

National Park Service
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Natural Resource Program Center

Delaware Water Gap National Recreation Area and Upper Delaware Scenic and Recreational River

Weather of 2007

Natural Resource Data Series NPS/ERMN/NRDS—2010/075



ON THE COVER

Photo description. Sunset over West Branch of the Delaware River near Shehawken Creek.

Photograph by: Caleb Tzilkowski.

Delaware Water Gap National Recreation Area and Upper Delaware Scenic and Recreational River

Weather of 2007

Natural Resource Data Series NPS/ERMN/NRDS—2010/075

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The Natural Resource Data Series is intended for timely release of basic data sets and data summaries. Care has been taken to assure accuracy of raw data values, but a thorough analysis and interpretation of the data has not been completed. Consequently, the initial analyses of data in this report are provisional and subject to change.

All manuscripts in the series receive the appropriate level of peer review to ensure that the information is scientifically credible, technically accurate, appropriately written for the intended audience, and designed and published in a professional manner. This report received informal peer review by subject-matter experts who were not directly involved in the collection, analysis, or reporting of the data.

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List of Key Acronyms

COOP	National Weather Service Cooperative Observer Program
CWOP	Citizen Weather Observer Program
DEWA	Delaware Water Gap National Recreational Area
ERMN	Eastern Rivers and Mountains Network
FAA	Federal Aviation Administration
GOES	Geostationary Operational Environmental Satellite
IFLOWS	Integrated Flood Observing and Warning System
NADP	National Atmospheric Deposition Program
NARR	North American Regional Reanalysis
NCDC	National Climatic Data Center
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
NRA	National Recreation Area
PDSI	Palmer Drought Severity Index
POR	Period of Record
PRISM	Parameter-elevation Regressions on Independent Slopes Model
RAWS	Remote Automated Weather Stations
SRR	Scenic and Recreational River
UPDE	Upper Delaware Scenic and Recreational River
USDM	United States Drought Monitor
USGS	United States Geological Survey

Purpose of the Report

Weather and climate are widely recognized as key drivers of terrestrial and aquatic ecosystems, affecting biotic as well as abiotic ecosystem characteristics and processes. Global and regional scale climatic patterns, trends, and variations are critical to the cycling of elements, nutrients, and minerals through the ecosystems and can deliver pollutants from regional and even global sources (National Assessment Synthesis Team 2001). These variations and trends influence the fundamental properties of ecologic systems such as soil-water relationships and plant-soil processes and their disturbance rates and intensity. Information obtained from meteorological monitoring will be useful to interpreting and understanding changes in species composition, community structure, water and soil chemistry, and related landscape processes (Marshall and Piekielek 2007).

The purpose of this report is to provide a concise weather and climate summary for January 1 to December 31, 2007, and to place current patterns and trends in an appropriate historical and regional context (Knight et al., in preparation). It is our intention that this report will satisfy an inherent interest in meteorological phenomena and meet the Eastern Rivers and Mountains Network (ERMN) Weather and Climate Monitoring objectives:

- Document long-term trends in weather and climate through seasonal and annual summaries of selected parameters (e.g., multiple forms of precipitation, temperature).
- Identify and document extremes and averages of climatic conditions for common parameters (e.g., precipitation, air temperature) and other parameters where sufficient data are available (e.g., wind speed and direction, solar radiation).
- Provide information on near real-time weather parameters, historical climate patterns, and climate station metadata from a single, easy-to-use Internet portal.

To accomplish these objectives, a variety of atmospheric data streams were evaluated for their quality, longevity, and applicability to the ERMN parks. Since no single weather observing network contains all the pertinent measures of atmospheric phenomena to assess ecosystem health, an objective analysis of the data networks was developed and outlined in the Weather and Climate Monitoring Protocol for the Eastern Rivers and Mountains Network and Mid-Atlantic Network of the National Park Service (Knight et al., in preparation). Through this analysis, a select number of weather/climate observing stations were chosen as representative of each park; these are the primary data sources used to profile climate summary and trends.

In addition to a suite of summary tables, graphs, and narratives, we specifically identify a series of key climatological indicators to report status and trends on an annual basis and periodically in separate and more thorough reports. These key indicators are further described in the protocol (Knight et al., in preparation) and summarized in the body of this report.

Weather Summary

The calendar year began very mild, but winter returned with persistent chill from mid-January until later February. A potent winter storm brought heavy snow and ice around St. Valentine’s Day. Another bout of rather cold air (departure of 3–5°F (1.8–3°C) from normal maximum temperature for April) was noted in April with unusually frequent snows. The heaviest rainstorm of the year occurred on April 15, with some sections receiving more than 16 cm (6 in) in one day. Flooding was widespread on the lower Delaware River. A relatively dry and mild period dominated the remainder of spring and summer with fewer-than-average hot days. Very warm weather in September became the warmest October on record (departures of 7–9°F [3–5°C] for maximum temperature in October). November was cool and moist and the year concluded with cool, moist conditions. While snowfall was a bit above normal, rainfall for 2007 was very close to average.

Long-term Trends

The lengthening of the growing season continues to be the most pronounced regional trend (Table 1). In 2007 this trend was exhibited by an average ‘last’ frost (about May 13) and a late first freeze (late October), so the season was similar to recent years. The trend toward milder winter nights did register a small setback in 2007, as a late January to mid-February cold snap produced several sub-zero (-17°C) mornings (Table 1). A significant increase in autumn rainfall was evident with the wettest October in more than 30 years. The fall season has shown the most significant rise in precipitation during the last century.

The factors that influence seasonal trends are ocean temperature anomalies. The longer-term effects of a change in water temperatures to lower (cool) values around the rim of the North Pacific adjacent to North America are impacting autumn temperatures (warmer than usual September–October), as well as the frequency of cold air outbreaks during the winter in Pennsylvania (more often). A minimum in solar activity (very few sunspots), which often correlates to slowly dropping mean annual temperatures, was also noted in 2007.

Table 1. Summary of 2007 significant climate indicators for Delaware Water Gap National Recreation Area and Upper Delaware Scenic and Recreational River.

Weather Indicator	2007 Statistics	Comments on Trends
Hot Days (Tmax>32°C/90°F)	1–6 days	Below the 30-year mean of 2–14 days
Cold Days (Tmax<0°C/32°F)	48–66 days	Above the 30-year mean of 27–61 days
Winter Minimums (Lowest Temp)	-5°F ~20°C	Near the long-term average of -3°F -19°C
Growing Season:		
Days between last spring 0°C/32°F and first fall 0°C/32°F	166–200 days	Below the 30-year mean of 170–205 days
Total Precipitation (Calendar Year - inches)	38–49 inches	Near the average of 40–46 inches
Annual Snowfall (Calendar Year - inches)	47–81 inches	Above the 30-year mean of 32–81 inches

Climate of the Pocono Mountains and Eastern Plateau

Delaware Water Gap National Recreation Area (DEWA) lies in Pennsylvania Climate Division 1 “Pocono Mountains” and New Jersey Climate Division 1 “Northern NJ,” while Upper Delaware Scenic and Recreational River (UPDE) lies in Pennsylvania Climate Division 1 and New York Climate Division 2 “Eastern Plateau.” A climate division is a region that is reasonably homogenous with respect to climatic and hydrologic characteristics and is frequently used for compiling climate statistics (<http://www.esrl.noaa.gov/psd/data/usclimate/map.html>). Pennsylvania and New York are each divided into 10 climate divisions; New Jersey has three divisions.

The three climate divisions encompassing DEWA and UPDE are generally considered to have a humid continental type of climate, but the varied physiographic features have a marked effect on the weather and climate of the various parts of the Delaware River valley. Prevailing westerly winds carry most of the weather disturbances that affect the region from the interior of the continent, so that the Atlantic Ocean has limited influence on the climate of the area (Davey et al. 2006). Coastal storms do, at times, affect the day-to-day weather, especially in winter. Also, storms of tropical origin can have the greatest effect within this portion of the Pennsylvania-New Jersey-New York region, causing severe floods in some instances (Gelber 2002).

Temperatures are moderately continental, with the tempering effects of the Great Lakes contributing to cloud production in the winter and onshore winds reducing the heat at times during the summer. The lowest readings in the winter occur with polar air masses of Canadian origin settling over the Northeast after a fresh snowfall. The highest readings of the summer happen when the sub-tropical fair weather system, the Bermuda high, pushes westward into the Carolinas; its clockwise circulation will direct hot, humid air from the Gulf region into the Delaware River valley. The southwest winds gain additional warmth when descending the crest of the Appalachians.

Precipitation is fairly evenly distributed throughout the year. Annual amounts generally range between 34–52 in (864–1,320 mm), while the majority of places receive 38–46 in (965–1,168 mm). Greatest amounts usually occur in the late-spring and summer months, while February is the driest month, having about 2 in (51 mm) less than the wettest months. Precipitation tends to be somewhat greater in the mountains, due, primarily, to coastal storms which occasionally frequent the area. During the warm season these storms can bring heavy rain; while in winter, heavy snow or a mixture of rain, ice, and snow may be produced.

Surface winds blow from the west and northwest in the cold season and from the southwest during the warm half of the year. Thunderstorms follow a frequency that matches the solar cycle, occurring between the equinoxes and reaching a peak near the summer solstice. Hail is relatively infrequent, but flash floods and damaging thunderstorm winds affect parts of the river valley each summer. On average, tornadoes pass through the area about once every three years. The direct effects of an Atlantic hurricane are uncommon, though remnant rains from hurricanes and tropical storms have contributed to the region’s worst floods. Ice storms, which can cause significant disruption, occur at irregular intervals and are primarily confined to the months between December and March (Kocin and Uccellini 2004).

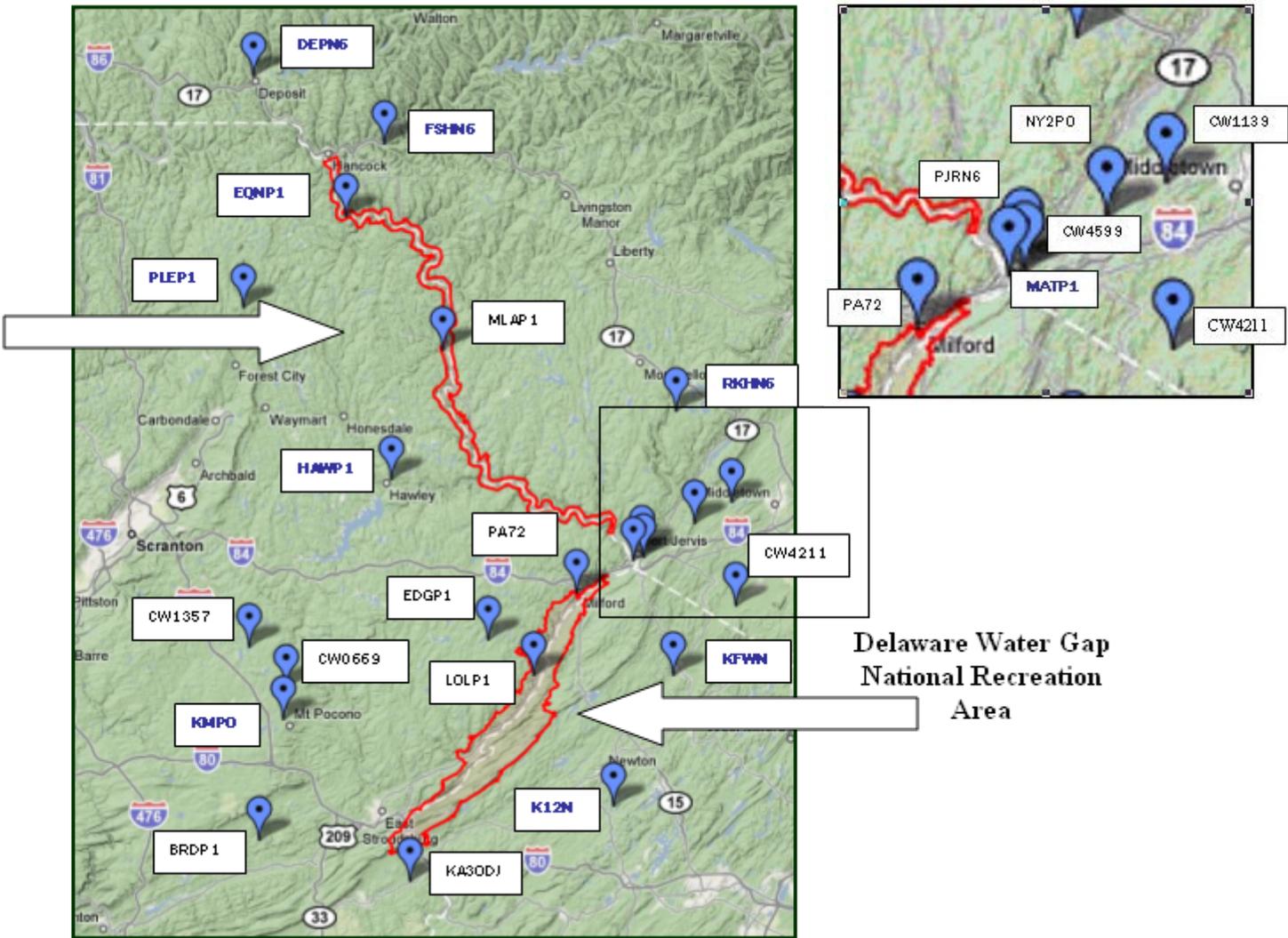
Observing Stations

A total of 25 weather-observing stations comprised of six observing networks (Table 2) were selected around DEWA and UPDE (Figure 1). The station identifiers in blue text (Figure 1) indicate those from which data has been used within this report. Stations that are not in the blue or bold text contain incomplete data for 2007 (Table 3). In addition to the summary information available in this report, a Web-interface is available that has a variety of data sources in near real-time (Figure 2).

Table 2. List of the six weather observing networks around Delaware Water Gap National Recreation Area and Upper Delaware Scenic and Recreational River.

Observing Network	Number of Stations
COOP	10
CWOP	7
FAA	3
IFLOWS	3
NADP	1
RAWS	1

Upper Delaware
Scenic and
Recreational River



Delaware Water Gap
National Recreation
Area

Figure 1. Location of weather observing stations around Delaware Water Gap National Recreation Area and Upper Delaware Scenic and Recreational River.

Table 3. List of weather observing stations around Delaware Water Gap National Recreation Area and Upper Delaware Scenic and Recreational River. Those in bold have been selected as representative of the parks, in large part due to the percent time of reporting during 2007. Not all data networks are shown here – missing are: IFLOWS, GOES, NADP, and CWOP because their data is either incomplete or not quality assured.

Stations	Network	Station Name	Period of Record (POR)		Percentage of Time Reporting Temperature for 2007	Percentage of Time Reporting Precipitation for 2007	Percentage of Time Reporting Temperature for entire POR	Percentage of Time Reporting Precipitation for entire POR
MATP1	COOP	Matamoras	10/01/1904	Present	96.2	98.9	39.7	95.1
DELN6	COOP	Delhi 2 SE	01/01/2006	Present	99.5	98.6	97.1	96.7
DEPN6	COOP	Deposit	01/01/2006	Present	91.2	93.4	70.0	75.3
EQNP1	COOP	Equinunk 2	03/01/1957	Present	-	93.7	-	97.3
FSHN6	COOP	Fishs Eddy	11/13/2006	Present	-	99.7	-	91.9
HAWP1	COOP	Hawley 1 E	11/01/1897	Present	99.5	98.4	74.4	80.4
MLAP1	COOP	Milanville	08/01/1945	11/04/2008	5.2	4.7	20.0	39.9
PJRN6	COOP	Port Jervis	01/01/2006	Present	80.8	78.9	80.0	79.2
PLEP1	COOP	Pleasant Mount 1 W	10/01/1924	Present	96.7	95.3	67.4	99.0
RKHN6	COOP	Rock Hill 3 SW	11/14/2006	Present	7.9	97.8	37.5	79.4
K12N	FAA	Andover	01/01/2000	Present	97.5	97.5	79.3	79.4
KMPO	FAA	Mount Pocono	01/01/1999	10/31/2008	98.9	98.9	99.5	99.7
KFWN	FAA	Sussex Airport	01/01/2000	Present	98.6	98.6	99.8	99.8
LOLP1	RAWS	Loch Lomond	01/01/2005	Present	95.6	95.6	93.6	93.6

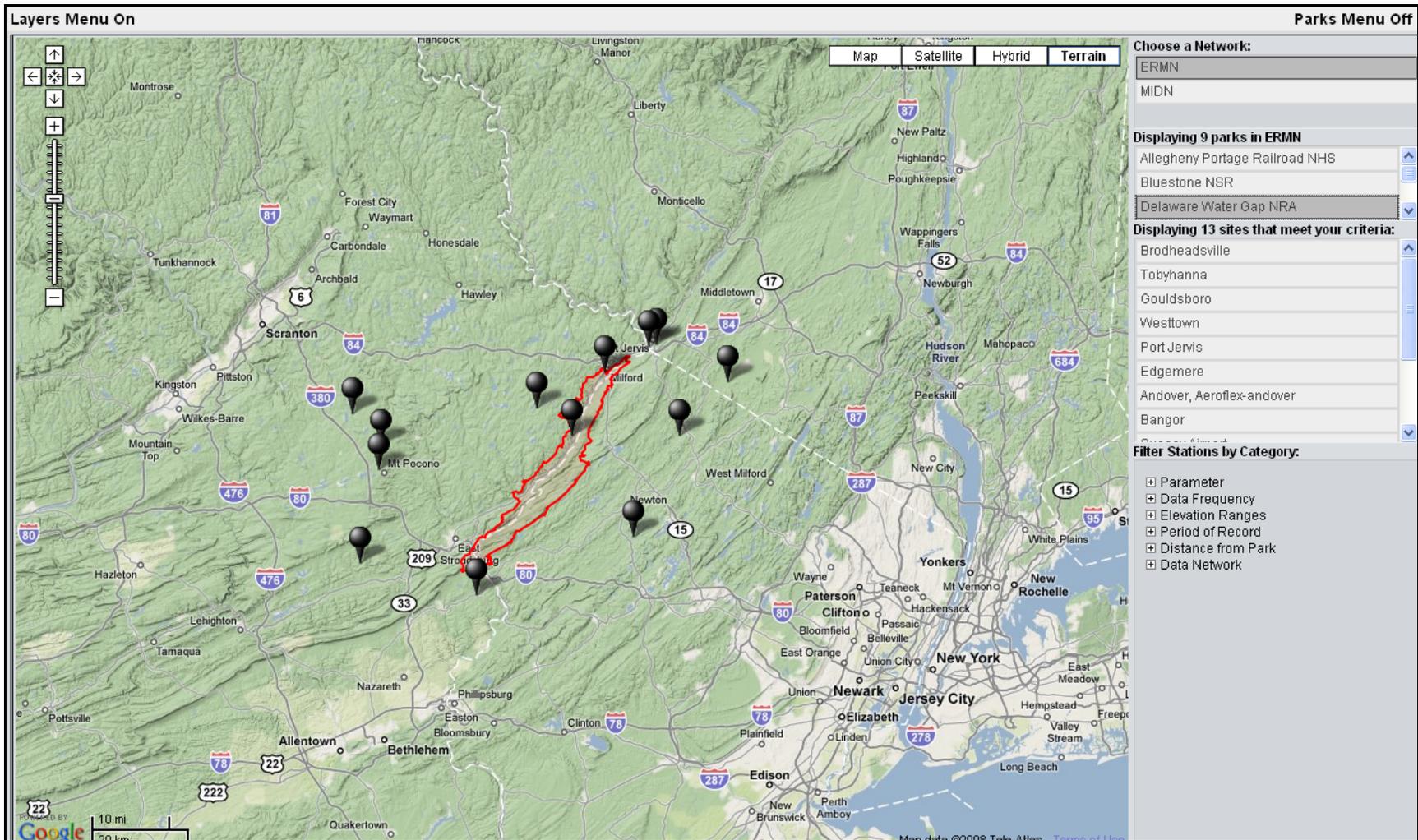


Figure 2. A snapshot of the Web-interface that is available at: http://climate.met.psu.edu/gmaps/NPS_DEVELOPMENT/interface.php/.

Temperature Summary

Calendar year 2007 began as many Januaries have during this decade, with rather mild and moist weather (Figures 3 and 4; Tables 4 and 5). However, at mid-month wintry weather returned and stayed consistently through mid-February. Winter's heaviest snowfall came around Valentine's Day when 15–36 cm (6–14 in) of snow fell across the Upper Delaware Valley. The snow was mixed with sleet and freezing rain in the Delaware Water Gap region. The bitter chill gave way to a more seasonable chill interspersed with a few warm spells until early April. A 10-day period of unseasonably cold and snowy weather accompanied by late hard freezes occurred in the first half of April. The cold snap ended with a powerful nor'easter on April 15. The month of May brought back several spells of very cool weather (daily temperature departures more than $-5^{\circ}\text{F}/-2.8^{\circ}\text{C}$), but the rain ended and it turned exceptionally dry. The last frosts occurred around May 12–14. Maps in Figures 3 and 4 were created using estimates from the Parameter-elevation Regressions on Independent Slopes Model (PRISM). PRISM uses an interpolation scheme for temperature between actual observations and corrects these estimates for changes in topography across the region. More information can be found at: <http://www.prism.oregonstate.edu/>.

The summer of 2007 had several short episodes of hot weather (warm season daily departures $>+2.8^{\circ}\text{C}/+5^{\circ}\text{F}$); from June 26–28, July 9–10, August 1–10 (the longest spell), and August 24–25. Oddly, the most anomalously warm weather did not occur until September 20–October 10 when readings averaged more than 5.6°C ($+10^{\circ}\text{F}$) above the long-term mean for this three week period resulting in the 12th warmest autumn in the past 114 years (Table 6). The summer of 2007 brought fewer than average number of hot days and the length of the growing season was slightly longer than the 30-year average (Table 7).

Several heavy rain storms dropped readings back to seasonal levels mid-October. The first frosts occurred in the northern sections around October 13 and southern areas on October 29. November and December were marked by alternating cool and warm spells, though the cool spells lasted longer and the result was both months averaged slightly below normal (Figures 3 and 4). The season's first snowfall came in the higher elevation on November 18 and widespread snow on December 2. The year concluded with two weeks of mild weather.

The temperature trend since 1978 is upward at a rate of about 0.11°C (0.2°F) per decade (Figure 5).

Delaware Water Gap National Recreation Area
and Upper Delaware Scenic and Recreational River
Departure from Average Monthly Maximum Temperature
2007 vs. 1971–2000

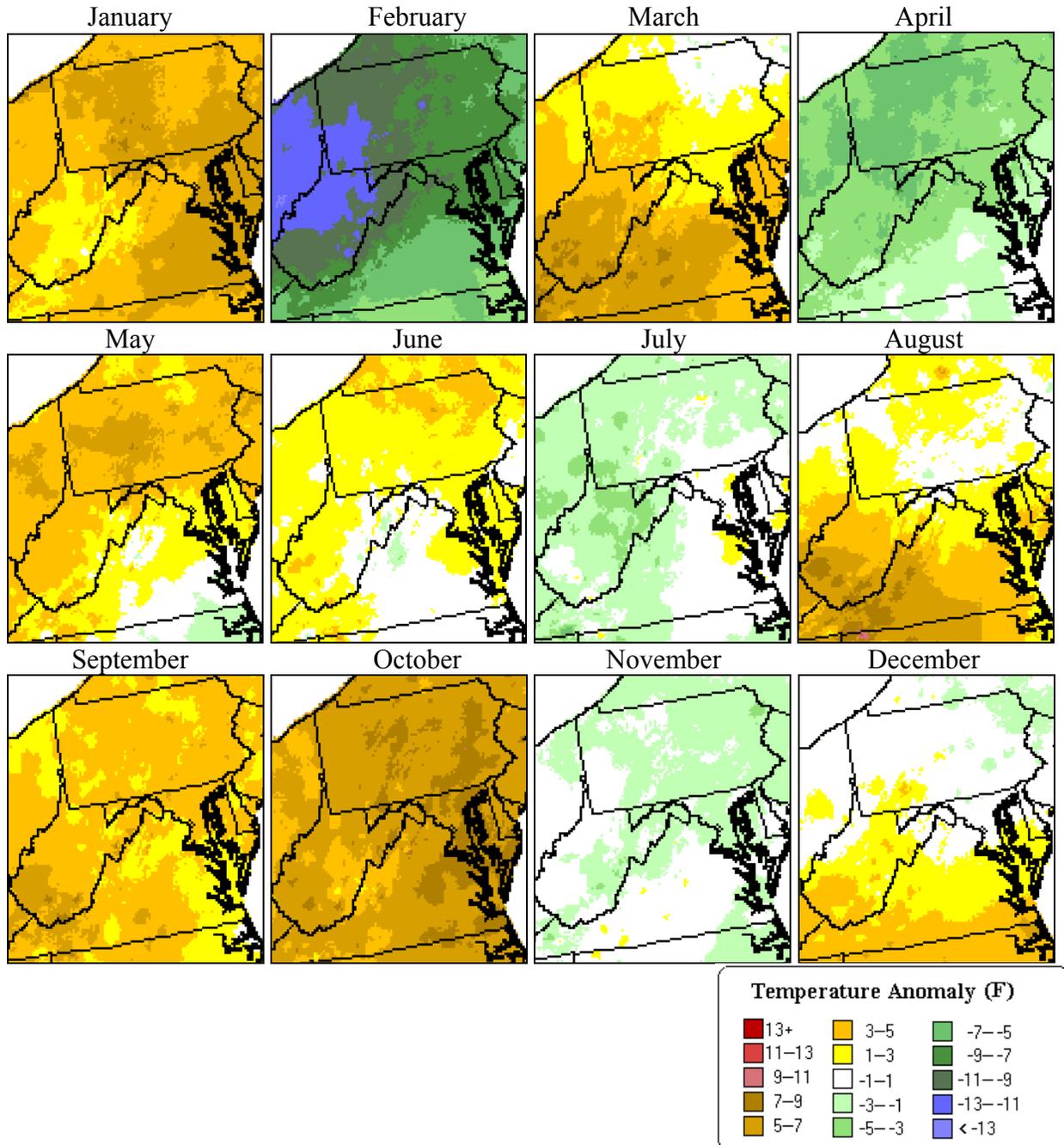


Figure 3. Maps showing departures from average maximum daily temperatures for each month in the calendar year 2007 as compared with the normal based on the period 1971–2000.

Delaware Water Gap National Recreation Area
and Upper Delaware Scenic and Recreational River
Departure from Average Monthly Minimum Temperature
2007 vs. 1971–2000

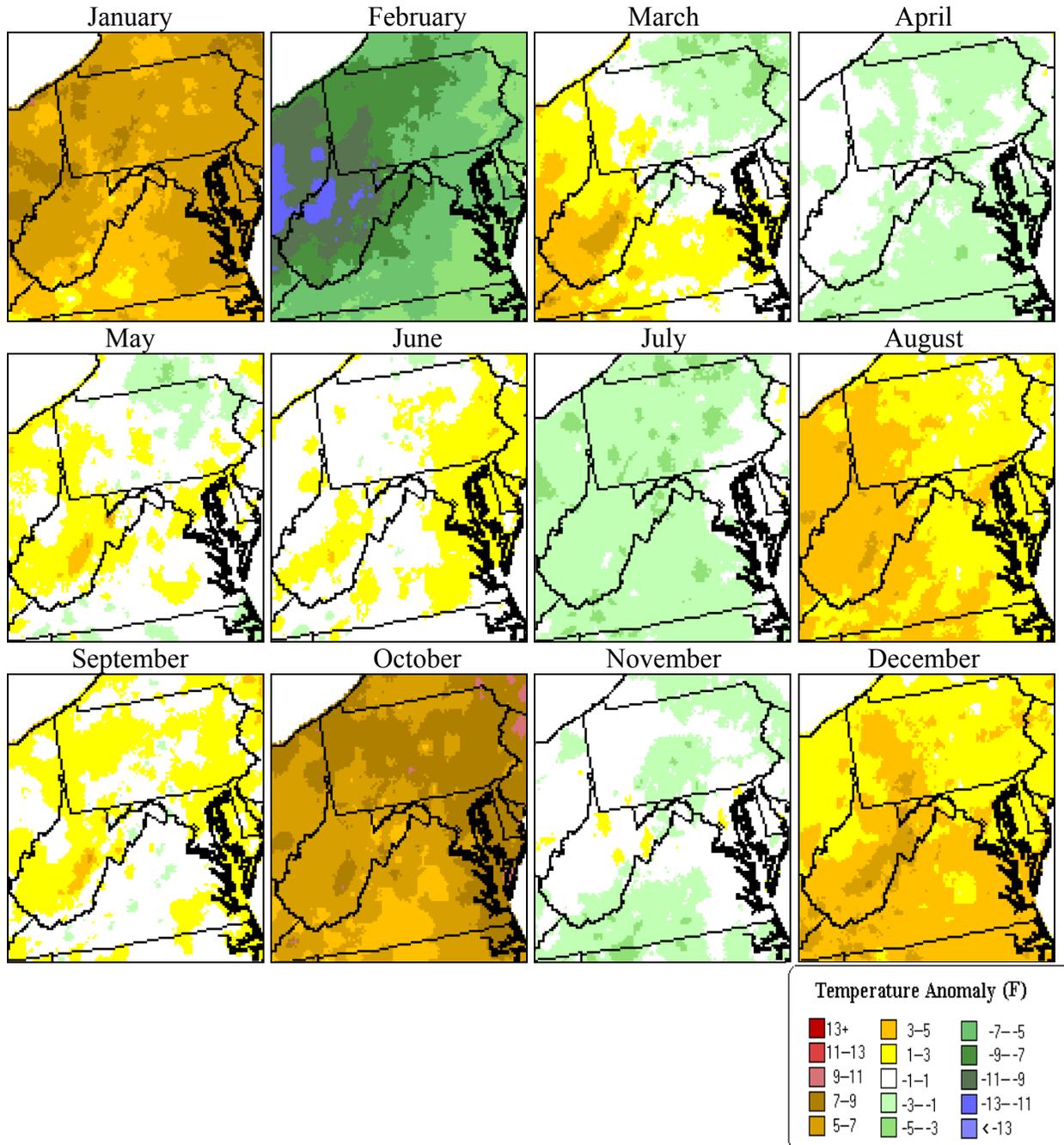


Figure 4. Maps showing departures from average minimum temperatures for each month in the calendar year 2007 as compared with the normal based on the period 1971–2000.

Table 4. Summary of monthly average temperatures for 2007 from reporting sites that represent Delaware Water Gap National Recreation Area and Upper Delaware Scenic and Recreational River.

Station Location	ID	ID Number	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
Delhi, NY	DELN6	302036	-2.84°C	-8.50°C	-1.72°C	4.79°C	13.07°C	17.71°C	17.49°C	18.35°C	15.48°C	11.94°C	1.53°C	-3.87°C	6.96°C
			26.88°F	16.70°F	28.90°F	40.63°F	55.52°F	63.88°F	63.48°F	65.03°F	59.87°F	53.50°F	34.75°F	25.19°F	44.53°F
Hawley, PA	HAWP1	363758	-1.00c°C	-7.39°C	-0.03°C	5.54°C	14.18°C	19.29°C	19.36°C	20.06C	16.51°C	13.28°C	2.59°C	-2.02°C	8.37°C
			30.20c°F	18.70°F	31.94°F	41.97°F	57.53°F	66.73°F	66.84°F	68.11°F	61.72°F	55.90°F	36.67°F	28.37°F	47.06°F
Pleasant Mount, PA	PLEP1	367029	-1.48°C	-9.70°C	-1.78°C	3.66°C	13.02°C	17.84°C	18.09°C	18.56°C	15.51°C	12.31°C	1.44°C	-3.77°C	6.98°C
			29.34°F	14.54°F	28.79°F	38.58°F	55.44°F	64.11°F	64.56°F	65.40°F	59.93°F	54.16°F	34.60°F	25.21°F	44.56°F
Deposit, NY	DEPN6	302060	-1.31°C	-7.07°C	0.66°C	6.47°C	14.78°C	19.89°C	20.41°C	21.07°C	17.78°C	14.39°C	3.26a°C	-1.75b°C	9.05°C
			26.65°F	19.27°F	33.19°F	43.65°F	58.60°F	67.80°F	68.74°F	69.92°F	64.00°F	57.90°F	37.87a°F	28.85b°F	48.29°F

a = 1 day missing; b = 2 days missing; c = 3 days missing; d = 4 days missing
 Monthly statistics not reported if more than 4 days are missing.

Table 5. Summary of departure from normal temperature based on 30-year normal (1971–2000) for 2007 from reporting sites that represent Delaware Water Gap National Recreation Area and Upper Delaware Scenic and Recreational River.

Station Location	ID	ID Number	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
Delhi, NY	DELN6	302036	3.34°C	-3.50°C	-1.83°C	-1.43°C	0.56°C	0.55°C	-1.96°C	-0.43°C	0.93°C	3.45°C	-1.37°C	-0.74°C	-0.11°C
			6.01°F	-6.30°F	-3.29°F	-2.57°F	1.00°F	0.98°F	-3.52°F	-0.78°F	1.67°F	6.21°F	-2.47°F	-1.33°F	-0.39°F
Hawley, PA	HAWP1	363758	3.89°C	-3.50°C	-1.25°C	-1.63°C	1.01°C	1.63°C	-0.86°C	0.67C	1.29°C	4.05°C	-1.29°C	-0.06°C	0.33°C
			7.01°F	-6.30°F	-2.25°F	-2.93°F	1.82°F	2.93°F	-1.55°F	1.21°F	2.32°F	7.29°F	-2.33°F	-0.11°F	0.59°F
Pleasant Mount, PA	PLEP1	367029	5.80°C	-3.47°C	-0.33°C	-1.40°C	1.64°C	1.78°C	-0.41°C	0.94°C	2.35°C	5.14°C	-0.22°C	0.57°C	1.03°C
			10.44°F	-6.25°F	-0.60°F	-2.52°F	2.96°F	3.21°F	-0.73°F	1.69°F	4.23°F	9.26°F	-0.40°F	1.02°F	1.86°F
Deposit, NY	DEPN6	302060	4.00°C	-3.18°C	-0.61°C	-1.14°C	1.05°C	1.72°C	-0.09°C	1.28°C	2.17°C	4.89°C	-0.46°C	0.63°C	-0.86°C
			7.20°F	-5.73°F	-1.10°F	-2.05°F	1.89°F	3.10°F	-0.16°F	2.31°F	3.90°F	8.80°F	-0.83°F	1.14°F	-1.54°F

Table 6. Seasonal temperature and precipitation rankings over 114 years for PA Climate Division 4 for 2007.

Climate Division Rankings NE Pennsylvania	Jan–Feb–Mar WINTER	Apr–May–Jun SPRING	Jul–Aug–Sep SUMMER	Oct–Nov–Dec AUTUMN
Temperature-2007	57	40	25	12
Precipitation-2007	65	59	50	3

1 = Warmest or Wettest

114 = Coldest or Driest

Table 7. Status of 2007 temperature indicators using FAA sites in New Jersey (Andover and Sussex) compared to the 30-year normal (1971–2000) at the Allentown (KABE) station. While the elevation does vary, the trend in 2007 showed an increase in cold winter days and a marginal increase in the frequency of sub-freezing nights. The summer of 2007 brought fewer than average number of hot days and the length of the growing season was slightly longer than the 30-year average from Allentown.

Temperature Indicator	Andover, NJ K12N 2007	Sussex, NJ KFVN 2007	Allentown, PA KABE 1971–2000
Number of days with Tmax ≤0°C/32°F	36	39	27.3
Number of days with Tmin ≤0°C/32°F	115	136	116.9
Number of days with Tmin ≤-17°C/0°F	0	0	1.6
Number of days with Tmax ≥32°C/90°F	10	11	14.4
Number of days between last 32°F/0°C in Spring and first 32°F/0°C in Fall	200	192	~180

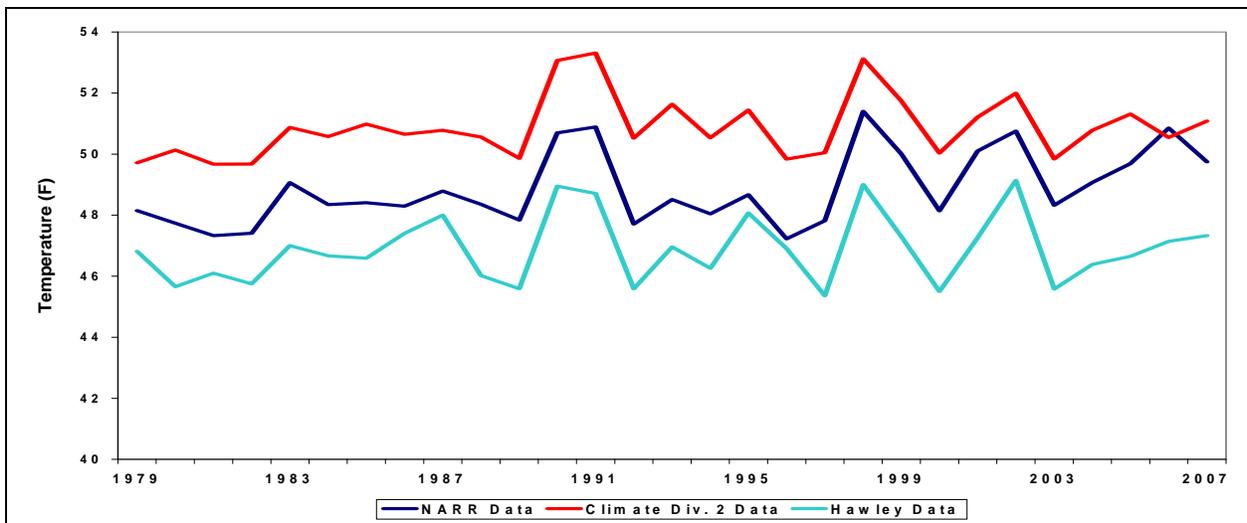


Figure 5. Annual temperature trends for Delaware Water Gap National Recreation Area and Upper Delaware Scenic and Recreational River, as seen by three distinct data sources. The red line shows PA climate division 2 data which is composed of more than 10 climate stations in the Pennsylvania counties adjacent to the park; the dark blue line is the temperature trend for a 32-km square box within Delaware Water Gap NRA as derived from the North American Regional Reanalysis data set (NARR). This gridded database was the initial conditions for the numerical weather prediction models. The light blue line shows the trend from a single Cooperative (COOP) weather station at Hawley. The agreement between all three data sources indicates the reliability of the NARR data as a good proxy for actual park observations.

Precipitation Summary

Both January and February were drier than average across the region (Figure 6; Tables 8 and 9). In spite of the below-normal precipitation, snowfall tallied above normal for this period, since much of the precipitation fell as snow from mid-January until the third week of February. The most significant winter storm of the season occurred just before St. Valentine's Day, with all sections receiving more than 12 cm (4 in) of snow and most of Upper Delaware Valley measured 30 cm (12 in) or more. A wedge of mild air trapped in the storm circulation brought an icy mixture for much of DEWA. March saw near-normal rain and snowfall, but April featured the wettest weather of the year, which was centered on a powerful nor'easter on April 15 (Table 10). All but the northwest portion of the Delaware parks received between 2.5 and 10 cm (1 and 4 in) of rain. Sections of northeast New Jersey measured more than 21 cm (8 in) in one day, which led to widespread, serious flooding.

The warm season of 2007 started and ended with very dry conditions (Figure 6). After a very wet April, May saw significant rainfall on only four days. More routine showers and thunderstorms returned in June, but the scattered nature of this rain left most sections with a deficit (Figure 6). A bout of heavy thunderstorms in later July brought several reports of severe weather (Appendix) and also raised rainfall above the long-term mean. August had several heavy thunderstorms in the first half of the month (Appendix), and then from late August until early October rainfall was sparse with no contribution of moisture from the Tropics. Three long, dry spells occurred during this period (Table 10). Rain returned in earnest starting on October 9, and within three weeks much of the region had received 200% of average rainfall, resulting in the 3rd wettest autumn in the past 114 years (Table 6). November was a bit drier, but December had average snowfall and was wetter than normal.

Calendar year 2007 was wetter than normal based on several precipitation measures (Table 11) and the 30 year trend shows an increase of nearly 15% (about 150mm or 6 inches) since 1979 (Figure 7).

Maps showing percent of average precipitation for each month in calendar year 2007, as compared with the normal based on the 1971–2000 period, are shown in Figure 6. Departure values are reported in percent of normal. Maps were created using estimates from the Parameter-elevation Regressions on Independent Slopes Model (PRISM). PRISM uses an interpolation scheme for precipitation between actual observations and corrects these estimates for changes in topography across the region. More information can be found at: <http://www.prism.oregonstate.edu/>.

Delaware Water Gap National Recreation Area
and Upper Delaware Scenic and Recreational River
Percent of Average Monthly Precipitation
2007 vs. 1971–2000

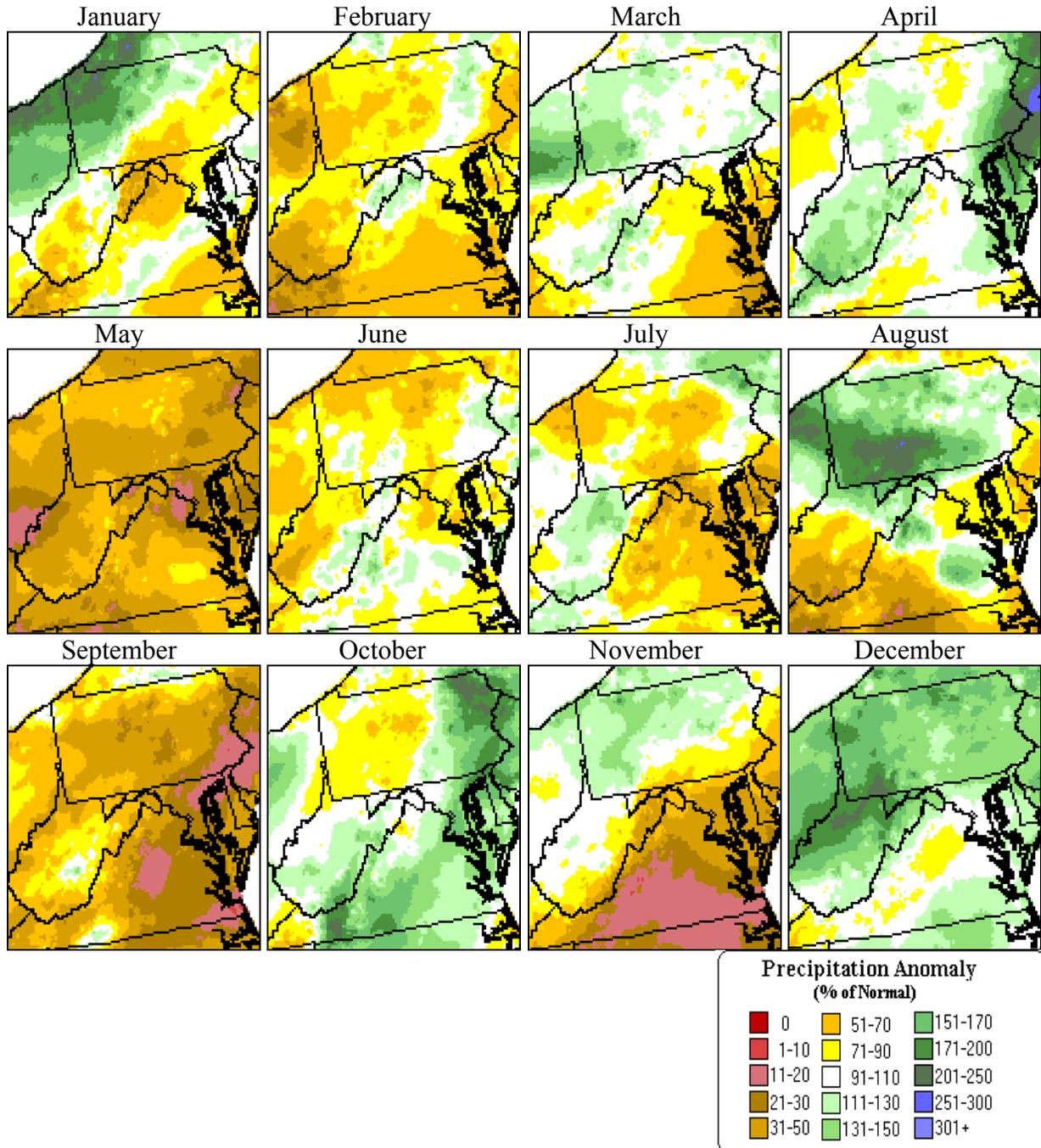


Figure 6. Maps showing percent of average precipitation for each month in the calendar year 2007 as compared with the normal based on the period 1971–2000.

Table 8. Summary of precipitation in 2007 for reporting sites that represent Delaware Water Gap National Recreation Area and Upper Delaware Scenic and Recreational River.

Station Location	ID	ID Number	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
Matamoras, PA	MATP1	365470	6.35 cm	6.17 cm	9.22 cm	17.42 cm	1.78 cm	9.91 cm	13.28 cm	13.16 cm	2.97 cm	21.39 cm	10.26 cm	13.20 cm	125.17 cm
			2.50 in	2.43 in	3.63 in	6.86 in	0.70 in	3.90 in	5.23 in	5.18 in	1.17 in	8.42 in	4.04 in	5.20 in	49.28 in
Delhi, NY	DELN6	302036	10.64 cm	9.91 cm	11.35 cm	14.91 cm	5.64 cm	10.92 cm	14.27 ^a cm	11.28 cm	17.90 cm	13.26 cm	11.99 cm	13.23 ^a cm	107.90 cm
			4.19 in	3.90 in	4.47 in	5.87 in	2.22 in	4.30 in	5.62 ^a in	4.44 in	7.05 in	5.22 in	4.72 in	5.21 ^a in	42.48 in
Rock Hill, NY	RKHN6	307210	10.08 cm	0.76 ^d cm	7.06 ^a cm	18.67 ^a cm	2.79 cm	11.91 cm	16.67 cm	8.69 cm	2.24 cm	19.34 cm	9.78 cm	16.00 cm	97.51 cm
			3.97 in	0.30 ^d in	2.78 ^a in	7.35 ^a in	1.10 in	4.69 in	6.56 in	3.42 in	0.88 in	7.61 in	3.85 in	6.30 in	38.39 in
Hawley, PA	HAWP1	363758	6.83 cm	7.42 ^a cm	8.46 cm	14.53 cm	3.99 cm	7.32 cm	18.14 cm	10.69 cm	1.68 cm	20.07 cm	10.57 cm	14.17 cm	116.46 cm
			2.69 in	2.92 ^a in	3.33 in	5.72 in	1.57 in	2.88 in	7.14 in	4.21 in	0.66 in	7.90 in	4.16 in	5.58 in	45.85 in
Pleasant Mount, PA	PLEP1	367029	13.06 cm	7.75 ^b cm	10.62 cm	11.10 ^a cm	6.96 cm	8.74 cm	18.77 cm	8.69 cm	11.53 cm	23.55 cm	14.25 ^a cm	13.74 cm	102.62 cm
			5.14 in	3.05 ^b in	4.18 in	4.37 ^a in	2.74 in	3.44 in	7.39 in	3.42 in	4.54 in	9.27 in	5.61 ^a in	5.41 in	40.40 in
Equinunk, PA	EQNP1	362671	11.38 cm	8.15 cm	9.75 cm	11.28 cm	7.11 cm	5.59 cm	14.71 cm	7.80 cm	8.03 cm	15.59 cm	9.80 cm	11.48 cm	120.68 cm
			4.48 in	3.21 in	3.84 in	4.44 in	2.80 in	2.20 in	5.79 in	3.07 in	3.16 in	6.14 in	3.86 in	4.52 in	47.51 in
Fishes Eddy, NY	FSHN6	302829	10.39 cm	6.60 cm	9.47 cm	12.42 cm	5.18 cm	8.10 cm	10.57 cm	7.62 cm	9.50 cm	14.27 cm	11.05 cm	11.91 cm	108.99 cm
			4.09 in	2.60 in	3.73 in	4.89 in	2.04 in	3.19 in	4.16 in	3.00 in	3.74 in	5.62 in	4.35 in	4.69 in	42.91 in
Deposit, NY	DEPN6	302060	9.96 cm	9.14 cm	8.79 cm	11.10 cm	4.45 cm	8.00 cm	13.87 cm	6.30 cm	11.30 cm	15.34 cm	11.46 cm	12.24 cm	121.95 cm
			3.92 in	3.60 in	3.46 in	4.37 in	1.75 in	3.15 in	5.46 in	2.48 in	4.45 in	6.04 in	4.51 in	4.82 in	48.01 in

Table 9. Summary of 2007 percent of normal precipitation based on 30-year normal (1971–2000) for reporting sites that represent Delaware Water Gap National Recreation Area and Upper Delaware Scenic and Recreational River.

Station Location	ID	ID Number	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
Matamoras, PA	MATP1	365470	72	86	103	166	17	88	125	142	26	247	109	153	108
Delhi, NY	DELN6	302036	142	166	132	151	52	96	146	135	178	141	122	163	98
Rock Hill, NY	RKHN6	307210	106	10	66	172	22	98	166	90	19	200	90	167	78
Hawley, PA	HAWP1	363758	85	111	108	153	39	68	198	121	17	252	116	180	110
Pleasant Mount, PA	PLEP1	367029	151	107	120	105	55	70	169	83	100	222	130	149	83
Equinunk, PA	EQNP1	362671	130	120	106	121	69	55	151	82	79	177	96	126	108
Fishes Eddy, NY	FSHN6	302829	126	102	103	130	48	74	106	80	94	145	101	144	96
Deposit, NY	DEPN6	302060	131	135	102	111	43	78	148	62	119	170	5	144	110

Table 10. A comparison of wettest single calendar days during 2007 with the longest periods with a trace or less of rainfall during the same year.

Wettest Days in 2007	Dry Spells in 2007
Apr. 15: 3.80–10.00 cm (1.50–4.00 in)	Aug. 27–Sept. 9
Aug. 8: 5.20–7.00 cm (2.00–2.75 in)	Sept. 29–Oct. 8
Nov. 15: 4.40–5.70 cm (1.75–2.25 in)	Sept. 16–26
Oct. 11: 3.80–6.50 cm (1.50–2.55 in)	July 28–Aug. 6

Table 11. Status of 2007 precipitation indicators using FAA sites in New Jersey (Andover and Sussex) compared to the 30-year normal (1971–2000) at the Allentown (KABE) station. While the elevation does vary, trends in 2007 showed an increase in annual snowfall.

Precipitation Indicators	Andover, NJ K12N 2007	Sussex, NJ KFWN 2007	Allentown, PA KABE 1971–2000
Annual rainfall in inches	48.75	39.62	45.17
Annual snowfall (Jan–Dec) in inches	47.30	47.50	32.30
Number of strings of 7+ days without rain	6	9	-
Number of days ≥ 2.5 cm (1.00 in) rain	12	10	11.7
Number of days ≥ 5.1 cm (2.00 in) rain	3	1	-
Number of days with ≥ 0.3 cm (0.1 in) snow	19	26	-
Number of days with ≥ 2.5 cm (1.0 in) snow	9	11	8.3
% of precipitation falling as snow Jan 1–Mar 31	45.70%	41.80%	-

16

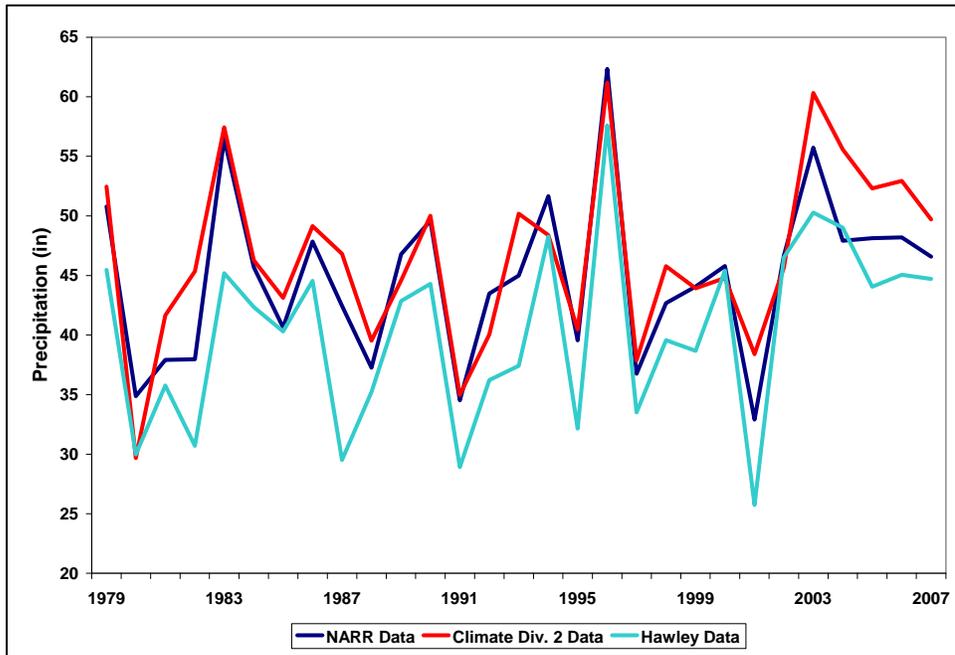


Figure 7. Annual precipitation trends for Delaware Water Gap National Recreation Area and Upper Delaware Scenic and Recreational River are shown by three separate lines. The red line tracks the climate division data (Div #2 in Pennsylvania) which represents an aggregate of more than 10 sites near the park. The dark blue line marks the trend of a grid box within Delaware Water Gap National Recreation Area from a North American Reanalysis data set. The light blue line shows the annual precipitation for a nearby single weather station at Hawley, PA. The 30-year trend shows an increase of nearly 15% (about 150 mm or 6 in) since 1979.

Drought Status

The U.S. Drought Monitor (USDM; <http://www.drought.unl.edu/dm/monitor.html>) tracks drought conditions across the nation on a weekly basis and incorporates data and expert input from a wide variety of state and federal agencies. The USDM is designed to represent a “broad brush,” regional perspective (e.g., summarized by climate division, state or region) on drought and therefore provides an ideal tool for tracking generalized drought conditions across the central section of West Virginia and the enclosed parks. One index used to track drought conditions, the Palmer Drought Severity Index (PDSI), uses temperature and rainfall information to determine dryness (the long-term average is “zero”). Since the PDSI responds to long-term effects, including evaporation, there is usually a lag between long dry spells, episodes of heavy rain, and changes in the index value.

According to the USDM, by the beginning of May 2007, the Palmer Drought Severity Index (PDSI) took a precipitous drop from abnormally moist ($>+2$) to slightly dry (~-1) (Figure 8). These conditions persisted much of the summer and then rose again as the wettest October in more than 30 years alleviated pockets of drought in the region. When compared with the past few years, the dry early summer of 2007 was akin to 2005, though this past year had more frequent showers in July and August. Comparative data is illustrated for Pennsylvania (Figure 9) and the Northeast (Figure 10).

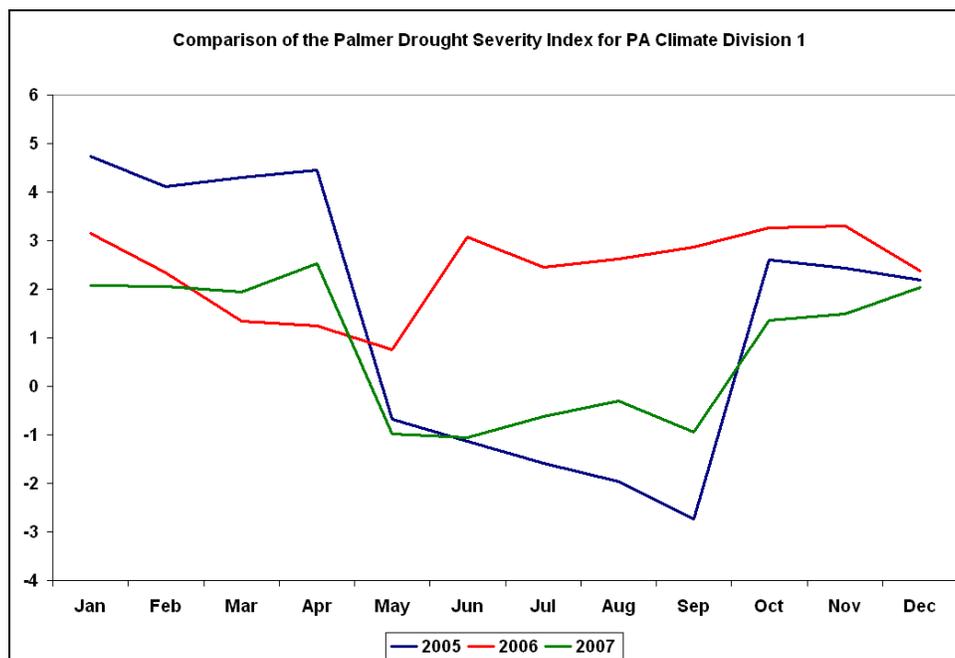


Figure 8. A comparison of the Palmer Drought Severity Index (PDSI) for the Pennsylvania Climate Division encompassing the majority of Delaware Water Gap National Recreation Area and most of Upper Delaware Scenic and Recreational River. The PDSI during 2007 was the closest to normal of the past 3 years (the long-term average value is zero).

Drought Severity in Pennsylvania during 2007

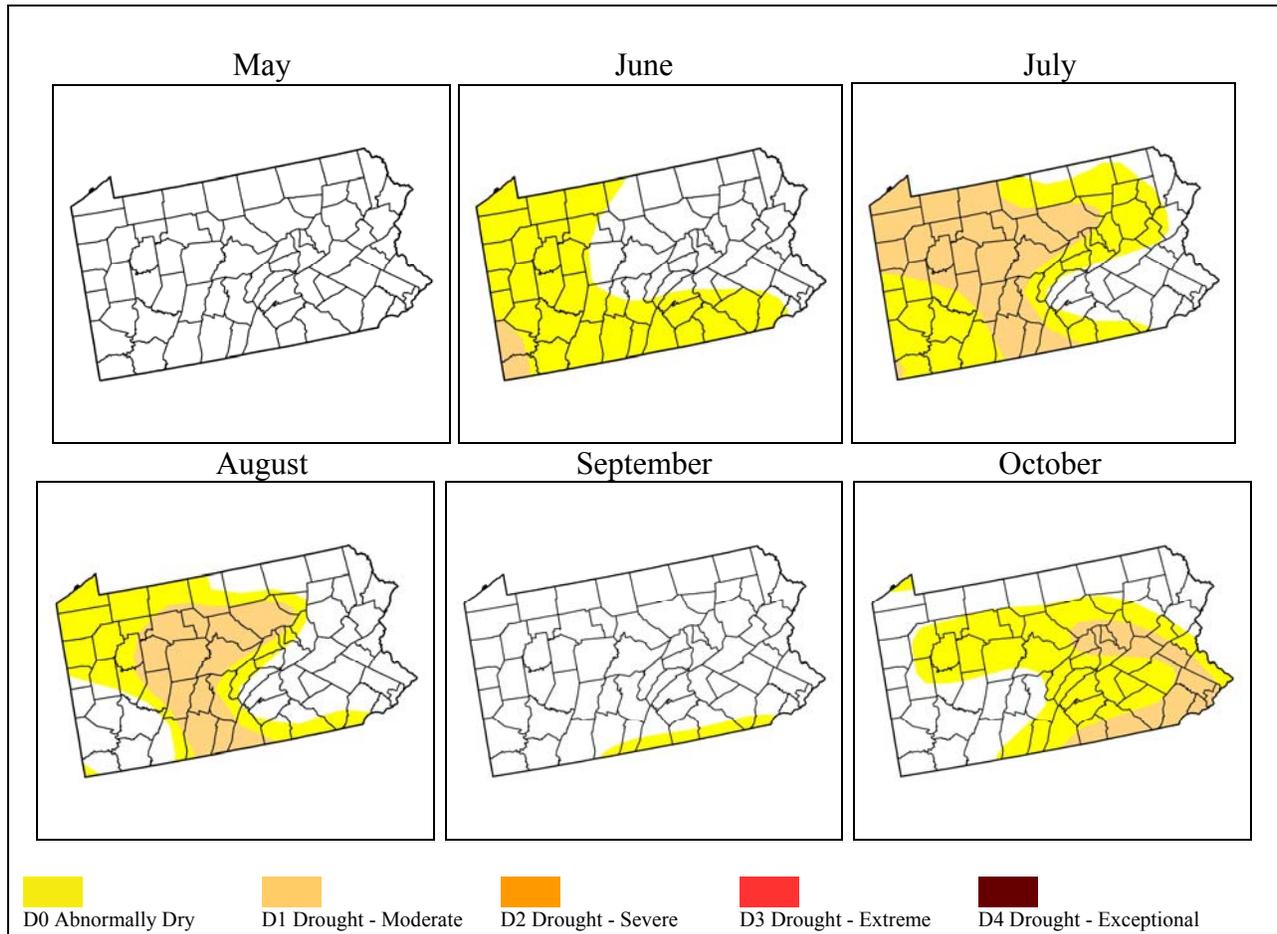


Figure 9. The mid-month values of the PDSI for Pennsylvania showing that dry conditions rarely encroached on the Delaware parks.

Drought Severity for the Northeast during 2007

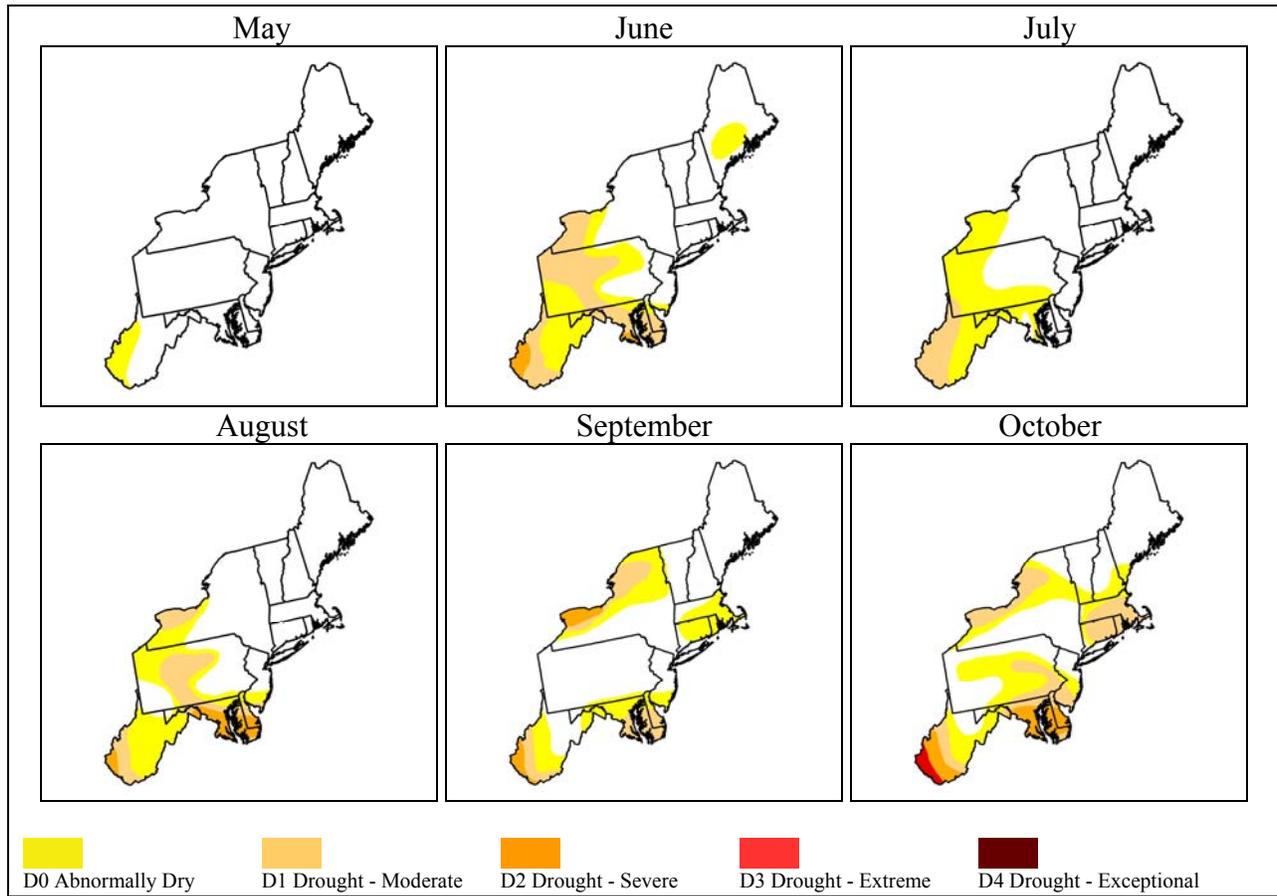


Figure 10. The mid-month values of the PDSI for the Northeast during the 2007 warm season. The Chesapeake Bay area was the most consistently dry region.

Global and National Summary

Warmer-than-average temperatures occurred throughout 2007 in most land areas of the world, with the exception of cooler-than-average anomalies in the southern parts of South America (Figure 11). The largest warmer-than-average anomalies were present throughout high latitude regions of the Northern Hemisphere, including much of North America, Europe, and Asia. Annual temperature anomalies in these regions ranged from 3.6–7.2°F (2–4°C) above the 1961–1990 average.

Notable temperature extremes in 2007 included a heat wave that affected a large portion of the United States throughout the month of August. The Central and Southeastern U.S. were particularly affected, with over 50 deaths attributed to soaring high temperatures. The anomalous warmth exacerbated drought conditions in the Southeastern region and also contributed for 29 all-time record high maximum temperatures and 35 all-time record high minimum temperatures.

In April, a devastating cold wave affected much of the central Plains, Midwest, and the Southeast region of the contiguous U.S. Temperatures dipped well below freezing in many areas, prompting nearly 1,240 broken daily minimum temperature records and producing significant crop damage.

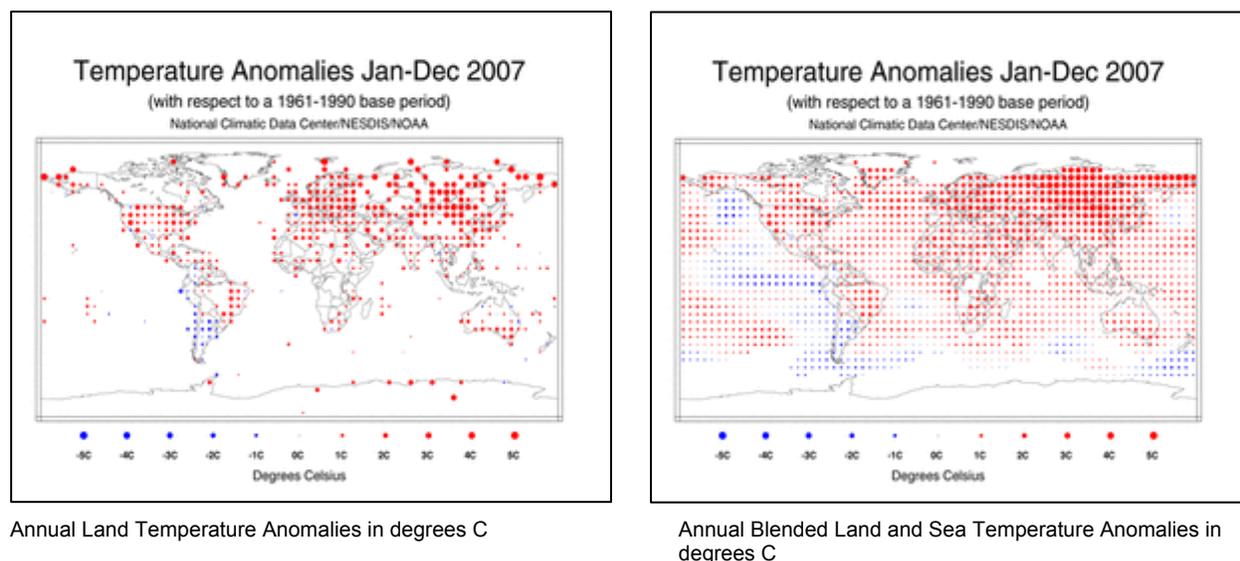


Figure 11. Global temperature anomalies for 2007 with respect to a 1961–1990 base period. The map on left is created using data from the Global Historical Climatology Network (GHCN), a network of more than 7,000 land surface observing stations. The map on right is a product of a merged land surface and sea surface temperature anomaly analysis developed by Smith and Reynolds (2005). Temperature anomalies with respect to the 1961–1990 mean for land and ocean are analyzed separately and then merged to form the global analysis.

Snow cover for the boreal winter 2007 across North America was above average and was the 13th largest extent over the 41-year historical record (Figure 12). This was due, in part, to a series of snow and ice storms that struck the U.S. during the month of February. Average North America boreal winter snow cover extent is 17.0 million square kilometers for the 1967–2007 period of record.

Mean Northern Hemisphere snow cover extent during boreal spring (March–May) 2007 was below average (Figure 13). Much of this was due to anomalously warm conditions across Asia, Europe, and most of the contiguous U.S. Spring 2007 snow cover extent on the Northern Hemisphere was the third lowest extent on record. Mean Northern Hemisphere spring snow cover extent for the 1997–2007 period of record is 92.6 million square kilometers.

Based on data through the end of the year, 2007 was the 10th warmest year on record for the U.S., with a nationally averaged temperature of 54.2°F (12.4°C). This value is 1.4°F (0.8°C) above the 20th century (1901–2000) mean (Figure 14).

Much-warmer-than-average temperatures affected much of the mountain west and parts of the east during 2007. This was the 10th warmest January–December in the 113-year record. Both Kentucky and Tennessee had the fourth warmest years on record. Forty-three of the lower 48 states were either warmer or much warmer than average in 2007. Maine alone ranked below average during the 2007 year-to-date period. The anomalous warmth affecting the U.S. in 2007 is also reflected in temperatures in the lower troposphere. Data collected by NOAA's TIROS-N polar-orbiting satellites and adjusted for time-dependent biases by NASA and the Global Hydrology and Climate Center at the University of Alabama in Huntsville indicate that temperatures in the lower half of the atmosphere (lowest 8 km of the atmosphere) over the U.S. were warmer than the 20-year (1979–1998) average for the 10th consecutive year.

Precipitation in the United States during 2007 was variable throughout much of the country with periods of excessive rainfall, especially across the central third of the U.S., and persistent and developing drought in the southeastern quarter of the country and the far western states. Winter was relatively wet in the South and North Central regions and relatively dry in the West and Southeast (Figures 15 and 16). In the spring, it was the driest March–May on record in the Southeast.

The West was ranked sixth driest and the West North Central region had its third wettest spring on record. In summer, the remnants of Tropical Storm Erin brought excessive rain to Texas, Oklahoma, and Kansas, giving the South its wettest summer on record. Meanwhile, much of the Southeast continued to suffer in drought with its 11th driest summer on record, following the driest spring.

Precipitation across the U.S. during the fall ranked 37th driest, although no regions ranked much above or much below normal. For the contiguous U.S. as a whole, seven months in 2007 were drier than average. The annual temperature trend for the nation, based on the historical climate network (USHCN), shows that 2007 was down slightly from 2006, but still ranked as tied for the sixth warmest year in the past century.

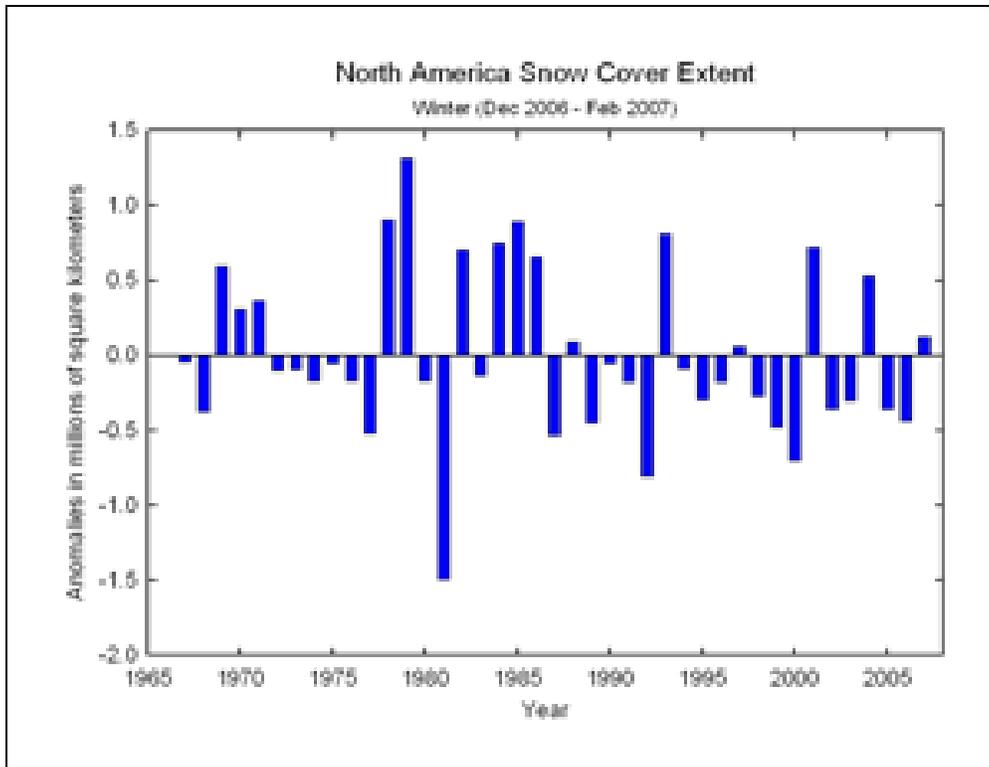


Figure 12. North American snow cover anomalies for 1967–2007 winters (Dec.–Feb.).

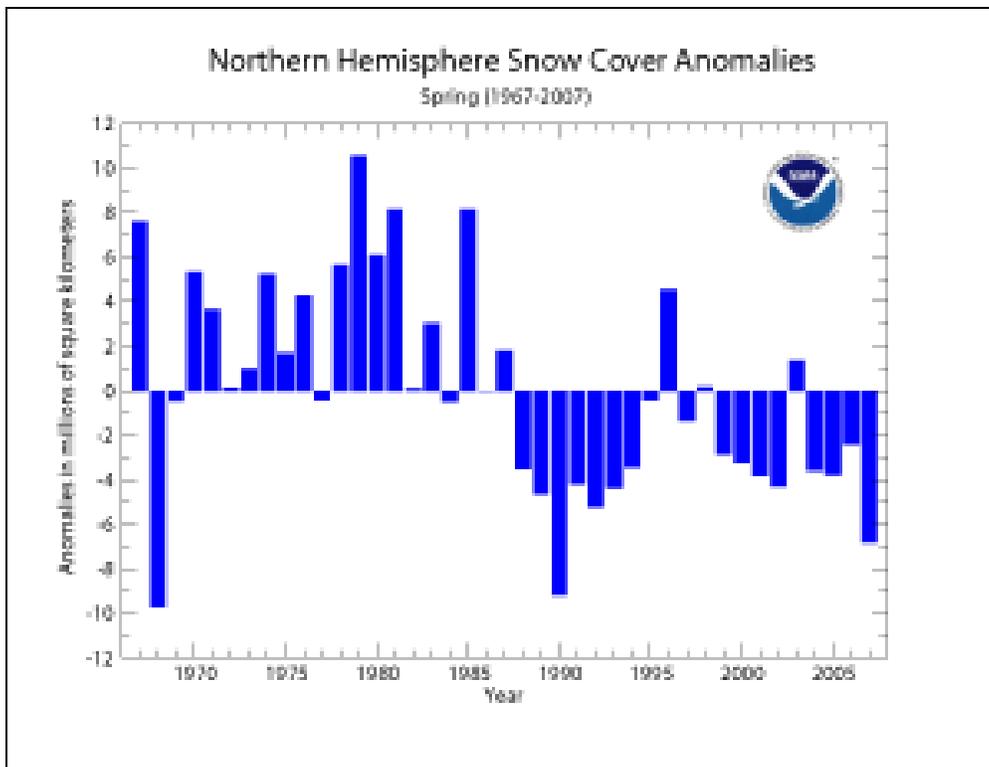


Figure 13. Northern Hemisphere snow cover anomalies for 1967–2007 spring (March–May).

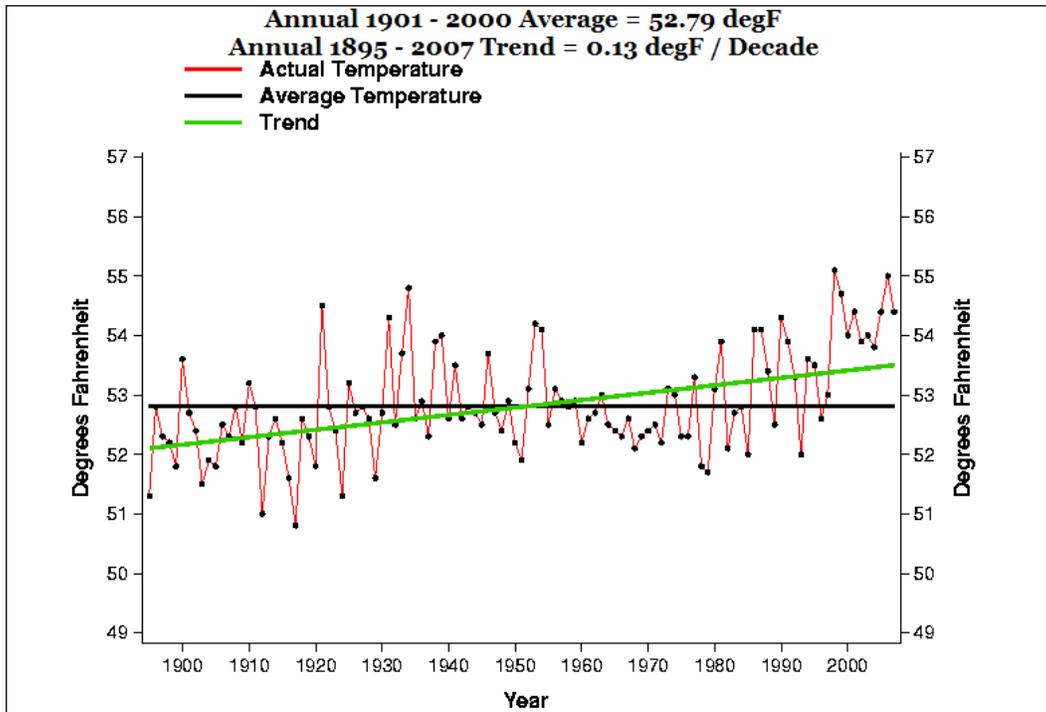


Figure 14. The long-term annual temperature trend for the United States based on the Historical Climate Network (HCN) which is a subset of the Cooperative Network of Weather Observers.

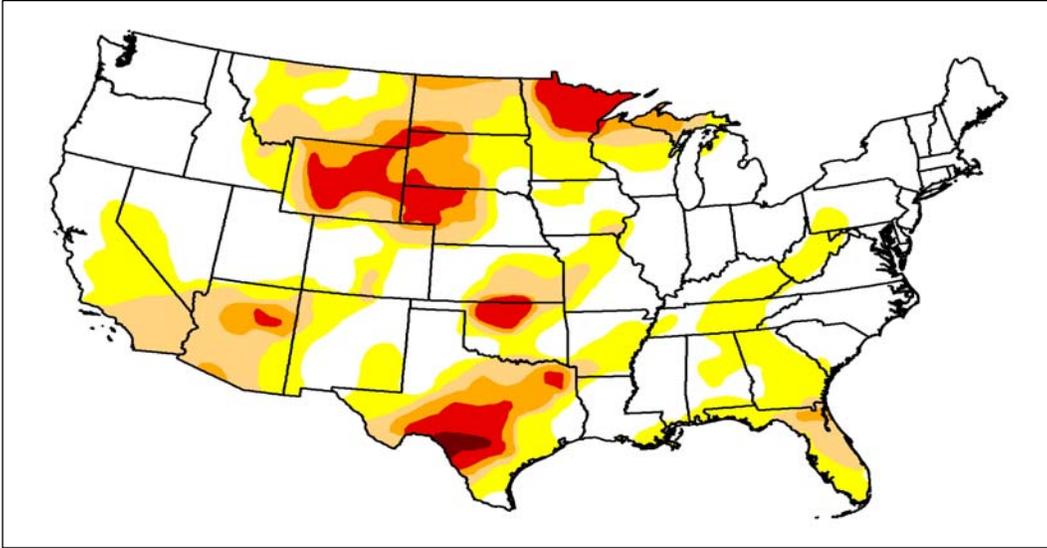
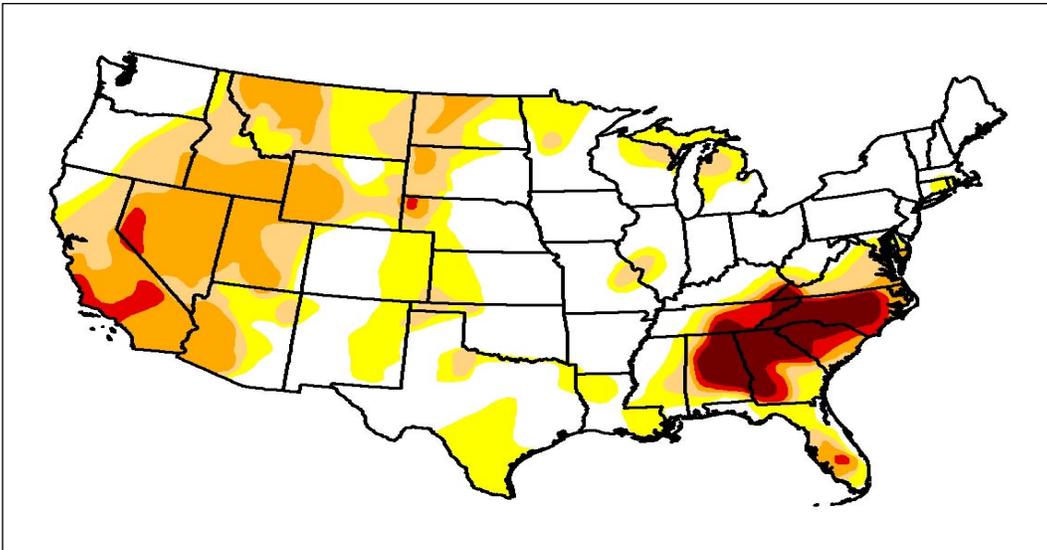


Figure 15. Palmer Drought Severity Index for January 2, 2007. The majority of the Plains were experiencing abnormally dry to moderate drought conditions.



D0-Abnormally Dry
 D1 Drought -Moderate
 D2 Drought -Severe
 D3 Drought -Extreme
 D4 Drought -Exceptional

Figure 16. Palmer Drought Severity Index for December 25, 2007. The center of intensely dry weather had settled into the Southeast United States.

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Appendix.

The following tables are a tally of all reports of severe weather during 2007 in the counties that encompass UPDE and DEWA. These storm events were provided by the National Climatic Data Center (NCDC). NCDC receives this storm data from the National Weather Service, who acquires their information from a variety of sources. These sources include but are not limited to: county, state, and federal emergency management officials, local law enforcement officials, skywarn spotters, NWS damage surveys, newspaper clipping services, the insurance industry, and the general public. This Storm Data is an official publication of the National Oceanic and Atmospheric Administration (NOAA) which documents the occurrence of storms and other significant weather phenomena having sufficient intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce. Each table contains the location, date, time, description of the severe event, its magnitude, and number of deaths, injuries, and property/crop damage associated with the event. The property and crop damage should be considered as a broad estimate.

Wayne County

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 PAZ038>040 - 043>044 - 047>048 - 072	02/13/2007	15:00 PM	Winter Storm	N/A	0	0	0K	0K
2 PAZ039 - 040	03/16/2007	10:30 AM	Heavy Snow	N/A	0	0	0K	0K
3 PAZ038>040 - 043>044 - 047	04/15/2007	01:00 AM	Winter Storm	N/A	0	0	0K	0K
4 Honesdale	06/12/2007	19:05 PM	Hail	0.88 in.	0	0	0K	0K
5 Waymart	06/21/2007	17:10 PM	Hail	0.75 in.	0	0	0K	0K
6 Honesdale	06/21/2007	17:20 PM	Hail	0.88 in.	0	0	0K	0K
7 Newfoundland	06/27/2007	18:20 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
8 Siko	06/28/2007	15:13 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
9 Hawley	06/28/2007	15:30 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
10 Milanville	07/11/2007	16:10 PM	Thunderstorm Wind	50 kts.	0	0	4K	0K
11 Hamlin	07/27/2007	19:30 PM	Lightning	N/A	0	3	1K	0K
12 Hawley	08/03/2007	17:35 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
13 Lakeville	08/17/2007	20:38 PM	Hail	0.75 in.	0	0	0K	0K
14 Waymart	10/09/2007	16:20 PM	Thunderstorm Wind	50 kts.	0	0	1K	0K
15 PAZ038 - 040 - 043 - 047 - 072	11/17/2007	20:00 PM	Winter Weather	N/A	0	0	5K	0K
16 PAZ038>040 - 043>044 - 072	12/13/2007	07:00 AM	Winter Storm	N/A	0	0	0K	0K
TOTALS:					0	3	11K	0

Mag: Magnitude; Dth: Deaths; Inj: Injuries; PrD: Property Damage; CrD: Crop Damage.

Orange County

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 VAZ025>029 - 031 - 037>038 - 040>042 - 050	02/06/2007	22:00 PM	Winter Weather	N/A	0	0	OK	OK
2 VAZ021 - 025>031 - 036>042 - 050	02/12/2007	23:00 PM	Winter Storm	N/A	0	0	OK	OK
3 VAZ021 - 025>031 - 037>038 - 040>042 - 050>053 - 055	02/24/2007	22:00 PM	Winter Storm	N/A	0	0	OK	OK
4 VAZ021 - 025>031 - 037>038 - 040>042 - 050>053 - 055	02/24/2007	22:00 PM	Winter Weather	N/A	0	0	OK	OK
5 VAZ021 - 025>027 - 029>030 - 036>042 - 050	02/27/2007	02:00 AM	Dense Fog	N/A	0	0	OK	OK
6 Orange	03/16/2007	16:00 PM	Flood	N/A	0	0	OK	OK
7 VAZ027>031 - 038>042 - 050	03/24/2007	20:00 PM	Dense Fog	N/A	0	0	OK	OK
8 VAZ021 - 025>031 - 037>042 - 050	04/06/2007	12:00 AM	Frost/freeze	N/A	0	0	OK	OK
9 VAZ026 - 029 - 039 - 050>051 - 056	04/06/2007	23:00 PM	Winter Weather	N/A	0	0	OK	OK
10 VAZ021 - 025>031 - 036>042 - 050	04/07/2007	12:00 AM	Frost/freeze	N/A	0	0	OK	OK
11 VAZ021 - 025>031 - 036>042 - 050	04/08/2007	12:00 AM	Frost/freeze	N/A	0	0	OK	OK
12 VAZ021 - 025>031 - 036>042 - 050	04/09/2007	12:00 AM	Frost/freeze	N/A	0	0	OK	OK
13 VAZ021 - 025>031 - 036>042 - 050	04/10/2007	12:00 AM	Frost/freeze	N/A	0	0	OK	OK
14 Orange	04/15/2007	09:00 AM	Flood	N/A	0	0	OK	OK
15 Lahore	05/26/2007	17:45 PM	Thunderstorm Wind	50 kts.	0	0	1K	OK
16 Orange	05/26/2007	17:45 PM	Hail	0.88 in.	0	0	OK	OK
17 Gordonsville	05/28/2007	14:56 PM	Thunderstorm Wind	50 kts.	0	0	1K	OK
18 Lahore	06/08/2007	18:15 PM	Thunderstorm Wind	50 kts.	0	0	2K	OK
19 Gordonsville	06/08/2007	19:25 PM	Hail	0.75 in.	0	0	OK	OK
20 Everona	07/04/2007	16:45 PM	Hail	0.75 in.	0	0	OK	OK
21 VAZ028 - 031 - 039 - 041 - 050	07/24/2007	12:00 AM	Drought	N/A	0	0	OK	OK
22 Gordonsville	07/29/2007	17:00 PM	Thunderstorm Wind	50 kts.	0	0	1K	OK
23 VAZ028 - 030 - 039>040 - 042 - 050	08/01/2007	12:00 AM	Drought	N/A	0	0	OK	OK
24 Eheart	08/16/2007	17:05 PM	Thunderstorm Wind	50 kts.	0	0	2K	OK
25 VAZ025 - 042 - 050	08/25/2007	11:00 AM	Heat	N/A	0	0	OK	OK
26 VAZ031 - 036>042 - 050>053 - 055	10/01/2007	12:00 AM	Drought	N/A	0	0	OK	OK
27 VAZ042 - 050>053 - 055	10/05/2007	02:00 AM	Dense Fog	N/A	0	0	OK	OK
28 VAZ025 - 028 - 050 - 051	10/05/2007	23:00 PM	Dense Fog	N/A	0	0	OK	OK
29 VAZ028 - 041 - 050 - 056	10/30/2007	04:00 AM	Frost/freeze	N/A	0	0	OK	OK
30 VAZ042 - 050 - 053	12/10/2007	01:00 AM	Dense Fog	N/A	0	0	OK	OK
31 VAZ050	12/13/2007	21:00 PM	Dense Fog	N/A	0	0	OK	OK
32 VAZ042 - 050 - 053 - 055	12/23/2007	08:00 AM	Dense Fog	N/A	0	0	OK	OK

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
33 VAZ050 - 052 - 055 - 056	12/31/2007	04:00 AM	Dense Fog	N/A	0	0	0K	0K
34 VAZ050 - 052 - 055 - 056	12/31/2007	04:00 AM	Freezing Fog	N/A	0	0	0K	0K
TOTALS:					0	0	7K	0

Mag: Magnitude; Dth: Deaths; Inj: Injuries; PrD: Property Damage; CrD: Crop Damage.

Sullivan County

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 PAZ042	01/28/2007	15:00 PM	Heavy Snow	N/A	0	0	0K	0K
2 PAZ042	02/13/2007	15:00 PM	Heavy Snow	N/A	0	0	0K	0K
3 PAZ004>006 - 010>012 - 037 - 041>042 - 045	03/16/2007	08:00 AM	Heavy Snow	N/A	0	0	0K	0K
4 Muncy Vly	06/08/2007	20:35 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
5 PAZ042	11/18/2007	06:00 AM	Heavy Snow	N/A	0	0	0K	0K
TOTALS:					0	0	0	0

Mag: Magnitude; Dth: Deaths; Inj: Injuries; PrD: Property Damage; CrD: Crop Damage.

Pike County

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 PAZ038>040 - 043>044 - 047>048 - 072	02/13/2007	15:00 PM	Winter Storm	N/A	0	0	0K	0K
2 PAZ043 - 048 - 072	03/16/2007	10:00 AM	Heavy Snow	N/A	0	0	0K	0K
3 Bushkill	06/01/2007	14:25 PM	Hail	0.75 in.	0	0	0K	0K
4 Milford	06/02/2007	14:40 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
5 Dingmans Ferry	06/12/2007	11:40 AM	Hail	0.88 in.	0	0	0K	0K
6 Dingmans Ferry	06/12/2007	12:30 PM	Hail	0.75 in.	0	0	0K	0K
7 Blooming Grove	06/12/2007	12:55 PM	Hail	1.00 in.	0	0	0K	0K
8 Lackawaxen	06/19/2007	19:10 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
9 Bushkill	06/21/2007	15:30 PM	Hail	0.75 in.	0	0	0K	0K
10 Paupack	06/21/2007	17:35 PM	Thunderstorm Wind	83 kts.	0	0	0K	0K
11 Bushkill	06/21/2007	18:10 PM	Hail	0.75 in.	0	0	0K	0K
12 Dingmans Ferry	06/27/2007	11:40 AM	Hail	0.88 in.	0	0	0K	0K
13 Lackawaxen	06/27/2007	18:05 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
14 Kimbles	06/28/2007	15:25 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
15 Millrift	07/15/2007	14:16 PM	Thunderstorm Wind	50 kts.	0	0	2K	0K
16 Greentown	07/27/2007	16:05 PM	Thunderstorm Wind	50 kts.	0	0	2K	0K
17 Lackawaxen	08/17/2007	20:50 PM	Thunderstorm Wind	50 kts.	0	0	10K	0K
18 Dingmans Ferry	08/17/2007	21:15 PM	Thunderstorm Wind	50 kts.	0	0	10K	0K
TOTALS:					0	0	24K	0

Mag: Magnitude; Dth: Deaths; Inj: Injuries; PrD: Property Damage; CrD: Crop Damage.

Monroe County

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 PAZ054 - 055	01/15/2007	05:00 AM	Winter Weather	N/A	0	0	OK	OK
2 PAZ054 - 055	01/25/2007	07:00 AM	Winter Weather	N/A	0	0	OK	OK
3 PAZ055	02/13/2007	15:00 PM	Winter Storm	N/A	0	0	OK	OK
4 PAZ054 - 055	03/01/2007	21:00 PM	Winter Weather	N/A	0	0	OK	OK
5 PAZ054 - 055	03/06/2007	01:00 AM	Cold/wind Chill	N/A	0	0	OK	OK
6 PAZ054 - 055	03/07/2007	03:00 AM	Winter Weather	N/A	0	0	OK	OK
7 PAZ054 - 055	03/16/2007	12:00 AM	Heavy Snow	N/A	0	0	OK	OK
8 PAZ054 - 055	04/11/2007	20:00 PM	Winter Weather	N/A	0	0	OK	OK
9 Blakeslee	04/15/2007	15:00 PM	Flood	N/A	0	0	OK	OK
10 PAZ054 - 055	04/15/2007	23:00 PM	Winter Weather	N/A	0	0	OK	OK
11 Brodheadsville	05/31/2007	16:55 PM	Hail	0.88 in.	0	0	OK	OK
12 Echo Lake	06/01/2007	14:00 PM	Thunderstorm Wind	50 kts.	0	0	OK	OK
13 Marshalls Creek	06/01/2007	14:49 PM	Thunderstorm Wind	52 kts.	0	0	OK	OK
14 Shawnee On Delaware	06/01/2007	15:00 PM	Hail	1.00 in.	0	0	OK	OK
15 Shawnee On Delaware	06/01/2007	15:30 PM	Thunderstorm Wind	52 kts.	0	0	OK	OK
16 East Stroudsburg	06/01/2007	16:15 PM	Flash Flood	N/A	0	0	OK	OK
17 Mt Pocono	06/19/2007	18:58 PM	Thunderstorm Wind	52 kts.	0	0	OK	OK
18 Effort	06/19/2007	19:20 PM	Thunderstorm Wind	52 kts.	0	0	OK	OK
19 Stroudsburg	06/19/2007	19:38 PM	Thunderstorm Wind	52 kts.	0	0	OK	OK
20 Stroudsburg	06/27/2007	19:10 PM	Thunderstorm Wind	52 kts.	0	0	OK	OK
21 Analomink	07/10/2007	15:05 PM	Thunderstorm Wind	52 kts.	0	0	OK	OK
22 PAZ055	07/26/2007	07:00 AM	Drought	N/A	0	0	OK	OK
23 Tobyhanna	07/27/2007	18:00 PM	Thunderstorm Wind	52 kts.	0	0	OK	OK
24 PAZ054 - 055	08/01/2007	12:00 AM	Drought	N/A	0	0	OK	OK
25 Long Pond	08/03/2007	19:01 PM	Hail	0.88 in.	0	0	OK	OK
26 Canadensis	08/03/2007	19:30 PM	Lightning	N/A	0	0	10K	OK
27 Marshalls Creek	08/03/2007	19:58 PM	Thunderstorm Wind	50 kts.	0	0	OK	OK
28 Brodheadsville	08/17/2007	14:00 PM	Hail	0.75 in.	0	0	OK	OK
29 Brodheadsville	08/25/2007	18:10 PM	Thunderstorm Wind	50 kts.	0	0	OK	OK
30 Brodheadsville	08/25/2007	20:36 PM	Thunderstorm Wind	50 kts.	0	0	OK	OK
31 PAZ054 - 055	09/01/2007	12:00 AM	Drought	N/A	0	0	OK	OK
32 PAZ054 - 055	11/09/2007	22:00 PM	Winter Weather	N/A	0	0	OK	OK

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
33 PAZ054 - 055	11/18/2007	12:00 AM	Heavy Snow	N/A	0	0	0K	0K
34 PAZ054 - 055	11/20/2007	12:00 AM	Winter Weather	N/A	0	0	0K	0K
35 PAZ054 - 055	12/01/2007	15:00 PM	Winter Weather	N/A	0	0	0K	0K
36 PAZ054 - 055	12/04/2007	12:00 AM	Winter Weather	N/A	0	0	0K	0K
37 PAZ054 - 055	12/07/2007	12:00 PM	Winter Weather	N/A	0	0	0K	0K
38 PAZ054 - 055	12/09/2007	15:00 PM	Winter Weather	N/A	0	0	0K	0K
39 PAZ055 - 069	12/15/2007	22:00 PM	Winter Storm	N/A	0	0	0K	0K
40 PAZ054 - 055	12/26/2007	23:00 PM	Winter Weather	N/A	0	0	0K	0K
41 PAZ054 - 055	12/30/2007	17:00 PM	Winter Weather	N/A	0	0	0K	0K
TOTALS:					0	0	10K	0

Mag: Magnitude; Dth: Deaths; Inj: Injuries; PrD: Property Damage; CrD: Crop Damage.

Sussex County

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 NJZ001	01/15/2007	05:00 AM	Winter Weather	N/A	0	0	0K	0K
2 NJZ001 - 007	01/19/2007	05:00 AM	Winter Weather	N/A	0	0	0K	0K
3 NJZ001 - 007>010 - 012	01/20/2007	07:00 AM	Strong Wind	40 kts.	0	0	1K	0K
4 NJZ001 - 007>010 - 012	01/26/2007	03:00 AM	Cold/wind Chill	N/A	0	0	0K	0K
5 NJZ001 - 007 - 008	02/02/2007	16:00 PM	Winter Weather	N/A	0	0	0K	0K
6 NJZ001 - 007>010 - 012	02/05/2007	03:00 AM	Extreme Cold/wind Chill	N/A	0	0	0K	0K
7 NJZ001 - 007>010 - 012	02/06/2007	03:00 AM	Extreme Cold/wind Chill	N/A	1	0	0K	0K
8 NJZ001 - 012	02/13/2007	18:00 PM	Winter Storm	N/A	0	0	0K	0K
9 NJZ001 - 007>010 - 012	02/14/2007	15:00 PM	Strong Wind	40 kts.	0	0	5K	0K
10 NJZ001 - 007 - 008	02/15/2007	03:00 AM	Cold/wind Chill	N/A	0	0	0K	0K
11 NJZ001 - 007 - 008	02/16/2007	03:00 AM	Cold/wind Chill	N/A	0	0	0K	0K
12 NJZ001 - 007	02/19/2007	03:00 AM	Cold/wind Chill	N/A	0	0	0K	0K
13 NJZ001 - 007	02/25/2007	17:30 PM	Winter Weather	N/A	0	0	0K	0K
14 NJZ001	03/01/2007	23:00 PM	Winter Weather	N/A	0	0	0K	0K
15 NJZ001 - 007>010 - 012	03/05/2007	16:00 PM	Strong Wind	43 kts.	0	0	1K	0K
16 NJZ001 - 007>010 - 012	03/06/2007	03:00 AM	Cold/wind Chill	N/A	0	0	0K	0K
17 NJZ001 - 007 - 008	03/07/2007	04:00 AM	Winter Weather	N/A	0	0	0K	0K
18 NJZ001 - 007 - 008	03/16/2007	12:00 AM	Winter Storm	N/A	0	0	0K	0K
19 NJZ001	04/11/2007	22:00 PM	Winter Weather	N/A	0	0	0K	0K
20 Hopatcong	04/15/2007	13:00 PM	Flood	N/A	0	0	1.0M	0K
21 NJZ001 - 007>010 - 012	04/16/2007	03:00 AM	High Wind	58 kts.	0	0	500K	0K
22 NJZ001 - 007>010 - 012	04/16/2007	03:00 AM	Strong Wind	40 kts.	0	0	5K	0K
23 NJZ001 - 007>010 - 012>013 - 015>023 - 027	05/07/2007	03:00 AM	Frost/freeze	N/A	0	0	0K	0K
24 NJZ001 - 007>010 - 015 - 020>023 - 027	05/14/2007	03:00 AM	Frost/freeze	N/A	0	0	0K	0K
25 Cranberry Lake	05/16/2007	13:43 PM	Thunderstorm Wind	52 kts.	0	0	0K	0K
26 Vernon	06/21/2007	18:25 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
27 Sussex	06/27/2007	12:25 PM	Thunderstorm Wind	52 kts.	0	0	0K	0K
28 Layton	06/27/2007	12:55 PM	Thunderstorm Wind	52 kts.	0	0	0K	0K
29 Branchville	06/27/2007	13:45 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
30 Newton	06/27/2007	14:11 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
31 Colesville	06/27/2007	18:55 PM	Thunderstorm Wind	50 kts.	0	0	0K	0K
32 Vernon	06/28/2007	16:30 PM	Thunderstorm Wind	52 kts.	0	0	0K	0K

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
33 Pelletstown	06/28/2007	17:00 PM	Flash Flood	N/A	0	0	0K	0K
34 NJZ001 - 007>010 - 012>014 - 023	07/09/2007	10:00 AM	Excessive Heat	N/A	0	0	0K	0K
35 Wallpack Center	07/23/2007	09:00 AM	Heavy Rain	N/A	0	0	0K	0K
36 Glenwood	08/03/2007	19:04 PM	Thunderstorm Wind	52 kts.	0	0	0K	0K
37 Hopatcong	08/03/2007	20:30 PM	Thunderstorm Wind	52 kts.	0	0	0K	0K
38 NJZ001 - 016	10/06/2007	12:00 AM	Dense Fog	N/A	0	0	0K	0K
39 NJZ001	11/09/2007	22:00 PM	Winter Weather	N/A	0	0	0K	0K
40 NJZ001 - 007	11/19/2007	12:00 AM	Winter Weather	N/A	0	0	0K	0K
41 NJZ001	11/20/2007	02:00 AM	Winter Weather	N/A	0	0	0K	0K
42 NJZ001 - 008 - 010 - 012 - 013	12/02/2007	03:00 AM	Winter Storm	N/A	0	0	0K	0K
43 NJZ001 - 008 - 010 - 012 - 013	12/02/2007	03:00 AM	Winter Weather	N/A	0	0	0K	0K
44 NJZ001 - 007>010 - 012	12/03/2007	10:00 AM	Strong Wind	43 kts.	0	0	1K	0K
45 NJZ001 - 008	12/04/2007	08:00 AM	Winter Weather	N/A	0	0	0K	0K
46 NJZ001 - 007 - 008	12/07/2007	13:00 PM	Winter Weather	N/A	0	0	0K	0K
47 NJZ001 - 007 - 008	12/09/2007	17:00 PM	Winter Weather	N/A	0	0	0K	0K
48 NJZ001	12/11/2007	15:00 PM	Winter Weather	N/A	0	0	0K	0K
49 NJZ001	12/13/2007	07:30 AM	Winter Weather	N/A	0	0	0K	0K
50 NJZ001 - 007 - 012 - 015	12/15/2007	23:00 PM	Winter Storm	N/A	0	0	0K	0K
51 NJZ001 - 007 - 012 - 015	12/15/2007	23:00 PM	Winter Weather	N/A	0	0	0K	0K
52 NJZ001 - 007>010 - 012	12/16/2007	18:00 PM	High Wind	51 kts.	0	0	5K	0K
53 NJZ001 - 007>010 - 012	12/16/2007	18:00 PM	Strong Wind	40 kts.	0	0	1K	0K
54 NJZ001	12/26/2007	23:00 PM	Winter Weather	N/A	0	0	0K	0K
55 NJZ001 - 007	12/30/2007	17:00 PM	Winter Weather	N/A	0	0	0K	0K
TOTALS:					1	0	1.519M	0

Mag: Magnitude; Dth: Deaths; Inj: Injuries; PrD: Property Damage; CrD: Crop Damage.

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NPS 620/105508, 647/105508, September 2010

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