SECTION VII.—WEATHER AND DATA FOR THE MONTH.

THE WEATHER OF MAY, 1918.

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[Climatological Division, Weather Bureau, July 2, 1918.]

PRESSURE AND WINDS.

The distribution of the mean atmospheric pressure over the United States and Canada and the prevailing direction of the winds for May, 1918, are graphically shown on Chart VII (XLVI–46), while the means at the several stations, with the departures from the normal, are shown in Tables I and III.

The month opened with high pressure central in the middle Mississippi Valley and clear cool weather thence westward to the Pacific. Over the more eastern districts low pressure prevailed, with a storm central over southern New England. Along the northern border between the Great Lakes and the Rocky Mountains a low-pressure area was moving eastward, but without precipitation.

The high pressure in the Mississippi Valley slowly drifted southeastward during the first week of the month, and clear weather prevailed not only in the South but very generally throughout the country. On the 6th low pressure developed in the Southwest and rapidly overspread the central and northeastern districts during the following few days. Again near the end of the first decade low pressure overspread the central Plains States, moving rapidly northeastward to the Great Lakes, attended by high winds in the latter region. A second area of low pressure followed a similar course, but farther to the southward in its earlier movement, during the succeeding two or three days, after which generally high pressure and clear weather prevailed until near the middle of the second decade. During the 15th and 16th pressure was low over the Rocky Mountains and Great Plains regions and continued generally below the normal in the middle western districts until the beginning of the third decade. After a few days of higher pressure in those regions low pressure again developed, continuing with slight interruption till the end of the month. At the same time pressure somewhat above the normal prevailed along the Pacific coast and over the southeastern States.

The average pressure for the month was above the normal from western Texas to the Great Lakes and thence eastward to the Atlantic, the region of greatest excess overlying the southeastern States, where departures ranged from 0.10 to 0.15 inch. Over the Pacific coast States pressure likewise averaged somewhat higher than normal. In the central and northern Plains regions, and the adjoining districts both eastward and westward, the average pressure for the month was below normal, and this condition was general over the adjoining districts of Canada.

Continued high pressure over the Southeast favored warm southerly winds to an unusual extent over nearly all districts from the Rocky Mountains eastward. In the Plateau and Pacific coast States the winds were mostly from some westerly point.

TEMPERATURE.

At the beginning of May fair and cold weather prevailed over the great central valleys, with light frosts in the northern portions of the Gulf States, while from the Rocky Mountains westward moderate temperatures prevailed. Cool weather moved rapidly to the Atlantic coast, and during the next few days there was a general rise in temperature throughout the country to the west. Seasonable weather prevailed thereafter until near the close of the first week.

Over the northeastern districts there was a sharp rise in temperature on the 6th and 7th and the weather generally continued warm, for the season, until near the end of the first decade when colder weather set in over the Northwest and West. This gradually moved into the middle Plains region, with freezing weather as far south as Nebraska and eastern Colorado.

No decided temperature changes occurred during the second decade except about the 17th when there were sharp rises in the Lake Superior Region and corresponding falls in the Northwest.

During the early part of the third decade there was a tendency toward higher temperatures over the central and eastern districts, and by the 25th high temperatures for the season prevailed in the Ohio and Mississippi Valleys and the Lakes Region. At the same time lower temperatures were observed in the Missouri Valley, and freezing weather with snow was reported at points in the Rocky Mountains Region. During the last few days of the month temperature was above the seasonal average east of the Rocky Mountains, except in the northern border States, while west of the Rocky Mountains it was below the normal with killing frosts in southern Nevada, eastern Oregon, and western Montana.

As a whole, May was warmer than normal from the Plains Region eastward, except in a few localities, the excesses ranging from 4 to 8 degrees over much of that region. From the Rocky Mountains westward the average temperature for the month was, nearly everywhere, somewhat lower than normal.

PRECIPITATION.

May, 1918, opened with generally fair weather throughout the country, except in the Atlantic coast districts where light rain prevailed. Early in the first week rain set in over the lower Rio Grande Valley and extended into western Texas and New Mexico. About the middle of the week heavy rain fell in eastern Texas and portions of Oklahoma and Kansas, and the week closed with general and beneficial rains from the Ohio and lower Missouri Valleys northward. From the Rocky Mountains westward the week, like a number of preceding weeks, was practically rainless.

At the beginning of the second week general showers and thunderstorms prevailed from Tennessee and the Ohio Valley northeastward, but the weather was fair in most other sections. During the next few days a storm moved from the Plateau region northeastward to the Canadian Maritime Provinces accompanied by general rains over the central and northern districts east of the Rocky Mountains, by considerable snow in the higher elevations of the Rocky Mountain districts, and by destructive local storms in the upper Mississippi Valley. Beneficial showers also occurred over considerable areas west of the Rocky Mountains. About the middle of the week rain fell in Oklahoma and from the Mississippi Valley eastward, the falls being heavy in the Ohio and middle Mississippi Valleys. The week closed with general rains from the east Gulf and South Atlantic States northeastward, rather heavy falls occurring in portions of Tennessee and North Carolina. Rain fell also in the upper Mississippi Valley, but elsewhere in the central valleys and Plains States the weather was generally fair.

During the early part of the third week rain fell in the immediate Atlantic coast districts, and there were showers in the western Lakes Region and far Northwest. About the middle of the week rains occurred from the Plains States and northern Texas to the upper Lakes and the Ohio Valley. Toward the close of the week showers occurred in the Northwest and local rains fell in the Atlantic coast States, the Ohio Valley, and Tennessee, the amounts being heavy in portions of peninsular Florida, Pennsylvania, and New York.

During the next several days showers occurred in the northern districts from Nevada and Idaho eastward to the Atlantic, good rains falling in most of Kansas and Nebraska and heavy amounts in portions of the lower Missouri and upper Mississippi Valleys, and snow fell in northern Wyoming, but generally fair weather continued in the South. The last few days of the month had rains in most northern and central districts east of the Rocky Mountains, with some heavy falls in the central Plains States, upper Mississippi Valley, and in Michigan. Elsewhere generally fair weather prevailed.

For the month as a whole fairly heavy precipitation occurred from the central and northern Plains States eastward to the Atlantic coast, but over the greater part of the Gulf States the precipitation was generally light and no rain occurred over considerable areas in the southern Plateau Region and portions of central and southern California.

RELATIVE HUMIDITY.

As a rule the relative humidity did not depart greatly from that usually experienced in May, although there were sharp differences between the values reported from near-by points. In the main, however, the relative amount of moisture was less than normal over the interior portions of the country and in the far West. Over the Lakes Region and along the Atlantic and Gulf coasts the month was on the whole relatively drier than normal.

GENERAL SUMMARY.

During the early part of the month the weather was cold and unfavorable for the proper development of vegetation, but later warmer and more seasonable weather obtained generally; however, in most sections winter grains, pastures, and meadows made good progress. The preparation of the land and the planting of corn were delayed by heavy rains in many central districts during the early part of the month, but good progress was made with this work as the month advanced. After the first few days the weather in the South was generally favorable for cotton and that crop made good progress, although in Arkansas the early planted was almost a complete failure, but that planted later progressed rapidly.

The weather as a whole was favorable for winter wheat which made excellent progress nearly everywhere. Spring wheat, while retarded somewhat by the cold, also progressed satisfactorily, as did other small-grain crops.

Potatoes and garden truck suffered some injury from frosts early in the month, and in exposed localities during the latter part of the month, yet there was good growth in nearly all sections.

In most central and eastern districts the weather was favorable for hay and pastures, but in some western sections the lack of moisture caused a deterioration of these crops. The condition of live stock was generally good except in the Southwest, where dry weather had prevented the usual growth of grass on the ranges.

Fruits of all kinds made excellent progress and gave promise of the usual yield.

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SEVERE LOCAL STORMS.

The following notes of severe storms have been extracted from the official reports of the various States. [All times here given are according to Normal Standard Time of the respective localities.]

Arkansas.—During the afternoon of May 10, 1918, a tornado moved over Mulberry, Crawford County, from the southwest. Its path was about 80 rods wide but it continued only a short distance. Estimated damagewas $8,000.

Several severe hailstorms occurred between May 7 and 13 at different points in the northern part of the State, doing much local damage.

Illinois.—On May 9, 1918, three distinct tornadoes occurred. The first started near Jacksonville, Morgan County, passed over Franklin at 2.30 a. m., in a path about 150 yards wide, killed two persons and destroyed $50,000 worth of property. What may have been the same storm next manifested itself at Lakewood, Shelby County, at 4 a. m., where 5 persons were injured, and $30,000 damage occurred. It passed through Effingham, Clay, and Richland Counties, causing about $50,000 loss and some personal injury. The other two tornadoes occurred in the evening of the same date. One passed through Stark and Bureau Counties, causing 3 deaths, the injury of 6 persons, and $22,000 property loss; the other passed through Ogle and Boone Counties, damaging farm property and many buildings in the town of Byron. The loss in Ogle County is estimated at $200,000 and in Boone County at $100,000. One person was injured.

May 12, 1918, about noon, a tornado started in northern Pope County and traveled across the southeastern corner of Saline County. Five dwellings and numerous farm buildings were destroyed; 1 person was fatally injured and 17 more or less severely injured.

May 21, 1918, a tornado began about 8 p. m. near the southeast corner of Stark County, moved northeastward into Marshall County, probably being the same storm that visited northern La Salle County at 10 p. m., and caused damage in the villages surrounding Aurora, Kane County. In Stark County several persons were injured, and property loss is estimated at $236,000. In La Salle County farm buildings were demolished.

Iowa.—A tornado swept over Lake and Bloomington townships, Muscatine County, about 6 p. m., May 9, 1918, injuring 8 persons and causing property loss of about $50,000. The tornado moved from southwest to northeast over a path about 500 feet wide and 9 miles in length.

About 6 p. m., May 9, 1918, a tornado appeared about 3½ miles southeast of Eldridge, Scott County, and moved in a northeasterly direction through the northern portion of that town, and disappeared about 4 miles northeast. Its path was about 600 feet wide. Many houses and outbuildings were damaged or destroyed, some live stock was killed or badly injured, and 11 persons more or less severely injured (1 of whom died), and 11 others slightly injured. Property loss was about $63,000. [See above, p. —, for detailed report.]

Kentucky.—Severe storms occurred on May 8. In Ballard County damage to buildings amounted to about $20,000; in Warren County two persons were killed and damage to houses and outbuildings estimated at $50,000; and in Simpson County a hailstorm caused much damage.

Pennsylvania.—A tornado occurred on the evening of May 25 near Smethport, McKean County. Property damage estimated at from $100,000 to $150,000. No lives were lost.

South Dakota.—A severe local storm about 7 a. m. May 18, 1918, caused considerable damage in Yankton

and Clay Counties, about 9 miles east of Yankton. The storm moved in a northeasterly direction, its path being about half a mile wide and 5 miles long. Several houses and many outbuildings were demolished, and numerous trees, some 3 feet in diameter, were twisted off. Six persons were injured, two seriously, and the estimated property loss was $30,000.

Wisconsin.—A tornado crossed the Mississippi River from Iowa into Wisconsin about a mile south of Glen Haven, Wis., shortly before 6.30 p. m. May 21, 1918, passed about 6 miles north of Lancaster, Grant County, at 7 p. m. and over Lone Rock, Richland County, at 7.30 p. m., Plain, Sauk County, at 8 p. m., and was last reported at Baraboo, in eastern Sauk County. Its path was from 100 feet to a quarter of a mile wide and about 85 miles long. Eight persons were killed, about 100 injured, and property loss, principally in houses and farm buildings, was estimated at $650,000.

Average accumulated departures for May, 1918.

Districts.	Temperature.			Precipitation.			Cloudiness.		Relative humidity.	
	General mean for the current month.	Departure for the current month.	Accumulated departure since Jan. 1.	General mean for the current month.	Departure for the current month.	Accumulated departure since Jan. 1.	General mean for the current month.	Departure from the normal.	General mean for the current month.	Departure from the normal.
	° F.	° F.	° F.	In.	In.	In.	0–10.		P. ct.	
New England	58.4	+3.8	−6.0	2.64	−0.70	−4.10	5.4	−0.2	75	−1
Middle Atlantic	66.2	+4.5	+0.8	3.63	+0.10	−0.40	5.2	+0.1	67	−4
South Atlantic	72.0	+2.2	+4.5	2.43	−1.10	−5.30	4.3	−0.3	74	+1
Florida Peninsula	76.8	−0.9	+3.4	3.38	−0.90	−3.10	4.9	+0.6	70	−4
East Gulf	73.7	+1.5	+5.3	1.73	−1.80	−3.80	4.1	−0.7	64	−8
West Gulf	74.5	+1.4	+0.4	1.94	−2.20	−4.50	5.5	+0.6	75	0
Ohio Valley and Tennessee	69.6	+4.6	−0.8	4.02	+0.30	−1.90	4.3	−0.8	62	−6
Lower Lakes	62.0	+4.6	−2.1	3.15	0.00	−0.40	5.6	+0.2	70	0
Upper Lakes	54.9	+2.2	−4.7	4.79	+1.40	+1.40	5.8	+0.7	75	+3
North Dakota	52.4	−1.8	+13.8	2.37	−0.10	−0.30	5.8	+0.4	64	−1
Upper Mississippi Valley	66.0	+4.0	+0.2	5.71	+1.10	−0.90	5.4	+0.1	69	+1
Missouri Valley	65.0	+3.3	+6.0	4.37	−0.10	−1.10	5.2	−0.2	64	−1
Northern slope	51.5	−1.5	+2.7	1.84	−0.50	−0.40	5.8	+0.3	59	−2
Middle slope	65.4	+2.5	+1.6	3.56	−0.20	+0.20	5.2	+0.3	46	−16
Southern slope	71.5	+0.8	+5.9	2.70	0.00	−1.30	4.4	+0.1	48	−6
Southern Plateau	63.2	−2.7	−1.3	0.25	−0.10	−0.10	2.6	0.0	32	+1
Middle Plateau	56.5	−3.9	−2.7	0.57	−0.60	−1.20	4.1	0.0	38	−8
Northern Plateau	53.6	−3.2	+6.1	0.67	−0.10	−1.20	5.2	+0.1	43	−7
North Pacific	52.2	−1.5	+4.2	1.55	−1.20	−2.20	6.3	−0.1	74	−3
Middle Pacific	54.3	−1.8	+1.6	0.06	−1.20	−6.10	3.0	−0.9	73	+5
South Pacific	60.4	−1.1	+6.6	0.23	−0.40	+2.50	3.9	−0.1	67	−2

WEATHER CONDITIONS OVER THE NORTH ATLANTIC OCEAN DURING MAY, 1917.

The data presented are for May, 1917, and comparison and study of the same should be in connection with those appearing in the REVIEW for that month. Chart IX (XLVI—47) shows for May, 1917, the track of the principal storm, the averages of pressure, air temperature, and water surface temperature, also the prevailing direction of the wind at 7 a. m. 75th meridian time (Greenwich mean noon). Notes on the locations and courses of the more severe storms of the month are included in the following general summary.

PRESSURE.

The mean atmospheric pressure for the month was abnormal in nearly all respects. The North Atlantic or Azores HIGH, was very poorly developed, although the isobar of 30.05 inches covered a large area south of the Azores, as shown on Chart IX. The continental HIGH was also of slight intensity, and a LOW of 29.67 inches was central about 300 miles east of St. Johns, N. F. The gradients from north to south were less than usual over the eastern division, while they were somewhat steeper over the western, and the average pressure for the ocean as a whole was considerably below the normal. The following table gives for a number of selected 5-degree squares the average pressure for each of the three decades of the month, as well as the highest and lowest individual reading reported within the respective squares.

Pressure over North Atlantic Ocean during May, 1917, by 5-degree squares.

Position of 5-degree squares.		Decade means.			Extremes.			
					Highest.		Lowest.	
Latitude.	Longitude.	I	II	III*	Pressure.	Date.	Pressure.	Date.
°	°	Inches.	Inches.	Inches.	Inches.	May.	Inches.	May.
60–65 N	20–25 W	30.15	30.04	29.71	30.42	17	29.20	31
60–65 N	0– 5 E	30.11	30.17	29.97	30.41	11	29.62	30
55–60 N	35–40 W	30.02	29.72	29.70	30.24	11	29.36	20
55–60 N	10–15 W	30.16	29.97	29.79	30.35	5	29.36	31
50–55 N	55–60 W	30.05	29.53	29.79	30.23	2	29.39	20
50–55 N	0– 5 E	30.13	29.93	30.00	30.36	3	29.73	19
45–50 N	65–70 W	29.97	29.61	29.88	30.24	31	29.20	11
45–50 N	40–45 W	29.67	29.48	29.84	30.16	31	29.34	16
45–50 N	10–15 W	29.93	29.80	29.94	30.22	15	29.48	18
40–45 N	50–55 W	29.78	29.49	29.96	30.21	30	29.13	15
40–45 N	25–30 W	29.71	29.84	29.99	30.49	28	29.30	22
35–40 N	75–80 W	29.93	29.87	29.92	30.20	31	29.68	23
35–40 N	60–65 W	29.91	29.70	30.05	30.30	30	29.41	14
35–40 N	35–40 W	29.81	29.91	30.15	30.51	29	29.60	23
35–40 N	10–15 W	29.94	29.93	30.12	30.23	29	29.73	11
30–35 N	70–75 W	29.91	29.91	30.02	30.21	31	29.67	8
30–35 N	25–30 W	29.96	30.05	30.16	30.32	30	29.70	9
25–30 N	95–100 W	29.90	29.99	29.83	30.20	15	29.60	21
25–30 N	60–65 W	30.02	29.96	30.13	30.22	19	29.73	13
25–30 N	15–20 W	30.01	30.05	30.09	30.18	29	29.90	10
20–25 N	85–90 W	29.90	30.00	29.98	30.10	17	29.79	4
20–25 N	50–55 W	30.04	30.05	30.10	30.21	20	29.93	18, 23
10–15 N	25–30 W	29.99	30.02	30.00	30.10	22	29.91	28

* Means of last 11 days of the month.

The mean and extreme values presented in the above table are based on the pressures, for each square on the MS. daily synoptic charts of the North Atlantic compiled by the Marine Section of the Weather Bureau.

GALES.

The number of days on which gales occurred was somewhat less than usual over the greater part of the northern steamer lanes, as they were not reported on more than 2 days in any 5-degree square of that region. Over the southern tracks gales were more frequent, being reported on 4 days in each of the 3 squares between the 40th and 45th parallels and the 35th and 50th meridians, which was slightly above the normal for that locality.

From May 1 to 7 an area of low pressure, varying in intensity and extent, occupied some part of the region between the 40th and 50th parallels and the 25th and 45th meridians. The movement of the LOW was very irregular during this period. It reached its greatest depth on the 2d, with a barometer reading of 29.18 inches and northerly gales between the 50th meridian and the American coast. During the next 24 hours the eastward movement of the storm area was moderate, and one vessel near latitude 47° N., longitude 42° W., reported a northeasterly gale of over 50 miles an hour.

On the 5th a LOW was central near Norfolk, Va., moderate gales prevailing along the 40th parallel, between the 70th meridian and the coast, while fog was reported near its center.

On the 6th there was a disturbance (LOW *I* on Chart IX) about halfway between Brownsville and Del Rio, Tex. On the 7th the center was near Pensacola, Fla., where the barometer reading was 29.84 inches, with

light to moderate winds. This LOW continued in its easterly course with a comparatively uniform rate of translation, and on the 8th was a short distance south of Hatteras. The winds in this vicinity were still moderate, although one vessel in the Gulf of Mexico reported a northerly gale of 50 miles an hour. Low *I* then curved toward the northeast, and on the 9th was central near the 40th parallel, about 300 miles east of Philadelphia; moderate northerly and northwesterly winds were the rule along the coast as far south as Charleston while vessels near latitude 40°, longitude 70° encountered winds of gale force. This disturbance reached its greatest intensity on the 10th when its center was near Halifax, where the barometric reading was 28.96 inches, and westerly and southwesterly gales prevailed between the 40th and 45th parallels and the 60th meridian and the American coast.

The LOW remained practically stationary during the next 2 days, decreasing in intensity, light to moderate winds prevailing, with fog on the 12th off the Banks of Newfoundland. On the 14th a well-defined area of low pressure was central a short distance east of Sable Island, where the barometer reading was 29.06 inches. Northeasterly gales swept the coast of Nova Scotia, and high westerly winds prevailed over a limited area in the southern quadrants. This disturbance drifted slowly eastward, and on the 15th the center was near latitude 45°, longitude 51°, moderate winds with fog being reported off the Banks of Newfoundland. The LOW then curved toward the northeast, and on the 16th was in the vicinity of latitude 50°, longitude 42°; it had increased in intensity since the previous day, and westerly gales were prevalent between the 40th and 45th parallels and the 37th and 48th meridians. On the 19th a LOW of 29.02 inches was central near latitude 51°, longitude 47°, and on the same day a HIGH with a crest of 30.30 inches covered the territory between the 25th and 33d parallels and the 50th and 70th meridians. A number of vessels between the eastern part of the HIGH and the center of the LOW, reported moderate westerly and northwesterly gales. On the 20th the LOW began to fill in, and the HIGH had drifted slightly toward the southeast since the previous day, remaining about the same in intensity. A few reports of gales were received from vessels between the two areas, while others in the same vicinity experienced only moderate winds.

From the 21st to the 23d there were a number of slight atmospheric depressions over various portions of the ocean, but no reports of heavy winds during that period were received. On the 24th a LOW of 29.50 inches was central near latitude 48°, longitude 37°; moderate gales were encountered between the 34th and 39th meridians, and the observatory at Horta, Azores, recorded westerly winds of 48 miles an hour. From the 25th to the 28th a LOW of moderate intensity was over the Gulf of St. Lawrence; the maximum wind velocity during the period was 40 miles an hour, reported by vessels on the 26th between the 35th and 40th parallels and the 50th and 56th meridians. From the 27th to the 30th a low area of slight intensity extended along the American coast between Norfolk and Boston; light to moderate winds prevailed, and on the 29th fog covered an extensive area. On the 30th a LOW was central near latitude 58°, longitude 35°; vessels a short distance southwest of the center encountered northerly gales of over 60 miles an hour. This disturbance moved slowly eastward and on the 31st was near latitude 61°, longitude 20°; one vessel near the center recorded a barometer reading of 29.18 inches with easterly winds of hurricane force (over 90 miles an hour), while a second vessel about 5° east of the first encountered nearly as severe weather. On the same date the territory between the 48th and 56th parallels and the 35th and 40th meridians, was also swept by gales, wind velocities as high as 58 miles an hour being reported from that locality.

Comparatively few vessel reports were received from the eastern division of the Atlantic during the month, and it was difficult to determine the conditions of wind and weather between the 30th meridian and the European coast.

AIR TEMPERATURE.

The average temperature of the air over the ocean varied considerably during the month over different parts, when compared with the normal. In the waters adjacent to the American coast it was much cooler than usual, the negative departures ranging from 3 to 6 degrees. In the Gulf of Mexico and in the region between the 25th and 35th parallels, and the American coast and the 30th meridians, the departures were only slightly negative. Off the European coast they ranged from 0 to −2, and in the region of the northeast trades the temperatures were practically normal.

Off the European and Canadian coasts, as well as in mid-ocean, the seasonal rise in temperature was small, while in American waters between the 35th and 45th parallels the average temperature for the first decade was considerably below that of the last two.

The change in temperature from day to day was not specially marked, and off the coast of Newfoundland, where it is usually the greatest, the extremes were only 37° and 58°.

The following table gives the temperature departures at a number of Canadian and United States Weather Bureau stations on the Atlantic and Gulf coasts.

	°F.		°F.
St. Johns, N. F.	−2.2	Norfolk, Va.	−3.8
Sydney, C. B. I.	−3.6	Hatteras, N. C.	−4.5
Halifax, N. S.	−3.9	Charleston, S. C.	−2.2
Eastport, Me.	−3.7	Key West, Fla.	−1.2
Portland, Me.	−6.2	Tampa, Fla.	−0.8
Boston, Mass.	−5.9	Mobile, Ala.	−3.7
Nantucket, Mass.	−4.9	New Orleans, La.	−2.3
Block Island, R. I.	−3.7	Galveston, Tex.	−3.8
New York, N. Y.	−6.1	Corpus Christi, Tex.	−3.3

WATER SURFACE TEMPERATURE.

The variation in the average water temperature over different sections of the ocean, as compared with the normal, was even more marked than that of the air; this was especially noticeable in the vicinity of the Banks of Newfoundland, where the Gulf Stream and the Labrador Current meet. In the 5-degree square that includes St. Johns, N. F., the departure was +5° while in the square between latitudes 45°–50°, longitudes 35°–40°, it was −3°. In American waters, including the Gulf of Mexico, negative departures were the rule, while along the European coast they were slight but positive. The daily variation of water temperature was, as usual, most pronounced in the square that includes the east coast of Labrador, where the range was from 31° on May 1 to 47° on May 16.

FOG.

The number of days on which fog was observed was considerably less than usual off the Banks of Newfoundland, where the normal percentage ranges from 40 to 45. In May, 1917, fog was reported in that locality on only 2 days, a percentage of 6. It occurred on 4 days in each of the squares between latitudes 40°–45° and longitudes 45°–65°, and on 5 days in the Azores square, which was unusual for that region where fog is comparatively rare.

HAIL AND SNOW.

Hail was observed on 1 day in three 5-degree squares in the northern steamer lanes, while snow was reported on 1 day by a vessel off the coast of Newfoundland.

Winds of 50 mis. /hr. (22.4 m./ sec.) or over, during May, 1918.

Station.	Date.	Velocity.	Direction.	Station.	Date.	Velocity.	Direction.
		Mis./hr.				Mis./hr.	
Buffalo, N. Y.	2	66	sw.	Erie, Pa.	10	54	w.
Do.	7	54	sw.	Green Bay, Wis.	9	60	n.
Do.	10	68	w.	Huron, S. Dak.	9	68	ne.
Do.	12	58	w.	Do.	18	56	s.
Cairo, Ill.	11	57	sw.	Kansas City, Mo.	9	52	w.
Cleveland, Ohio.	22	50	nw.	Lincoln, Nebr.	9	58	nw.
Columbus, Ohio.	12	53	w.	Louisville, Ky.	9	56	sw.
Drexel, Nebr.	15	54	sw.	Do.	12	50	sw.
Duluth, Minn.	1	62	w.	Marquette, Mich.	19	52	s.
Do.	21	50	ne.	Minneapolis, Minn.	25	56	nw.
Ellendale, N. Dak.	16	52	nw.	Mt. Tamalpais, Cal.	3	59	w.
Do.	18	61	se.	Do.	4	88	nw.

Winds of 50 mis. /hr. (22.4 m./ sec.) or over, during May, 1918—Contd.

Station.	Date.	Velocity.	Direction.	Station.	Date.	Velocity.	Direction.
		Mis./hr.				Mis./hr.	
Mt. Tamalpais, Cal.	7	56	sw.	Pt. Reyes Light,	20	51	nw.
Do.	8	64	sw.	Cal.			
Do.	9	66	nw.	Do.	24	59	nw.
Do.	13	80	n.	Do.	25	70	nw.
Do.	14	64	n.	Do.	26	62	nw.
Do.	15	56	n.	Do.	27	53	nw.
Do.	17	68	n.	Do.	28	53	nw.
Do.	26	84	nw.	Providence, R. I.	6	54	nw.
New York, N. Y.	1	54	nw.	St. Joseph, Mo.	9	51	nw.
Omaha, Nebr.	9	50	n.	St. Louis, Mo.	6	51	sw.
Pierre, S. Dak.	9	52	n.	St. Paul, Minn.	16	56	s.
Pt. Reyes Light,				Do.	25	64	n.
Cal.	4	62	nw.	Sioux City, Iowa.	9	60	n.
Do.	5	70	nw.	Do.	24	51	se.
Do.	8	67	nw.	Toledo, Ohio.	10	54	w.
Do.	13	61	nw.	Trenton, N. J.	10	60	w.
Do.	14	56	nw.	Wichita, Kans.	8	50	s.
Do.	18	52	nw.	Do.	9	50	nw.

CONDENSED CLIMATOLOGICAL SUMMARY.

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course the number of such records is smaller than the total number of stations.

Condensed climatological summary of temperature and precipitation by section, May, 1918.

Section.	Temperature.							Precipitation.					
	Section average.	Departure from the normal.	Monthly extremes.					Section average.	Departure from the normal.	Greatest monthly.		Least monthly.	
			Station.	Highest.	Date.	Station.	Lowest. Date.			Station.	Amount.	Station.	Amount.
	°F.	°F.		°F.			°F.	In.	In.		In.		In.
Alabama	72.9	+1.4	2 stations	100	25†	St. Bernard	34 2	2.51	− 1.46	Tuscumbia	6.46	Fort Deposit	0.14
Arizona	62.7	−2.3	Sentinel	103	20†	Fort Valley	12 30	0.11	− 0.22	Blue	1.20	44 stations	0.00
Arkansas	72.2	+3.4	Amity	102	30	Dutton	29 1	3.01	− 2.02	Mountain Home	10.50	Arkadelphia	0.15
California	59.0	−3.1	Greenland Ranch	108	4	Tamarack	9 9	0.37	− 0.85	Montgomery Creek	2.70	40 stations	0.00
Colorado	52.1	+1.0	2 stations	97	8†	Ashcroft	10 12	0.82	− 1.05	Hawthorne	2.96	6 stations	0.00
Florida	75.0	−0.8	Lake City	97	31	3 stations	46 21	2.43	− 1.39	Wausau	8.32	Malabar	0.10
Georgia	73.0	+1.1	2 stations	102		2 stations	32 2	1.81	− 1.31	Clayton	5.62	Macon	0.11
Hawaii (April)	68.8	−1.3	Mahukona	88	19†	Waimea	48 7	19.96	+12.72	Honomanu Valley	83.87	Kula (Erehwon)	2.20
Idaho	50.6	−1.4	Hotspring	98	3	Grays Lake	12 6	1.12	− 0.65	Spencer	3.88	2 stations	T.
Illinois	67.1	+4.3	Mount Carmel	95	30	Morrison	26 1	5.21	+ 1.14	Anna	9.42	Casey	2.30
Indiana	67.2	+4.7	2 stations	103	28†	Huntingburg	24 2	4.97	+ 0.95	Huntingburg	11.65	Noblesville	1.62
Iowa	64.9	+4.4	Creston	98	9	4 stations	25 1	6.87	+ 2.30	Gilman	11.98	Glenwood	2.72
Kansas	67.6	+3.4	Ashland	100	24†	Goodland	25 10	4.24	+ 0.36	Arkansas City	10.77	Johnson	1.13
Kentucky	69.4	+3.8	Bowling Green	97	31	Junction City	28 2	4.29	+ 0.34	London	7.40	Greensburg	1.78
Louisiana	74.8	+0.8	Reserve	102	8	2 stations	40 1	2.03	− 2.29	Franklin	6.40	Alexandria	0.25
Maryland-Delaware	67.7	+4.6	Ferry Landing	98	27	Oakland	27 2	3.74	+ 0.39	Grantsville	5.75	Public Landing	2.22
Michigan	57.1	+2.9	Munising	97	6	2 stations	12 13	4.15	+ 0.69	Benzonia	7.60	Adrain	1.39
Minnesota	56.4	+2.5	Warren	96	5	Grand Rapids	11 14	4.39	+ 1.00	Fairmont	9.66	Hallock	1.05
Mississippi	73.6	+1.6	Tupelo	100	31	2 stations	37 2	1.58	− 2.97	Leaksville	4.07	2 stations	0.30
Missouri	68.3	+3.8	Caruthersville	100	30	Bethany	28 1	5.49	+ 0.68	Jackson	11.53	Amoret	2.42
Montana	49.3	−2.0	Medicine Lake	94	30	2 stations	11 10†	1.30	− 1.22	Lewistown	3.32	Rudyard	0.02
Nebraska	62.3	+3.2	2 stations	100	8	Kirkwood	23 1	3.97	+ 0.34	Blair	9.27	Haigler	1.34
Nevada	52.9	−1.8	Las Vegas	97	5	Paradise Valley	11 22	0.52	− 0.23	McGill	2.49	2 stations	T.
New England	59.7	+4.7	Patten	95	18	Van Buren	23 5	2.75	− 0.70	Burlington, Vt.	4.92	Houlton, Me	0.39
New Jersey	64.6	+4.4	2 stations	93	28	Charlotteburg	31 17	4.94	+ 1.11	Hightstown	7.59	Sandy Hook	2.74
New Mexico	58.9	−0.9	Artesia	102	22	2 stations	15 11†	0.48	− 0.46	Clayton	3.12	14 stations	0.00
New York	61.0	+4.6	Wappinger Falls	93	6	Lake Placid Club	22 3†	3.97	+ 0.47	Lowville	8.04	Keene Valley	1.27
North Carolina	69.7	+3.0	2 stations	99	30†	Highlands	24 2	3.65	− 0.38	Henderson	6.79	Manteo	0.28
North Dakota	51.6	−1.0	Colgate	99	5	Dunseith	6 12	2.31	− 0.24	Melville	4.63	Pembina	0.30
Ohio	66.4	+5.6	Green	98	26	Peebles	28 2	4.49	+ 0.92	Summerfield	8.67	Toledo	1.60
Oklahoma	71.3	+3.6	Lawton	104	8	Wichita Natl. Forest	30 1	4.05	− 1.14	Guthrie	9.49	Broken Bow	0.86
Oregon	51.9	−2.0	4 stations	90	3†	Blitzen	10 8	1.06	− 1.38	Government Camp	6.37	2 stations	0.00
Pennsylvania	65.1	+5.2	Gettysburg	95	27	Ebensburg	21 2	5.04	+ 1.15	Grove City	8.37	Selensgrove	1.81
Porto Rico	76.1	−1.0	Corozal	95	27	Maricao	51 2	6.44	− 0.84	Maricao	14.50	Central Aguirre	0.27
South Carolina	72.6	+1.1	5 stations	100	31	Landrum	31 2	3.48	+ 0.02	Florence No. 1	7.68	Meriwether	1.00
South Dakota	57.5	+2.4	Mitchell	98	4	McIntosh	21 22	3.56	+ 0.92	Yankton	8.34	Dumont	1.41
Tennessee	70.2	+3.1	3 stations	98	31	Mountain City	25 2	3.72	− 0.28	Union City	7.23	Memphis	0.99
Texas	74.6	+1.5	0-2-Ranch	106	27	2 stations	30 1†	2.40	− 1.26	Matagorda	9.71	2 stations	0.05
Utah	53.0	−1.3	St. George	92	3†	Black's Fork	6 9	0.98	− 0.17	Ibapah	3.46	8 stations	0.00
Virginia	68.6	+3.8	Danville	99	30	Burkes Garden	28 2	3.24	− 0.67	Burkes Garden	6.37	Columbia	1.07
Washington													
West Virginia	66.7	+4.6	Martinsburg	97	27	Parsons	25 2	4.34	+ 0.74	Pickens	10.28	Union	1.85
Wisconsin	58.1	+3.5	Ashland	92	5	3 stations	16 13	6.66	+ 2.74	Hatfield	10.57	Florence	2.41
Wyoming	48.0	−0.8	New Castle	94	4	Dome Lake	2 11	1.90	− 0.30	Hecla	3.94	Encampment	0.35

† Other dates also.

DESCRIPTION OF TABLES AND CHARTS.

(*See* the Review, January, 1918, p. 48.)