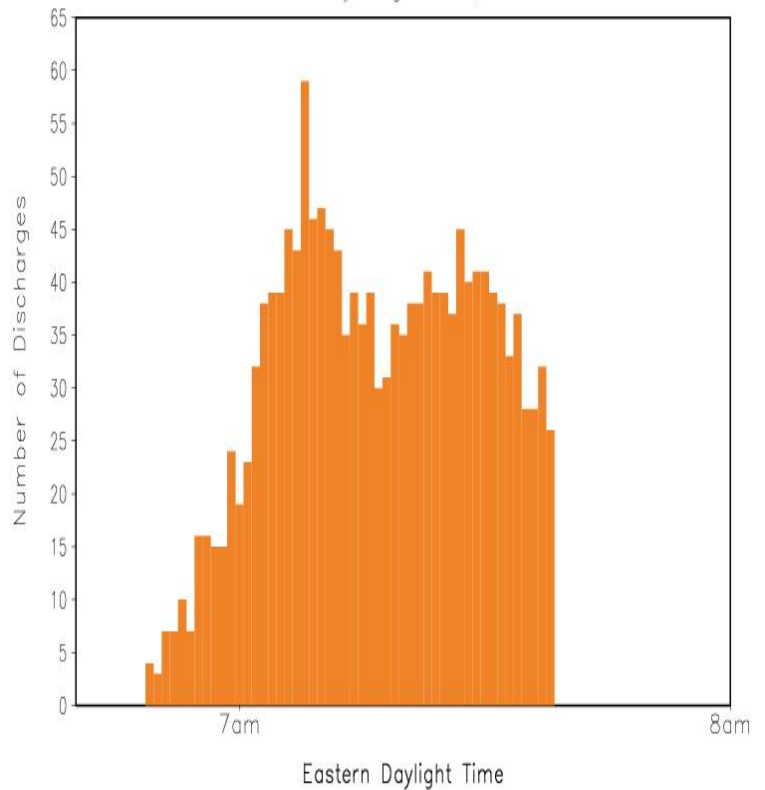
Anthony Castellano/The Gazette

Jose Garcia of Garcia's Tree Experts removes a fallen tree that ripped through the Flower Apartments in the 500 block of South Frederick Avenue during Thursday's storm. The City of Gaithersburg is covering the cost of lodging for all its residents displaced by the storm.

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Damage in Gaithersburg as a result of the severe thunderstorm on the 12th.

Local Cloud-to-Ground Lightning Discharges Per Minute  
Thursday August 12, 2010



Histogram of lightning strikes from the severe thunderstorm on the 12th provided by **Joe Terry of Forest Glen, Silver Spring, MD**. What's remarkable is not only the rapid increase in lightning activity but also the number of discharges. In 8 years of lightning data rates rarely get above 30 discharges per minute. Around 7:10 AM there were 60 strikes per minute. Also notice the two humps. The second one peaked at about the time the hail occurred, when the storm seemed most severe. Data was cut off around 7:40 AM due to loss of power.