

Washington-Baltimore Climate Review

August 2011

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National Oceanic &
Atmospheric Administration
U.S. Dept. of Commerce

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"Earthquake and hurricane in one month are more than enough." Bob Scace/13472.

Observations from 22548...

I have been trying with little success to get "caught up" in doing the WBCR. After much thought and with some advice from others, I have decided the following.

This issue will be a "full" issue because of the effects of Hurricane Irene. Also, the August 2011 issue of the WBCR will be a return to "normal" but without a few items that may have been of little use; I will be getting back to basics in a way, closer to the WBCR as it was when I started doing it; similarly for September and later issues. The January through July time frame WBCRs will consist of only a brief summary of temperatures and precipitation trends and the monthly tables of precipitation, and will be produced when I can get to them; I will try to do them by the end of 2011 in addition to the summaries for the remaining months of the year. B.Smith

What was Irene when it affected our area? According to the National Hurricane Center, Irene was a hurricane as its center skirted the mid-Atlantic coast on the 27th and 28th. It was not judged to have weakened to tropical storm status until it reached SE New York state. So it will be referred to "Hurricane Irene" in all WBCR references. Hurricane Irene in our area was significant, with flooding rains in an already wet month, and lengthy power outages – but nothing like what happened further north of us! And Irene wasn't as bad as Isabel of 2003 in our area. Nonetheless, it's probably a safe bet that Irene will join Isabel on the Hurricane Center's list of retired storm names.

The earthquake on August 23 toppled things off people's shelves and perhaps brought pictures from the wall to the floor; but there were no reports of significant damage to WBCR observers.

Temperatures for August 2011 averaged slightly above normal, with the minima being more above normal than the maxima. After a hot start, the temperatures leveled off to close to normal, especially once the month's wet pattern was established.

Precipitation for August 2011 showed a wide variation in amounts, thanks to the influence of Hurricane Irene: the further east within the WBCR you were, the wetter you were. The western parts of the WBCR area were close to normal, or even a bit below; while the hurricane-swollen totals topped 10 inches in the eastern parts of the area.

In the sections that follow, all times are in 24-hour clock and EDT.

Comments and Observations from WBCR Observers – August 2011

DATE COMMENTS

- | | |
|----|---|
| 1 | The high temperature of 100F broke the day's record for Washington of 99F set in 2002. KDCA/20540. |
| 28 | No serious damage near house, but "about a block away the roof of a house was crushed in by a large, uprooted willow oak (a street tree), 3-4' in diameter. Several other large trees in the neighborhood had also been uprooted, or large limbs had broken off, but all had either fallen between houses or into the streets. I noticed one car with a |

windshield broken by a fallen limb." Clark Baker/Washington, DC NW/18531.

...OPTICAL PHENOMENA, METEORS, ETC ...

Occurrences are in approximate chronological order. Unless noted, a halo is assumed to be a 22-degree halo, and a rainbow is a primary. In the times given below, a single (short) dash between two times indicates a continuous observation; two short dashes (or a long dash) indicate the phenomena were observed intermittently.

DATE TIME, PHENOMENON, OBSERVER

- 2 1904 left parhelion. B.Smith/22548.
- 5 0550 anticrepuscular rays. B.Smith/20540.
- 6 0600 pre-sunrise pillar to about 4° above sun. B.Smith/20540.
- 13 1811 left parhelion. B.Smith/22548.
- 18 1840-1915 rainbow. J.Iekel/20519.
- 1855-1910 left leg of rainbow. B.Smith/20540.
- 26 1738 left leg of rainbow in VCSH E; 1745 full rainbow. B.Smith/20540.
- 31 1830 right parhelion. B.Smith/22548.

Peak Winds, measured, in mph (minimum 40 mph). Only the highest wind for the day or event is listed; only the latest occurrence for the day is listed, if more than one peak wind at the indicated value occurred. Entered in decreasing order of speed. Speeds of 58 mph (50 kt, NWS severe criterion) or higher, known or presumed to be with thunderstorms, are in *italic type*. Automated Weather Source/WeatherBug (AWS) sites are underlined; only the sites used in the WBCR are included. Be aware that WeatherBug sites are often at rooftop level of multistory buildings. Stations prefixed by U are WeatherUnderground sites; only those sites used in the WBCR are listed. Time of occurrence is in EDT except as noted.

DATE DIRECTION* and SPEED (ff or dddff) , SITE, TIME*, AND LOCATION (* = IF AVAILABLE)

- 1 32050 at 1755, Leesburg Airport/KJYO/15446.
- 3 40 at U of MD Baltimore County/Catonsville, MD/11598.
- 9 WNW48 at 1622, JHU-APL/Laurel, MD/13565.
32043 at 1850, buoy 44062/27651.
25040 at 1740, buoy 44061/22541.
- 15 02047 at 1620, Andrews AFB/KADW/21570.
33045 at 1710, buoy 44061/22541.
- 18 50 at Perry Hall MS/Perry Hall, MD/08639.
22047 at 1936, FSKM2/12631.
21040 at 1915, BWI/13606.
- 19 18056 at 1550, buoy 44062/27651.
01044 at 1928, Andrews AFB/KADW/21570. 28044 at 1939, National Airport/KDCA/20540.
- 21 02061 at 1354, FSKM2/12631.

August 27-28: Good night, Irene! [The worst of the storm was overnight; peak winds occurred on both sides of midnight!]

- 27 01072 at 2218, Thomas Point Light/TPLM2/19644.
03059 at 1856, Quantico MCAS/KNYG/28492. 36059 at 2348EST, National Airport/KDCA/20540.
03059 at 2040, buoy 44062/27651.
N54 AT 2353, JHU-APL/Laurel, MD/13565. 34054 at 2353EST, Andrews AFB/KADW/21570.
36053 at 2324, F S Key Bridge/FSKM2/12631.
36052 at 2355, USNA/KNAK/17641.
03051 at 2342, BLTM2/11622. 34051 at 2346, BWI Airport/KBWI/13606.
47 at U of MD Baltimore County/Catonsville, MD/11598.
34045 at 2346, Dulles Airport/KIAD/18465. 45 at Children's Hospital/Washington, DC/19544;
Calvert HS/Prince Frederick, MD/26567.
01043 at 2350EST, buoy 44061/22541. NE43 at 2230, Oja/Westlawn, VA/20513.
42 at Perry Hall MS/Perry Hall, MD/08639.
36041 at 2315, Fort Meade/KFME/15588; at 2348EST, buoy WASD2/20543. 32041 at 2318, Martin
Airport/KMTN/09651. 41 at NOVA Loudoun/Sterling, VA/16476.
36040 at 2330, College Park Airport/KCGS/1756E. 33040 at 2343, Fort Belvoir/KDAA/23515.

28 33061 at 0356, Thomas Point Light/TPLM2/19644.
 34060 at 0125, National Airport/KDCA/20540.
 29059 at 0700, F S Key Bridge/FSKM2/12631.
 02056 at 0020, buoy 44062/27651.
 29055 at 0745, Martin Airport/KMTN/09651. 55 at Children's Hospital/Washington, DC/19544.
 53 at Elizabeth Seton HS/Baldensburg, MD/19562.
 04051 at 0306, BLTM2/11622. 32051 at 0615, BWI Airport/KBWI/13606. 51 at
U of MD Baltimore County/Catonsville, MD/11598.
 WNW50 at 0022, JHU-APL/Laurel, MD/13565. 33050 at 0237, Fort Belvoir/KDAA/23515. 50 at
Thomas Stone HS/Waldorf, MD/26567.
 32049 at 0353, Andrews AFB/KADW/21570.
 36047 at 0110, College Park Airport/KCGS/1756E. 29047 at 0707, USNA/KNAK/17641. 47 at
WMAR-TV/Baltimore, MD/09615.
 01046 at 0149, MCAS/KNYG/28492. NNE46 at 0355, Sharrow/Owings Mills, MD/08588.
 35045 at 0112, buoy WASD2/20543. 34045 at 0410, buoy 44061/22541.
 36044 at 0241, Frederick Airport/KFDK/08479. 33044 at 0155, Leesburg Airport/KJYO/15446;
 at 0355, Manassas Airport/KHEF/23454. 32044 at 0358, Dulles Airport/KIAD/18465. 44 at
Twin Ridge ES/Mount Airy, MD/09517; George Washington University/Washington, DC/19538;
Oxon Hill HS/Oxon Hill, MD, across the street from 22548.
 42 at The Greens/Ijamsville, MD/08491; Brumback/Bryans Road 2ESE, MD/26541.
 31040 at 0603, Fort Meade/KFME/15588. W40 at Benedict/McLean, VA/19516.

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Severe weather observed by WBCR observers ONLY:

Date Time and Phenomenon

18 1752-1800 hail 1/4-1 inch. Stoudt/Laurel 2.7E, MD/15582.

Significant convective events:

Date Time and Phenomenon

- 1 Small hail, no time given, co-op observer at Brighton Dam, MD/13546.
- 14 2150 pea size hail, walker/Beltsville, MD/16567.
- 18 1639-1652 small hail (GS), BWI Airport/13606.
- 1823-1834 Hail 1/2-3/4 inch diameter, Rossen/Glenmont 1NNE, MD/15539.
- Hail to 3/4 inch diameter for 5 minutes late in the afternoon, Horvitz/white Oak, MD/16549.
- 1842 dime size hail, walker/Beltsville, MD/16567.
- 1740 small hail, Stern/North Reston, VA/17483.
- Hail 1/2 inch, time not given, Topping/Chantilly, VA/19457.
- 1730-1732 hail to 1/2 inch, Boott/Vienna, VA/19495.
- 1900 dime size hail, Angyal/Bowie, MD/19584.
- 21 1350-1420 small (<1/4 inch) hail, Stoudt/Laurel 2.7E, MD/15582.
- 1350 pea size hail, walker/Beltsville, MD/16567.



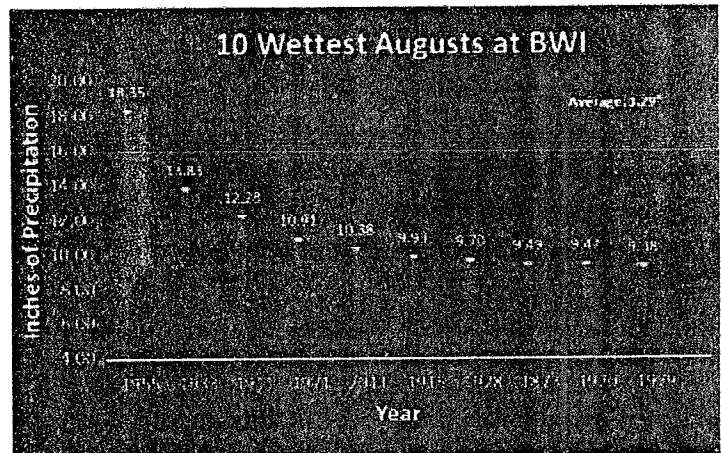
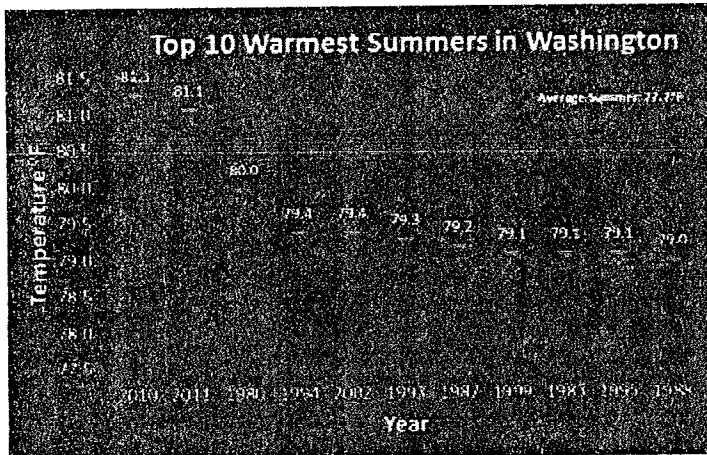


PRESTO

PRECipitation Summary and Temperature Observations
For the Washington, DC and Baltimore, MD Area



AUGUST 2011: Excessively Wet and Warmer than Normal SUMMER: Second Hottest on Record at DCA and IAD; Frequent Severe Weather and Hurricane Irene



August Highlights

- ✦ Above average temperatures at three major airports using new normals: DCA, 79.9 (+1.8); BWI, 75.9 (+0.8); IAD, 75.4 (+0.9)
- ✦ DCA logged record maximum temperature of 100°F on 1st
- ✦ Highs at or above 90°F at DCA on 11 days; 50 such days at DCA for year
- ✦ Above normal temperatures for 7th consecutive month at BWI & IAD; 5th consecutive month at DCA
- ✦ Wet August across the immediate metro area and eastern suburbs; 8.92" at DCA, 10.38" at BWI
- ✦ Tenth wettest August on record at DCA, wettest since 1967; BWI, wettest August since 1971
- ✦ Record daily maximum rainfall at BWI on August 19 1.72"
- ✦ Across area 2"-6" of rain fell from 18th-21st, resulting in flooded roads and closures
- ✦ Hurricane Irene lashed the area on the 27th-28th with strong winds, heavy rain, flooding and widespread power outages; significant damage occurred across Southern Maryland with rainfall totals over 11"; metro area totaled 3"-5"; near hurricane force wind gusts reached 74 mph near Cobb Island and 72 mph at Chesapeake Beach, (Calvert County); metro area gusts were reported at 62 mph in Dundalk (Baltimore County), 59 mph near Chevy Chase in northwest D.C. and 60 mph at DCA

Seasonal Highlights

- ✦ Second hottest summer on record at DCA and IAD, next to 2010; 8th hottest at BWI
- ✦ DCA and BWI recorded 5 days with highs at or above 100°F; IAD, 3; highs at or above 95°F: DCA, 24; BWI, 18; IAD, 15
- ✦ BWI recorded 17 consecutive days at or above 90°F, July 17- August 2; DCA and IAD, 16 days, July 18- August 2
- ✦ DCA set 18 record maximum or minimum temperatures over the summer; IAD, 16; and BWI, 10; BWI, 2 record rainfall events
- ✦ June tied for third hottest on record in Washington and at IAD
- ✦ Numerous record highs in June: 1st, DCA and BWI, 98°F and IAD at 95°F; 8th: DCA, BWI, 99°F; 9th: BWI 100°F and IAD 97°F; DCA's 102°F on 9th equals hottest June temp. on record; Washington and Baltimore had 2nd earliest 100°F or greater reading in calendar year
- ✦ On June 14, two EF-0 tornadoes were confirmed in Harford County, MD: the first was at Belcamp, winds to 80 mph, and the second at Street, winds to 70 mph, resulting in tree damage; widespread tree damage across area from powerful thunderstorms
- ✦ Hottest average monthly temperatures on record at all three major airports in July: 84.5°F at DCA (+5.3°F); 81.7°F at BWI (+5.2°F); and 81.0°F (+5.3°F) at IAD
- ✦ On July 22, BWI's high of 106°F was second highest temperature on record; IAD's record maximum of 105°F was hottest temperature on record; DCA's 104°F on 30th tied for the 5th highest reading in Washington; Heat Index values reached 121°F at DCA, 118°F at BWI, and 117°F at IAD due to oppressive humidity
- ✦ DCA recorded 7 days in July with minimums at or above 80°F, including a record 4 consecutive days from July 21-25
- ✦ On July 3, a cyclist was killed near Belmont, VA (Loudoun County) when high winds blew down a tree; 63 mph wind gusts measured near Sterling Park; hail to 1.50" near Delaplane, VA (Fauquier County); and winds gusts to 58 mph in Washington, D.C., resulting in downed trees on the Capitol's West Lawn

August 2011

Temperatures: Above normal temperatures were recorded across the area with positive departures of +1.8°F at DCA, +0.8°F at BWI and +0.9°F at IAD. The month began on a sizzling note with a record 100°F at DCA and 99°F at BWI and IAD; highs were in the mid-to-high 90s on August 2. DCA recorded 7 days at or above 90°F in the first 10 days of August while BWI and IAD observed 6 such days. IAD equaled three high minimum temperatures in this period: 73°F, 4th; 72°F, 6th; 74°F, 7th. The last 3 weeks featured cooler readings. DCA recorded only 4 days at or above 90°F; BWI and IAD, 2 such days. On the 27th, highs failed to reach 80°F at the three airports as a result of Hurricane Irene.

Precipitation/Severe Weather: While the western suburbs received near normal rainfall, well above normal amounts were recorded in the immediate metro areas and to the east. Monthly totals were 8.92" (+5.99") at DCA, 10.38" (+7.09") at BWI, and 3.74" (+0.21") at IAD. DCA recorded its 10th wettest August on record, its rainiest since 1967 and its wettest month since May 2008. At BWI, it was the 5th wettest August on record (see cover), the rainiest August since 1971, and the wettest month since September 1999. The region also was impacted by severe weather and Hurricane Irene. On the 1st, 1 inch hail struck Hughesville, VA (Loudoun County) and near College Park, MD (Prince Georges County). On the 6th, torrential rainfall (4.58") caused flooding in Culpepper County, VA. Strong thunderstorms deluged portions of Montgomery County, MD, on the 14th, with White Oak recording 2.77". The following day, flash flooding closed numerous roads in Baltimore City (3.21") and in Annapolis. On the 18th, 1.75" hail was measured near Harford Furnace, MD (Harford County) and near IAD. Strong thunderstorms rolled through the metro area the next day resulting in two injuries from lightning near Cherrydale, VA (Arlington County); 1 inch hail pelted Charney, MD (Baltimore County), and BWI recorded a daily rainfall record of 1.72". On the 21st, more large hail (1.75") was observed near Upperville, VA (Fauquier County) and winds gusted to 60 mph near Huntingtown, MD (Calvert County). Torrential rainfall was recorded in many areas from the 18th-21st. Totals included 5.75" in Largo (Prince Georges County), 4.42" in Baltimore City, MD; 2.72" at BWI; and 2.69" at Fairview Lake, VA (Fairfax County). Strong thunderstorms hit the southern suburbs on the 25th. Winds gusted to 65 mph near Dahlgren and to 60 mph near Fredericksburg, VA. Hurricane Irene then moved up the coastline just east of Ocean City, MD, early on the 28th. The region was lashed by strong winds, heavy rainfall, flooding and significant power outages from downed trees and wires. The most significant damage occurred across Southern Maryland where rainfall and winds were strongest. Rainfall totals included 11.52" near Leonardtown (St. Mary's County); 8.33" near Prince Frederick (Calvert County), and 6.20" near Odenton (Ann Arundel County). In the immediate metro area, totals included 4.85" near Savage (Howard County) and 4.47" near Bailey's Crossroads, VA (Arlington County). Near hurricane force wind gusts reached 74 mph on Cobb Island, 72 mph at Chesapeake Beach (Calvert County) and 64 mph near North Beach, MD (Ann Arundel County). Across the metro area, gusts were reported at 62 mph in Dundalk (Baltimore County), 59 mph near Chevy Chase in northwest D.C. and 60 mph at DCA.

August 2011 Weather Statistics for the Washington/Baltimore Area

Location	Station Temperatures (°F)					Extreme/Day		Precipitation (Inches)			
	AvMx	AvMn	AvgT	NmIT	DepNml	Max	MinT	Total	Norm	DepNml	Yr to Date
National (DCA)	88.6	71.3	79.9	78.1	+1.8	100/1	63/23,30	8.92	2.93	+5.99	27.30
Baltimore (BWI)	85.8	66.0	75.9	75.1	+0.8	99/1	55/23	10.38	3.29	+7.09	32.94
Dulles (IAD)	87.3	65.3	76.3	75.4	+0.9	99/1	52/23	3.74	3.53	+0.21	25.36

Summer (June-August) Temperatures: Intense heat resulted in the 2nd hottest summer on record at DCA (see cover) and IAD and 8th hottest at BWI. Average temperatures were 81.1°F at DCA, and 77.8 at BWI and 77.4°F at IAD, second only to 2010 at DCA and IAD. June started the season with record heat on the 1st: DCA and BWI, 98°F, IAD, 95°F. The season's first major heat wave ran from June 7-12, including 102°F on the 9th at Washington, equaling its hottest recorded June maximum, at BWI, 100°F, and at IAD, 97°F. Additional records were set on the 8th: 99°F at DCA and BWI. It was the hottest July on record at all three major airports. DCA recorded 25 days with highs at or above 90°F, BWI and IAD, 24, setting records at all three locations. Numerous record maximum and minimum temperature records were set including DCA's 102°F on the 23rd and 104°F on the 30th; which tied for its 5th highest reading. BWI soared to 106°F on the 22nd, its 2nd highest temperature on record, reached 101°F on the 29th, and equaled a record at 102°F on the 23rd. IAD's record maximum of 105°F on the 22nd was its hottest temperature ever. IAD also reached a record 103°F on the 29th and tied a peak high of 99°F on the 23rd. Numerous additional records were set at the three major airports including the hottest monthly average maximum temperatures: 93.6°F at DCA; 92.9°F at BWI and 92.8°F at IAD. August was cooler (see monthly summary.)

Summer Precipitation/Severe Weather: Heavy localized rain resulted in above normal seasonal rainfall at DCA and BWI, but subnormal at IAD. Seasonal totals at DCA, 13.63" (+3.19"), BWI, 16.66 (+5.84) and IAD 7.72" (-3.46"). The season started with the driest June since 2007 at DCA but frequent severe weather, including hail up to 1.75" near Partlow, VA, and wind gusts to 62 mph, at South River, MD. On June 14, two EF-O tornadoes were confirmed in Harford County, MD. Severe weather continued in July. On July 3, a cyclist was killed near Belmont, VA, when a tree was blown down; 63 mph wind gusts were measured near Sterling Heights, hail to 1.50" near Delaplane, VA, and wind gusts to 58 mph were measured in Washington, D.C., where trees fell on the Capitol grounds. On July 13, strong thunderstorms resulting in wind gusts and heavy rainfall especially across Northern Virginia and Southern Maryland. Vienna, VA, reported 3.23", resulting in flooding and closure of Route 123. An 18 wheeler was blown over on the Nice Bridge (Route 301) near Newburg in Charles County, MD. August rainfall was excessive in many areas (see monthly summary).

Summer 2011 Weather Statistics for the Washington/Baltimore Area

Location	Station Temperatures (°F)					Extreme/Day		Precipitation (Inches)		
	AvMx	AvMn	AvgT	NmIT	DepNml	Max	MinT	Total	Norm	DepNml
National (DCA)	90.0	72.1	81.1	76.9	+4.2	104/7-29	59/6-15	13.63	10.44	+3.19
Baltimore (BWI)	88.4	67.1	77.8	75.4	+2.4	106/7-22	50/6-3,4	16.66	10.82	+5.84
Dulles (IAD)	88.6	66.1	77.4	73.7	+3.7	105/7-22	48/6-4	7.72	11.18	-3.46

Looking Ahead: After experiencing the second hottest summer on record across the area, what will autumn bring? Below are statistics for DCA.

Temperature Extremes

Coldest: 1917 (Average Temperature: 52.9°F; Dep. Nml.: -6.5°F)
Warmest: 1973 and 1931 (Average Temperature: 63.1°F; Dep. Nml. +3.7°F)
Extreme Minimum Temperature: 11°F (Nov. 30, 1929)
Extreme Maximum Temperature: 104°F (Sep. 7, 1881)
Most Days With Lows < 32°F, 19 (1901); **Highs > 90°F,** 14 (1980)

Precipitation Extremes

Wettest: 1934 (Total Precipitation: 21.78"; Dep. Nml.: +11.74")
Driest: 1930 (Total Precipitation: 1.83"; Dep. Nml. -8.21")
Snowiest: 1987 (Total Snowfall: 11.5")
Most 1 Day Precipitation: 5.16" (Sep. 2, 1922)
Most Snowfall in 1 Day: 11.5" (Nov. 11, 1987)

*****UNOFFICIAL*** WBCR Precipitation Totals -- August 2011**

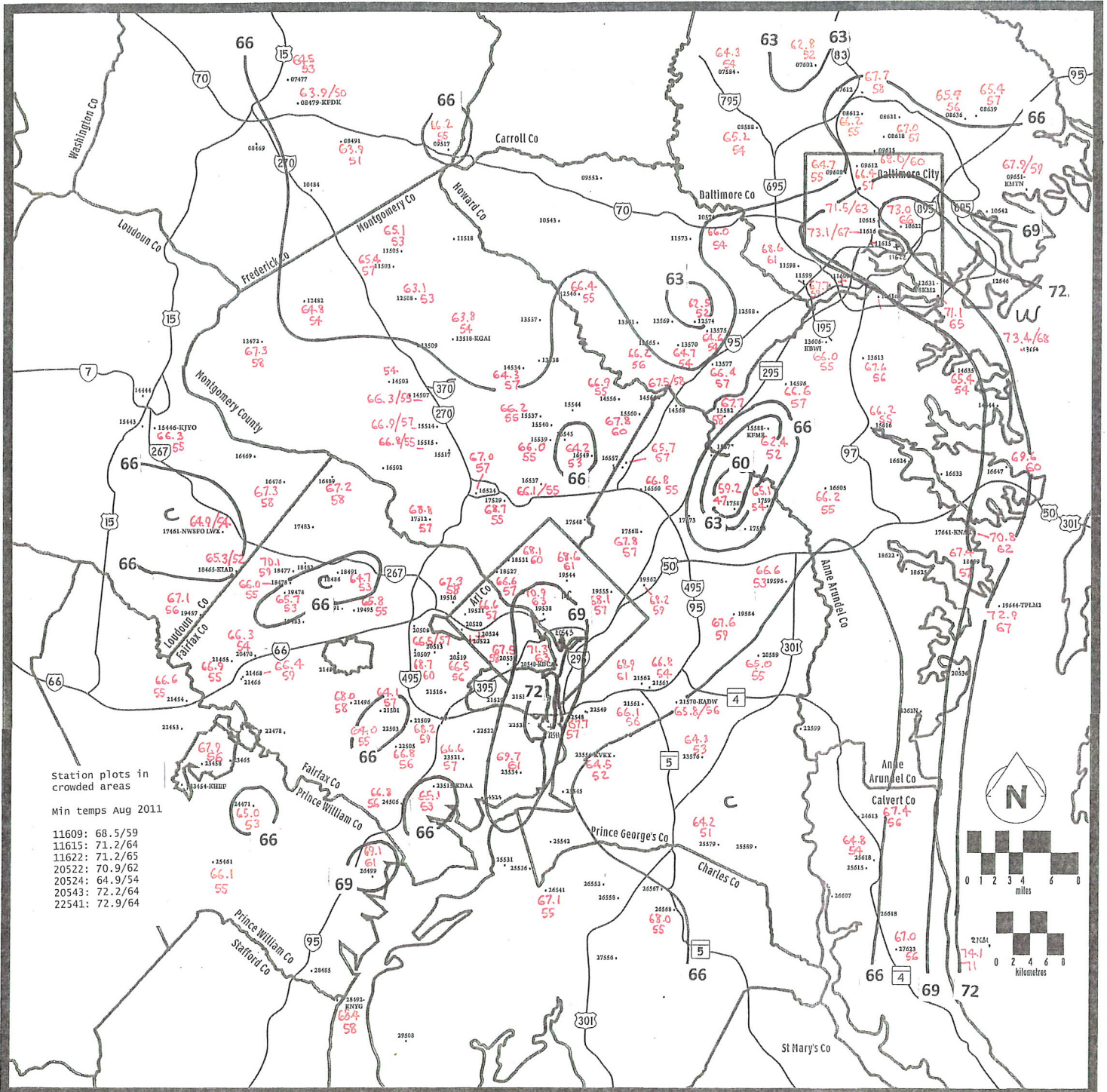
ID	Observer	pcpn	ID	Observer	pcpn	ID	Observer	pcpn	ID
07465	C-Frederick 3.1NW	2.91	15517	Graf	NR	20470	Bassett	4.98	07584
07477	N-Frederick 2NNE	3.72	15537	Berger	5.98	20508	Page	N	07612
07496	C-Frederick 7.2ENE	inc	15539	Rossen	6.89	20513	Oja	8.79	08469
07581	C-Reisterstown 0.4NE	7.37	15540	Unger	6.73	20519	J.Iekel	9.72	08479
07602	Mindel	10.47	15544	Kusselson	NR	20520	LeComte	N	08491
08468	C-Frederick 3.5SSW	2.82	15545	Foster	NR	20522	R.Anderson	8.28	08549
08562	C-Eldersburg 2.0SE	6.83	15552	Pickering	9.31	20524	Moody	8.67	08583
08588	Sharrow/Owings Mills	9.86	15560	W-Patuxent Plant	11.43	20530	Henderson	8.67	08596
0861P	CR-Towson 0.8SW	10.08	15574	C-Laurel 2.0S	10.88	20540	N-KDCA/NationalArprt	8.92	08610
08619	CR-Towson 2.3SE	11.41	15577	Battel	N	20567	Bohl	14.08	08612
08643	C-PerlyHall 0.9E	16.91	15582	Stoult	10.60	20589	N-Uof MD CMREC	12.62	08618
09484	C-NewMarket 4.8WSW	3.44	15609	C-SouthGate 3.0SSW	9.32	20627	C-ShadySide 1.6MW	9.78	08621
09519	C-MountAiry 0.2SE	7.29	15628	C-Pasadena 0.7SE	12.41	21458	Randall	4.22	08636
09538	C-Woodbine 1.6SE	7.12	15629	C-SevernaPark 1.9ENE	inc	21501	Schoenberg	5.41	08639
09552	Ferraro	7.32	16469	Shaffer	NR	21523	Fein	9.77	09517
09556	C-Sykesville 2.6SE	inc	16471	CR-Sterling 3.7NNW	3.15	21561	Paroczay	11.20	09534
09565	C-Marriottsville 0.6SE	7.01	16487	Spalding	NR	21562	World Wx Bldg (WxU)	inc	09596
09607	C-Baltimore 6.2NNW	10.41	16489	Castello	2.87	21563	Callicott	13.99	09612
09608	N-Cyburn Arboretum	13.93	16496	Blasic	3.78	21570	KADW/Andrews AFB	inc	09615
09626	C-Hamilton 0.3NE	13.07	16502	W-Potomac Plant	6.28	21634	C-Deale 1.8ENE	8.79	09651
09652	C-WhiteMarsh 2.3ESE	13.32	16510	C-Potomac 0.9NNW	5.55	22438	C-Gainesville 1.6SE	inc	10484
10622	Manfre	12.11	16524	Scafile	5.97	22503	MacLean	5.74	10510
11503	Holden	8.49	16534	C-Kensington 0.1W	6.88	22505	Wagner	6.29	10574
11505	Leffler-WHOF	8.04	16537	J.Terry	7.16	22509	Pankow	6.48	10594
11509	CR-Damascus 1.0S	inc	16543	C-SilverSpring 0.9N	7.41	22519	Schwartz	8.69	10606
11572	C-EllicottCity 1.3WSW	inc	16544	C-WhiteOak 1.7NW	inc	22532	C-Alexandria 1.8S	N	10609
1157R	C-EllicottCity 0.5N	N	16549	Horvitz	11.24	22535	Moore	NR	10615
11596	C-Catonsville 0.9ENE	11.63	16557	Gerson	inc	22548	N-B.Smith OXNM2	9.86	10624
12447	C-Leesburg 8.0N	4.65	16560	N-USDA Beltsville	12.45	22549	Hermann	9.81	10642
12507	CR-Germantown 4.6NNE	7.88	16567	Walker	11.82	22551	KofC Council 5317	9.77	11510
12508	Knapp	7.40	16595	C-Odenton 0.8WSW	10.46	22554	Madison	NR	11573
12546	Curtis	5.66	16605	Gallina	9.34	22599	Jug Bay Wetland	NR	11574
12565	C-Columbia 2.6NW	8.17	16624	C-HeraldHarbor 0.5NE	76.00	22613	C-Dunkirk 3.2NNE	11.45	11582
12566	C-Columbia 1.7W	9.69	16647	Goodwin	10.72	22631	C-Deale 0.9SE	9.07	11598
1257D	C-Columbia 2.3N	9.70	17441	Retta	NR	23458	N-Manassas/Sheldon	3.70	11599
12573	Saffle	9.38	17461	N-LWX/Sterling	5.60	23515	KDAA Ft Belvoir	5.78	11607
12574	Spranklin	10.04	17483	N-Stern RTNV2	4.03	23522	C-Franconia 1.3SSE	7.50	11609
12585	C-Sykesville 1.7SSE	7.32	17512	Turrisi	4.80	23528	C-MountVernon 0.5NE	6.36	11610
12608	C-Linthicum 0.4ENE	11.45	17523	Heffter	inc	23534	Evans	6.19	11615
13472	Scace	4.35	17529	Myers	7.28	23536	C-Alexandria 4.6S	inc	11616
13509	Roth	N	17546	C-TakomaPark 0.6NNW	9.56	23545	Carlstead	NR	11618
13519	C-Gaithersburg 4.5NE	5.41	17560	C-CollegePark 1.2NE	11.49	23605	Burek	10.79	11622
13546	W-Brighton Dam	10.15	17573	Pearl	NR	24487	C-Woodbridge 5.9NW	5.07	12482
13549	Fulton	8.76	17583	Bartman	10.71	24507	C-Lorton 1.2NE	4.20	12572
13565	JHU/Giannola	7.65	17586	Pearl	NR	25531	C.Iekel	NR	12588
13569	Yergey	NR	18465	N-KIAD/Dulles Arprt	3.74	25542	Jones	8.14	12599
13570	Penn	8.80	18477	Jobson	5.36	25557	C-Waldorf 2.4W	10.13	12631
13575	Hartge	10.31	18478	Gray	4.89	25579	Cedarville State Forest	9.67	12646
13577	Rolph	7.65	18498	C-Vienna 3.3N	N	25594	C-Brandywine 6.7ESE	11.51	13448
13606	N-KBW/BWI Arprt	10.38	18527	N-Dalecarlia Reservoir	7.49	25618	Shaver	13.59	13499
14503	Mitchell	4.81	18531	Baker	7.43	25629	C-Chspk Beach 2.3SW	12.63	13518
14507	Shaw	5.71	18597	C-Sullivan	10.63	26499	C-Woodbridge 0.5SSW	5.55	13561
14534	Giannola	5.03	18623	C-Annapolis 4.3W	10.28	26532	C-BryansRoad 1.0SW	7.10	13613
14556	Friedman	9.57	19457	Topping	4.13	26541	Brumback	8.08	14496
14566	Elvander	9.30	19474	CR-Fairfax 7.0NW	inc	26568	Rosenstein	9.06	
14574	CR-NorthLaurel 1.5ESE	10.28	19478	Ashby	4.32	26607	Hollinger	N	
14596	Oravec	11.95	19491	Fraim	NR	27545	C-La Plata 2.6WNW	inc	
14608	C-Severn 1.7E	14.22	19495	Boott	5.59	27617	C-PrinceFrederick 1.4W	11.80	
1461B	C-South Gate 1.0SW	N	19516	Benedict	6.48	28492	KNYG/Quantico MCAS	4.68	
14635	Pasadena 2N	14.12	19518	C-McLean 2.3SE	6.06	29544	Kercher	10.58	
15443	Tauss	NR	19555	N-National Arboretum	8.76	29597	C-Charlotte Hall 3.6ENE	12.55	
15514	McGinnis	5.51	19584	Angyal	14.13				
15515	Cohen	5.87	19596	De Fazio	13.69				

<i>Automated and Wx Underground sites: report only precip totals, no snowfall</i>							
Location	pcpn	ID	Location	pcpn	ID	Location	pcpn
U-KMDOWING1	TEMP	14497	W-Seneca WWTP/RGSC	N	19580	IF-Lottsford Rd	11.02
U-KMDTIMON1	13.45	14512	W-Depot/RGGD	5.57	19594	IF-Mitchellville	?9.29
A-Ballenger Crk ES	TEMP	14576	IF-Savage Park	9.21	19636	A-SouthRvrHS	N
KFDK/Frederick Arprt	inc	15446	KJYO/Leesburg Arprt	5.10	19644	Thomas Point TPLM2	TEMP
A-The Greens ljamsvl	3.19	15547	W-RGHD	?8.58	20501	D-Vienna Woods	8.89
IF-Piney Run	6.06	15572	W-Laurel HS/RGLH	10.20	20507	A-Noblis	6.69
IF-Randallstown	8.11	15588	KFME/Tipton Arprt	TEMP	20514	D-Sislers	6.62
IF-StrtcarMuseum	11.81	16476	A-NOVA Loudoun	2.54	20529	D-Skyline Towers	8.67
IF-Lake Roland	INOP	16511	W-Wayside ES/RGWE	4.62	20543	WASD2-Navy Yard	TEMP
U-KMDTOWSO3	inc	16538	W-Kensingtn FD/RGKN	4.35	20571	IF-District Hgts	12.64
UR-KMDTOWSO2	inc	16555	IF-PowderMill Rd	13.43	20577	IF-Harry Truman Dr	14.61
A-CrmwVly ES Townsn	INOP	1655R	IF-MNCPPC-R	10.39	20592	IF-Leeland Road	12.87
Perry Hall	12.31	16563	IF-Indian Creek 2	11.77	20636	A-Shady Side ES	N
A-Perry Hall MS	13.92	16564	IF-Indian Creek 3	10.79	21454	A-NOVA Manassas	2.89
A-TwinRidge ES	5.67	16574	IF-Montpelier S	12.17	21465	U-KVACENTR1	4.29
IF-Lisbon	5.87	16577	W-Parkway	14.20	21466	U-KVACENTR5	inc
IF-Pikesville	8.74	16633	A-ChesapeakeAcad	TEMP	21496	U-KVAFAIRF7	TEMP
A-Gilman School	10.41	17479	D-Sugarland Run	2.82	21516	U-KVAALEXA6	INOP
A-WMAR-TV	9.92	17515	W-Country Club/RGCC	6.03	21529	U-KVAALEXA13	inc
KMTN/Martin Field	TEMP	17537	W-Lyttonsville/RGLT	6.10	21533	USGS-Fourmile Run	8.08
A-Urbana ES	inc	17548	Hill	TEMP	21536	A-JeffersonHouston	inc
W-Damascus FD/RGDF	5.85	17551	IF-Adelphia Mill	9.72	21584	IF-Marlboro Rd	11.85
U-KMDELLIC5	inc	1755M	IF-Sligo Creek	9.33	21587	IF-Brown Station RD	inc
IF-Westview	11.77	17557	IF-Berwyn Road	10.63	21593	IF-Justice Cntr	12.44
IF-Northbend	11.42	17562	IF-Riverdale Road	inc	21594	W-Western Branch	15.07
IF-Hazelwood	11.26	17567	W-Greenbelt ES/RGGB	10.73	21595	IF-Depot Pond	inc
U-KMDBALTI25	inc	17568	IF-Kenilworth Ave	INOP	22539	D-Jones Point	5.99
IF-Ashburton	11.85	1756E	KCGS/CollegePk Arprt	TEMP	22541	UprPotomacCBIBS44061	TEMP
U-KMDESSEX3	inc	17577	IF-P G Sports Cntr	?9.69	22561	W-Temple Hills/RGTH	N
W-Damascus WWTP	8.23	17591	U-KMDBOWIE1	inc	22594	W-Wrn Branch/RGWB	13.72
U-KMDELLIC7	inc	17641	KNAK-USNA Arprt	inc	2262N	U-KMDDEALE1	TEMP
IF-Centennial	8.82	18472	D-Rock Hill Road	3.94	23454	KHEF/Manassas Arprt	TEMP
IF-Ellicott City	10.47	18482	A-USGS	N	23465	U-KVAMANAS7	TEMP
A-U MD Baltimore Co	TEMP	18486	U-KVARESTO8	TEMP	23521	A-Topo Engrg Ctr	inc
U-KMDRELAY1	inc	18491	U-KVARESTO5	5.56	23556	U-MKVKX	TEMP
IF-Falls Road	11.38	18492	D-Colvin Run PS	6.34	23564	W-Clinton/RGBW	8.63
U-KMDLANS1	14.48	18514	D-CIA PS	6.26	23576	U-KMDCHELT1	inc
IF-Carroll Park	12.13	18551	IF-Queens Chapel	8.15	24471	U-KVAMANAS3	3.37
U-KMDBALTI22	10.70	18557	IF-Brentwood PS	INOP	24503	D-195 Landfill	NR
N-Baltimore Sci Ctr	11.97	18558	W-Anacostia/RGAN	9.54	24506	A-Lorton WWTP	4.78
IF-Caroline	13.19	18559	IF-Edmonson Rd	9.13	24510	D-The Fairfax PS	6.39
NOS buoy BLTM2	TEMP	18560	IF-Bladensburg	inc	24524	U-KVAFORTB2	TEMP
A-Barnesville School	?2.59	18568	IF-Wildercroft	8.78	24548	W-Piscataway	7.58
IF-Columbia	8.03	18577	IF-Greenbelt	10.47	24613	U-KMDOWING1	TEMP
Elkridge	inc	18584	GlennDaleVFD/RGGF	11.13	25461	U-KVANOKES1	6.12
IF-Elkridge	11.81	18591	IF-Bowie	11.10	25589	A-Baden ES	inc
F S Key Bridge-FSKM2	TEMP	18639	A-StAnne's Day Schl	10.70	26567	A-Thos.Stone HS	inc
A-SparrowsPointHS	TEMP	19467	D-Upper Cub	4.01	26618	A-Calverton School	inc
USGS-LimestoneBr	3.87	19521	U-KVAARLIN10	7.32	27623	A-Calvert HS	11.32
W-Fire Station 29/RGGT	5.06	19538	A-GWU Geog Dept	?5.69	29508	A-NanjemoyEnv	inc
KGAI/Gaithrsburg Arprt	inc	19544	A-Children's Hospital	?9.70			
A-Clarksville MS	N	19562	A-ElizbthSetonHS	TEMP			
U-KMDGLENB3	12.64	19572	IF-Landover	10.16			
W-Seneca	4.80	19576	IF-Lake Arbor 1	13.35			
NOTATIONS . . .	<i>in "Observer" column:</i>			<i>in "PCPN" column:</i>			
	A = Automated Wx Source (AWS) or WeatherBug site.			NR = not received			
	Used with permission of AWS, Inc.			N = no data			
	ARPT = airport C = CoCoRaHS site			inc = incomplete			
	CR = CoCoRaHS "reserve" site, too close to plot			INOP = inoperative			
	D = Fairfax County Department of Public Works gauge			Ex.xx = Estimated; used in analysis			
	IF = NWS IFLOWS gauge			TEMP = temperatures only			
	N = National Weather Service site or co-op site						
	W = WSSC gauge						
	U = WeatherUnderground site; R="Reserve" site						

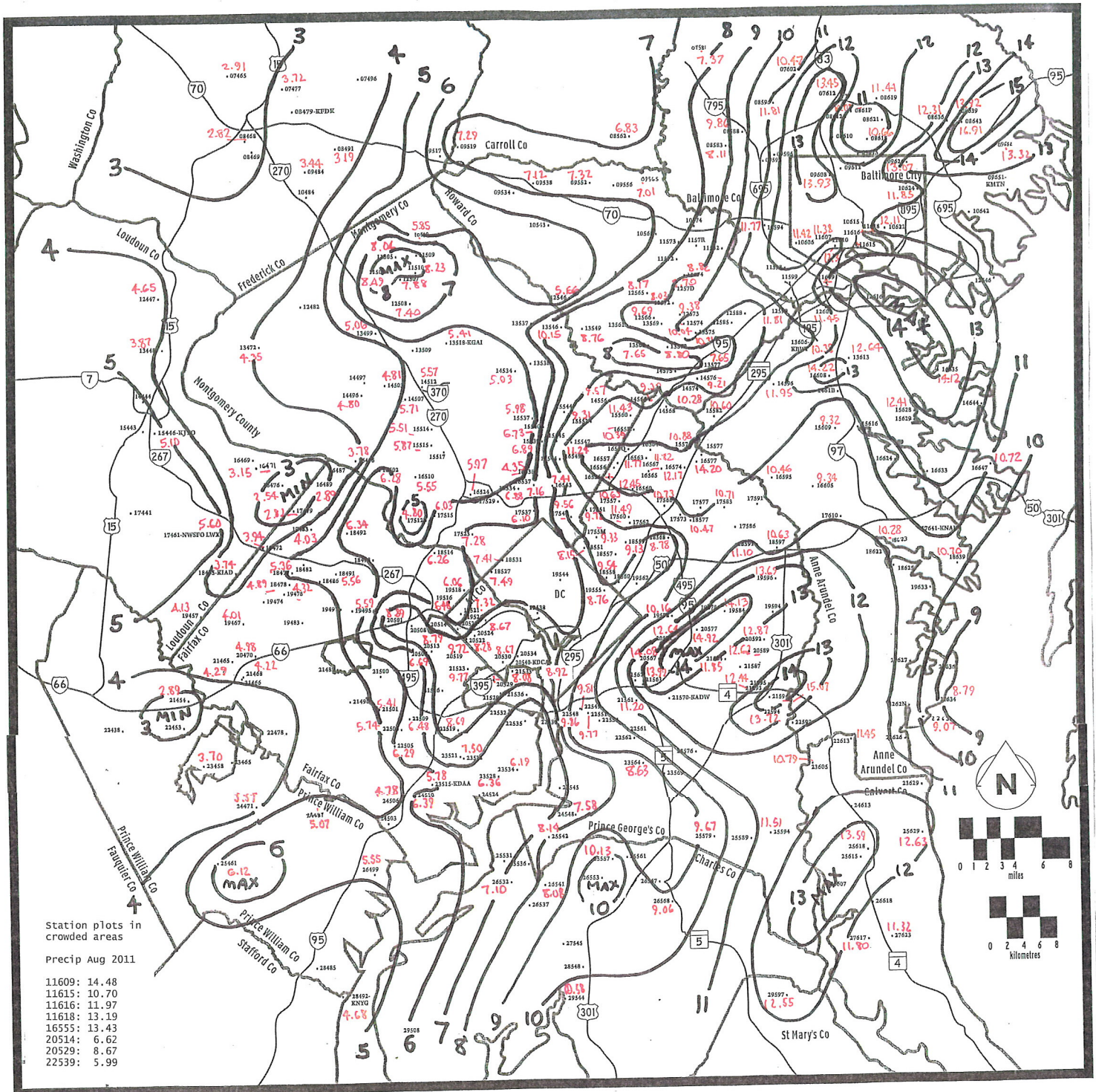
Minimum temperature analysis for August 2011

Lowest temperatures on: 23rd, 49 sites; 24th, 1 site; 30th, 47 sites; 31st, 35 sites.

Lowest reliable temperatures: 47 at Bartman/17583; 50 at Frederick Airport/08479; 51, 2 sites.

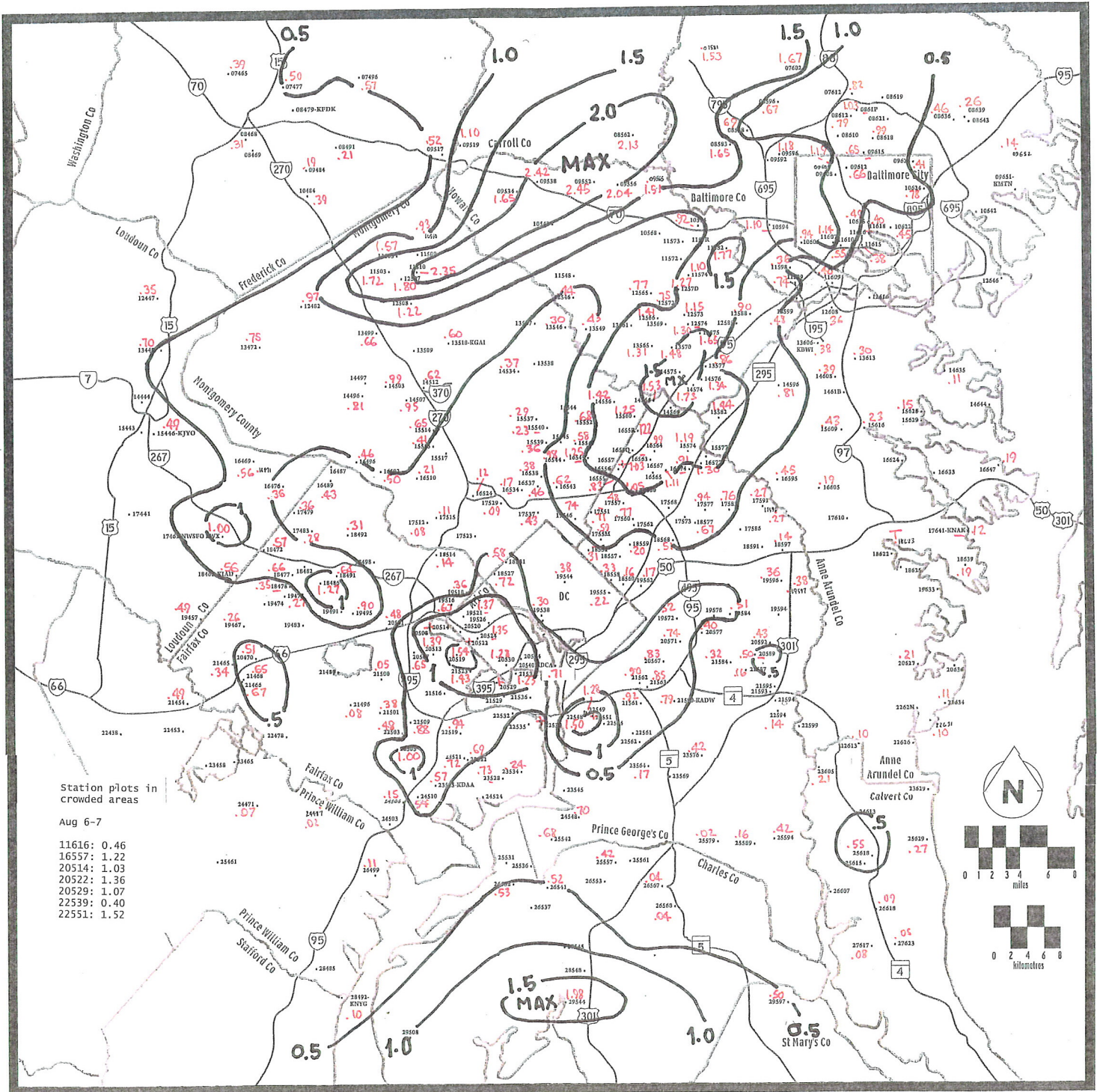


Precipitation analysis for August 2011

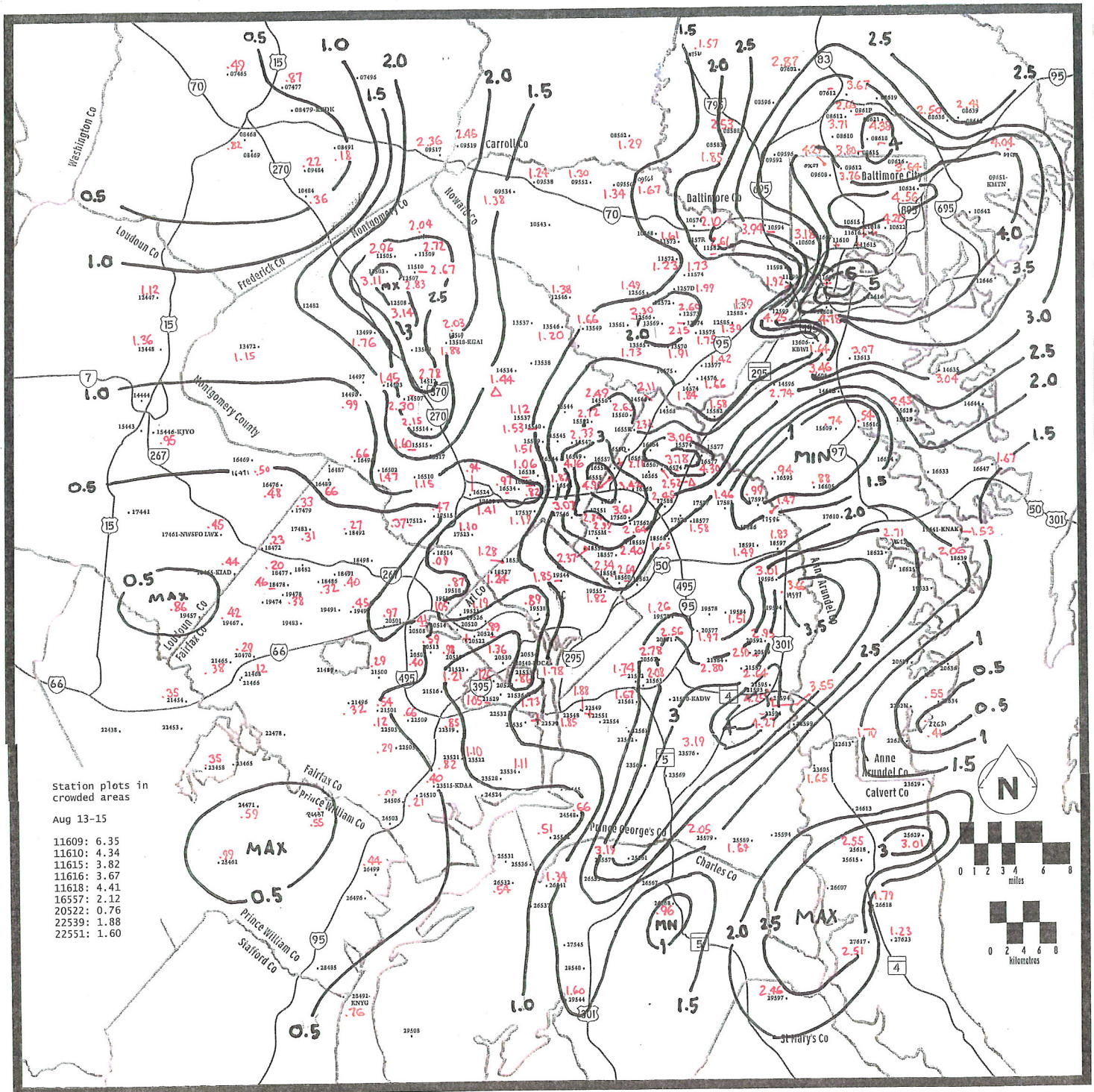


Mon Aug 1: Numerous hail reports, but the thunderstorms produced a half inch of rain or less.

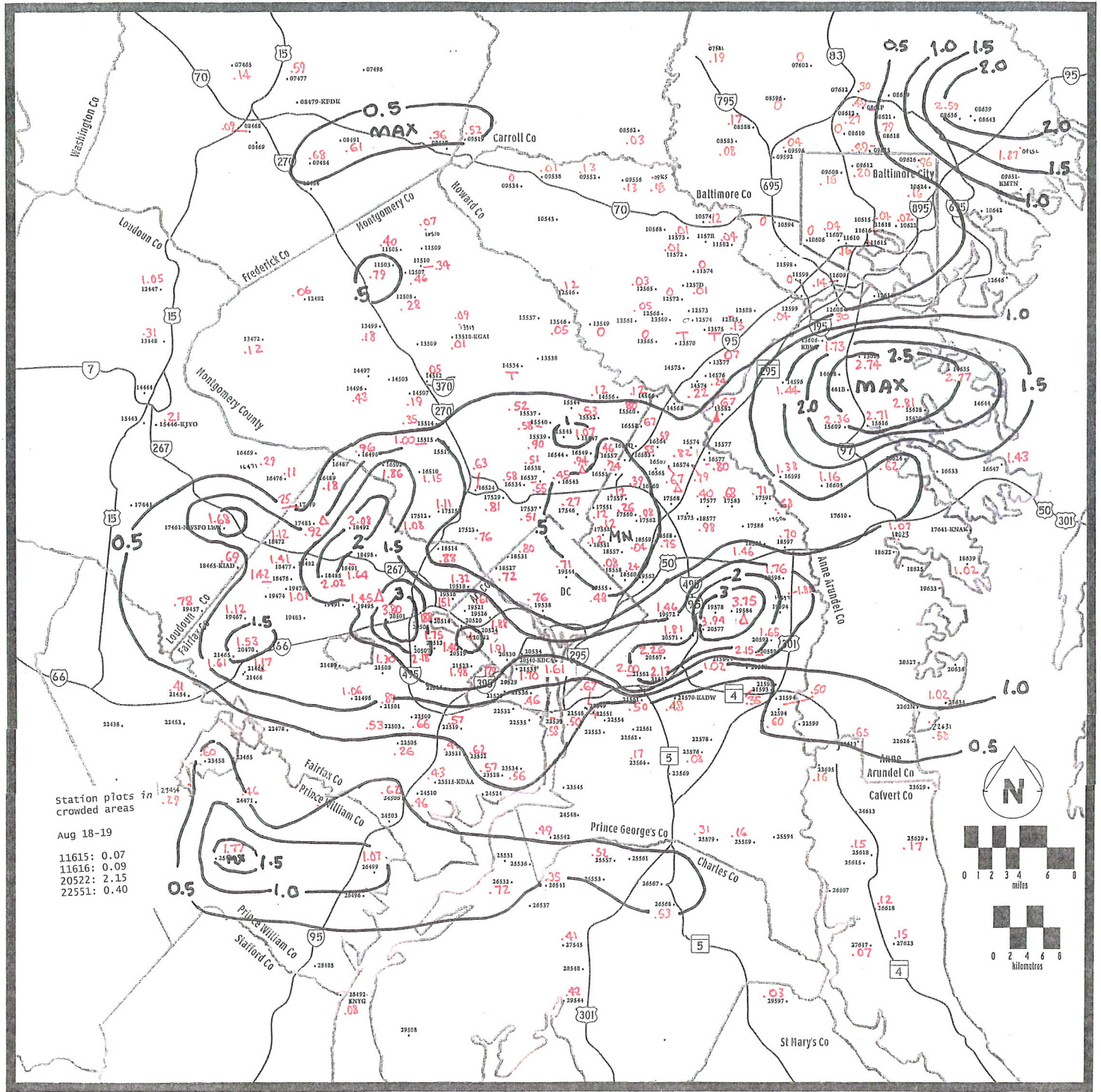
Sat Aug 6 – Sun Aug 7: Two rounds of afternoon and evening thunderstorms. The heaviest rains occurred on the 6th. A surface low passed to our N on the 6th and 7th. Its warm front and cold front provided the double triggers. The precip max in Montgomery and Howard Counties occurred Saturday evening; the maxes over Arlington and Fairfax Counties and near Oxon Hill, MD occurred Sunday evening.



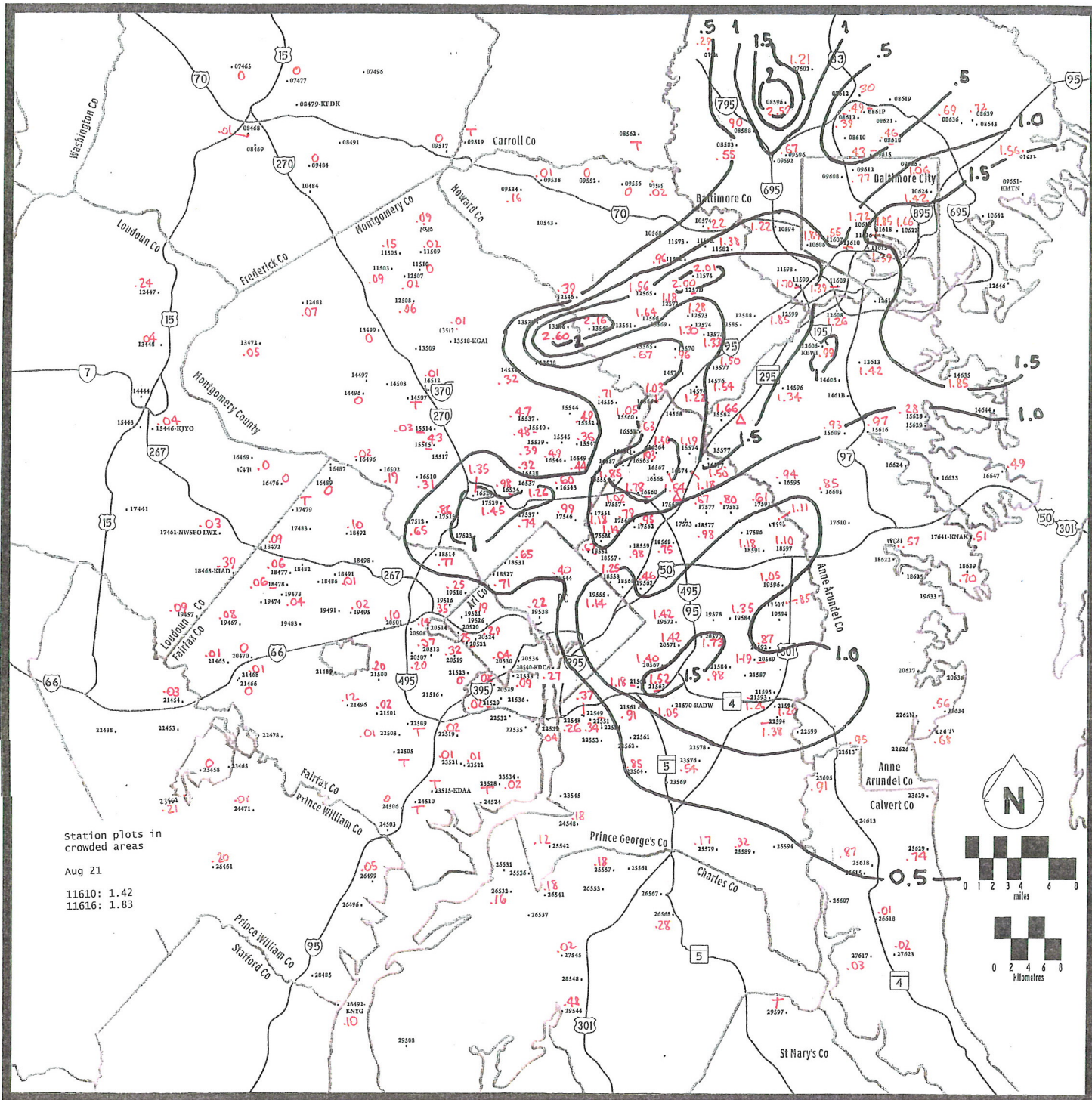
Sat Aug 13 – Mon Aug 15: Several waves of thunderstorms were caused by a clipper low moving SE through the Great Lakes and eastern Ohio Valley on the 13th and 14th, then through the mid-Atlantic area and off the coast on the 15th. There were numerous reports of severe weather gathered by NWS Sterling but few within the WBCR area. Plotted hail reports (triangles) occurred on the 14th; portions of Montgomery and Prince George's Counties had flash flooding also on the 14th.



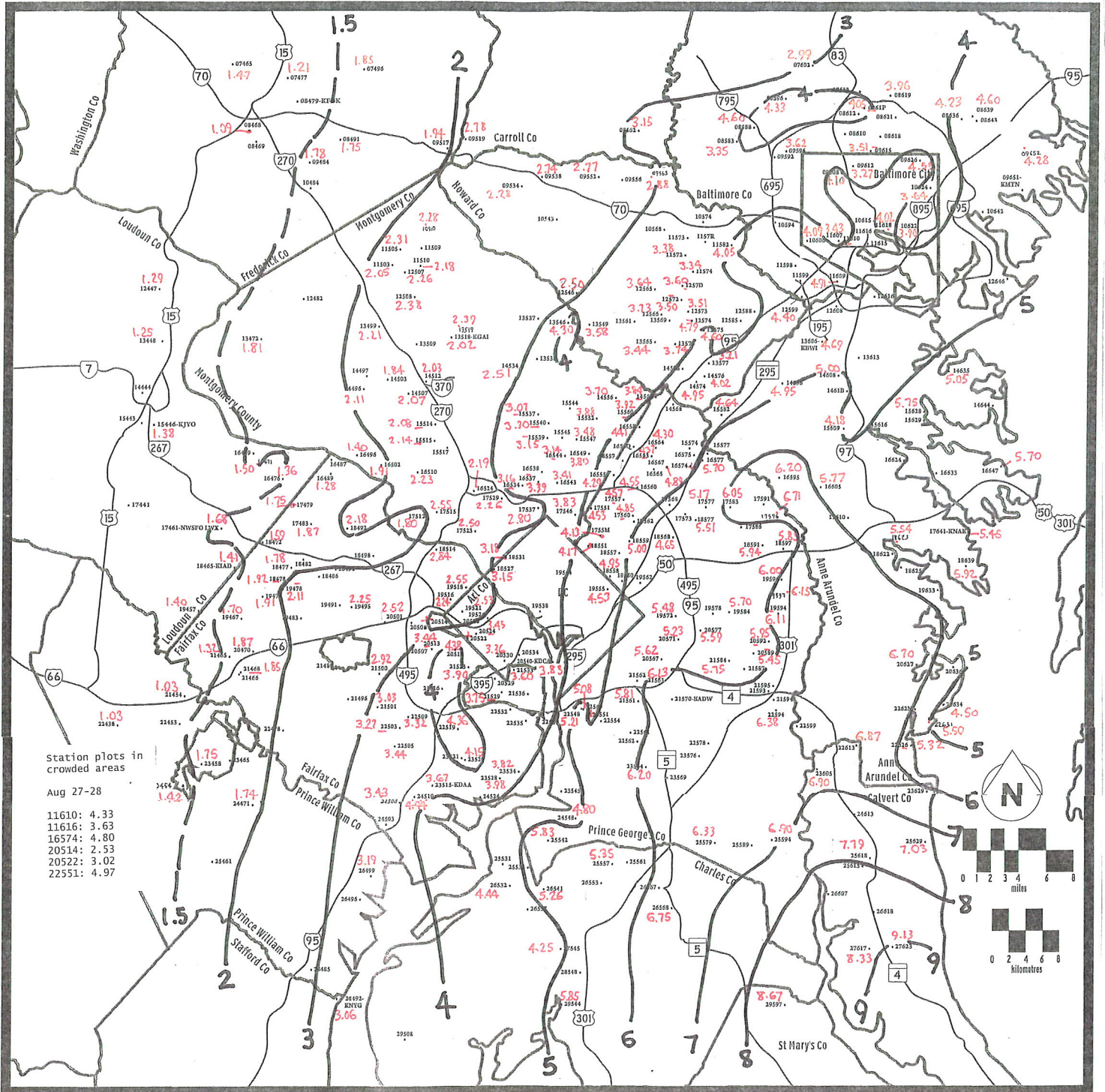
Thu Aug 18 and Fri Aug 19: Unstable SW flow ahead of a dissipating cold front produced thunderstorms that lingered into the predawn. Scattered severe weather occurred.



Sun Aug 21: Another cold front approached and touched off thunderstorms mainly from DC northeast through Baltimore. The front came through late at night and ended the activity.



Sat Aug 27 – Sun Aug 28: HURRICANE IRENE...less damaging than Isabel '03, but bad enough!



Washington-Baltimore Climate Review Monthly Report

Station Number _____ **Month** _____ **Year** _____

Observer Name _____

Time of Observation: _____

Temperature _____ Precipitation _____ Or: [] after precip ends

Temperature _____

Past 24 hrs _____ Past 24 hrs _____

Day	Max	Min	Obs	Precip	Snowfall	REMARKS
1						
2						
3						
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29						
30						
31						
Totals						
Ave						

Mail to: Brian G. Smith, 721 Crawford Street, Oxon Hill, MD 20745-1115

Email to: wbc111@verizon.net fax to: 301-839-6201

E-mail me for an excel form that calculates sums and averages.