



TABLE 2.—Free-air resultant winds (m. p. s.) during September, 1923.

Altitude. mi. s. l. (m.)	Broken Arrow, Okla. (233 meters).				Drexel, Nebr. (396 meters).				Due West, S. C. (217 meters).				Ellendale, N. Dak. (444 meters).				Groesbeck, Tex. (141 meters).				Royal Center, Ind. (225 meters).			
	Mean.		6-year mean.		Mean.		8-year mean.		Mean.		3-year mean.		Mean.		6-year mean.		Mean.		5-year mean.		Mean.		3-year mean.	
	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.
Surface.....	S. 5° W.	3.6	S. 2° W.	3.6	S. 20° E.	1.1	S. 12° W.	1.8	N. 63° E.	3.0	N. 69° E.	2.4	S. 8° E.	0.1	N. 81° W.	0.8	S. 22° E.	3.0	S. 23° E.	2.0	S. 28° W.	1.6	S. 53° W.	1.5
250.....	S. 4° W.	3.7	S. 2° W.	3.7	S. 20° E.	1.1	S. 12° W.	1.8	N. 58° E.	3.1	N. 65° E.	2.5	S. 23° E.	3.9	S. 21° E.	2.8	S. 23° E.	3.9	S. 21° E.	2.8	S. 28° W.	1.9	S. 53° W.	1.8
500.....	S. 10° W.	4.9	S. 10° W.	5.7	S. 9° E.	2.3	S. 12° W.	2.6	N. 62° E.	3.5	N. 63° E.	2.5	S. 12° W.	0.8	S. 81° W.	1.0	S. 18° E.	4.8	S. 14° E.	4.1	S. 30° W.	3.6	S. 50° W.	3.3
750.....	S. 25° W.	5.4	S. 17° W.	5.8	S. 8° W.	3.0	S. 25° W.	3.6	N. 67° E.	3.9	N. 56° E.	2.4	S. 46° W.	2.5	S. 68° W.	2.5	S. 11° E.	4.8	S. 8° E.	4.6	S. 37° W.	3.9	S. 58° W.	4.1
1,000.....	S. 36° W.	5.2	S. 25° W.	5.8	S. 21° W.	3.2	S. 35° W.	4.0	N. 69° E.	3.6	N. 49° E.	2.4	S. 46° W.	2.5	S. 68° W.	2.5	S. 7° E.	4.6	S. 7° E.	4.7	S. 44° W.	5.3	S. 66° W.	4.9
1,250.....	S. 44° W.	5.0	S. 29° W.	5.3	S. 34° W.	3.2	S. 40° W.	4.2	N. 61° E.	3.2	N. 37° E.	2.5	S. 57° W.	3.9	S. 72° W.	3.0	S. 6° E.	4.6	S. 7° E.	4.8	S. 53° W.	6.0	S. 70° W.	5.9
1,500.....	S. 55° W.	5.1	S. 38° W.	5.3	S. 54° W.	3.2	S. 60° W.	4.9	N. 61° E.	2.7	N. 31° E.	2.7	S. 65° W.	3.6	S. 72° W.	2.9	S. 7° W.	4.5	S. 7° E.	4.6	S. 53° W.	6.5	S. 73° W.	6.6
2,000.....	S. 62° W.	5.0	S. 44° W.	6.0	S. 61° W.	4.1	S. 69° W.	5.9	N. 58° E.	1.1	N. 16° E.	2.1	S. 73° W.	4.4	S. 80° W.	3.3	S. 14° W.	3.7	S. 5° E.	4.2	S. 58° W.	9.1	S. 74° W.	8.7
2,500.....	S. 77° W.	5.8	S. 49° W.	5.4	S. 85° W.	7.4	S. 76° W.	7.8	N. 42° E.	0.1	N. 19° E.	1.9	N. 88° W.	7.2	S. 85° W.	7.3	S. 11° W.	3.5	S. 9° W.	4.2	S. 63° W.	10.5	S. 76° W.	10.3
3,000.....	S. 77° W.	7.1	S. 44° W.	6.1	S. 85° W.	8.6	S. 85° W.	9.8	S. 11° E.	1.4	N. 55° E.	2.0	N. 77° W.	8.9	S. 89° W.	9.3	S. 9° W.	3.6	S. 8° E.	4.2	S. 55° W.	13.7	S. 74° W.	12.7
3,500.....	S. 84° W.	5.3	S. 49° W.	5.3	N. 89° W.	11.0	N. 89° W.	10.5	S. 24° E.	2.3	N. 60° E.	3.5	N. 82° W.	10.1	S. 87° W.	10.7	S. 19° W.	3.0	S. 2° E.	3.8	S. 57° W.	12.6	S. 83° W.	12.5
4,000.....	N. 84° W.	7.6	S. 71° W.	6.9	N. 81° W.	9.5	N. 76° W.	12.1	N. 80° E.	0.9	N. 57° E.	4.0	N. 62° W.	13.0	N. 69° W.	12.5	S. 33° W.	5.0	S. 2° E.	4.4	S. 22° W.	13.3	N. 86° W.	10.0
4,500.....	N. 88° W.	11.1	S. 88° W.	8.8	N. 73° W.	10.4	N. 68° W.	13.8	.....	.....	.....	.....	N. 67° W.	10.3	N. 69° W.	13.6	S. 47° W.	6.7	S. 5°	6.9	.....	.....	.....	
5,000.....	S. 68° W.	12.5	N. 86° W.	13.8	N. 22° W.	13.6	N. 64° W.	15.7	.....	.....	.....	.....	N. 60° W.	15.0	N. 80° W.	13.7	N. 67° W.	3.6	S. 27° E.	5.5	.....	.....	.....	

THE WEATHER ELEMENTS.

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PRESSURE AND WINDS.

The distribution of the atmospheric pressure during September, 1923, varied in some respects from that usually expected, the most important being the persistence of high pressure over the Northeastern States and the Canadian Maritime Provinces, where the change from the preceding month was nearly twice as great as normal. In other localities the changes from normal were comparatively small, though the averages for the different sections were above normal save for small areas in the Southeastern States, in the near Northwest, and along the California coast, where they were somewhat less than normal.

The cyclones were mainly unimportant, though there was rather persistent low pressure and cyclonic activity in the middle and southern Great Plains, where rainfall was frequent and heavy, particularly at the first of the month and again from about the 13th to 20th. Important cyclonic disturbances, at least from the precipitation standpoint, although there was no great depression of the barometer, occurred from the 16th to 18th, when moderately low pressure moved from the central Rocky Mountain region to the northward of Lake Superior. Precipitation from this cyclonic area covered wide areas in the Great Plains and adjacent region, and was particularly heavy in Oklahoma, eastern New Mexico, and portions of adjacent States. This was quickly followed by a second slight depression of the barometer that appeared on the morning of the 19th over Oklahoma and southern Kansas, and by the following morning had developed into a cyclonic storm of considerable proportions, central in Iowa, attended by precipitation over wide areas in the Great Plains, Mississippi Valley, and adjacent areas. This storm quickly diminished in force and during the following day or two lost its identity over the Northeastern States, although the accompanying precipitation was unusually widespread and frequently heavy over much of the country from the Mississippi River eastward, except in portions of the Gulf States.

The last decade of the month was mainly free from cyclonic storms of importance, save that from the 24th to 26th a small low area, but with a considerable depression of the barometer, moved from the vicinity of eastern Wyoming northward over the Dakotas and eastern Montana into the adjacent Canadian Provinces, attended by

a considerable rain area, with some local heavy falls for that region. A slight barometric depression over the eastern slope of the Rocky Mountains during the 27th to 29th gave some unusually heavy rains for the season of the year over that region and the adjacent Great Plains. At points in Wyoming, South Dakota, and Nebraska the total fall during this period ranged from 2 to 7 inches or more.

The most important anticyclone of the month moved into the upper Missouri Valley on the morning of the 10th, remaining nearly stationary, but increasing in magnitude for nearly 48 hours, when it gradually moved to the eastward, accompanied by clear and cool weather successively over northern and central districts from the Rocky Mountains to the Atlantic seaboard until the end of the second decade. During the last decade moderate anticyclonic conditions prevailed very generally over the northern and central districts from the Great Lakes eastward, attended mainly by fair weather and moderate temperature.

In the absence of important cyclones or anticyclones the air circulation was moderate and high winds or severe storms of any character were infrequent. A list of the most important storms of the month is given at the end of this section.

The average pressure for the month exhibited no strong barometric gradients and the prevailing wind directions were mainly variable, though usually from southerly points in the Great Plains, Mississippi Valley, and from the Lake region to New England, from northerly points over the Southeastern States, and variable in the far West.

TEMPERATURE.

September, 1923, was markedly free from sudden important temperature changes; in only a few instances were the 24-hour changes equal to or in excess of 20°, and these were confined to the more northern stations or to the western mountain districts, where day-to-day temperature changes are liable to be large occasionally at this period of the year.

The first few days of the month had reasonable temperatures in practically all parts of the country, save that on the 3d and 4th the warmest weather of the year was reported from points in the Dakotas and Montana.

The week ending September 11 was moderately cool at the beginning over the western mountains, and again near the end in nearly the same districts, both cool areas extending slowly eastward, but largely losing their