

After 1.30 p. m. (October 24) the barometer commenced to rise, although the wind held steady from the northwest for several hours, gradually falling to moderate westerly by the morning of the 25th.

The S. S. *City of Stockholm*, bound north and about

120 miles northwest by west of the *Kathlamba*, experienced very little of the hurricane's fury.

That part of Mexico in the path of the storm had rainfall on the 24th-25th, which was quite heavy at some coastal points.

DETAILS OF THE WEATHER IN THE UNITED STATES

GENERAL CONDITIONS

The month may be described as moderately cool and generally wet. An increase in the intensity of the general circulation was noticeable especially in the second decade when several deep barometric depressions moved from the Gulf of Mexico to the St. Lawrence Valley. An anticyclone that passed Midway Island in the Pacific on the 10th could be traced across the Pacific, the North American continent, and part of the Atlantic, where it merged with prevailing high pressure in that region on the 19th, after having traversed about one-third of the circumference of the globe.—A. J. H.

CYCLONES AND ANTICYCLONES

By W. P. DAY

Eighteen low-pressure areas were plotted, of which seven were of the Alberta type. The tracks of these seven were generally so far to the north that they had little direct effect on the weather in the United States and much of the real weather of the month was due to secondaries which formed over the Southwest. In fact, most of the Alberta lows were well shown at Fort Simpson, in the Mackenzie Valley before being picked up again along the line of Canadian stations; and pressure was continually below normal in Alaska and the Mackenzie Basin for about 12 days during the middle of the month. Several important storms developed over the Southwest and reached considerable intensity over the Lake region and the Northeastern States. On the last day of the month a tropical storm developed northwest of Cuba, crossed the Florida Peninsula with increasing intensity, reaching hurricane proportions off the northeast Florida coast and striking the coast again between Wilmington and Hatteras.

The more marked of the temperature depressions were due to Alberta HIGHS. These HIGHS were well shown at Fort Simpson and to some extent at Eagle, Alaska.

FREE-AIR SUMMARY

By L. T. SAMUELS

Free-air temperatures for the month averaged for the most part slightly below normal (Table 1). While the monthly departures did not vary greatly with increase in altitude, those for the upper levels at the northern and southern stations stand in rather marked contrast, being negative at the former and positive at the latter. Notwithstanding this deficiency in mean temperature, the relative humidities averaged generally below normal. This naturally resulted in negative departures in the mean vapor pressures for the month.

It will be seen in Table 2 that the resultant winds for the month based on kite observations differed but little from their normals. Those indicated by afternoon pilot-balloon observations, having been determined from a greater number of stations, show a pronounced westerly drift at the 3 km. level at all stations, including Key West.

Pilot-balloon observations from the 18th to the 21st showed a decidedly abnormal drift in the general circulation for this season. During this time practically the entire country was covered by a pronounced anticyclone which had moved inland over the North Pacific States and gradually spread southward and eastward until by the end of the period its southern border had invaded the tropics. This resulted in relatively low temperatures over an extended area in the lower latitudes, whereas low pressure attended by relatively high temperatures prevailed over the Canadian Provinces. The free-air temperature distribution during this period is strikingly shown in a comparison of the kite observations made at the four western aerological stations. These temperatures (°C.) are given in the following table, wherein the stations are arranged geographically.

Station	Date	Altitude (m.) m. s. l.				
		1,000	2,000	3,000	4,000	5,000
Ellendale.....	18	4.3	-1.8	-10.0		
Drexel.....	18	7.3	-0.7	-7.1		
Broken Arrow.....	18	9.6	2.8	-0.7		
Groesbeck.....	18	14.1	8.3	1.8		
Ellendale.....	19	5.9	1.7	-4.0	-8.3	-13.6
Drexel.....	19	3.9	-2.4	-7.0		
Broken Arrow.....	19	6.5	0.5	-6.8	-10.0	
Groesbeck.....	19	10.8	4.6			
Ellendale.....	20	12.4	7.6	2.9		
Drexel.....	20	9.8	6.7	2.1		
Broken Arrow.....	20	6.9				
Groesbeck.....	20	7.4	3.2			
Ellendale.....	21	-1.2	-5.7			
Drexel.....	21	11.6	5.0	-0.3		
Broken Arrow.....	21	9.8	6.0	1.0		
Groesbeck.....	21					

It is evident that the temperature reversal was most pronounced on the 20th, when it was 4.2° C. colder at 2,000 m. above the Texas station than at the same elevation over Ellendale, situated in the extreme northern part of the country.

The effect of this condition was temporarily to reverse the general pressure gradient aloft and thereby cause easterly winds in the upper levels. Some of those observed by pilot-balloon observations are shown in the following table.

Station	Date	Altitude (m.) m. s. l.								
		2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
Broken Arrow	19	nnw. 14	n. 11	nne. 10	ne. 16	nne. 14				
Do	20	w. 3	sw. 3	se. 4	ese. 4	ene. 8				
Do	21	ws. 10	sw. 8	s. 4	ene. 6					
Denver	18	s. 6	ne. 4							
Do	19	ss. 2	n. 6	nne. 6	ne. 8	ne. 11	ene. 10	ene. 15	ne. 16	
Do	20	sse. 3	nw. 2	nw. 2	nw. 2	w. 2	w. 1	nw. 2	wn. 2	se. 1
Do	21	nne. 3								
Drexel	19	nnw. 12	n. 12	n. 14	nne. 19	nne. 22				
Due West	21	nne. 6	nne. 1	nne. 3	n. 4	nw. 6	wnw. 6	w. 8	w. 8	w. 23
Groesbeck	20	nne. 11	ese. 8	wnw. 6	wnw. 11	wnw. 19	w. 26	w. 32	w. 35	w. 39
Washington	20	nw. 8	n. 8	nne. 10						

Several unusually pronounced temperature inversions and isothermal conditions were observed during the month. One of the latter occurred at Royal Center on