National Weather Service
Storm Data and Unusual Weather Phenomena

March 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm

DISTRICT OF COLUMBIA

District Of Columbia

East Portion | **09** | **0500EST 1000EST** | **0** | **0** | **Flash Flood**

A thunderstorm, dumping rainfall of 3/4 to 1 inch in the city shortly before dawn, exacerbated saturated soil conditions from the previous week's rains, causing spotty flash flooding and creating one of the slowest morning commutes in some time across the eastern half of the metropolitan area. Automobile and rail traffic slowed to a near standstill through mid to late morning. Flooding closed a stretch of Rock Creek Parkway between Virginia Avenue and P Street NW. High standing water also closed the intersection of Helen Boroughs and Kenilworth Avenue NE. Poor drainage induced other flooding in Anacostia. Minor flooding near Union Station (NE) caused lengthy delays, especially for the commuter rain system.

DCZ001 | **District Of Columbia**

11 | **0700EST** | **0** | **0** | **Unseasonably Cold**
13 | **0700EST**

A series of cold fronts ushered in only the second arctic air mass of the winter of 1997/98. The unseasonably cold air, arriving on the heels of a mild and wet February, brought temperatures to their lowest values since the 1st of the year. Luckily, the legendary Japanese cherry trees, which had budded prematurely due to the wet mild conditions in February, closed up enough such that damage was virtually unnoticed when the final blooms appeared during the last weekend of the month. Other minor damage was noted to early blooming magnolia trees.

Though no individual temperature records were set, the average daytime highs in the upper 30s to around 40 and nighttime lows in the lower 20s were some 10 to 15 degrees below normal.

DCZ001 | **District Of Columbia**

27 | **1500EST** | **0** | **0** | **Unseasonably Warm**
31 | **1800EST**

After a winter of cloudy, wet conditions, spring struck back with a vengeance in the form of strong atmospheric high pressure. Underneath the high, very warm and dry weather developed - more like early June than late March. Daytime high temperatures averaged in the mid 80s and nighttime lows were equally balmy - in the upper 50s to lower 60s. A new record high was achieved on the 30th, when Reagan National Airport (DCA) had a maximum temperature of 87. This broke the 1963 record by 1 degree.

The early heat wave, which began on a weekend, brought the famed Japanese cherry trees into full blossom, causing a tourist traffic jam. However, the warm weather took away what it quickly gave - the blossoms turned to leaves within 5 days, rather than the normal 1 to 2 weeks.

MARYLAND, Central

MDZ004-007 | **Frederick - Harford**

03 | **0200EST 1300EST** | **0** | **0** | **Snow**

MDZ005>006 | **Carroll - Northern Baltimore**

03 | **0700EST 1300EST** | **0** | **0** | **Winter Storm**

A strong upper-level disturbance combined with a weak surface trough to produce a small swath of moderate to heavy snow across the northern tier of Maryland during the morning of the 3rd. Accumulations varied with elevation; in general hilly areas (500 feet above mean sea level) received between 4 and 6 inches (MDZ005>006) while lower terrain in the same counties received 1 to 3 inches.

Isolated areas in Carroll Co (MDZ005) received 7 to 8 inches. Surrounding counties received around 2 inches, though locations along the Catoctin Ridge (separating northwest MDZ004 and northeast MDZ003) received up to eight inches. Effects on residents were limited; school was cancelled for the day in Carroll Co. there were at least 50 minor automobile accidents, but no injuries or fatalities occurred.

Charles County

West Portion | **09** | **0400EST 0900EST** | **0** | **0** | **Flash Flood**

Anne Arundel County

West Portion | **09** | **0500EST 1000EST** | **0** | **0** | **Flash Flood**

Carroll County

Southeast Portion | **09** | **0500EST 1000EST** | **0** | **0** | **Flash Flood**

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm

MARYLAND, Central

Prince George'S County

Northwest Portion **09** **0500EST** **0** **0** **2K** **Flash Flood**
1000EST

A thin band of showers and thunderstorms with torrential rains moved across the eastern and southern suburbs of Washington, weakening as it moved north into the western suburbs of Baltimore. Observed rainfall of 1 1/2 to 2 inches in two hours, with radar estimates of over 2 1/2 inches, produced flash flooding that brought the Monday morning commute to a standstill over the eastern suburbs.

Six roads were closed in Charles Co; an additional 5 roads had high standing water covering them. Along the Prince George's/Anne Arundel Co line, a bus overturned on Brock Bridge Road where the Little Patuxent River overspilled its banks. There were no injuries; all passengers, including 23 children, were evacuated. Other incidents included a temporary road closure at the intersection of federal highway 50 and Kenilworth Avenue (Prince George's Co) due to high standing water; in Landover, early morning commuter and AMTRAK service was delayed due to water rushing across the tracks. Other closures included Tuxedo Road in Cheverly and the intersection of Edmonston and Sunnyside Roads.

In southeastern Carroll Co, the upper Patapsco River overspilled its banks at several rural locations.

MDZ002>007-009>011-013>014-016>018 **Allegany - Washington - Frederick - Carroll - Northern Baltimore - Harford - Montgomery - Howard - Southern Baltimore - Prince Georges - Anne Arundel - Charles - St. Mary'S - Calvert**

11 **0700EST** **0** **0** **17.5K** **Unseasonably Cold**
13 **0700EST**

A series of cold fronts ushered in only the second arctic air mass of the winter of 1997/98. The unseasonably cold air, arriving on the heels of a mild and wet February, may have caused some damage to peach crops in Maryland orchards, especially on the coastal plain. The combination of mild and moist conditions earlier in the winter not only led to accelerated bud growth, but may have decreased the resistance of fruit trees to the hard freeze. In addition to the possible peach damage, early blooming plums and some apricots sustained moderate to heavy damage.

The coldest morning, March 13, produced temperatures as low as the low to mid teens across the northern tier of the state. Minimum temperatures on the 11th and 12th averaged in the upper teens to lower 20s; daytime maxima held in the 30s on the 11th and 12th, with some areas (mainly higher terrain over far northern and western sections) failing to rise above freezing for the first time since January 1.

Frederick County

Countywide **20** **2200EST** **0** **0** **10K** **Flood**
21 **0900EST**

Washington County

East Portion **20** **2200EST** **0** **0** **10K** **Flood**
21 **0900EST**

Carroll County

Northwest Portion **20** **2300EST** **0** **0** **2K** **Flood**
21 **1000EST**

An area of deep low pressure over the southeastern U.S. moved slowly into the southern middle Atlantic region in a 24-hour period from the morning of the 20th through the morning of the 21st, then off the coast by evening of the 21st. The low, which entrained deep moisture from the Gulf of Mexico, aided in dumping storm total rainfall of 1 1/2 to 2 inches across the piedmont, with over 2 inches in the higher mountains of the Catoctin Ridge. The rain, falling onto saturated soil in a winter of wet weather, produced areas of small stream and creek flooding - as well as high standing water - which closed over a dozen roads in north central Maryland.

Minor stream and creek flooding occurred in eastern Washington, Frederick, and northwest Carroll Cos. Three state roads were temporarily closed in Frederick Co (rte. 26, 355, and 17). The western portion of the Big Pipe Creek watershed (Carroll Co) flooded, affecting the towns of Detour and Union Bridge, as well as forcing the closure of state route 75. A water rescue was necessary on a flooded creek in Frederick Co. A total of 15 roads closed in Washington Co, including state route 68 south of Hagerstown. Minor flooding was reported in the towns of Williamsport, Funkstown, and Fairplay. Over two dozen basements were flooded in and near Hagerstown; a result of super saturated soils from the abundant winter rainfall.

Nuisance high standing and ponding water was prevalent in the western suburbs of Baltimore and Washington. However, a water rescue (by air boat) was required along state route 28 and Seneca Creek, a well-known flood area in western Montgomery Co. The rescue involved a 45 year-old man whose car was swept 40 to 50 feet downstream early on the 21st.

MDZ004>006-010 **Frederick - Carroll - Northern Baltimore - Howard**

22 **0000EST** **0** **0** **Snow**
0400EST

The same area of low pressure which caused flooding and flash flooding in north central Maryland earlier in the day was the culprit for a band of moderate to heavy wet snow, accompanied in some cases by thunder, across north central and northeast

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm

MARYLAND, Central

Maryland during the late evening and early morning hours of the 21st and 22nd. Two factors, convection and elevation, caused wide-varying accumulations. In general, between 2 and 3 inches fell from extreme northern Anne Arundel (MDZ014) through western Howard, northern Baltimore, Carroll, and Frederick Cos (MDZ010; 004>006). A local total of 4.9 inches fell just south of Manchester (MDZ005), a higher terrain location. An off-duty NWS employee in Odenton (extreme northern Anne Arundel Co) reported 3 inches; a NWS spotter in Ellicott City (Howard Co) recorded 4 1/2 inches.

MDZ003>007-009>011-013>014-016>018 — **Washington - Frederick - Carroll - Northern Baltimore - Harford - Montgomery - Howard - Southern Baltimore - Prince Georges - Anne Arundel - Charles - St. Mary'S - Calvert**

	27	1500EST		0	0		10K	Unseasonably Warm
	31	1800EST						

After a winter of cloudy, wet conditions, spring struck back with a vengeance in the form of strong atmospheric high pressure. Underneath the high, very warm and dry weather developed - more like early June than late March. One record high temperature was set at Baltimore Washington International (BWI) airport with 86 degrees. The previous record had been 83, set in 1979. Four long-standing records were shattered in Hagerstown. Notably, the all-time March high temperature (formerly 88 degrees) was broken on March 30th when the mercury topped out at 89. The record had stood since 1907. The dry and breezy conditions aided several small brush fires, including three in eastern Anne Arundel Co (MDZ014) on the 28th through the 30th. One fire consumed 4 acres; the others burned less than 2 acres each.

VIRGINIA, North

VAZ021-025>031-036>042-050>057 — **Highland - Augusta - Rockingham - Shenandoah - Frederick - Page - Warren - Clarke - Nelson - Albemarle - Greene - Madison - Rappahannock - Fauquier - Loudoun - Orange - Culpeper - Prince William - Fairfax - Arlington - Stafford - Spotsylvania - King George**

	11	0700EST		0	0		25K	Unseasonably Cold
	13	0700EST						

A series of cold fronts ushered in only the second arctic air mass of the winter of 1997/98. The unseasonably cold air, arriving on the heels of a mild and wet February, caused minor damage to fruit crops in north central and northwestern Virginia. The combination of mild and moist conditions earlier in the winter not only led to accelerated bud growth, but may have decreased the resistance of fruit trees to the hard freeze.

In general, the freeze spared the apple crop, which had not reached critical bud stage. The peach crop was affected, especially in the southern and central Shenandoah Valley. However, the general consensus was that trees at critical bud stage were few, and the affect of the freeze was to thin out the crop. Plum trees, on the other hand, were not so lucky, according to Orange and Culpeper Cos (VAZ050>051) agricultural officials.

The coldest morning, March 13, produced several record low temperatures. In particular, Washington Dulles International Airport (IAD), which had a low of 16 degrees, broke its previous record of 18 set in 1984.

Highland County								
Countywide	20	1800EST		0	0	10K		Flood
	21	0000EST						
Albemarle County								
West Portion	20	1900EST		0	0			Flood
	21	0200EST						
Frederick County								
Countywide	20	1900EST		0	0	15K		Flood
	21	0900EST						
Greene County								
Countywide	20	1900EST		0	0	10K		Flood
	21	0200EST						
Madison County								
Countywide	20	1900EST		0	0	10K		Flood
	21	0200EST						
Clarke County								
Countywide	20	2000EST		0	0	3.5K		Flood
	21	0600EST						
Page County								
Countywide	20	2000EST		0	0	3.5K		Flood
	21	0600EST						

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm

VIRGINIA, North

Rappahannock County

Countywide	**20**	**2000EST**			**0**	**0**	**3.5K**		**Flood**
	21	**0600EST**							

Warren County

Countywide	**20**	**2000EST**			**0**	**0**	**3.5K**		**Flood**
	21	**0600EST**							

Fauquier County

Countywide	**20**	**2100EST**			**0**	**0**	**3.3K**		**Flood**
	21	**0600EST**							

Loudoun County

West Portion	**20**	**2100EST**			**0**	**0**	**10K**		**Flood**
	21	**0900EST**							

Orange County

Countywide	**20**	**2100EST**			**0**	**0**	**3.3K**		**Flood**
	21	**0600EST**							

Shenandoah County

Countywide	**20**	**2100EST**			**0**	**0**	**3.3K**		**Flood**
	21	**0600EST**							

Culpeper County

Countywide	**20**	**2200EST**			**0**	**0**	**8K**		**Flood**
	21	**0500EST**							

An area of deep low pressure over the southeastern U.S. moved slowly into the southern middle Atlantic region over a 24-hour period, then off the coast by evening of the 21st. The low, which entrained deep moisture from the Gulf of Mexico, aided in dumping storm total rainfall of 1 1/2 to 2 inches in the piedmont, with 2 to 3 inches in the Shenandoah Mountains and the Blue Ridge. The rain, falling onto saturated soil during a winter of wet weather, produced widespread small stream and creek flooding which closed over 100 roads in northern and central Virginia.

A portion of one of these roads, federal highway 50 in Frederick Co, was closed by a rock and mud slide near Gore. Road closures, mostly secondary, included 23 in Culpeper Co, 13 in Orange Co, 11 each in Madison and Shenandoah Co, and 10 in Clarke Co. Water was reported up to car windows in Monterey (Highland Co). A water rescue was necessary at Snickersville Gap (Loudoun Co) when a vehicle became stranded early on the 21st.

Minor river flooding (Rappahannock River) in southern Stafford Co occurred later that weekend; in all, portions of River Road were closed an estimated 20 percent of the time from January 1 through March 31, 1998. Closures were much more frequent in 1998 then for the same period in 1997.

VAZ057 **King George**

	22	**0800EST**			**0**	**0**	**150K**		**Rock Slide**

A portion of local route 627 slid down a cliff overlooking the Rappahannock River in southeastern King George Co. At least 1/2 the width of the road was removed. The rock slide, which occurred during benign weather, was partly due to repeated heavy rains, very moist soil, and minor flooding along the river during the winter of 1997/98. Major river and flash flood events in 1996 likely set the stage, over the long term, for the slide.

VAZ025>031-036>042-050>057 **Augusta - Rockingham - Shenandoah - Frederick - Page - Warren - Clarke - Nelson - Albemarle - Greene - Madison - Rappahannock - Fauquier - Loudoun - Orange - Culpeper - Prince William - Fairfax - Arlington - Stafford - Spotsylvania - King George**

	27	**1500EST**			**0**	**0**			**Unseasonably Warm**
	31	**1800EST**							

After a winter of cloudy, wet conditions, spring struck back with a vengeance in the form of strong atmospheric high pressure. Underneath the high, very warm and dry conditions developed - more like early June than late March. Three record high temperatures were set at IAD (VAZ042); on the 27th, 29th, and 31st, with readings of 84, 86, and 85 degrees, respectively. Temperatures in the central and northern Shenandoah Valley were the highest in 50 years for a similar time period. In Winchester (VAZ028), the maximum temperature of 86 degrees on the 29th was the highest on the date since 1948 (when the mercury reached 88 degrees). The dry and breezy conditions aided several small brush fires throughout the piedmont, but no major unplanned burns were noted.

WEST VIRGINIA, East

WVZ048>053 **Grant - Mineral - Hampshire - Morgan - Berkeley - Jefferson**

	11	**0700EST**			**0**	**0**			**Unseasonably Cold**
	13	**0700EST**							

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm

WEST VIRGINIA, East

A series of cold fronts ushered in only the second arctic air mass of the winter of 1997/98. The unseasonably cold air, arriving on the heels of a mild and wet February, may have caused minor damage to peach crops in eastern West Virginia orchards. The combination of mild and moist conditions earlier in the winter not only led to accelerated bud growth, but may have decreased the resistance of fruit trees to the hard freeze.

Temperatures on the 11th were generally in the upper teens to lower 20s, but readings were well down in the teens on the 12th and 13th.

Location	Date	Time	Path Length	Path Width	Killed	Injured	Property	Crops	Character of Storm
Berkeley County									
Countywide	**20**	**2100EST**			**0**	**0**	**2.5K**		**Flood**
	21	**0900EST**							
Jefferson County									
Countywide	**20**	**2100EST**			**0**	**0**	**2.5K**		**Flood**
	21	**0900EST**							
Grant County									
Countywide	**20**	**2200EST**			**0**	**0**	**5K**		**Flood**
	21	**0600EST**							
Hardy County									
Countywide	**20**	**2200EST**			**0**	**0**			**Flood**
	21	**0600EST**							
Pendleton County									
North Portion	**20**	**2200EST**			**0**	**0**	**10K**		**Flood**
	21	**0600EST**							

An area of deep low pressure over the southeastern U.S. moved slowly into the southern middle Atlantic region in a 24-hour period from the morning of the 20th through the morning of the 21st, then off the coast by evening of the 21st. The low, which entrained deep moisture from the Gulf of Mexico, aided in dumping storm total rainfall of 1 to 2 inches, with perhaps higher totals along the Allegheny divide. The rain, falling onto saturated soil in a winter of wet weather, produced areas of small stream and creek flooding - as well as high standing water - which closed several roads.

A mudslide affected federal highway 220 near the Grant/Pendleton Co line. Otherwise, several streams and creeks were at or just above bankful in Grant Co. Elsewhere, a combination of 22 primary and secondary roads were closed in Berkeley and Jefferson Cos, including state highways 51, 9, and 7 (all in Jefferson Co). At least two water rescues were required; one along the Berkeley/Jefferson Co line when a man was stranded in a van on a water-covered bridge (Sulphur Springs Road); the other a woman who was attempting to drive through a foot of standing water on Henshaw Road in southern Berkeley Co. Some basement flooding was reported in the panhandle, and a few small streams and creeks were out of their banks.

Location	Date	Time	Path Length	Path Width	Killed	Injured	Property	Crops	Character of Storm
WVZ051>053	**Morgan - Berkeley - Jefferson**								
	27	**1500EST**			**0**	**0**			**Unseasonably Warm**
	31	**1800EST**							

After a winter of cloudy, wet conditions, spring struck back with a vengeance in the form of strong atmospheric high pressure. Underneath the high, very warm and dry weather developed - more like early June than late March. Daytime high temperatures averaged in the low to mid 80s and nighttime lows were equally balmy - in the mid to upper 50s. The dry and breezy conditions aided several small brush fires, but no major unplanned burns were noted.