EASTERLY MOVEMENT OF CIRRUS CLOUDS.

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During the period 1909 to 1919, inclusive, cirrus or cirro-stratus clouds were observed moving from an easterly direction at 107 regular or special observations. They moved from the northeast 49 times; from the east, 25 times; from the southeast, 33 times.

The dates of movement from the northeast were: 1909; April 4, August 3, 5, and 23, 1910; June 18, 1911; June 21, July 4, and August 15, 1912; June 25, July 22 and 26, 1913; April 6, May 14, July 8, 23, and August 20, 1914; July 11, 1915; April 15, 1916; July 15, 31, August 4, 10, 20, and 22, 1917; June 9, 28, July 3, 15, 17, 1918; July 4, 5, August 3, 13, September 28, 1919; July 5, 9, 10, 15, September 1, 2, 7, 11.

Movement from due east occurred: 1909; April 14, August 13, 1910; July 29, 1911; June 22, July 2, 1912; July 3, 12, August 28, 1913; June 5, September 7, 1914; August 2, 1915; July 12, 1916; July 28, August 16, 18, 21, 1918; August 9, September 27, 1919; June 22, July 7, 8, 31, September 3.

Movement from the southeast: 1909; August 24, September 4, 1910; June 23, July 13, 15, 1911; July 2, 5, 7, 1912; June 14, July 5, 12, 25, 28, 1914; August 22, September 29, 1915; July 13, 18, 29, September 17, 1916; August 17, 18, 1917; July 23, 1918; March 30, 1919; May 30, June 1, 17, 22, 23, July 2, 30, August 1, September 6.

It appears that a well-defined High east of the Mississippi River is necessary to produce the westward movement, as its occurrence has been noted only four times when other conditions obtained. The few exceptions may possibly have been caused by a local condition of unusually active convection. Assuming that the exact location of the Low is of minor consideration, though a trough-like depression extending northeastward from western Texas seems to predominate, attention was chiefly centered upon the location, extent, and development of the Highs.

Charts upon which dots represent the station of highest pressure east of the Mississippi River, on evenings of days immediately preceding, and mornings of days corresponding to the observations, were prepared from the evening and morning Washington weather maps. Separate charts for movements from the northeast, east, and southeast are shown figures 1–3.

Movement from the northeast occurred with highs centered in every State east of the Mississippi River, but the chart shows groupings over the upper Lake Region and in northern Florida and eastern Georgia. Smaller groupings appear in the Ohio Valley and New England.

The chart for movement from due east shows widely scattered centers, with no significant groupings.

For southeasterly movement the groupings shift southward, as might have been expected, congregating along the South Atlantic coast and the eastern Gulf coast. For this direction few centers appear north of the Ohio Valley.

Although, in a general way, the location of the High seems to determine the westward drift, a vast majority of maps that show conditions apparently ideal are not attended by other than the normal westerly movement. But it seems to be an almost invariable rule that when the eastern High develops materially, especially when the pressure increases westward or southwestward through a part, or all, of the lower Mississippi Valley and the middle Gulf States, the phenomenon attends. Numerous maps show this tendency on dates of observed easterly drift. The following dates will suffice for a study of this feature: 1909; April 14–15, August 13–14, August 24–25, 1910; July 12–13, 1911; July 5–7, 1912; July 2–3, July 12–13, 1915; July 18–19, September 10–17.
A close study of local conditions on June 22–24, 1919, suggested that marked local convection might temporarily divert the cirrus from a normal path. Active convection during the forenoon of June 22, as shown by highly developed cumuli, was followed, during the afternoon, by a succession of thunderstorms that apparently formed northeast of the station and developed westward and southwestward. True cirrus moved from the east at 7 a.m., 11 a.m., and 12 noon, and cirro-stratus from the southeast at 3.45 p.m., 4.45 p.m., and 7 p.m. Thunderstorm conditions continued through the 23d. On that day the cirro-stratus moved from the southeast at 7 a.m., 3.15 p.m., and 6 p.m. Active convection ceased by the morning of the 24th and the clouds returned to their normal drift.

Similar conditions appear to have existed on September 4, 1909, June 23, 1910, June 23, 1911, July 17, 1912, July 15, 1916, and July 28, 1916, but the entire series of observations does not furnish sufficient data for a productive investigation of this feature.