National Weather Service
Storm Data and Unusual Weather Phenomena

June 1999

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

DCZ001 **District Of Columbia**

01 0000EST **0** **0** **Drought**
30 2359EST

High pressure was the dominant weather feature across the Washington D.C. metropolitan area during the month. This weather pattern directed rain producing low pressure systems north of the region and continued the climatological drought that has gripped the area since last summer. By the last week of June the Palmer Drought Index, a measure of long term drought conditions, indicated Washington D.C. was in a severe drought. June was the 8th month in the past 12 months that precipitation was below normal. From July 1998 through June 1999 precipitation was a staggering 14 inches below average, the 3rd driest 12 months on record. Washington Reagan National Airport reported a monthly total of 2.26 inches, 1.12 inches below normal. Measurable rain only fell on 8 days during the month, and 1.32 inches of the total fell ont he 16th. The lack of precipitation affected water reserves. The flow of water down the Potomac River at Washington D.C. hovered around 18% of average, and many new record low daily flows were recorded in upstream tributaries of the river. Monthly flow rates along the basin have been below average for the last 10 months. Unusually high proportions of river flow, 33%, were diverted from the river into public water supplies during the month. The normal diversion rate is about 5%.

DCZ001 **District Of Columbia**

07 0800EST **0** **0** **Unseasonably Warm**
09 2000EST

High pressure centered over the Southeast U.S. caused air to downslope over the Appalachian Mountains, sending afternoon temperatures into the upper 90s to lower 100s. The heat, in combination with very humid air, resulted in afternoon heat indices between 100 and 110 degrees. Dupont Circle in Northwest Washington reported a high temperature of 100 degrees on the 7th, 8th, and 9th. The high temperature at Washington Reagan National Airport on the 7th was 98 degrees, which broke a record high of 97 degrees set in 1899. The high at National Airport on the 8th was 98 degrees, which also broke a record high of 97 degrees set in 1899. George Washington University reported a high temperature of 99 degrees on the 8th. The mercury climbed to 98 degrees again at National Airport on the 9th, but failed to break the record high of 102 degrees set in 1874. Nighttime lows only dipped into the upper 70s, making the overnight hours very uncomfortable for those without air conditioning. As a result of the heat, a pollution alert was issued for the Washington D.C. metropolitan area on the 7th, and D.C. authorities opened 5 "cooling shelters" for area residents during the heat of the day. Schools in the District cancelled classes on the 8th and 9th because many buildings did not have air conditioning. Low water pressure was reported in parts of Northeast Washington near the Anacostia River on the 8th and 9th, and was attributed to the high use of water during the unusually warm period.

MARYLAND, Central

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**

01 0000EST **0** **0** **Drought**
30 2359EST

High pressure was the dominant weather feature across Maryland during the month. This weather pattern directed rain producing low pressure systems north of the region and continued the climatological drought that has gripped the area since last simmer. The drought warning issued by the Maryland Department of the Environment remained in effect through June. By the last week of the month the Palmer Drought Index, a measure of long term drought conditions, indicated North Central and Northeast Maryland were in a severe drought, and South Central and Western Maryland were in an extreme drought. June was the 8th month in the past 12 months that precipitation was below normal. From July 1998 through June 1999 precipitation was a staggering 15 inches below average, the 2nd driest 12 months on record. Only 2.04 inches of rain fell at Baltimore/Washington International Airport (BWI) during the month of June, 1.63 inches below normal. BWI received 0.86 inches of this total on the 24th. The Maryland Science Center at Inner Harbor Baltimore reported a total of 2.42 inches. Additional June rainfall totals included Allegany County at 1.8 inches, Washington County at 2.8 inches, Frederick County at 2.6 inches, Prince Georges County at 2.5 inches, Carroll County at 1.7 inches, Northern Baltimore County at 2.4 inches, Howard County at 1.3 inches, Anne Arundel County at 2.2 inches, Montgomery County at 1.5 inches, Charles County at 2.2 inches, and St. Mary's County at 2.4 inches.

The lack of rainfall affected water levels along the Potomac River and the Chesapeake Bay. The flow of water past Washington D. C. hovered around 18% of average, and many new record low daily flows were recorded in upstream tributaries of the river. Unusually high proportions of river flow, 33%, were diverted out of the Potomac River into public water supplies during the month. The normal diversion rate is about 5%. Monthly flow rates of the Potomac River have been below average for the last 10 months. Flows in the Potomac were equal or slightly below minimum June daily mean flow values recorded during the 1980-82 drought. Many gaging stations reported streamflow at or below the 90 percent exceedence. The total flow into the Chesapeake Bay has been below average for the past 11 months. Freshwater inflow to the Chesapeake Bay in June was less than 74% of the previously recorded low set in 1964. The deficit of fresh water resulted in an increase of salinity levels in the bay and had an impact on animal and plant life. Several towns in Carroll County, including Mt. Airy imposed mandatory water restrictions at the beginning of the month. A popular swimming beach at Greenbriar State Park near Hagerstown remained closed because the water level remained well below the capacity of the 50 acre reservoir.

The lack of precipitation also continued to beat down crops and pastureland. Watering holes and irrigation sources continued to dry up, forcing many farmers to carry water to livestock. Hay producers reported less than half of their normal yields from their

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MARYLAND, Central

second cutting. Soybean planting came to a halt in many locations. Corn crops that should have been knee-high by mid month were only 1 foot tall. Some farmers had to reduce their herd sizes in order to stretch hay and water supplies. Tobacco, normally a drought-tolerant crop, suffered in the fields. 37% of pastureland, 18% of corn, and 21% of soybeans across the state were reported in poor or very poor condition. 59% of topsoil was reported as short or very short of moisture by the end of the month.

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**

07 09	**0800EST 2000EST**	**0**	**1**				**Unseasonably Warm**

High pressure centered over the Southeast U.S. caused air to downslope over the Appalachian Mountains, sending afternoon temperatures into the upper 90s to lower 100s. The heat, in combination with very humid air, resulted in afternoon heat indices between 100 and 110 degrees. Record high temperatures were set at Baltimore/Washington International Airport (BWI) on the 7th, 8th, and 9th. High temperatures on the 7th included 96 degrees at BWI, 98 degrees at the Maryland Science Center in downtown Baltimore, 95 degrees at Sharpsburg in Washington County, 97 degrees at Oxon Hill in Prince Georges County, and 100 degrees at Williamsport in Washington County. Highs on the 8th included 97 degrees at BWI, 98 degrees in downtown Baltimore, 97 degrees at Oxon Hill, and 95 degrees at Sharpsburg and Williamsport. Highs on the 9th included 96 degrees at BWI, 95 degrees in downtown Baltimore, 96 degrees at Cumberland, 98 degrees at Oxon Hill, 97 degrees at Bryans Road, 96 degrees as Sharpsburg, and 104 degrees at Williamsport. Nighttime lows dipped into the 70s, except the lower 80s in downtown Baltimore, making the overnight hours very uncomfortable for those without air conditioning. As a result of the heat, a pollution alert was issued for the Washington D.C. metropolitan area on the 7th. Air conditions reach "Code Red" levels two days in a row. Schools without air conditioning in the City of Baltimore, Prince Georges County, and Anne Arundel County cancelled classes. Area hospitals reported treating a handful of people for heat related illnesses , including a hospital in Anne Arundel County that admitted a patient for heat related dehydration. Several locations reported near record water and energy consumption during the period.

Anne Arundel County

2 S Annapolis	**14**	**1545EST**	**0**	**0**	**5K**		**Lightning**

Lightning strike damaged appliances inside a home

Montgomery County

2 SE Laytonsville	**14**	**1600EST**	**0**	**1**			**Lightning**

Man struck by lightning while standing near a bulldozer

Prince George'S County

Camp Spgs to Forestville	**14**	**1634EST**	**0**	**0**	**20K**		**Thunderstorm Wind**

Trees and utility poles downed

Prince George'S County

Temple Hills	**14**	**1637EST**	**0**	**0**	**50K**		**Lightning**

Lightning strike started townhouse fire

Anne Arundel County

Annapolis	**14**	**1710EST**	**0**	**0**	**5K**		**Thunderstorm Wind**

Electrical wires downed

An area of showers and thunderstorms moved across Central Maryland between 4:45 and 6:15 PM EDT. The strongest of these storms moved across Prince Georges and Anne Arundel County, producing winds in excess of 55 MPH, small hail, frequent lightning, and very heavy downpours. A government building near Auth Road in Camp Springs had a plate glass window on the northwest side of the structure blown out by high wind. Law enforcement reported several trees and power lines downed, mainly concentrated in the Camp Springs and Forestville area. 35 electrical wires were downed by fallen tree branches in the Baltimore and Annapolis area. 17,500 customers across Central Maryland and Southeast D.C. lost power as a direct result of the storm. Lightning was also a devastating part of the storm. One man standing near a bulldozer on Olney-Laytonsville Road in upper Montgomery County was struck by lightning around 5:00 PM EDT. He survived the strike but was in serious condition from hand and foot injuries. Lightning damaged electrical appliances in a home in the Hillsmere community, just south of Annapolis, around 5:35 PM EDT. Lightning also started a fire at a townhouse in Temple Hills around 5:37 PM EDT. Two brush fires were also ignited by lightning in Anne Arundel County. Heavy downpours from the storms were also a contributing factor in a fatal accident in Glen Burnie. A 21 year old man was killed around 5:30 PM EDT when his car hydroplaned on a curve and hit a tree on Interstate 895 near Ritchie Highway.

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

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

01 0000EST 0 0 Drought
30 2359EST

High pressure was the dominant weather feature across Northern Virginia during the month. This weather pattern directed rain producing low pressure systems north of the region and continued the climatological drought that has gripped the area since last summer. By the last week of June, the Palmer Drought Index, a measure of long term drought conditions, indicated Northern Virginia was in a severe drought. June was the 8th month in the past 12 months that precipitation was below normal. From July 1998 through June 1999 precipitation was a staggering 15 inches below average, the 3rd driest 12 months on record. Only 3.00 inches of rain fell at Dulles International Airport during the month of June, 0.92 inches below normal. Reagan National Airport in Arlington reported a monthly total of 2.26 inches, 1.12 inches below normal. Measurable rain only fell on 8 days during the month, with 1.32 inches of the total falling on the 14th. Additional June rainfall totals included Frederick County at 2.2 inches, Shenandoah and Madison County at 1.0 inches, Warren County at 1.4 inches, Rockingham at 0.7 inches, Page County at 1.6 inches, Clark County at 1.9 inches, Orange and Nelson County at 0.8 inches, Augusta and Fauquier County at 1.3 inches, Highland County at only 0.4 inches, Culpeper County at 1.6 inches, Rappahannock County at 1.1 inches, Loudoun County at 2.3 inches, and Fairfax County at 2.5 inches.

The lack of rainfall affected water levels along the Potomac River, the main water source for extreme Northern Virginia. The flow of water past Washington D.C. hovered around 18% of average, and many new record low daily flows were recorded in upstream tributaries of the river. Unusually high proportions of river flow, 33%, were diverted out of the Potomac River into public water supplies during the month. The normal diversion rate is about 5%. Monthly flow rates of the Potomac River have been below average for the last 10 months. Flows in the Potomac, Shenandoah, and Rappahannock basins, were equal to or slightly below minimum June daily mean flow values recorded during the 1980-82 drought. Many gaging stations reported streamflow at or below the 90 percent exceedence, and a few reported streamflow values at or below the 95th percentile. New daily low flows were set on the North Fork of the Shenandoah at both Cootes Store and Strasburg. Streamflow of the Rappahannock River at Fredericksburg was only 14% of normal. Streamflow of the Rapidan River at Culpeper was only 20% of normal. Fish kills were reported on the North Fork and main Stem of the Shenandoah River from the buildup of algae and low water levels. The volume of water entering the Occoquan Reservoir was the smallest since record keeping began 71 years ago. With such low water tables, the cities of Fredericksburg, Waynesboro, Winchester, and Berryville, and Frederick and Shenandoah Counties were forced to start voluntary water restrictions. The community of Round Hill in Loudoun County instituted mandatory water restrictions because their reservoir dipped below half of its 200,000 gallon capacity. Warren County considered seeking federal assistance through a drought emergency. The community of High Knob was without water by the 17th. The Ni River Reservoir, main water source for Spotsylvania County, dipped 16 inches below full by mid month. Beaverdam Reservoir in Loudoun County was half full, still recovering from being drained to keep the Goose Creek Reservoir full.

The lack of precipitation also continued to beat down crops and pastureland. Watering holes and irrigation sources continued to dry up, forcing many farmers to carry water to livestock. 68% of pasture land and 63% of hay across the state was reported in poor or very poor condition. Hay producers reported less than half of their normal yields from their second cutting. 78% of topsoil was reported as short or very short of moisture by the end of the month. Some farmers had to reduce their herd sizes in order to stretch hay and water supplies. Corn crops were cut by 25% and were 12 to 14 inches shorter than normal. The alfalfa crop was cut by 30%. Soil evaporation loss per day averaged around 0.3 inches. In addition to agricultural lands, forest and rural vegetation was also dangerously dry. Many small fires were reported, starting from causes as unusual as a car backfiring or an overheated tractor.

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

07 0800EST 0 12 Unseasonably Warm
09 2000EST

High pressure centered over the Southeast U.S. caused air to downslope over the Appalachian Mountains, sending afternoon temperatures into the upper 90s to lower 100s. The heat, in combination with very humid air, resulted in afternoon heat indices between 100 and 100 degrees. Record high temperatures were set at Washington Reagan National Airport and Dulles International Airport on the 7th and 8th. High temperatures on the 7th included 96 degrees at Dulles Airport, 98 degrees at National Airport, 95 degrees at Culpeper, 96 degrees at Locust Grove in Orange County, 94 degrees at Winchester, and 95 degrees at Woodstock in Shenandoah County. Highs on the 8th included 95 degrees at Dulles Airport, 98 degrees at National Airport, 102 degrees at Fredericksburg, 100 degrees at Fort Belvoir, and 98 degrees at Staunton. High temperatures on the 9th included 96 degrees at Dulles Airport, 98 degrees at National Airport, 99 degrees at Culpeper, Fredericksburg and Front Royal, 96 degrees at Locust Grove, 100 degrees at Sperryville in Rappahannock County, 97 degrees at Staunton, and 98 degrees at Winchester. Nighttime lows only dipped into the 70s, making the overnight hours very uncomfortable for those without air conditioning. As a result of the heat, a pollution alert was issued for the Washington D.C. metropolitan area on the 7th. Schools without air conditioning in the city of Warren, Prince William County, and the Virginia suburbs of D.C. cancelled classes or let out early on the 8th and 9th. The

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VIRGINIA, North

University of Virginia Medical Center in Charlottesville reported treating 12 patients for heat related illnesses ranging from heat exhaustion and sunburn to two cases of heat stroke. The heat also put a strain on area resources. Several locations reported near record water and energy consumption during the period.

Highland County

Trimble	**10**	**1500EST**	**0**	**0**			**Hail (0.75)**

A stalled front and very humid air were contributing factors in the rapid development of an area of thunderstorms on the eastern edge of the Appalachian Mountains. One part of this thunderstorm complex moved in a northwest direction across Highland County between 3:45 PM and 4:30 PM EDT. This storm produced heavy downpours and large hail. An observer near Trimble reported 3/4 inch diameter hail around 4:00 PM EDT.

Fairfax County

Oakton	**14**	**1530EST**	**0**	**0**	**50K**		**Thunderstorm Wind**

Damage to high school press box, shed, and athletic equipment. Several trees downed in vicinity.

Arlington County

Arlington	**14**	**1605EST**	**0**	**0**	**8K**		**Thunderstorm Wind**

Trees downed on homes and power lines, concentrated in the Glebe Road area

Alexandria (C)

Alexandria	**14**	**1610EST**	**0**	**0**	**5K**		**Thunderstorm Wind**

Trees and power lines downed

Falls Church (C)

Falls Church	**14**	**1610EST**	**0**	**0**	**5K**		**Thunderstorm Wind**

Trees and power lines downed

Arlington County

Arlington	**14**	**1617EST**	**0**	**0**			**Thunderstorm Wind (G52)**

Wind gust to 60 MPH at Reagan National Airport

An area of showers and thunderstorms moved across Northern Virginia between 4:20 PM and 5:15 PM EDT. The strongest of these storms moved across Fairfax and Arlington Counties, producing severe wind gusts, small hail, frequent lightning, and very heavy downpours. A localized area in Oakton, north of Interstate 66 and south of Courthouse Road and Oleander Avenue, received a microburst of wind over 70 MPH. The severe wind blew off the press box, damaged fences, equipment shelters, batting cages, and blew over goal posts at an athletic field at Oakton High School. Several trees and a shed on school property were also damaged. A couple of nearby houses lost a significant number of shingles, and one home had a window shutter blown off and an antenna bent. This storm moved into Eastern Fairfax County, the cities of Falls Church and Alexandria, and into Arlington County and downed several trees and power lines. One tree fell on an apartment complex on North Glebe Road and displaced several residents. Another tree brought down wires at Route 50 and Gallows Road, disrupting rush hour traffic. From 5:00 PM to 7:00 PM EDT, 1.3 inches of rain was reported. The downpours and clogged storm drains led to high water across the westbound lanes of Interstate 66 between the Roosevelt Bridge and Glebe Road, forcing authorites to reroute traffic. Around 22,000 customers across Northern Virginia lost power as a direct result of the storm.

WEST VIRGINIA, East

WVZ048>055 **Grant - Mineral - Hampshire - Morgan - Berkeley - Jefferson - Pendleton - Hardy**

01	**0000EST**	**0**	**0**			**Drought**
30	**2359EST**					

High pressure was the dominant weather feature across the Eastern Panhandle of West Virginia during the month. This weather pattern directed rain producing low pressure systems north of the region and continued the climatological drought that has gripped the area since last summer. The Palmer Drought Index, a measure of long term drought conditions, indicated the Eastern Panhandle was in an extreme drought by the end of the month. June was the 8th month in the past 12 months that precipitation was below normal. The region was a staggering 15 inches below average for precipitation during the period. Rainfall totals across the Eastern Panhandle during the month of June included 0.6 inches in Pendleton County, 0.8 inches in Grant County, 0.7 inches in Mineral County, 2.1 inches in Jefferson County, 1.1 inches in Hampshire County, and 2.3 inches in Morgan County. The lack of precipitation also continued to beat down crops and pastureland. Watering holes and irrigation sources continued to dry up, forcing many farmers to carry water to livestock. Hay producers reported less than half of their normal yields from their second cutting. By mid month, corn stalks that should have been waist high were only knee high. Area farmers reported most pastures were in poor to very poor condition and at least one third of the hay crop was in poor or very poor condition. More than half of topsoil was reported short or very short of moisture across the state.

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WEST VIRGINIA, East

WVZ048>055 **Grant - Mineral - Hampshire - Morgan - Berkeley - Jefferson - Pendleton - Hardy**

07	**0800EST**	**0**	**3**		**Unseasonably Warm**
09	**2000EST**				

High pressure centered over the Southeast U.S. caused air to downslope over the Appalachian Mountains, sending afternoon temperatures into the upper 90s to lower 100s. The heat, in combination with very humid air, resulted in afternoon heat indices between 100 and 110 degrees. A record high was recorded at the Eastern Region Airport on the 7th. High temperatures on the 7th included 97 degrees at Charles Town, 96 degrees at Keyser, 98 degrees at Moorefield, and 94 degrees at Martinsburg. Highs on the 8th included 97 degrees at Martinsburg and Charles Town, 94 degrees at Keyser and Berkeley Springs, and 97 degrees at Moorefield. Highs on the 9th included 96 degrees at Berkeley Springs and Wardensville, 97 degrees at Charles Town and Romney, 98 degrees at Keyser, 99 degrees at Moorefield, and 95 degrees at Petersburg, Sugar Grove, Martinsburg, and Mathias. Three students at Harpers Ferry Junior High who spent an hour on an athletic field during the afternoon of the 7th were treated at Jefferson Memorial Hospital for heat exhaustion.