

# Flood Event of 4/16/2011 - 4/21/2011

## Brandywine

Site	Flood Stage	Date	Crest	Flow	Category	Basin	Stream	County of Gage	County of Forecast Point
Chadds Ford	9.00	4/17/2011	9.58	6,910	Minor	Christina	Brandywine Creek	Delaware	Delaware

## Delaware

Site	Flood Stage	Date	Crest	Flow	Category	Basin	Stream	County of Gage	County of Forecast Point
Trenton	8.50	4/17/2011	9.65	2,590	Moderate	Delaware	Assunpink Creek	Mercer	Mercer

## James

Site	Flood Stage	Date	Crest	Flow	Category	Basin	Stream	County of Gage	County of Forecast Point
Bremo Bluff	19.00	4/18/2011	23.50	-9,999	Moderate	James	James River	Fluvanna	Fluvanna
Palmyra	17.00	4/17/2011	19.71	14,600	Minor	James	Rivanna River	Fluvanna	Fluvanna
Richmond	12.00	4/18/2011	15.07	67,400	Moderate	James	James River	Henrico	Independent City

## Juniata

Site	Flood Stage	Date	Crest	Flow	Category	Basin	Stream	County of Gage	County of Forecast Point
Shirleysburg	10.00	4/17/2011	12.45	9,580	Minor	Juniata	Aughwick Creek	Huntingdon	Huntingdon

## Main Stem Susquehanna

Site	Flood Stage	Date	Crest	Flow	Category	Basin	Stream	County of Gage	County of Forecast Point
Camp Hill	7.00	4/17/2011	14.57	10,400	Major	Yellow Breeches	Yellow Breeches Creek	Cumberland	Cumberland

Harper Tavern	9.00	4/17/2011	11.78	11,300	Minor	Swatara	Swatara Creek	Lebanon	Lebanon
Hershey	7.00	4/17/2011	8.34	11,400	Minor	Swatara	Swatara Creek	Dauphin	Dauphin
Hogestown	8.00	4/18/2011	9.72	8,920	Minor	Conodoguinet	Conodoguinet Creek	Cumberland	Cumberland
Middletown (Old Site)	11.00	4/18/2011	10.80	8,920	Minor	Lower Main Stem Susquehanna	Swatara Creek	Dauphin	Dauphin
Penns Creek	8.00	4/16/2011	8.06	5,720	Minor	Penns Creek	Penns Creek	Snyder	Snyder
Shermans Dale	9.00	4/17/2011	11.67	12,700	Moderate	Lower Main Stem Susquehanna	Sherman Creek	Perry	Perry

### Neshaminy

Site	Flood Stage	Date	Crest	Flow	Category	Basin	Stream	County of Gage	County of Forecast Point
Langhorne	9.00	4/17/2011	12.13	12,300	Major	Neshaminy	Neshaminy Creek	Bucks	Bucks

### North Branch Potomac

Site	Flood Stage	Date	Crest	Flow	Category	Basin	Stream	County of Gage	County of Forecast Point
Kitzmiller	9.00	4/19/2011	9.07	11,200	Minor	North Branch Potomac	Potomac River	Garret	Garret

### North Branch Susquehanna

Site	Flood Stage	Date	Crest	Flow	Category	Basin	Stream	County of Gage	County of Forecast Point
Cortland	8.00	4/17/2011	8.48	4,150	Minor	North Branch Susquehanna	Tioughnioga River	Cortland	Cortland

### Passaic

Site	Flood Stage	Date	Crest	Flow	Category	Basin	Stream	County of Gage	County of Forecast Point
Boonton above Reservoir (Old Site)	5.00	4/17/2011	6.23	3,500	Moderate	Passaic	Rockaway River	Morris	Morris

Boonton below Reservoir	5.00	4/17/2011	6.75	2,770	Minor	Passaic	Rockaway River	Morris	Morris
Little Falls	7.00	4/18/2011	9.02	10,100	Major	Passaic	Passaic River	Passaic	Passaic
Lodi	6.00	4/17/2011	9.66	3,650	Major	Passaic	Saddle River	Bergen	Bergen
Macopin Intake Dam	5.50	4/17/2011	5.73	1,350	Minor	Passaic	Pequannock River	Passaic	Passaic
Mahwah	8.00	4/17/2011	9.55	5,520	Moderate	Passaic	Ramapo River	Bergen	Bergen
Pine Brook	19.00	4/19/2011	20.09	3,700	Moderate	Passaic	Passaic River	Morris	Morris
Pompton Lakes	11.50	4/17/2011	14.18	6,890	Moderate	Passaic	Ramapo River	Passaic	Passaic
Pompton Plains	16.00	4/17/2011	19.84	13,600	Major	Passaic	Pompton River	Passaic	Morris
Wanaque	5.00	4/18/2011	6.25	1,770	Moderate	Passaic	Wanaque River	Passaic	Passaic

### Potomac

Site	Flood Stage	Date	Crest	Flow	Category	Basin	Stream	County of Gage	County of Forecast Point
Fairview	10.00	4/17/2011	13.61	13,500	Moderate	Potomac	Conococheague Creek	Washington	Washington
Frederick	15.00	4/17/2011	20.61	26,300	Major	Potomac	Monocacy River at Jug Bridge	Frederick	Frederick
Leesburg	12.00	4/17/2011	14.48	11,000	Minor	Potomac	Goose Creek	Loudoun	Loudoun
Little Falls (Washington DC)	10.00	4/18/2011	11.69	173,000	Minor	Potomac	Potomac River	Montgomery	Montgomery
Martinsburg	10.00	4/17/2011	12.40	5,640	Minor	Potomac	Opequon Creek	Berkeley	Berkeley
Point of Rocks	16.00	4/18/2011	22.52	144,000	Moderate	Potomac	Potomac River	Frederick	Frederick
Sharpsburg	8.00	4/16/2011	9.68	5,130	Minor	Potomac	Antietam Creek	Washington	Washington

Sharpsburg	8.00	4/17/2011	8.63	4,200	Minor	Potomac	Antietam Creek	Washington	Washington
Shepherdstown	15.00	4/17/2011	-9999.00	-9,999	Missing	Potomac	Potomac River	Jefferson	Jefferson
Wisconsin Ave, Washington, DC	6.00	4/18/2011	9.01	-9,999	Moderate	Potomac	Potomac River	Dist. of Columbia	Dist. of Columbia

### Rappahannock

Site	Flood Stage	Date	Crest	Flow	Category	Basin	Stream	County of Gage	County of Forecast Point
Remington	15.00	4/17/2011	19.05	20,000	Minor	Rappahannock	Rappahannock River	Fauquier	Fauquier

### Raritan

Site	Flood Stage	Date	Crest	Flow	Category	Basin	Stream	County of Gage	County of Forecast Point
Blackwells Mills	9.00	4/17/2011	12.59	8,100	Moderate	Raritan	Millstone River	Somerset	Somerset
Bound Brook	28.00	4/17/2011	31.10	26,600	Moderate	Raritan	Raritan River below Calco Dam	Somerset	Somerset
Manville	14.00	4/17/2011	17.25	20,700	Moderate	Raritan	Raritan River	Somerset	Somerset
Raritan	10.00	4/17/2011	11.15	11,500	Minor	Raritan	North Branch Raritan River	Somerset	Somerset
Stanton	8.00	4/17/2011	8.17	4,160	Minor	Raritan	South Branch Raritan River	Hunterdon	Hunterdon

### Shenandoah

Site	Flood Stage	Date	Crest	Flow	Category	Basin	Stream	County of Gage	County of Forecast Point
Cootes Store	15.00	4/16/2011	16.33	22,200	Minor	Shenandoah	Shenandoah River	Rockingham	Rockingham
Front Royal	12.00	4/18/2011	15.67	37,800	Moderate	Shenandoah	Shenandoah River	Warren	Warren
Luray	14.00	4/17/2011	17.60	42,600	Major	Shenandoah	South Fork Shenandoah River	Page	Page

Lynnwood	16.00	4/17/2011	19.93	37,000	Moderate	Shenandoah	Shenandoah River	Rockingham	Rockingham
Millville	13.50	4/18/2011	16.04	57,000	Moderate	Shenandoah	Shenandoah River	Jefferson	Jefferson
Strasburg	17.00	4/17/2011	18.33	19,900	Minor	Shenandoah	North Fork Shenandoah River	Warren	Shenandoah
Waynesboro	9.50	4/16/2011	11.38	8,120	Moderate	Shenandoah	South River	Augusta	Independent City

### South Branch Potomac

Site	Flood Stage	Date	Crest	Flow	Category	Basin	Stream	County of Gage	County of Forecast Point
Franklin	7.00	4/16/2011	8.66	8,570	Minor	South Branch Potomac	South Branch Potomac River	Pendleton	Pendleton
Springfield	15.00	4/17/2011	15.35	22,200	Minor	South Branch Potomac	South Branch Potomac River	Hampshire	Hampshire

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## Weather Summary

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A strong surface cyclone moved out of the southern plains and into the Great Lakes on 14-17 April 2011. The low and associated cold front produced heavy rains and flooding in the Mid-Atlantic region. Several spots saw over 4 inches of rain with a few spots over 5 inches. (The developing storm system brought severe weather, with over 1000 reports of severe weather and 267 tornadoes, from the southern plains to the Carolinas over a 3 day period spanning 14-16 April 2011. The tornado outbreak in North and South Carolina was likely the largest and most significant tornado outbreak since the 28 March 1984 event which included 22 tornadoes which killed 57 people. The rain and severe weather were closely linked to the surge of high precipitable water and strong southerly flow ahead of the advancing frontal system. Thus, high moisture flux values, with anomalies on the order of 4 to 6 $\sigma$  were common during the event and were often found in close proximity to the areas of heavy rainfall and severe weather. The latter areas were also associated with high values of convective available potential energy. Rich Grumm NWS State College, PA) The second shot of rain fell on April 19 causing 1 more point to flood. A warm front and upper level disturbance produce another 1.5 to 2 inches across the upper Potomac Basin on April 19 resulting in minor flooding at Kitzmiller, MD. One last note: streams were generally above normal from previous rains.

Source: Grumm NWS WFO CTP

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## Crest Statistics and Flood Information

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Third flood of 4 that occurred in Apr, 2011

Fifth flood of 18 that occurred in 2011

Number of Floods at MARFC Forecast Points - 51

Number of Floods Cresting in Minor Range - 24

Number of Floods Cresting in Moderate Range - 19

Number of Floods Cresting in Major Range - 7

Number of Floods Cresting in Missing Range - 1