

SECTION III—FORECASTS.

FORECASTS AND WARNINGS FOR JULY, 1915.

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Over interior districts pressure was generally low at the beginning of the month, while relatively high pressures obtained in the vicinity of the Bermudas and over the Canadian Northwest. During the two days following pressure continued low over northern districts east of the Rocky Mountains and showers and thunderstorms occurred quite generally over that portion of the country.

A low that was central over northwestern Minnesota on the 3d moved to Lake Superior by the evening of the 4th. It then advanced in a northeasterly direction with increased intensity during the next 12 hours, and during the following two days passed down the St. Lawrence Valley. Quite general precipitation in the form of showers and thunderstorms occurred over the eastern half of the country attending its passage. On the morning of the 4th an advisory message was sent to ports on Lakes Michigan and Huron for fresh shifting winds and squalls, and on the 5th storm warnings were ordered for northern Lake Michigan, northern Huron, eastern Superior, eastern Erie, and Ontario. The advices were fully justified. On the 5th advices were also disseminated for strong winds on the Atlantic coast from Delaware Breakwater northward, and high winds occurred substantially as indicated in the warning.

The high-pressure area that was over Alberta on the 1st passed southeastward with diminished energy to Oklahoma by the 3d, showers and thunderstorms attending the change to lower temperature preceding it.

A high-pressure area closely following, appeared over Alberta on the morning of the 3d and passed southeastward to Oklahoma, and thence eastward with decreasing intensity, causing decidedly cool weather for the season with temperatures equal to or below the records of low July temperatures at points in the Great Plains States and Mississippi Valley.

Pressure had been relatively low over the middle plateau and, following the passage of the high area just referred to, a low center appeared on the morning of the 5th over Nevada and passed thence eastward to southwestern Pennsylvania by the 8th. Its course then trended to the northward, and on the 9th a storm of marked character was over the eastern Maine coast, with lowest pressure reading 29.16 inches at Eastport. Very little precipitation attended this storm west of the Mississippi River and the precipitation that accompanied it east of the Mississippi was confined to the immediate storm area. On the 8th storm-warning advices were issued to ports on the Middle Atlantic and southern New England coasts for severe squalls and during the following 36 hours, strong winds occurred over the area indicated and over the northern New England coast as well.

After the passage of this low area, pressure rose over the northern Plains States and western Ontario, and on the morning of the 8th a high-pressure area of slight intensity was over western Lake Superior. It passed thence southeastward to the middle Atlantic States by the morning of the 10th.

Pressure diminished over the Rocky Mountain region during the 8th, and on the 9th a trough of low pressure extended from Alberta to Arizona. During the next 24 hours it moved eastward to the Plains States, after which time pressure within the trough rose, the main center being over Wisconsin. This rather indefinite area of low pressure advanced eastward, causing showers and thunderstorms from the Plains States eastward over middle and northern districts.

From the morning of the 11th to the evening of the 12th there were some indications of the eastward advance of a low from the southern Rocky Mountain region. The low did not, however, advance eastward. From the evening of the 12th to the morning of the 14th a low passed from western Utah to South Dakota, causing showers and thunderstorms over the middle Rocky Mountain region and the Plains States. It did not, however, make further progress.

At 8 p. m. of the 14th pressure was generally low over the Rocky Mountain region, and on the morning of the 16th a low center was over Lake Superior, having advanced from the before-mentioned region during the preceding 36 hours. It thence passed eastward to the Canadian Maritime Provinces by the 18th.

At 8 p. m. of the 16th another low area appeared over British Columbia, and during the next 12 hours passed southeastward to Wyoming. It then advanced on an easterly course to New England by the evening of the 19th. Showers occurred over the northern Rocky Mountain region during the night of the 16th and on the 17th, and later over most of the country from the Mississippi Valley eastward, except along the Gulf coast.

Conditions remained unsettled over the Middle and Southern Atlantic Coast States from the 20th to the 23d, inclusive, due to the passage of a disturbance of slight intensity from the mouth of the Mississippi on the night of the 17th to a position off the middle Atlantic coast on the morning of the 21st. There was also another slight disturbance that passed from northwestern Florida to southwestern Florida from the evening of the 21st to the evening of the 24th.

At 8 p. m. of the 17th a high-pressure area was central over Alberta, whence it passed slowly south and southeastward to Kansas by the 22d. Its course then became easterly, and on the 24th it was over the Middle Atlantic States. It caused decidedly cooler weather from the Rocky Mountain region eastward to the Atlantic coast.

Another high-pressure area appeared over eastern Ontario on the morning of the 22d, which moved during the 24 hours following to the Canadian Maritime Provinces, in which vicinity it remained for several periods.

A disturbance of minor character passed from Alberta on the 22d to Iowa by the 24th, and thereafter lost its identity.

By the 23d pressure had risen over the Northwest, and during the following 48 hours further increased, the center of highest pressure on the morning of the 25th being over northern Minnesota. This high area passed slowly across the lake region to western Pennsylvania by the evening of the 27th with decreased energy, and later united with the high-pressure area that prevailed at that time over the Atlantic Ocean.

Pressure decreased during the 26th over the middle plateau, and on the evening of that date a low center was over northern Nevada, whence it passed very slowly southeastward to western Colorado by the end of the month.

At the end of the month pressure was slightly above normal on the north Pacific coast, along the Canadian border, and off the north Atlantic coast, while over interior districts pressure readings were relatively low and weather conditions very unsettled, showers and thunderstorms having occurred during the 24 hours preceding the close of the month over the greater portion of the country east of the Rocky Mountains.

Chicago Forecast District.—No special warnings were issued during the month except frost warnings for portions of Wyoming on the 1st, 10th, 17th, and 19th, and for the Wisconsin cranberry marshes on the 4th, 5th, 19th, 20th, and 25th. Because of the unsettled conditions throughout the Middle West during the month, the forecasting of frost in the cranberry marshes was most difficult, low night temperatures often being prevented by a cloudy sky. On the 4th and 25th, the message to the cranberry marshes stated that frost was indicated if the weather cleared, but the sky remained overcast. The only full verification was attained following the warnings of the 5th.—*H. J. Cox, Professor of Meteorology.*

Denver and New Orleans Forecast Districts.—No warnings were issued during the month.

Portland Forecast District.—Fire-wind forecasts were issued on the 23d and 24th. Following the forecast there were two hot days with northerly winds and a few fires

started in the district. On the third day the weather clouded up and the fire hazard lessened materially.

San Francisco Forecast District.—No important warnings were issued during the month.

NORTHERN HEMISPHERE PRESSURE.

Alaska.—Pressure was decidedly above normal over western and northern portions, while along the southern Alaskan coast east of Valdez pressures averaged near but slightly below normal. Pressure was below normal from the 4th to 10th over the northern portion, while on the southern Alaskan coast pressure was low from the 4th to 13th. At other times during the month pressures were generally above the seasonal average.

Honolulu.—Pressure for the month was slightly less than normal. Lows occurred on the 11th–12th, 16th–17th, and 23d–24th, while pressure was above normal from the 3d to 10th and from the 26th to 28th.

Azores.—Pressure was very steady throughout the month and averaged slightly above the normal. The only low of any importance during the month occurred on the 26th.

Bermuda.—Pressure averaged above normal, the only readings below normal during the month occurring from the 14th to 18th. There was a gradual fall from the 4th to about the 16th, and a gradual rise thereafter until the 25th–26th.

United States.—Pressure was generally below the average for the season during the first half and generally above during the second half of the month.