

## Storm Data and Unusual Weather Phenomena - October 2012

| Location | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|----------|-----------|-------------------|---------------------|------------------------|
|----------|-----------|-------------------|---------------------|------------------------|

### ATLANTIC NORTH

|  |                    |  |   |                                     |
|--|--------------------|--|---|-------------------------------------|
| <b>TIDAL POTOMAC COBB IS MD TO SMITH PT VA COUNTY --- 0.3 NW PINEY POINT [38.13, -76.53]</b> |                    |  |   |                                     |
|  | 10/15/12 19:12 EST |  | 0 | Marine Thunderstorm Wind (MG 35 kt) |
|  | 10/15/12 19:12 EST |  | 0 | Source: Buoy                        |

Wind gusts of 35 knots were measured at Piney Point Buoy.

**A cold front extending from low pressure over the eastern Great Lakes moved through the Mid Atlantic from the west. Strong southerly flow and high dewpoints helped produce showers and isolated thunderstorms. Marginal instability produced strong winds over the waters.**

|   |                    |  |   |                                     |
|---|--------------------|--|---|-------------------------------------|
| <b>CHESAPEAKE BAY POOLES IS TO SANDY PT MD COUNTY --- 6.7 ENE BALTIMORE APPROACHES BUOY [39.21, -76.25]</b> |                    |  |   |                                     |
|   | 10/19/12 20:06 EST |  | 0 | Marine Thunderstorm Wind (EG 34 kt) |
|   | 10/19/12 20:06 EST |  | 0 | Source: Buoy                        |

Wind gusts in excess of 31 knots were reported at Tolchester Buoy.

**A cold front moved eastward through the Mid Atlantic and was located east of the Blue Ridge Mountains in the evening. Conditions were favorable for showers and thunderstorms to develop with high shear values. Tornado-genesis occurred in Northeast Maryland.**

### DISTRICT OF COLUMBIA

|   |                    |  |   |                              |
|---|--------------------|--|---|------------------------------|
| <b>DISTRICT OF COLUMBIA COUNTY --- 0.6 SW WALTER REED [38.97, -77.04], 0.7 SW WALTER REED [38.97, -77.04], 0.8 SW WALTER REED [38.97, -77.04], 0.7 SW WALTER REED [38.97, -77.04]</b> |                    |  |   |                              |
|   | 10/29/12 15:30 EST |  | 0 | Flood (due to Heavy Rain)    |
|   | 10/30/12 13:30 EST |  | 0 | Source: Other Federal Agency |

Rock creek exceeded flood level between 430 pm on the 29th and 1230pm on the 30th.

**Hurricane Sandy moved up the Atlantic coast and then turned Northwest and made landfall northeast of MD. Heavy rain and high winds over spread coastal regions and most of Maryland, Northern Virginia, and DC. Heavy rain caused flood and river flooding.**

|                                       |                    |  |     |                       |
|---------------------------------------|--------------------|--|-----|-----------------------|
| <b>(DC-Z001) DISTRICT OF COLUMBIA</b> |                    |  |     |                       |
|                                       | 10/29/12 17:25 EST |  | 0   | High Wind (MAX 53 kt) |
|                                       | 10/29/12 21:09 EST |  | 20K |                       |

**Hurricane Sandy moved up the Atlantic coast and then turned Northwest and made landfall northeast of MD. Heavy rain and high winds over spread coastal regions and most of Maryland, eastern panhandle of West Virginia and Northern Virginia. Heavy rain caused flooding and river flooding.**

|                                       |                    |  |   |               |
|---------------------------------------|--------------------|--|---|---------------|
| <b>(DC-Z001) DISTRICT OF COLUMBIA</b> |                    |  |   |               |
|                                       | 10/30/12 17:03 EST |  | 0 | Coastal Flood |
|                                       | 10/31/12 23:59 EST |  | 0 |               |

**Hurricane Sandy moved up the Atlantic coast and then turned Northwest and made landfall northeast of MD. Heavy rain and high winds over spread coastal regions and most of Maryland, Northern Virginia, and DC. Heavy rain caused flood and river flooding. As Sandy moved north of the Mid Atlantic, winds switched to southerly and coastal flooding occurred.**

### MARYLAND, Central

|   |                    |  |   |           |
|---|--------------------|--|---|-----------|
| <b>(MD-Z003) WASHINGTON, (MD-Z502) CENTRAL AND EASTERN ALLEGANY</b> |                    |  |   |           |
|   | 10/01/12 00:00 EST |  | 0 | Dense Fog |
|   | 10/01/12 08:17 EST |  | 0 |           |

**Surface high pressure at the surface led to clear skies and calm winds. Showers occurred the day before which made the ground moist and fog formed.**

## Storm Data and Unusual Weather Phenomena - October 2012

| Location   | Date/Time          | Deaths & Injuries | Property & Crop Dmg | Event Type and Details    |
|--|--------------------|-------------------|---------------------|---------------------------|
| <b>CARROLL COUNTY --- 0.4 NNE CEDARHURST [39.50, -76.88], 0.3 NE CEDARHURST [39.50, -76.88], 0.4 NE CEDARHURST [39.50, -76.87], 0.5 NE CEDARHURST [39.50, -76.87]</b>  |                    |                   |                     |                           |
|  | 10/02/12 10:00 EST |                   | 0                   | Flood (due to Heavy Rain) |
|  | 10/02/12 14:30 EST |                   | 0                   | Source: 911 Call Center   |
| There was a road closed near the intersection of Emery Road and Hollingsworth Road due to water across the roadway.  |                    |                   |                     |                           |
| <b>MONTGOMERY COUNTY --- 1.2 ESE CLARKSBURG [39.22, -77.26], 0.5 NW UNITY [39.23, -77.06], 0.4 SW HOMEWOOD [39.03, -77.06], 2.1 ENE GLEN [39.06, -77.18]</b>   |                    |                   |                     |                           |
|  | 10/02/12 11:30 EST |                   | 0                   | Flood (due to Heavy Rain) |
|  | 10/02/12 14:30 EST |                   | 0                   | Source: 911 Call Center   |
| There were reports of roads closed: a portion of Frederick Road was closed due to flooding, a portion of Game Preserve Road was closed due to flooding, a portion of Beach Road between Cedar Lane and Franklin Street was closed due to water across the roadway, there was a portion of Zion Road closed north of Greg Road due to 4-6 feet of water across roadway. |                    |                   |                     |                           |
| <b>HOWARD COUNTY --- 0.8 ENE LONG CORNER [39.33, -77.14], 0.8 WSW FLORENCE [39.32, -77.13], 1.4 ENE DAISY [39.31, -77.05], 1.2 ESE LISBON [39.33, -77.05]</b>  |                    |                   |                     |                           |
|  | 10/02/12 11:37 EST |                   | 0                   | Flood (due to Heavy Rain) |
|  | 10/02/12 14:30 EST |                   | 0                   | Source: 911 Call Center   |
| There was a road closed near the intersection of Bushy Park Road and Carrs Mill Road due to water across the roadway. There was a road closed near the intersection of Shaffers Mill Road and Shaffersville Road due to water across the roadway.  |                    |                   |                     |                           |
| <b>ANNE ARUNDEL COUNTY --- 1.0 N TIPTON AAF ARPT [39.09, -76.77], 1.1 NNE TIPTON AAF ARPT [39.09, -76.76], 0.9 NNE TIPTON AAF ARPT [39.09, -76.76], 0.8 NNE TIPTON AAF ARPT [39.09, -76.77]</b>  |                    |                   |                     |                           |
|  | 10/02/12 12:30 EST |                   | 1K                  | Flood (due to Heavy Rain) |
|  | 10/02/12 15:30 EST |                   | 0                   | Source: 911 Call Center   |
| A tree fell on a car near the intersection of Washington Blvd and Patuxent Park Road and it was believed to be due to high water not strong winds.   |                    |                   |                     |                           |
| <b>FREDERICK COUNTY --- 1.7 ENE UNIONVILLE [39.49, -77.15], 1.6 NE UNIONVILLE [39.49, -77.16], 1.5 ENE UNIONVILLE [39.49, -77.16], 1.7 ENE UNIONVILLE [39.49, -77.15]</b>  |                    |                   |                     |                           |
|  | 10/02/12 14:30 EST |                   | 0                   | Flood (due to Heavy Rain) |
|  | 10/02/12 16:30 EST |                   | 0                   | Source: 911 Call Center   |
| There was a road closed near the intersection of MD route 31 and Oak Orchard Road due to water across roadway.   |                    |                   |                     |                           |
| <b>An upper level low over the Ohio Valley aided in moisture advection from the south-southeast as a warm front moved north through Virginia. Low pressure to the west moved north and showers with heavy rainfall continued.</b>  |                    |                   |                     |                           |
| <b>(MD-Z003) WASHINGTON, (MD-Z005) CARROLL, (MD-Z006) NORTHERN BALTIMORE, (MD-Z007) HARFORD, (MD-Z010) HOWARD, (MD-Z011) SOUTHERN BALTIMORE, (MD-Z014) ANNE ARUNDEL, (MD-Z502) CENTRAL AND EASTERN ALLEGANY</b>  |                    |                   |                     |                           |
|  | 10/02/12 18:31 EST |                   | 0                   | Dense Fog                 |
|  | 10/03/12 09:30 EST |                   | 0                   |                           |
| Surface high pressure at the surface was wedged up against the Appalachians which led to another evening of clear skies and calm winds. Showers from the previous day caused ground to be moist and therefore fog formed into the morning.   |                    |                   |                     |                           |
| <b>(MD-Z003) WASHINGTON, (MD-Z004) FREDERICK, (MD-Z005) CARROLL, (MD-Z006) NORTHERN BALTIMORE, (MD-Z007) HARFORD, (MD-Z009) MONTGOMERY, (MD-Z010) HOWARD, (MD-Z013) PRINCE GEORGES, (MD-Z501) EXTREME WESTERN ALLEGANY, (MD-Z502) CENTRAL AND EASTERN ALLEGANY</b>   |                    |                   |                     |                           |
|  | 10/13/12 00:00 EST |                   | 0                   | Frost/Freeze              |
|  | 10/13/12 08:30 EST |                   | 0                   |                           |
| High pressure over the Northeast led to temperatures to drop in the Mid Atlantic to the upper 20s and low 30s.   |                    |                   |                     |                           |
| <b>FREDERICK COUNTY --- 0.4 S WOLFSVILLE [39.57, -77.55]</b>   |                    |                   |                     |                           |
|  | 10/18/12 21:04 EST |                   | 0                   | Hail (1.00 in)            |
|  | 10/18/12 21:04 EST |                   | 0                   | Source: Trained Spotter   |
| A cold front moved through the Mid Atlantic in the evening. A strong low level jet increased the shear in the low levels and updrafts  |                    |                   |                     |                           |

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|--|--------------------|-------------------|---------------------|---------------------------------------|
| <b>were able to maintain themselves. Thunderstorms developed and hail was the main threat.</b> |                    |                   |                     |                                       |
| <b>HARFORD COUNTY --- 1.1 SE MADONNA [39.61, -76.50], 1.0 ENE MADONNA [39.63, -76.50]</b>      |                    |                   |                     |                                       |
|  | 10/19/12 18:07 EST |                   | 0                   | Tornado (EF0, L: 1.20 mi , W: 100 yd) |
|  | 10/19/12 18:12 EST |                   | 0                   | Source: NWS Storm Survey              |

A team from the NWS conducted a ground survey of damage just northwest of Jarrettsville. Based on that survey along with radar data the team determined that an EF-0 tornado occurred in NW Harford County Maryland.

Damage occurred north along the 2100 block of Cox Road. Numerous trees and large tree branches were either uprooted or snapped half way up the base and folded across Cox Road and into the front yard of a residence. Large trees and tree branches were either snapped or uprooted in different directions behind a residence on Cox Road. The television antenna was blown off the roof and landed in the backyard. Additional minor roof and gutter damage also occurred to the front and back of the residence. A second area of damage was located along the 3800 block of Breidenbaugh Court located across from Norrisville Road and near the Salem Church Road. Shingles and siding were stripped on several homes along with snapped tree branches. A gazebo was lifted off the back porch of the residence on the 3800 block and planted on the roof. The two damage swaths were narrow. This tornado has been rated an EF-0 with maximum winds estimated at 80 mph.

**A cold front moved eastward through the Mid Atlantic and was located east of the Blue Ridge Mountains in the evening. Conditions were favorable for showers and thunderstorms to develop with high shear values. Tornado-genesis occurred in Northeast Maryland.**

|                             |                    |  |   |               |
|-----------------------------|--------------------|--|---|---------------|
| <b>(MD-Z017) ST. MARY'S</b> |                    |  |   |               |
|                             | 10/28/12 12:45 EST |  | 0 | Coastal Flood |
|                             | 10/28/12 14:50 EST |  | 0 |               |

**As Hurricane Sandy moved up the east coast, northeasterly flow caused water levels to increase on the western shore of Maryland.**

|  |                    |  |   |                                |
|--|--------------------|--|---|--------------------------------|
| <b>ANNE ARUNDEL COUNTY --- 1.1 NNW ORDANCE [39.21, -76.59], 2.3 W RAYNOR HGTS [39.23, -76.71], 1.7 W RUTLAND [38.97, -76.66], 2.1 NNW BESTGATE [39.01, -76.57]</b> |                    |  |   |                                |
|  | 10/29/12 10:29 EST |  | 0 | Flood (due to Heavy Rain)      |
|  | 10/29/12 13:30 EST |  | 0 | Source: Department of Highways |

These places were flooded: MD 450 was flooded and closed by streams between Huntwood Drive and Saint Stephens Church Road and MD176 flooded between Central Ave and MD 648.

|   |                    |  |   |                                |
|---|--------------------|--|---|--------------------------------|
| <b>FREDERICK COUNTY --- 0.4 E ELLERTON [39.53, -77.54], 0.6 SE ELLERTON [39.52, -77.54], 0.9 ESE ELLERTON [39.53, -77.53], 0.7 E ELLERTON [39.53, -77.54]</b> |                    |  |   |                                |
|   | 10/29/12 12:30 EST |  | 0 | Flood (due to Heavy Rain)      |
|   | 10/30/12 10:00 EST |  | 0 | Source: Department of Highways |

Crow Rock Rd was flooded at Wolfsville Road.

|   |                    |  |   |                                |
|---|--------------------|--|---|--------------------------------|
| <b>HOWARD COUNTY --- 1.3 N DORSEY [39.20, -76.75], 1.1 N WATERLOO [39.19, -76.78], 2.6 SW BRIDEWELL [39.12, -76.73], 0.7 SW BRIDEWELL [39.14, -76.71]</b> |                    |  |   |                                |
|   | 10/29/12 12:40 EST |  | 0 | Flood (due to Heavy Rain)      |
|   | 10/30/12 13:30 EST |  | 0 | Source: Department of Highways |

These roads were impacted: Wolfsville Rd flooded at Crow Rock Road where it meets the Middle Creek and MD 103 was closed at Business Parkway.

|  |                    |  |   |                                |
|--|--------------------|--|---|--------------------------------|
| <b>BALTIMORE COUNTY --- 0.9 W OAKLEIGH [39.40, -76.57], 0.8 W OAKLEIGH [39.40, -76.57], 0.8 W OAKLEIGH [39.40, -76.57], 0.9 W OAKLEIGH [39.40, -76.57]</b> |                    |  |   |                                |
|  | 10/29/12 14:05 EST |  | 0 | Flood (due to Heavy Rain)      |
|  | 10/30/12 13:30 EST |  | 0 | Source: Department of Highways |

Maryland 542 was flooded at I-695.

|   |                    |  |   |                                |
|---|--------------------|--|---|--------------------------------|
| <b>PRINCE GEORGE'S COUNTY --- 1.1 SSW WELLS CORNER [38.80, -76.74], 1.5 SW UPPER MARLBORO [38.80, -76.77], 1.2 ESE COLLINGTON [38.96, -76.75], 2.7 ESE COLLINGTON [38.96, -76.72]</b> |                    |  |   |                                |
|   | 10/29/12 14:53 EST |  | 0 | Flood (due to Heavy Rain)      |
|   | 10/31/12 05:15 EST |  | 0 | Source: Department of Highways |

There were reports of flooding: the right lane was closed of US 50 east between exits 11 and 13 and the western branch was flooded at Water Street in Upper Marlboro. The stream gauge there crested at 930am at over 15 feet.

## Storm Data and Unusual Weather Phenomena - October 2012

| Location  | Date/Time          | Deaths & Injuries | Property & Crop Dmg | Event Type and Details         |
|---|--------------------|-------------------|---------------------|--------------------------------|
| <b>MONTGOMERY COUNTY --- 0.6 WNW HOLLYWOOD PARK [39.07, -77.01], 0.4 ENE WHEATON HILLS [39.07, -77.04], 0.5 S KEMP MILL [39.02, -77.02], 0.7 SW WHITE OAK [39.02, -77.01]</b> |                    |                   |                     |                                |
|   | 10/29/12 17:00 EST |                   | 0                   | Flood (due to Heavy Rain)      |
|   | 10/30/12 13:30 EST |                   | 0                   | Source: Department of Highways |

There were reports of flooding: NW Anacostia river was outside of its banks at Rt 29, NW branch exceeded flood stage of 9 feet at 650pm, and US 29 was closed due to flooding at NW branch bridge.

|   |                    |  |   |                              |
|---|--------------------|--|---|------------------------------|
| <b>WASHINGTON COUNTY --- 24.4 E HIGH FIELD [39.69, -77.02], 24.4 E HIGH FIELD [39.66, -77.03], 0.9 NNE LEITERSBURG [39.71, -77.61], 1.5 NNE LEITERSBURG [39.72, -77.61]</b> |                    |  |   |                              |
|   | 10/30/12 03:15 EST |  | 0 | Flood (due to Heavy Rain)    |
|   | 10/30/12 16:00 EST |  | 0 | Source: Other Federal Agency |

Antietam Creek near Leitersburg exceeded its flood stage between 0415 am and 1230pm and Licking Creek exceeded flood stage between 8 am and 5 pm on the 30th.

Hurricane Sandy moved up the Atlantic coast and then turned Northwest and made landfall northeast of MD. Heavy rain and high winds over spread coastal regions and most of Maryland. Heavy rain caused flood and river flooding.

|  |                    |   |        |                       |
|--|--------------------|---|--------|-----------------------|
| <b>(MD-Z003) WASHINGTON, (MD-Z004) FREDERICK, (MD-Z005) CARROLL, (MD-Z006) NORTHERN BALTIMORE, (MD-Z007) HARFORD, (MD-Z009) MONTGOMERY, (MD-Z010) HOWARD, (MD-Z011) SOUTHERN BALTIMORE, (MD-Z013) PRINCE GEORGES, (MD-Z014) ANNE ARUNDEL, (MD-Z016) CHARLES, (MD-Z017) ST. MARY'S, (MD-Z018) CALVERT, (MD-Z501) EXTREME WESTERN ALLEGANY, (MD-Z502) CENTRAL AND EASTERN ALLEGANY</b> |                    |   |        |                       |
|  | 10/29/12 15:00 EST | 1 | 27.06M | High Wind (MAX 61 kt) |
|  | 10/29/12 23:57 EST | 4 | 0      |                       |

Direct Fatalities: M??UT

Hurricane Sandy moved up the Atlantic coast and then turned Northwest and made landfall northeast of MD. Heavy rain and high winds over spread coastal regions and most of Maryland, eastern panhandle of West Virginia and Northern Virginia. Heavy rain caused flooding and river flooding.

|   |                    |  |   |          |
|---|--------------------|--|---|----------|
| <b>(MD-Z501) EXTREME WESTERN ALLEGANY</b> |                    |  |   |          |
|   | 10/29/12 18:00 EST |  | 0 | Blizzard |
|   | 10/30/12 07:00 EST |  | 0 |          |

Hurricane Sandy moved up the Atlantic coast and then turned Northwest and made landfall northeast of MD. Heavy rain and high winds over spread coastal regions and most of Maryland. Heavy rain caused flood and river flooding. As Sandy moved north of the Mid Atlantic, winds switched to southerly and coastal flooding occurred. Blizzard conditions occurred on the backside of Sandy in elevations over 2500 feet in Western Maryland, Virginia, and West Virginia.

|   |                    |  |   |               |
|---|--------------------|--|---|---------------|
| <b>(MD-Z007) HARFORD, (MD-Z011) SOUTHERN BALTIMORE, (MD-Z014) ANNE ARUNDEL, (MD-Z018) CALVERT</b> |                    |  |   |               |
|   | 10/30/12 01:30 EST |  | 0 | Coastal Flood |
|   | 10/30/12 19:18 EST |  | 0 |               |

Hurricane Sandy moved up the Atlantic coast and then turned Northwest and made landfall northeast of MD. Heavy rain and high winds over spread coastal regions and most of Maryland. Heavy rain caused flood and river flooding. As Sandy moved north of the Mid Atlantic, winds switched to southerly and coastal flooding occurred.

### VIRGINIA, North

|                         |                    |  |   |           |
|-------------------------|--------------------|--|---|-----------|
| <b>(VA-Z031) CLARKE</b> |                    |  |   |           |
|                         | 10/01/12 00:36 EST |  | 0 | Dense Fog |
|                         | 10/01/12 08:53 EST |  | 0 |           |

Surface high pressure at the surface led to clear skies and calm winds. Showers occurred the day before which made the ground moist and fog formed.

## Storm Data and Unusual Weather Phenomena - October 2012

| Location   | Date/Time          | Deaths &<br>Injuries | Property &<br>Crop Dmg | Event Type and Details         |
|--|--------------------|----------------------|------------------------|--------------------------------|
| <b>CULPEPER COUNTY --- 1.5 N CULPEPER [38.50, -78.00], 1.6 N WINSTON [38.42, -78.02], 0.6 SSE LIGNUM [38.41, -77.83], 1.4 SSE ELKWOOD [38.50, -77.84]</b>  |                    |                      |                        |                                |
|  | 10/02/12 09:00 EST |                      | 0                      | Flood (due to Heavy Rain)      |
|  | 10/02/12 13:00 EST |                      | 0                      | Source: 911 Call Center        |
| <p>There were four reports of flooding: a spotter reported Mountain Run Creek was out of its banks and a few inches from going over the roadway near Culpeper. The 911 center reported water was across the roadway at multiple locations along Carrico Mills Road, near the intersection of Mount Pony Road and Route 3, and along Ellis Road.</p> <p><b>An upper level low over the Ohio Valley aided in moisture advection from the south-southeast as a warm front moved north through Virginia. Low pressure to the west moved north and showers with heavy rainfall continued.</b></p> |                    |                      |                        |                                |
| <b>(VA-Z025) AUGUSTA, (VA-Z027) SHENANDOAH, (VA-Z028) FREDERICK, (VA-Z029) PAGE, (VA-Z030) WARREN, (VA-Z031) CLARKE, (VA-Z036) NELSON, (VA-Z037) ALBEMARLE, (VA-Z039) MADISON, (VA-Z040) RAPPAHANNOCK, (VA-Z042) LOUDOUN, (VA-Z050) ORANGE, (VA-Z052) PRINCE WILLIAM, (VA-Z501) NORTHERN FAUQUIER, (VA-Z502) SOUTHERN FAUQUIER</b>   |                    |                      |                        |                                |
|  | 10/02/12 21:15 EST |                      | 0                      | Dense Fog                      |
|  | 10/03/12 08:40 EST |                      | 0                      |                                |
| <p>Surface high pressure at the surface was wedged up against the Appalachians which led to another evening of clear skies and calm winds. Showers from the previous day caused ground to be moist and therefore fog formed into the morning.</p>  |                    |                      |                        |                                |
| <b>(VA-Z503) WESTERN HIGHLAND</b>  |                    |                      |                        |                                |
|  | 10/08/12 06:00 EST |                      | 0                      | Frost/Freeze                   |
|  | 10/08/12 07:00 EST |                      | 0                      |                                |
| <p>A large area of high pressure centered across the Mid Atlantic led to temperatures reaching the low 30s across the Allegheny Front and Potomac Highlands.</p>   |                    |                      |                        |                                |
| <b>(VA-Z503) WESTERN HIGHLAND, (VA-Z504) EASTERN HIGHLAND</b>  |                    |                      |                        |                                |
|  | 10/11/12 04:30 EST |                      | 0                      | Frost/Freeze                   |
|  | 10/11/12 08:30 EST |                      | 0                      |                                |
| <p>A large area of high pressure east of the Atlantic coast led to temperatures reaching the upper 20s and low 30s across the Allegheny Front and Potomac Highlands.</p>   |                    |                      |                        |                                |
| <b>(VA-Z026) ROCKINGHAM, (VA-Z027) SHENANDOAH, (VA-Z028) FREDERICK, (VA-Z029) PAGE, (VA-Z030) WARREN, (VA-Z031) CLARKE, (VA-Z040) RAPPAHANNOCK, (VA-Z042) LOUDOUN, (VA-Z052) PRINCE WILLIAM, (VA-Z053) FAIRFAX, (VA-Z501) NORTHERN FAUQUIER, (VA-Z502) SOUTHERN FAUQUIER, (VA-Z503) WESTERN HIGHLAND, (VA-Z504) EASTERN HIGHLAND</b>   |                    |                      |                        |                                |
|  | 10/13/12 02:00 EST |                      | 0                      | Frost/Freeze                   |
|  | 10/13/12 08:30 EST |                      | 0                      |                                |
| <p>High pressure over the Northeast led to temperatures to drop in the Mid Atlantic to the upper 20s and low 30s.</p>  |                    |                      |                        |                                |
| <b>SHENANDOAH COUNTY --- 0.4 SSE EDITH XRDS [38.77, -78.50]</b>  |                    |                      |                        |                                |
|  | 10/18/12 20:15 EST |                      | 0                      | Hail (1.00 in)                 |
|  | 10/18/12 20:15 EST |                      | 0                      | Source: Public                 |
| <b>FREDERICK COUNTY --- 1.2 N STEPHENS CITY [39.10, -78.22]</b>  |                    |                      |                        |                                |
|  | 10/18/12 20:32 EST |                      | 0                      | Hail (1.00 in)                 |
|  | 10/18/12 20:32 EST |                      | 0                      | Source: Broadcast Media        |
| <p>A cold front moved through the Mid Atlantic in the evening. A strong low level jet increased the shear in the low levels and updrafts were able to maintain themselves. Thunderstorms developed and hail was the main threat.</p>   |                    |                      |                        |                                |
| <b>LOUDOUN COUNTY --- 2.5 NNW HILLSBORO [39.23, -77.74], 5.2 SW MIDDLEBURG [38.93, -77.85], 2.9 SE PLEASANT VLY [38.90, -77.44], 1.8 WNW BROAD RUN FARMS [39.04, -77.40]</b>   |                    |                      |                        |                                |
|  | 10/29/12 12:30 EST |                      | 0                      | Flood (due to Heavy Rain)      |
|  | 10/30/12 10:00 EST |                      | 0                      | Source: Department of Highways |

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|--|-----------|-------------------|---------------------|------------------------|
| There were many reports of flooding: Shreve Mill Road flooded near the Dulles Greenway, Berlin Turnpike and Alder School Rd, South Fork Catoclin Creek exceeded its flood level between 0630pm on the 29th and 1230 PM on the 30th, Beaverdam Creek was above flood level between 930 pm on the 29th and 10am on the 30th, the North Fork of Goose Creek was above flood level between about 1020pm on the 29th and 4am on the 30th, Broad Run exceeded its flood stage between 1015 and 1030 pm, the Monocacy River at Brdigeport exceeded flood stage from approx 11pm Monday to 5am Tuesday, Route 15 closed at Goose Creek, and Alder School Road is closed at the South Fork of the Catoclin Creek. |           |                   |                     |                        |

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**FAIRFAX COUNTY --- 1.0 W TREMONT [38.85, -77.24], 0.9 WSW TREMONT [38.85, -77.24], 0.9 WSW TREMONT [38.85, -77.24], 1.0 WSW TREMONT [38.85, -77.24]**

|                    |   |                                |
|--------------------|---|--------------------------------|
| 10/29/12 12:47 EST | 0 | Flood (due to Heavy Rain)      |
| 10/29/12 20:00 EST | 0 | Source: Department of Highways |

Woodburn Road was flooded near Accotink Creek.

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**CLARKE COUNTY --- 1.3 NNE DOUBLE TOLLGATE [39.07, -78.12], 1.2 NNE DOUBLE TOLLGATE [39.07, -78.12], 1.2 NNE DOUBLE TOLLGATE [39.07, -78.12], 1.2 NNE DOUBLE TOLLGATE [39.07, -78.12]**

|                    |   |                                |
|--------------------|---|--------------------------------|
| 10/29/12 13:20 EST | 0 | Flood (due to Heavy Rain)      |
| 10/30/12 08:22 EST | 0 | Source: Department of Highways |

Nations Spring Road near Gun Barrel Road was flooded.

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**PRINCE WILLIAM COUNTY --- 1.6 W NOKESVILLE [38.70, -77.61], 1.7 W NOKESVILLE [38.70, -77.61], 1.6 W NOKESVILLE [38.70, -77.61], 1.5 W NOKESVILLE [38.70, -77.61]**

|                    |   |                                |
|--------------------|---|--------------------------------|
| 10/29/12 13:30 EST | 0 | Flood (due to Heavy Rain)      |
| 10/30/12 17:30 EST | 0 | Source: Department of Highways |

Road was flooded near 11732 Reid Lane.

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**FREDERICK COUNTY --- 0.5 ESE ARMEL [39.08, -78.14], 0.7 ESE ARMEL [39.08, -78.14], 0.7 ESE ARMEL [39.07, -78.14], 0.6 SE ARMEL [39.07, -78.14]**

|                    |   |                                |
|--------------------|---|--------------------------------|
| 10/29/12 13:33 EST | 0 | Flood (due to Heavy Rain)      |
| 10/30/12 14:30 EST | 0 | Source: Department of Highways |

This road was flooded.

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**SHENANDOAH COUNTY --- 1.0 WSW ST STEPHENS CHURCH [39.01, -78.44], 2.3 E CAPON RD [39.00, -78.33], 0.7 SE BOWMAN [38.79, -78.57], 1.2 SE BASYE [38.79, -78.76]**

|                    |   |                                |
|--------------------|---|--------------------------------|
| 10/29/12 19:06 EST | 0 | Flood (due to Heavy Rain)      |
| 10/30/12 14:30 EST | 0 | Source: Department of Highways |

There were reports of flooding: Stoney Creek road due to flooding, Copp Rd closed at Rt 601 E, Crooked Run Rd remains closed due to flooding in addition to other roads in the county remain closed, and Shenandoah River out of its banks at Strasburg.

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**GREENE COUNTY --- 1.1 NNW STANDARDSVILLE [38.31, -78.44], 1.0 NNW STANDARDSVILLE [38.31, -78.44], 1.0 NNW STANDARDSVILLE [38.31, -78.44], 1.0 NNW STANDARDSVILLE [38.31, -78.44]**

|                    |   |                                |
|--------------------|---|--------------------------------|
| 10/29/12 19:32 EST | 0 | Flood (due to Heavy Rain)      |
| 10/30/12 13:30 EST | 0 | Source: Department of Highways |

Octonia road was closed due to flooding.

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**FAUQUIER COUNTY --- 1.5 NNW REMINGTON [38.55, -77.81], 1.4 S BEALETON [38.55, -77.77], 1.2 ESE CATLETT [38.64, -77.61], 0.6 W CATLETT [38.65, -77.64]**

|                    |   |                              |
|--------------------|---|------------------------------|
| 10/29/12 20:46 EST | 0 | Flood (due to Heavy Rain)    |
| 10/30/12 17:30 EST | 0 | Source: Other Federal Agency |

There were two reports of flooding: A stream gauge on Cedar Run exceeded flood stage at 946 pm and Remington Rd was closed near Lucky Hill Rd due to flooding.

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**RAPPAHANNOCK COUNTY --- 1.4 ENE LAUREL MILLS [38.66, -78.08], 1.5 ENE LAUREL MILLS [38.66, -78.07], 1.5 ENE LAUREL MILLS [38.66, -78.07], 1.4 ENE LAUREL MILLS [38.66, -78.07]**

|                    |   |                              |
|--------------------|---|------------------------------|
| 10/29/12 23:15 EST | 0 | Flood (due to Heavy Rain)    |
| 10/29/12 23:30 EST | 0 | Source: Other Federal Agency |

Battle Run at Laurel Mills exceeded its flood stage between 1215 and 1230 am Tuesday.

## Storm Data and Unusual Weather Phenomena - October 2012

| Location   | Date/Time          | Deaths & Injuries | Property & Crop Dmg | Event Type and Details         |
|--|--------------------|-------------------|---------------------|--------------------------------|
| <b>CULPEPER COUNTY --- 1.4 NNE RIXEYVILLE [38.60, -77.96], 1.1 ENE MONUMENT MILLS [38.60, -77.98], 0.9 WSW WINSTON [38.39, -78.04], 1.9 E WINSTON [38.40, -77.99]</b>  |                    |                   |                     |                                |
|  | 10/30/12 05:30 EST |                   | 0                   | Flood (due to Heavy Rain)      |
|  | 10/30/12 08:00 EST |                   | 0                   | Source: Department of Highways |
| Road was flooded at US 522 at Winston Road in Winston, VA and Hazel River exceeded flood level between 630am and 9 am on the 30th. The low water bridge nearby was covered for nearly a day.   |                    |                   |                     |                                |
| Hurricane Sandy moved up the Atlantic coast and then turned Northwest and made landfall northeast of MD. Heavy rain and high winds over spread coastal regions and most of Maryland and parts of Northern Virginia. Heavy rain caused flood and river flooding.  |                    |                   |                     |                                |
| <b>(VA-Z025) AUGUSTA, (VA-Z026) ROCKINGHAM, (VA-Z029) PAGE, (VA-Z036) NELSON, (VA-Z037) ALBEMARLE, (VA-Z038) GREENE, (VA-Z039) MADISON, (VA-Z040) RAPPAHANNOCK, (VA-Z503) WESTERN HIGHLAND, (VA-Z504) EASTERN HIGHLAND</b>   |                    |                   |                     |                                |
|  | 10/29/12 14:00 EST |                   | 0                   | Blizzard                       |
|  | 10/30/12 10:00 EST |                   | 0                   |                                |
| Hurricane Sandy moved up the Atlantic coast and then turned Northwest and made landfall northeast of MD. Heavy rain and high winds over spread coastal regions and most of Maryland. Heavy rain caused flood and river flooding. As Sandy moved north of the Mid Atlantic, winds switched to southerly and coastal flooding occurred. Blizzard conditions occurred on the backside of Sandy in elevations over 2500 feet in Western Maryland, Virginia, and West Virginia. |                    |                   |                     |                                |
| <b>(VA-Z027) SHENANDOAH, (VA-Z028) FREDERICK, (VA-Z030) WARREN, (VA-Z031) CLARKE, (VA-Z036) NELSON, (VA-Z037) ALBEMARLE, (VA-Z039) MADISON, (VA-Z040) RAPPAHANNOCK, (VA-Z042) LOUDOUN, (VA-Z051) CULPEPER, (VA-Z052) PRINCE WILLIAM, (VA-Z053) FAIRFAX, (VA-Z054) ARLINGTON, (VA-Z055) STAFFORD, (VA-Z057) KING GEORGE, (VA-Z501) NORTHERN FAUQUIER, (VA-Z502) SOUTHERN FAUQUIER, (VA-Z503) WESTERN HIGHLAND, (VA-Z504) EASTERN HIGHLAND</b>                               |                    |                   |                     |                                |
|  | 10/29/12 16:00 EST |                   | 5.32M               | High Wind (MAX 55 kt)          |
|  | 10/29/12 23:00 EST | 1                 | 2.18M               |                                |
| Hurricane Sandy moved up the Atlantic coast and then turned Northwest and made landfall northeast of MD. Heavy rain and high winds over spread coastal regions and most of Maryland, eastern panhandle of West Virginia and Northern Virginia. Heavy rain caused flooding and river flooding.  |                    |                   |                     |                                |
| <b>(VA-Z054) ARLINGTON</b>   |                    |                   |                     |                                |
|  | 10/30/12 17:06 EST |                   | 0                   | Coastal Flood                  |
|  | 10/30/12 21:16 EST |                   | 0                   |                                |
| Hurricane Sandy moved up the Atlantic coast and then turned Northwest and made landfall northeast of MD. Heavy rain and high winds over spread coastal regions and most of Maryland, Northern Virginia, and DC. Heavy rain caused flood and river flooding. As Sandy moved north of the Mid Atlantic, winds switched to southerly and coastal flooding occurred.   |                    |                   |                     |                                |
| <b>WEST VIRGINIA, East</b>   |                    |                   |                     |                                |
| <b>(WV-Z052) BERKELEY, (WV-Z053) JEFFERSON, (WV-Z504) EASTERN MINERAL</b>  |                    |                   |                     |                                |
|  | 10/01/12 00:00 EST |                   | 0                   | Dense Fog                      |
|  | 10/01/12 08:53 EST |                   | 0                   |                                |
| Surface high pressure at the surface led to clear skies and calm winds. Showers occurred the day before which made the ground moist and fog formed.  |                    |                   |                     |                                |
| <b>(WV-Z050) HAMPSHIRE, (WV-Z051) MORGAN, (WV-Z052) BERKELEY, (WV-Z053) JEFFERSON, (WV-Z504) EASTERN MINERAL</b>   |                    |                   |                     |                                |
|  | 10/02/12 22:15 EST |                   | 0                   | Dense Fog                      |
|  | 10/03/12 04:30 EST |                   | 0                   |                                |
| Surface high pressure at the surface was wedged up against the Appalachians which led to another evening of clear skies and calm winds. Showers from the previous day caused ground to be moist and therefore fog formed into the morning.   |                    |                   |                     |                                |
| <b>(WV-Z501) WESTERN GRANT, (WV-Z503) WESTERN MINERAL</b>  |                    |                   |                     |                                |
|  | 10/08/12 05:30 EST |                   | 0                   | Frost/Freeze                   |
|  | 10/08/12 07:00 EST |                   | 0                   |                                |

## Storm Data and Unusual Weather Phenomena - October 2012

| Location | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|----------|-----------|-------------------|---------------------|------------------------|
|----------|-----------|-------------------|---------------------|------------------------|

A large area of high pressure centered across the Mid Atlantic led to temperatures reaching the low 30s across the Allegheny Front and Potomac Highlands.

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(WV-Z501) WESTERN GRANT, (WV-Z503) WESTERN MINERAL

|                    |   |              |
|--------------------|---|--------------|
| 10/09/12 06:00 EST | 0 | Frost/Freeze |
| 10/09/12 07:00 EST | 0 |              |

A large area of high pressure east of the Atlantic coast led to temperatures reaching the low 30s across the Allegheny Front and Potomac Highlands.

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(WV-Z501) WESTERN GRANT, (WV-Z503) WESTERN MINERAL

|                    |   |              |
|--------------------|---|--------------|
| 10/11/12 04:30 EST | 0 | Frost/Freeze |
| 10/11/12 08:30 EST | 0 |              |

A large area of high pressure east of the Atlantic coast led to temperatures reaching the upper 20s and low 30s across the Allegheny Front and Potomac Highlands.

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(WV-Z050) HAMPSHIRE, (WV-Z051) MORGAN, (WV-Z052) BERKELEY, (WV-Z053) JEFFERSON, (WV-Z055) HARDY, (WV-Z501) WESTERN GRANT, (WV-Z502) EASTERN GRANT, (WV-Z503) WESTERN MINERAL, (WV-Z504) EASTERN MINERAL, (WV-Z505) WESTERN PENDLETON, (WV-Z506) EASTERN PENDLETON

|                    |   |              |
|--------------------|---|--------------|
| 10/13/12 00:00 EST | 0 | Frost/Freeze |
| 10/13/12 08:30 EST | 0 |              |

High pressure over the Northeast led to temperatures to drop in the Mid Atlantic to the upper 20s and low 30s.

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(WV-Z050) HAMPSHIRE, (WV-Z051) MORGAN, (WV-Z052) BERKELEY, (WV-Z053) JEFFERSON, (WV-Z055) HARDY, (WV-Z501) WESTERN GRANT, (WV-Z502) EASTERN GRANT, (WV-Z503) WESTERN MINERAL, (WV-Z504) EASTERN MINERAL, (WV-Z505) WESTERN PENDLETON, (WV-Z506) EASTERN PENDLETON

|                    |     |                       |
|--------------------|-----|-----------------------|
| 10/29/12 03:00 EST | 12K | High Wind (MAX 60 kt) |
| 10/30/12 03:00 EST | 30K |                       |

Hurricane Sandy moved up the Atlantic coast and then turned Northwest and made landfall northeast of MD. Heavy rain and high winds over spread coastal regions and most of Maryland, eastern panhandle of West Virginia and Northern Virginia. Heavy rain caused flooding and river flooding.

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BERKELEY COUNTY --- 1.6 NW MARTINSBURG [39.47, -77.99], 1.6 NW MARTINSBURG [39.47, -77.99], 1.6 NW MARTINSBURG [39.47, -77.99], 1.6 NW MARTINSBURG [39.47, -77.99]

|                    |   |                                 |
|--------------------|---|---------------------------------|
| 10/29/12 13:40 EST | 0 | Flash Flood (due to Heavy Rain) |
| 10/29/12 14:45 EST | 0 | Source: 911 Call Center         |

The 400 block of Cacapon Drive was closed due to high water.

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MINERAL COUNTY --- 2.1 W HEADSVILLE [39.40, -78.91], 2.1 W HEADSVILLE [39.40, -78.91], 2.0 W HEADSVILLE [39.40, -78.91], 1.9 W HEADSVILLE [39.40, -78.91]

|                    |   |                           |
|--------------------|---|---------------------------|
| 10/29/12 20:55 EST | 0 | Flood (due to Heavy Rain) |
| 10/30/12 15:15 EST | 0 | Source: Emergency Manager |

There was water running over Headsville Road at Patterson Creek.

Hurricane Sandy moved up the Atlantic coast and then turned Northwest and made landfall northeast of MD. Heavy rain and high winds over spread coastal regions and most of Maryland, eastern panhandle of West Virginia and Northern Virginia. Heavy rain caused flooding and river flooding.

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(WV-Z501) WESTERN GRANT, (WV-Z503) WESTERN MINERAL, (WV-Z505) WESTERN PENDLETON, (WV-Z506) EASTERN PENDLETON

|                    |   |          |
|--------------------|---|----------|
| 10/29/12 14:00 EST | 0 | Blizzard |
| 10/30/12 10:00 EST | 0 |          |

Hurricane Sandy moved up the Atlantic coast and then turned Northwest and made landfall northeast of MD. Heavy rain and high winds over spread coastal regions and most of Maryland. Heavy rain caused flood and river flooding. As Sandy moved north of the Mid Atlantic, winds switched to southerly and coastal flooding occurred. Blizzard conditions occurred on the backside of Sandy in elevations over 2500 feet in Western Maryland, Virginia, and West Virginia.