

Climatological Data for March, 1910.
DISTRICT No. 1, NORTH ATLANTIC STATES.

WILFORD M. WILSON, District Editor.

GENERAL SUMMARY.

The month of March, 1910, was remarkable for the total absence of the usual weather conditions that give character to this season of the year. The high temperatures, the scanty precipitation, the large amount of sunshine, the light winds, and hazy condition of the atmosphere were much more in keeping with the conditions that prevail during the fall months in times of drought than during the month of March.

The excess of temperature for the district, as a whole, averaged 7° per day, while the average precipitation was less than 28 per cent of the normal. Such a condition with respect to temperature, though very unusual, is not unprecedented in most sections of the district. March, 1898 and 1903, were generally equally warm, but with these exceptions the current month was probably the warmest March in the past 25 years. The deficiency of precipitation was even more remarkable, the total amount for the month at many stations in the district, being less than that of any previous March since records were kept. At Albany, N. Y., the current month was the driest March in 84 years; at New York City, the driest except in 1854 and 1868 in a like period, while at Addison, N. Y., the precipitation for March was less than that of any other month in the past 20 years. A comparison of the records seems to justify the statement that March, 1910, for the district as a whole, takes rank as the driest March in the past 25 years and among the very driest of the past century.

The following extracts from reports of section directors give a general view of the conditions in the different parts of the district:

New England Section.—The month was unusually mild with more than the average amount of sunshine, and no severe storms or high winds. The average temperature for the section, 37.7°, has been exceeded but 3 times during the past 23 years, namely, in 1903, 40.8°; 1902, 38.8°; 1898, 38.4°. The minimum temperature for the month generally occurred on the 15th, when it fell to somewhat below zero at scattered localities in the northern States. The maximum temperature generally occurred on the 25th and was between 70° and 80°, except in some localities in Connecticut where it exceeded 80°, and in the northern States where it was somewhat below 70°. At some stations the maximum was the highest in their records, particularly at Ladd Observatory, Providence, R. I., where the maximum, 78°, was the highest for the month for 79 years.

The average precipitation, 1.44 inch, was the lowest for the section since the beginning of section averages in 1888. The next lowest during this period was 1.49 in 1894, and 2.04 in 1907. At only a small number of stations was the amount for the month greater than 1.80 inch, and in some sections of all of the States it was less than 1 inch. Some observers having long records state that the precipitation was the least of any March for 50 years. The greater portion of the precipitation for the month was on the 1st and 7th. The snowfall was very small, and at the close of the month there was none on the ground, except in the woods and mountainous sections of Maine, New Hampshire, and Vermont. The amount of sunshine considerably exceeded that of any other March since records have been obtained by the Bureau. At the close of the month the grass was becoming green and tree buds were swelling rapidly, and the season was considered to be from 10 days to 2 weeks earlier than the average.

New York.—March, 1910, was characterized by a remarkable excess in temperature and a decided deficiency in precipitation. The average temperature for the month was from 15° to more than 20° above that of February, and was everywhere higher than that of any March since 1903. The highest average temperatures for the month occurred near the Pennsylvania line in western New York, where the means were from 1° to 5° above those of Long Island. The monthly means were lowest in the northern counties near the Adirondack region. The temperature was above normal throughout the month, excepting only about 7 days when the deficiency was comparatively slight. The lowest temperatures occurred at nearly all stations on the 18th, and, as a rule, did not fall below 10°, except in the Adirondack and Catskill regions and the upper Hudson Valley. The last decade was remarkably warm. At Binghamton the average temperature for the last 10 days was 57.8°, or about 20° above the normal for the period, a condition that was general at this time over the section, except near the Atlantic coast. The monthly maximum temperatures, which occurred generally on the 29th, ranged from 67° at Indian Lake and Morehouseville

to 90° at Mount Hope, surpassing all previous records for March at several stations.

The average precipitation for the section, 1.05 inch, is evidently the least for any March in the last 20 years, the lowest known average for the State in March previous to this year being 1.61 inch. At some stations the precipitation was less than any monthly amount previously recorded. The total for the month varied from a trace in western Albany and southern Washington counties to slightly more than 2 inches in a few localities. Out of 61 stations, only 5 recorded over 2 inches, while 33 recorded less than 1 inch. The snowfall for the month was exceptionally light, the greatest amount recorded at any station being 4 inches. This amount was observed in parts of Madison and Westchester counties. On Long Island the snowfall was probably equal to or greater than that over an equal area in any other part of the section. There was probably no snow at all over a considerable part of the Hudson River Valley.

The continued dry, warm weather resulted in a hazy condition during the last week of the month, such as is not often observed, even in September or October. At the close of the month vegetation had advanced to a remarkable stage, fields were green and flowers were blooming; and, though the ground was comparatively dry and roads were dusty, plants were growing vigorously.

Pennsylvania.—The mean temperature for the State was nearly 8° above the normal, and has been exceeded only once in March during the last 23 years. The warmest March of this period was that of 1903, with a mean temperature of 46.4°, or 1.5° above the average of the current month. However, the generally light wind movement, the dryness of the atmosphere, and the large amount of sunshine combined to make this month apparently the mildest, pleasantest, and altogether the most remarkable March on record. There were but few days during the month with the mean temperature below the normal, and the temperature excess was quite uniform throughout the State.

The precipitation averaged but little more than half an inch, it being the driest March on record. The driest March previous was that of 1894, with an average precipitation of 1.63 inch, or very nearly 3 times as much as occurred during this month. The snowfall was extremely light, averaging only 1 inch, and there was a decided absence of the slushy, sloppy, disagreeable conditions usually experienced at this time of the year. Much fog occurred during the first week, delaying navigation in Delaware Bay, and also causing several minor accidents among the smaller craft.

At the close of the month grass plots were becoming green and buds were opening, the season being 2 weeks or more in advance of usual conditions. The top soil, however, was dry in most sections of the State.

New Jersey.—From a meteorological standpoint, March, 1910, in New Jersey, was a remarkable month, several of the weather elements being abnormal. Not only was the month unusually mild as a whole, but it was exceptionally dry and pleasant. The mean temperature, 44.5° was the highest recorded for March in a period of 26 years with 2 exceptions, namely, 1898 and 1903, when the State means were 45.1° and 47.6°, respectively. The average precipitation, 1.23 inch, was the smallest recorded for this month in a period of 26 years, with but one exception, namely, March, 1885, when the average was 1.10 inch. If March, 1885, be excepted, it is very probable that the current month is the driest for periods ranging from 40 to 65 years. It is even possible that March, 1910, was drier than March, 1885, since the records of most of the cooperative observers show moderately heavy precipitation for March 1, 1910, the greater part of which, there is reason to believe, occurred between sunset and midnight of February 28, or after the observation for the last day of February had been taken and recorded. It is clearly evident, however, that after March 1, the precipitation throughout the State was inconsequential. In Atlantic County no measurable amounts of rain were received after the 12th, a condition without precedent for the third month of the year.

The wind movement during the month was unusually small, and there was abundant sunshine. Outdoor occupations were pursued almost without interruption, and rapid advance was made in certain farming operations. Vegetation responded to the warmth and sunshine, and at the close of the month the season was unusually forward. Owing to the dryness of the soil, however, farmers were generally unable to plow and rain was badly needed at the end of the month.

West Virginia.—The meteorological conditions for the past month, in nearly all respects, were unlike those of any other March of record. The precipitation for the month can only be compared with fall months during seasons of drought, the average for the current month for the State being the lowest of record for any month, except October, 1897 and 1901. The lowest State average for any previous March was 1.40 inch in 1893. The average precipitation for that part of the State included in District No. 1 was 0.44 inch, which is about 14 per cent. of the normal amount.

The average temperature for the month has been exceeded in the March records for the State only in 1903 and 1907. The month was free from sudden temperature changes, the temperature variations from day to day being slight. The winds were exceptionally light, the average hourly move-

ment, as indicated by the records made at Parkersburg and Elkins, being only slightly above the June average. Clear to partly cloudy weather characterized the month, and rain was needed in all sections at its close.

Maryland and Delaware.—Although the departure from the normal weather for the month of March was both marked and general, there was a remarkable absence of adverse conditions.

All stations show mean temperatures considerably above normal, the average daily excess for the section being 6.7°. Frost temperatures occurred generally during the first half of the month but during the last decade maximum temperatures, reaching well into the eighties were frequent.

The precipitation was much below normal, the average deficiency being 2.30 inches. Previous rains and snows, however, were generally sufficient to overcome any evil effects that otherwise might have resulted from this lack of moisture. Snow to the depth of little more than 2 inches fell during the first of the month, but remained on the ground a very short time.

The rivers caused no alarm, except during the first days of the month, when it was feared that the previous flood at Port Deposit might be repeated. Dense fogs on Chesapeake Bay caused some delay but no material damage.

Virginia.—The month was notable for the large number of clear days, light winds, high mean temperature, and a decided deficiency of precipitation except in the southeastern counties. During the first decade the temperatures were not unusual, but during the second there were many cool nights and general frosts as late as the 18th. From the 19th until the close of the month unusually warm weather prevailed during which the maximum temperatures were exceptionally high for the season.

The storm of February 28 continued until the afternoon of March 1, moderately large amounts of precipitation being measured at many places in Tidewater Virginia on that day. This rain left the streams bank full but no damaging floods resulted. In the southeastern counties the monthly precipitation was nearly equal to the normal, but elsewhere, especially in the northwestern part of the section, very little rain occurred, many stations reporting amounts that ranged from half an inch to a trace. In consequence, some mountain localities are experiencing severe drought and forest fires.

Deep red sunsets were general during the latter part of the month.

TEMPERATURE.

The average temperature for the district was 45.0°, which is about 7° above the normal, and ranged from 37.7° in New England to 51.2° in Virginia. The excess of temperature was everywhere pronounced, although slightly less along the coast than over the interior. The highest temperatures occurred generally on the 29th and 30th, and the lowest on the 15th in southern and on the 18th in the northern part of the district. During the first decade the average temperature was almost continuously above the normal, but no unusually high maximum temperatures were recorded during this period. The 10th and 11th were cold days, especially over the interior of New England and New York, where minimum temperatures of from 7° to -10° were generally observed and freezing weather occurred as far south as Virginia. During the second decade moderate temperatures prevailed until toward the close when the coldest period of the month set in. The 15th and 16th were the coldest days of the month in the southern part of the district, with minimum temperatures ranging from 16° to 25°, but the lowest temperatures in New England, New York, Pennsylvania, and New Jersey did not occur until the 18th. The cold at this time was quite severe in the elevated parts of New England and New York, where minimum temperatures of from 0° to -10° were general. The last decade was unseasonably warm, especially in the central and southern parts of the district, where maximum temperatures of 80° or over were of frequent occurrence. The 29th and 30th were the warmest days of the month, with temperatures ranging from 83° in Maine to 92° in Virginia.

PRECIPITATION.

The average precipitation for the district was 1.03 inch and ranged from an average of 1.44 inch in New England to 0.44 inch in West Virginia. Out of 199 stations, having precipitation records for 10 or more years, only one reported the total for the month in excess of the average. The average number of days on which an appreciable amount of rain fell was remarkably small for the month, ranging from 6 in New England and New Jersey to 4 in West Virginia.

About half the total amount of precipitation for the month was recorded at most stations on the 1st and 2d, and resulted

from the storm that passed over the district during the closing days of the preceding month. Fair weather prevailed generally from the 2d to the 7th, when general, though light, rains occurred accompanying a depression that passed over New England on that date. The 13th and 14th were rainy days in the northern part of the district, while general rains occurred over the southern section on the 17th. Showers were frequent about the 20th, but from that date to the 30th fair weather prevailed. Light rain occurred generally on the last day of the month.

RIVER CONDITIONS.

At the opening of the month the rivers were generally near or above flood stage as a result of the warm rains and the rapid melting of large accumulation of snow during the last days of the preceding month. Ice gorges formed in many places and in some instances resulted in considerable damage to property within the flood zone.

At Utica, Herkimer, and Little Falls, on the upper reaches of the Mohawk River, the water reached the maximum stage on the 1st and 2d. At Utica the rise during the 24 hours preceding 8 a. m., of the 1st was 4 feet, which brought the stage to 12.9 feet, nearly 3 feet above flood height. Many cellars were flooded, traffic was interfered with, and much inconvenience occasioned, but the actual damage to property was not great. The water remained above flood stage until the morning of the 4th. At Little Falls the maximum stage of 10.4 feet, which is 4.4 feet above flood height, was attained on the 2d. A heavy ice gorge formed below the city, and for a time the conditions threatened to become serious, but, fortunately, passed away without great damage aside from that occasioned by the flooding of property in the vicinity of the river. High stages were reached at all points below Little Falls, but, as the ice moved out without gorging, no damage resulted.

Considerable anxiety was felt among those interested in the Barge Canal, which parallels the Mohawk River from Rome to its junction with the Hudson above Troy, as to the effect of the high water on the many partly completed locks, dams, and other structures. In this connection the following statement of Mr. R. E. Horton, Resident Engineer of the Department of State Engineer and Surveyor, is of interest:

With reference to the effect of the high water of this spring on the Barge Canal operations, I would say that there are just at present a large number of locks, movable dams, and other structures completed or nearing completion on the Mohawk, Hudson, Oswego, and Oneida rivers. These structures were subjected to severer conditions the past spring than are ever likely to occur again with the same quantity of discharge in the rivers. The reason for this is as follows: When the Barge Canal is completed the reaches between successive locks and dams will have been dredged out, forming channels having greater widths and depths, as a rule, than the present natural river channels. With a given quantity of discharge, therefore, the stage of water will not be as great after the Barge Canal is completed as at present. Very fortunately there was but little damage done either to completed or uncompleted structures during the high water of the past spring. We do not consider, however, that the recent floods were nearly as severe or of as large magnitude as are likely to occur from time to time.

Of course, the operation of the Barge Canal will in a measure be dependent both on climate and weather, the former as affecting the duration of the navigation season and the latter as affecting the facility of operation and the danger of interruption. One of the important problems all the way through has been to adopt what might be called consistent high and low navigable stages so that there would not be, in the first place, any undue interruption of navigation at a given point as the result of floods or their causes; and second, so that the amount of interruption from these causes at any given place would not be inconsistent with the amount of similar interruption at other points along the canal. In deciding these problems the question of frequency and magnitude of floods and probability of floods exceeding a given magnitude are prime factors.

For an account of the formation of an ice gorge in the Hudson River near Albany and the consequent high water at Albany and Troy, and also the general situation on the upper Susquehanna at this time, reference is made to the reports of the officials in charge, local offices of the Weather Bureau at Albany

and Binghamton, published in the February number of the REVIEW.

The following report on the Susquehanna River and its principal tributaries during the months of February and March, 1910, with special reference to the ice flood that began on the night of February 27 in the North and West branches and attained its maximum in the main river on March 3, is furnished by the official in charge, local office, Weather Bureau at Harrisburg, Pa.:

The river and its main branches continued open after the January ice flood, with about the normal flow for the season, until the night of February 6 when they began to freeze again and by the 8th they were generally ice-bound, remaining so until the night of February 17 when, due to the warmer weather that set in on the 14th and the general rain that occurred on the 17th, local movements of ice occurred on the latter date in the West Branch and the main river, the most important occurring in the vicinity of Renovo, where the ice, after having started, gorged a short distance below the town causing the water to register 15 feet on the Renovo gage by 8 a. m. of the 18th, 1 foot below the flood stage. No important changes occurred in the general conditions until February 20 when a general rain caused local movements of ice in the lower portions of the North and West branches, extending into the main river and reaching Harrisburg on the afternoon of the 22d. The ice began to shove at Harrisburg early in the afternoon of the 22d, but did not break up until about 5 p. m., when it began to pass the Walnut Street Bridge quietly on 7 feet of water. The ice gorged some distance below Harrisburg where it remained until March 1. On February 26, Saturday, the following was printed on the Harrisburg weather map: "The higher temperature and general, though probably light to moderate, rains indicated for the Susquehanna Valley to-night and Sunday will probably cause a general rise in the river and all its tributaries."

By 10 a. m. of Monday, February 28, all ice remaining in the Susquehanna River and its principal tributaries between Harrisburg and Binghamton and from Sunbury to Clearfield was moving and all streams of the system were rising rapidly. The ice gorge at Renovo started about 9 a. m., February 28, the highest stage of water being reported as about 25 feet. Flood warnings were issued and wired to Wilkes-Barre and Towanda on the morning of March 1, Wilkes-Barre being advised that a maximum stage of about 24 feet might be expected and Towanda that a maximum stage of about 17 feet was indicated for that place. On the morning of March 2, Wilkes-Barre was advised that the maximum stage would likely reach 25 feet. The following are the maximum stages reported at the several river stations during the flood of February 28 to March 3:

Station.	Flood stage.	Highest stage.	Date.
	<i>Feet.</i>	<i>Feet.</i>	
Huntingdon.....	24	9.1	Mar. 1, 2, 3
Clearfield.....	9	6.9	Mar. 1
Renovo.....	16	(about) 25.0	Mar. 1
Williamsport.....	20	16.4	Mar. 1
Towanda.....	16	18.4	Mar. 2 (D. N.)
Wilkes-Barre.....	20	26.0	Mar. 3 (p. m.)
Selinsgrove.....	17	14.6	Mar. 3 (a. m.)
Harrisburg.....	17	17.2	Mar. 3 (all day)

The damage resulting from the flood was confined mainly to the North Branch and the main river, except in the West Branch at Renovo and vicinity where the damage caused from flooding as a result of the ice gorge was estimated at about \$5,000. At Towanda the damage to property was small, but much inconvenience resulted by reason of the flooding of cellars, etc. In many places where the public roads cross low ground they were flooded to such a depth as to render them impassable for several days, and some persons who attempted to pass over such places had narrow escapes from drowning. No property of consequence was carried away or destroyed and no lives were lost. At Wilkes-Barre, where the minimum stage reached 6 feet above the flood mark, considerable loss resulted, the amount of damage being estimated at about \$15,000. At Harrisburg and vicinity, outside of the loss resulting from the closing down of a few industrial plants for a day or two, the loss was trifling, probably not exceeding \$100. Several lives were lost, however, in and near the city of Harrisburg during the high waters, as a result of foolhardiness in venturing on the river in canoes and boats. As in the January flood, the damage at Port Deposit and other places below Harrisburg was great. The town of Port Deposit was partly inundated and the streets in places were filled with ice, rendering many houses uninhabitable, some of which had scarcely become fit for occupation as a result of the damage they sustained in the ice flood of January. The total loss caused by ice and water in the lower river was doubtless great, but it is impossible to fix its money value. On the whole it is believed the people of the Susquehanna Valley were extremely fortunate in having sustained so little damage from the spring breakup. The flood was largely the result of water from melting snow caused by a period of unusually warm weather for the season in the river basin. Had heavy rains occurred at the time the snow was melting so rapidly, as sometimes happens in spring, flood

stages would have been general and losses great as the depth of snow in the mountains was greater than for several years, especially within the drainage area of the North Branch where nearly all the snow that had fallen during the winter remained unmelted. In addition to the daily forecasts and river information on the map and the warnings above noted, information as to the breaking of the ice gorge at Renovo was wired promptly to Williamsport, and towns below Harrisburg were advised from time to time as conditions seemed to warrant.

Continued high temperatures during the first few days in March caused the snow in the mountains to melt rapidly, which kept the rivers at high stages, but they fell slowly from March 3 to 6. A general, though not heavy, rain on the 6th started the Juniata, North, and West branches to rising again. On the morning of March 7 Wilkes-Barre was advised by wire that the river there, which was then 18.7 feet, would probably reach the flood stage again within 20 hours but would not likely exceed 21 feet; at 8 a. m., on March 8, it registered 20.8 feet and began to fall during the day and was below the flood mark on March 9, after which date no rise of consequence occurred in any of the streams of the river system. March closed with all streams much lower than usual for the time of year, the rainfall for the month being the least ever recorded at Harrisburg during March.

MISCELLANEOUS.

The average number of hours of sunshine, taken from the records of 15 stations, was 232, which is 64 per cent of the possible and about 72 hours more than the average for February, 1910. The number of hours of sunshine ranged from 187 (51 per cent of the possible) at Eastport, Me., to 276 (74 per cent of the possible) at Mount Weather, Va. There were 13 days during the month when the sunshine averaged 80 per cent or more of the possible, 14 days with an average between 20 and 80 per cent, and 4 days with less than 20 per cent.

The average number of rainy days was 5; clear, 16; partly cloudy, 9; and cloudy, 6.

ANNUAL REPORT OF NEW YORK STATE WATER SUPPLY COMMISSION.

The fifth annual report of the State Water Supply Commission of New York, prepared under the direction of Henry H. Persons, president, and Walter McCulloh, consulting engineer, for the year ending February 1, 1910, has just been issued.

The report contains 492 pages of printed matter, 32 half tones, and numerous diagrams, charts, and drawings.

The arrangement of the report follows the threefold nature of the statutory jurisdiction of the Commission. Part I relates to municipal water supply; Part II discusses river improvements; and Part III deals with the relation of the State to water storage and power development.

Under the caption "State conservation of water power" the Commission says:

The time has come when the State, in the exercise of its function of furthering the public welfare, should undertake the control of its rivers so that the direct benefits of increased water power and the indirect advantages in the prevention of floods, the improvement of navigation, and the protection of sources of water supply may be equally distributed among all citizens of the State, and a just compensation assured to the public in return for the use of public wealth. The next generation will either commend our efforts for prompt action or condemn us for inexcusable delay.

That part of the report dealing with "rainfall records and studies" is of special interest to climatologists on account of the attempt made to deduce a "long-term mean dependable precipitation" for stations having short records.

In discussing the isohyetal map of the State, constructed from the computed long-term means and particularly the relation of mean annual precipitation to elevation, the report says:

It was found impossible to deduce any general law that would apply to the entire State and express with any degree of accuracy the relation between the mean annual precipitation and elevations. However, by separating the records according to the Weather Bureau subdivisions of the State, namely, northern plateau, southern plateau, etc., a fairly uniform relation is found to exist in each of these general divisions, where climatic and topographic conditions are fairly uniform. In general the precipitation increases with elevation, being greatest at the points highest above sea level, but two noticeable exceptions occur, namely, in the Mohawk Valley and on the eastern and southern shores of Lake Ontario, in which districts, according to the available records, the precipitation decreases with altitude.

The highest altitudes in the Adirondack region have the highest rate of precipitation and are, therefore, the most prolific in yield of water per square mile of watershed, making their streams more valuable for power purposes. The average annual dependable precipitation in the watershed of the Hudson River above Mechanicville is 43 inches, the average rainfall in the watershed of the Sacandaga is 45 inches; in the watershed of the Schroon River it is 38 inches, in the watershed of the Raquette River above Piercfield it is 40 inches and on the Genesee River above Portage it is 36 inches. The highest dependable annual rainfall, based upon long-term available records, is 53.6 inches, in the Scanadaga Valley, in the vicinity of Wells, and the lowest precipitation is 25.3 inches, in the valley of the Genesee River, near Mount Morris.

That part of the report, dealing with the testing of different types of rain gages that have been used in the State since 1826,

carried on in cooperation with the local office, Weather Bureau, at Ithaca, is also of interest. The report says:

The data obtained indicates clearly that the percentage of error in the old records, so far as the type of gage is concerned, is probably very small, probably never exceeding 5 per cent, if observations were carefully taken. The average variation is very much less than this. Exact information as to the type of gage used in connection with any particular one of the old records is very difficult to obtain. This fact taken together with the indications of the experiments seems to warrant the conclusion that a correction factor to be applied to precipitation records secured by the use of old type gages is not justified. The errors that are made in measuring and recording precipitation, whatever the type of gage used, are undoubtedly of sufficient magnitude to make any corrections for the type of gage used an unwarranted refinement.

TABLE 1—Climatological data for March, 1910. District No. 1, North Atlantic States.

Table with columns: Stations, Counties, Elevation, Length of record, Temperature (Mean, Departure from normal, Highest, Date, Lowest, Date, Greatest daily range), Precipitation (Total, Departure from normal, Greatest in 24 hours, Total snowfall), Number of rainy days, Number of clear days, Number of partly cloudy days, Number of cloudy days, Prevailing wind direction, Observers.

TABLE 1—Climatological data for March, 1910. District No. 1—Continued.

Table with columns: Stations, Counties, Elevation, Length of record, Temperature (Mean, Departure from normal, Highest, Date, Lowest, Date, Greatest daily range), Precipitation (Total, Departure from normal, Greatest in 24 hours, Total snowfall unmelting), Number of rainy days, Number of clear days, Number of partly cloudy days, Number of cloudy days, Prevailing wind direction, Observers. Rows include New York (e.g., Bedford, Binghamton, Bouverville) and Pennsylvania (e.g., Altoona, Bethlehem, Clearfield).

TABLE 1—Climatological data for March, 1910. District No. 1—Continued.

Table with columns: Stations, Counties, Elevation, Length of record, Temperature (Mean, Departure from normal, Highest, Date, Lowest, Date, Greatest daily range), Precipitation (Total, Departure from normal, Greatest in 24 hours, Total snowfall, Number of rainy days, Number of clear days, Number of partly cloudy days, Number of cloudy days), Sky, Prevailing wind direction, Observers. Rows include New Jersey, West Virginia, and Maryland.

TABLE 1—Climatological data for March, 1910. District No. 1—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelting.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.
<i>Maryland—Cont'd.</i>																			
Van Bibber	Harford	100	13	44.8	+ 3.4	82 ^b	30	29	16	36 ^e									J. Benj. Ford.
Westernport	Allegany	1,000	18	48.2	+ 7.5	37	24	20	10	49	0.23	- 2.94	0.08	0.7	4				Prof. O. H. Bruce.
Woodstock	Baltimore	392	38	51.9	+11.5	83	30	25	15	39	0.46	- 3.39	0.24	1.0	5	25	3	3	Rev. A. J. Donlon, S. J.
<i>Delaware.</i>																			
Delaware City	Newcastle		8	47.4		81	25 [†]	27	15 [†]	37	1.47		1.31	0.0	4	23	4	4	H. Morton Price.
Dover	Kent		23	49.6	+ 7.3	86	30	33	11	40	1.44	- 2.90	1.22	2.0	4	21	5	5	Thos. F. Dunn.
Milford	do		28	51.2	+ 7.1	85	30	33	11	39	3.22	0.65	1.63	4.0	9	17	6	6	C. J. Holmuller.
Millsboro	Sussex		18	45.8	+ 4.8	83	30	23	16	43	2.76	1.08	0.80	4.0	6	23	3	5	Rev. L. W. Wells.
Seaford	do		17	49.4	+ 5.4	83	30	23	11	35	4.02	+ 0.34	1.90	4.0	7	23	3	5	E. B. Brown.
<i>District of Columbia.</i>																			
Washington	District of Columbia	112	40	51.2	+ 9.0	86	30	26	15	34	0.57	- 3.28	0.38	3.2	5	17	9	5	U. S. Weather Bureau.
<i>Virginia.</i>																			
Culpeper	Culpeper	450	2	51.7		88	30	20	16	39	0.60		0.36	5.5	3	12	15	4	Col. H. C. Burrows.
Dale Enterprise	Rockingham	1,350	31	49.6	+ 7.2	86	28	16	15 [†]	46	1.08	- 2.18	0.60	6.0	7	13	14	4	Rev. L. J. Heatwole.
Doswell	Havover	134	9																Rich., Fdksbg. & Pot. R. R.
Eastville	Northampton	15		53.2		89	30	28	16	26	3.13		1.30	6.5	5	16	6	6	Thos. B. Robertson.
Fredericksburg	Spottsylvania	100	21	53.2	+ 6.7	92	30	20	16	45	0.82	- 2.59		3.5	4	17	9	5	S. G. Howison.
Lincoln	Loudoun	500	9	50.8		91	30	20	16	43	0.50		0.30	2.0	2	8	18	5	Dr. Geo. Roberts.
Mount Weather	do	1,726	6	48.0	+ 7.8	81	30	19	15	36	0.43	- 1.60	0.22	2.2	5	19	9	3	U. S. Weather Bureau.
Nokesville (near)	Fauquier	350	6																Andrew Low.
Quantico	Prince William	16	13	50.6		88	30	16	15	40	1.50		0.40	4.2	5				Rich., Fdksbg. & Pot. R. R.
Shenandoah	Page	937	9										0.49	2.5	5	26	2	2	Norfolk & Western Ry.
Staunton	Augusta	1,380	18	52.0	+ 7.4	86	30	22	15	37	0.75	- 2.61	0.40	4.0	6	18	9	4	Ernest Nothnagl.
Stephens City	Frederick	710	18	51.5	+ 7.9	88	30	22	16	47				2.0	5				B. T. Argenbright.
Warsaw	Richmond	180	18											2.0	5				C. H. Constable.
Woodstock	Shenandoah	927	14	51.6	+ 4.7	90	30	23	15	46	0.29	- 2.87	0.15	2.0	5	17	10	4	Miss A. G. Miley.

a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.
 * Precipitation included in that of the next measurement.
 ** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
 † Also on other dates.
 ‡ Separate dates of falls not recorded.
 § Data are from standard instruments not supplied by the U. S. Weather Bureau.
 ¶ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
 †† Estimated by observer.
 ††† Precipitation for the 24 hours ending on the morning when it is measured.
 T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for March, 1910. District No. 1, North Atlantic States.

Stations.	River basins.	Day of month.																															Total.					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
Maine.																																						
Bar Harbor	Coast	.20	.30				2.30					T.		.10							.10	T.	.10			T.						T.				3.10		
Cornish	Saco	.57	T.				.66	T.	T.					.35								.02	T.				T.					T.	.16		1.76			
Danforth	Penobscot					.10	.25																T.										T.		0.36			
Debonsag	do																																					
Eastport	Coast	.09	.17	T.	.48		.97	.04				.08	.07	.28							T.	.16		.01			T.				.06			.02	1.98			
Fairfield	Kennebec		*				.92							.31																					1.71			
Farmington	do	.36					.60	T.						.40										.02							.01			.02	1.41			
Gardiner	do	.28	.29				1.24							.16								T.		.02										.01	.02	1.98		
Greenville	do	.25	T.				.88	.05	T.				T.	.26	T.	T.					T.	T.									T.	T.	T.	.74	2.18			
Houlton	St. John					.40								.20									.30												.50	1.40		
Lewiston	Androscoggin	.48	.03				.91							.23								.04													.21	1.90		
Madison	Kennebec	.11					.93							.38																					.49	1.91		
Millinocket	Penobscot	*	.21				*	1.20					T.	*	.25																				.21	1.96		
North Bridgton	Saco	.25					.76							.43																					.49	1.91		
Orono	Penobscot	.05	.29				1.03							.12								T.		.08										.29	1.91			
Oquossoc	Androscoggin																																			.93	0.93	
Pattam	Penobscot	.03	.05				.50	.17						.03																					.05	.93		
Portland	Coast	.72	.01				.57							T.	.07																				.22	1.92		
Presque Isle	St. John	T.	.37				.25							.05								.08	T.	T.	T.										.17	1.78		
Rumford Falls	Androscoggin	.29					.75							T.	.39																				.35	1.78		
The Forks	Kennebec	*	.40				.71							.60																					.52	2.23		
Winslow	do		.56				1.10							.20																					.56	1.86		
New Hampshire.																																						
Alstead Center	Connecticut	.36	T.				.53	T.						.02								.09													.01	1.01		
Benton	do	.40				T.	.40	.03						.43																					.11	1.42		
Bethlehem	do	.21	.02				.58					.10		.14								T.													.06	1.06		
Brookline	Merrimac	.95					.40							.06																						1.43		
Concord	do	.49	.02				T.	.59	T.					.22	T.																				.04	1.26		
Durham	do	.02					.02							.05																						.05	0.14	
Franklin	do	.55	.03				.57							.19																						.01	1.36	
Grafton	do	.30	.10				.40							.10																						.01	1.02	
Hanover	do	.17					.55	.01	T.					.03	T.																					.11	0.92	
Keene	Connecticut	.55	.01				.41	T.	T.					.03	T.																					.03	1.02	
Keene	do	.65	.01				.52							.03																						.03	1.27	
Nashua	Merrimac	.70	T.				.50							.10																						.06	1.99	
Newton	do	.25	.07				.48							.18																						.06	1.10	
Plymouth	do	.25	.07				.48							.18																						.06	1.10	
Vermont.																																						
Bloomfield	Connecticut	.15					.55							.43																						.05	1.28	
Champlain	do	.42					.08	T.	T.					.10																						.05	1.28	
Chelsea	do	.10					.25							.10																						.05	1.28	
Jacksonville	do	.35	.10				.01	.05						.05																						.01	0.57	
Manchester	Hudson	.23					.63							.13																							1.43	
St. Johnsbury	Connecticut	.35	.01				.46	T.	T.					.46	T.																					.07	1.48	
Vernon	do	.35	.01				.35	.15						.46	T.																					.07	1.48	
Woodstock	do	.34					.35							.18																						.04	0.91	
Massachusetts.																																						
Amherst	Connecticut	.46	.02				.60	.16						.02	.03								.07													.01	1.37	
Ashland	Merrimac	*	.26				.43							.07																						.04	0.91	
Baldwin	do	.66	.11				.50																														1.27	
Belmont	do	.52	.10				.51																														1.27	
Blue Hill	Coast	.69	.27				.57	T.						T.	.12							.05	.02												.15	1.36		
Boston	do	.53	.05				.54							T.	.02								.02	.02												.02	1.77	
Chestnut Hill	do	.13	.16				.44	.21						T.	.08								.04													.07	1.25	
Clinton	Merrimac	.25	.05				.71							.08									.03													.10	1.16	
Concord	do	.66	.10				.60	T.						T.	.01							.01	.01												.04	1.28		
Fall River	Coast	.60	.15				.67	T.	.01					T.	.04	.05							.15													.05	1.86	
Fitchburg	Merrimac	.58	.04				.45																													.02	1.14	
Framingham	do	.72	.30				.48							.06									.02													.04	0.77	
Haverhill	do	.72	.09				.37							.08																						.04	0.77	
Hingham	Coast	.78	.31				.48							.05	T.								.08													.08	2.19	
Hyannis	do	.74	.44				* 1.05		.02					T.									.20													.24	2.45	
Jefferson	Merrimac	.34					.72																														.17	1.28
Lake Cochituate	do	*	.21				.37																														.05	0.77
Lawrence	do	.65	.06				.47																														.06	1.32
Leominster	do	.69	T.				.50																													.05	1.29	
Lewiston	do	.23				</																																

TABLE 3.—Maximum and minimum temperatures at selected stations, March, 1910. District No. 1, North Atlantic States.

Date.	Maine.														Massachusetts.								Rhode Island.				Connecticut.			
	Eastport.		Greenville.		Orono.		Portland.		Presque Isle.		Rumford Falls.		Concord, N. H.		Amherst.		Boston.		Middleboro.		Nantucket.		Providence, R. I.		Cream Hill.		Hartford.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	37	29	36	25	45	29	40	32	35	25	37	31	41	32	40	33	42	36	40	38	48	37	46	35	46	32	48	35		
2...	34	31	32	24	35	27	35	31	32	20	37	31	40	28	38	28	40	35	38	33	39	36	41	33	36	31	49	34		
3...	44	31	39	21	43	28	48	28	39	23	42	25	47	29	46	25	51	34	50	24	48	31	51	32	42	27	46	31		
4...	39	29	32	18	44	25	42	31	35	9	40	27	45	28	47	28	48	34	48	23	44	30	49	31	44	26	49	32		
5...	42	27	37	19	45	22	42	26	36	1	39	20	54	21	53	24	57	35	52	19	48	30	52	33	49	32	56	30		
6...	41	32	46	21	50	24	42	29	37	4	44	21	50	25	54	28	44	39	54	28	53	37	56	36	47	38	56	34		
7...	44	32	34	26	46	28	43	36	28	18	40	34	45	32	47	30	53	36	51	43	48	38	52	34	38	32	49	34		
8...	38	31	32	20	42	30	38	29	36	26	34	26	35	28	38	26	42	32	43	28	40	32	40	31	40	26	39	30		
9...	37	27	31	16	39	26	41	26	36	9	36	22	41	26	43	27	47	32	49	19	42	32	43	29	47	24	44	28		
10...	31	20	26	4	38	15	32	21	32	11	31	15	36	19	40	20	37	25	42	22	34	29	40	24	38	16	38	24		
11...	32	22	34	6	38	7	33	21	32	7	32	6	40	15	44	17	39	26	40	17	38	31	44	23	40	18	45	23		
12...	37	27	37	10	45	18	36	26	38	0	38	15	40	21	44	24	37	31	39	20	36	32	41	29	40	23	46	27		
13...	37	32	47	13	45	26	41	30	45	12	45	20	49	27	56	27	42	31	53	31	39	35	50	30	45	21	54	31		
14...	41	32	47	26	48	31	41	30	35	32	39	28	37	27	36	23	39	28	44	34	41	30	38	25	39	20	39	26		
15...	36	30	28	21	44	21	41	28	35	28	36	30	40	26	40	20	44	25	40	20	37	28	43	22	36	17	39	24		
16...	38	31	36	5	45	20	40	23	36	12	41	12	43	19	47	18	50	26	49	21	43	31	49	24	44	15	48	22		
17...	44	32	30	5	45	18	32	16	35	9	40	10	31	16	38	20	38	22	46	25	39	26	36	22	36	20	38	23		
18...	26	9	23	11	31	4	30	11	24	13	30	3	35	11	41	13	40	17	39	5	33	24	40	16	40	12	43	18		
19...	37	22	38	0	41	9	41	21	36	1	42	6	51	16	52	27	49	30	45	21	40	27	45	29	42	16	51	30		
20...	47	34	47	28	54	34	59	35	43	33	51	27	56	34	60	36	63	40	57	35	51	38	62	36	43	24	62	38		
21...	37	24	39	16	51	23	44	31	34	13	42	25	49	31	53	30	48	37	50	32	43	32	51	35	57	28	53	35		
22...	40	33	43	27	44	29	53	34	38	25	50	29	57	31	59	32	59	35	46	32	48	32	56	33	53	24	55	33		
23...	39	30	43	21	47	27	45	33	38	19	46	30	53	31	62	34	49	37	47	35	45	32	57	36	60	32	61	39		
24...	42	32	51	24	49	26	49	32	48	19	56	26	64	27	58	31	60	36	54	23	48	33	54	31	66	30	63	35		
25...	55	36	63	37	73	37	74	46	46	30	66	33	73	43	76	44	78	51	67	44	51	41	79	43	75	33	78	45		
26...	40	32	43	32	72	35	49	40	40	29	43	40	45	40	53	36	54	43	67	38	56	40	54	40	47	32	54	40		
27...	38	31	40	26	46	29	48	36	45	22	49	30	55	34	62	37	47	39	51	27	46	34	58	35	58	34	58	40		
28...	38	31	40	23	44	22	43	35	36	10	47	30	60	32	57	35	54	37	50	27	46	32	50	37	54	33	52	38		
29...	57	38	54	32	66	37	71	39	47	32	65	31	73	35	78	36	78	48	77	43	68	40	77	48	74	40	78	46		
30...	53	36	49	32	65	33	55	43	50	29	60	30	65	39	75	43	66	45	74	40	62	42	72	46	76	47	78	51		
31...	38	33	44	30	56	34	43	38	43	29	43	38	46	39	58	42	47	41	53	37	45	40	49	39	59	40	57	42		
Mns	39.6	29.2	39.0	18.9	47.3	25.0	44.2	30.2	37.7	17.1	43.3	23.9	48.3	27.8	51.5	28.8	49.7	34.3	50.1	28.5	45.1	33.3	50.8	32.3	48.7	27.2	51.8	32.8		

Date.	New York.										Pennsylvania.																	
	New Haven, Conn.		Addison.		Albany.		Binghamton.		Cooperstown.		Indian Lake.		New York.		Clearfield.		Everett.		Harrisburg.		Philadelphia.		Scranton.		Wellsboro.		Asbury Park, N. J.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	48	35	49	33	41	35	46	35	38	34	46	32	49	40	40	34	54	38	53	42	61	42	51	43	45	33	50	40
2...	40	35	54	34	43	35	47	29	42	30	42	33	42	38	54	33	58	38	54	39	47	40	54	39	51	32	50	35
3...	48	30	49	26	45	27	46	24	42	28	38	22	47	30	51	27	52	29	55	36	53	35	47	31	48	26	40	30
4...	50	31	54	22	47	31	47	27	40	22	43	7	49	36	58	18	58	23	56	35	56	42	47	31	52	20	47	31
5...	54	30	63	26	52	29	58	27	52	25	55	19	54	38	64	25	63	28	59	36	56	39	58	30	58	26	44	34
6...	54	34	66	26	52	30	61	28	45	28	57	14	54	39	69	28	72	29	60	38	62	40	65	34	63	26	48	35
7...	48	35	53	26	49	31	54	27	45	26	50	28	48	35	61	19	42	30	55	35	55	38	55	30	59	28	52	41
8...	40	31	41	25	37	30	38	27	32	23	30	20	41	33	40	25	42	30	44	33	48	34	40	28	39	23	45	30
9...	46	30	39	23	41	28	36	25	32	23	29	17	46	33	43	23	43	22	47	33	51	37	39	28	40	27	41	33
10...	36	26	43	18	34	22	40	21	32	15	35	5	37	30	43	19	40	26	34	28	38	30	39	22	43	22	40	34
11...	43	25	47	17	43	20	44	21	38	14	38	-10	44	30	49	11	36	27	39	26	46	32	47	23	46	17	48	26
12...	49	30	47	23	46	30	44	30	40	22	43	4	46	35	42	16	44	31	46	30	44	34	45	26	46	25	38	34
13...	47	32	48	22	49	25	51	23	46	20	46	6	51	34	45	20	61	21	61	31	56	35	53	27	48	21	43	32
14...	41	26	38	19	40	24	34	17	36	18	35	15	41	28	38	25	31	26	40	28	45	33	37	22	40	20	40	24
15...	40	22	39	18	33	22	33	16	25	14	31	11	39	25	38	22	32	21	40	24	42	27	33	20	38	17	44	23
16...	49	23	48	25	45	20	45	24	38	15	33	7	50	29	47	23	48	25	52	28	53	31	49	24	49	25	51	24
17...	38	23	40	23	34	18	30	19	27	14	30	5	43	28	45	30	46	31	44	32	44	32	31	21	39	17	51	30
18...	41	19	53	14	40	14	44	16	34	9	37	-13	44	24	59	11	57	19	51	25	48	27	49	18	53	9	36	22
19...	47	33	67	24	55	28	61	30	54	23	48	3	50	36	70	22	65	26	61	34	60	35	61	35	62	27	43	35
20...	60	35	56	45	54	38	58	35	52	36	47	33	62	42	61	32	68	29	65	42	63	42	63	39	57	39	64	40
21...	51	36	58	23	50	32	53	27	43	25	48	20	52	40	62	21	59	30	55	33	56	38	55	32	57	24	57	37
22...	54	34	64	33	55	37	62	42	52	34	50	35	59	35	65	26	66	27	64	38	64	35	61	38	65	29	48	30
23...	57	38	62	30	54	35	61																					

