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U. S. DEPARTMENT OF AGRICULTURE.

REPORT FOR JANUARY, 1901.

MARYLAND AND DELAWARE SECTION

OF THE

CLIMATE AND CROP SERVICE

OF THE

WEATHER BUREAU.

IN COOPERATION WITH THE

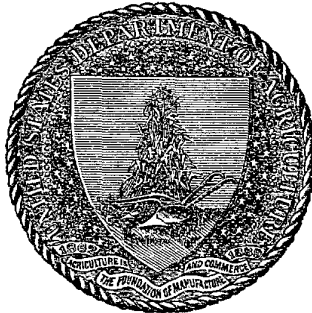
MARYLAND STATE WEATHER SERVICE.

(Prof. Wm. B. Clark, Director; Prof. Milton Whitney, Secretary and Treasurer.)

PREPARED UNDER DIRECTION OF  
WILLIS L. MOORE,  
CHIEF OF WEATHER BUREAU.

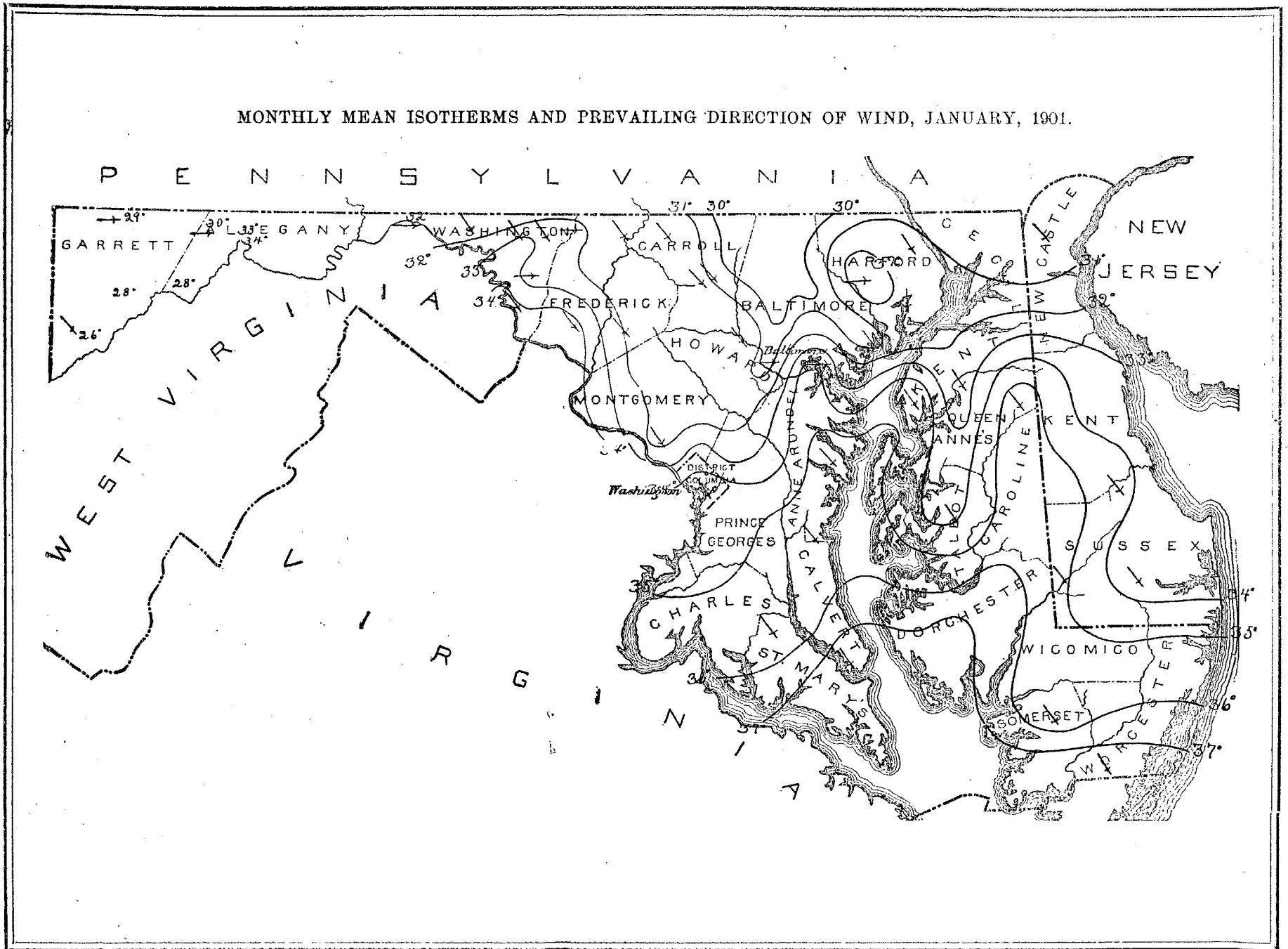
BY

OLIVER L. FASSIG,  
SECTION DIRECTOR.



BALTIMORE, MD.:  
WEATHER BUREAU OFFICE.  
JOHNS HOPKINS UNIVERSITY.  
1901.

MONTHLY MEAN ISOTHERMS AND PREVAILING DIRECTION OF WIND, JANUARY, 1901.



U. S. DEPARTMENT OF AGRICULTURE,

# CLIMATE AND CROP SERVICE

OF THE

## WEATHER BUREAU.

CENTRAL OFFICE: WASHINGTON, D. C.

MARYLAND AND DELAWARE SECTION,

OLIVER L. FASSIG, Section Director.

Vol. VI.

BALTIMORE, MD.

No. 1.

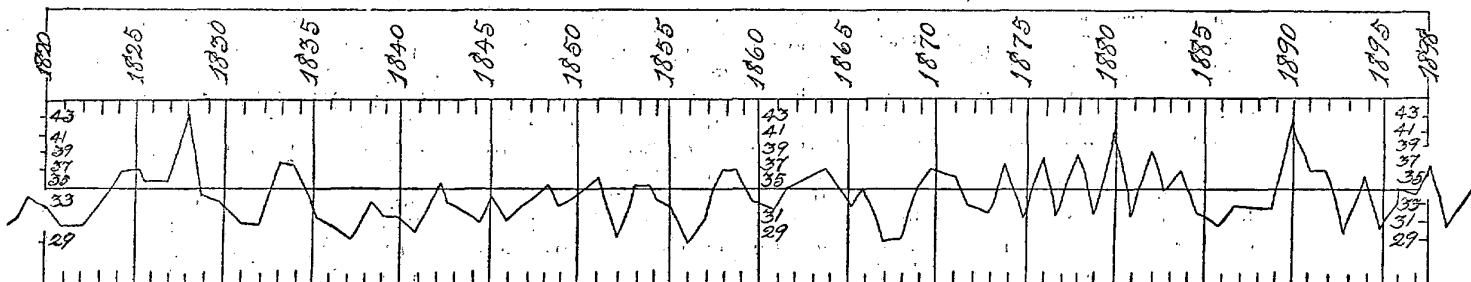
**Baltimore Winter Temperatures.** The vicissitudes in the temperature of Baltimore winters are graphically shown in the diagram at the foot of this page. Systematic observations of the weather in Baltimore were begun as early as 1817 by Capt. Lewis Brantz, and were continued until 1838, or possibly longer. From 1831 to within a few years, observations were regularly made at Fort McHenry; in 1871 the local office of the U. S. Weather Bureau was established. Here and there there is a short gap of a year or two in the Baltimore records since 1817, which had to be filled in by the use of observations made at a neighboring town, as for instance, Annapolis in 1863 and 1866, and Frederick in 1860 and 1861. The horizontal line passing through the curve represents the average winter temperature for the entire period, or 35° Fahrenheit. This line enables one to distinguish at a glance the winters which were above the average value from those which were below, while the figures along the vertical lines at the end and in the middle of the diagram show the amount of departure from the normal value.

Even a cursory study of this curve will answer, for the neighborhood of Baltimore at least, the interesting question which perennially comes up: Has not the climate changed in recent years? The oldest inhabitant will tell you most positively that it has. "When I was a boy the winters were more severe; we had more snow. Why I've known the time when the Bay was frozen over all the way from Annapolis to Kent Island, and we used to drive across the Bay in our sleighs." Perhaps this oldest inhabitant spent his boyhood

days between 1835 and 1850, a period of 15 years during which the average temperature was almost continuously lower than the average of later winters. But what about the older inhabitant who spent the year 1828 in Baltimore, a winter not equalled in mildness by even the warm winters of 1880, 1882, and 1890. The diagram is based upon carefully made instrumental observations and can be relied upon as an accurate indication of actual conditions. The curve affords but little evidence in favor of the theory advocating a milder climate in recent years. There has evidently been neither a steadily increasing nor a steadily decreasing temperature in Baltimore winters since 1817. Neither is there any indication of a regular periodic change; only an irregular fluctuation between the limits of 29° and 43° in the winter's average.

The winters of 1828, 1880, 1882, and 1890 were characterized by exceptional mildness, averaging from 5° to 8° per day above the normal value, while those of 1824, 1825, 1833, 1834, 1851, 1858, 1859, 1863, 1864, 1870, 1871, 1874, 1876, 1878, 1884, 1891, 1892, 1894, and 1898 may be considered mild, though to a less degree, having exceeded the daily average by 2° to 4°. If, in like manner, we consider a season cold when the average temperature is 2° or more below the normal value, the winters of the following years must be regarded as cold winters: 1817, 1818, 1821, 1822, 1831, 1832, 1835, 1836, 1837, 1839, 1840, 1841, 1843, 1844, 1846, 1852, 1856, 1857, 1867, 1868, 1875, 1877, 1879, 1881, 1885, 1886, 1893, 1895, 1899. The years printed in italics had average temperatures from 4° to 5° below the normal and may be designated severe winters.

A remarkable feature of the ten year period from 1873 to 1882 is the regular succession of alternately cold and warm winters, with approximately equal departures from the normal temperature. The cold winters were: 1873, 33.6°; 1875, 32.3°; 1877, 33.0°; 1879, 32.6°; 1881, 32.0°. The warm winters: 1874, 38.6°; 1876, 39.0°; 1878, 39.3°; 1880, 42.0°; 1882, 40.0°. This peculiarity was not confined to the immediate vicinity of Baltimore. The Washington observations show a similar see-saw fluctuation, though not so uniform in their departures. It would be interesting to know whether these conditions prevailed over an extended area—over the Middle Atlantic States, for example. During no other con-



*Fluctuations in the mean winter temperature at Baltimore from 1817 to 1900. (Dec.-Jan.-Feb.)*

siderable period since 1817 was there a like regularity in the successive fluctuations, though there was an approximation to it from 1892 to 1900.

O. L. F.

\* \*

**Climate and Crop Conditions.** The average January temperatures in this Section ranged from 26° in Garrett County to 38° in the southern counties of the Eastern Shore. There were two periods of more than seasonable warmth—from the 9th to 11th, and from the 15th to 17th—during which temperatures reached 53° to 68°, according to locality. The coldest weather occurred on the 3d–4th and 18th–20th, when lowest temperatures of 14° to 18° were reported along the Bay and decreased to 4° below zero in the mountains. As a whole, the month was slightly warmer than usual. The cold was of brief duration while the warm spells, though moderate, were more protracted. Thin ice formed in narrow inlets of the Bay on the morning of the 20th, but navigation was in no way affected.

Precipitation was slightly below normal. The greatest amounts, 4 to 6 inches, fell in the extreme west. In Allegany and western Washington Counties less than two inches fell, while in other districts the amounts were generally from 2.5 inches to 3.5 inches. It was quite dry prior to the 10th, but from that date until the 12th moderately heavy rains occurred, and over half of the month's precipitation fell during this period. Falling weather was general on the 17th, 24th, 25th, and 30th, while scattered showers or snow flurries occurred on other days. The total snow fall ranged from 2 inches in the southeast to upwards of 40 inches in some of the mountain districts. Nearly all of the snow occurred during the final decade of the month.

Until the 25th the open weather and frequent freezings and thawings were injurious to winter wheat, which fell off appreciably in condition for a time. Since then, however, the falls of snow have covered the fields four to ten inches deep in most districts. The farmers anticipate marked benefits from the snow cover, so that the outlook may be considered as practically unimpaired at the close of January.

\* \*

#### CLIMATOLOGY OF THE MONTH.

##### ATMOSPHERIC PRESSURE.

Monthly mean at Washington, D. C., 30.06 inches; at Baltimore, 30.04 inches; average, 30.05 inches; highest, 30.76 inches, at Washington, D. C., on the 20th; lowest, 29.28 inches, at Baltimore, on the 28th.

##### TEMPERATURE.

The monthly mean (entire territory), 32.6°, is 0.7° above the normal.

The highest monthly mean was 37.8°, at Pocomoke City.

The lowest monthly mean was 26.3°, at Sunnyside.

The highest temperature recorded during the month was 68°, at Takoma Park on the 15th, Charlotte Hall School on the 9th, and Milford, Del., on the 17th.

The lowest temperature recorded during the month was -4°, at Deer Park, on the 20th.

The greatest local monthly range was 60°, at Charlotte Hall School.

The least local monthly range was 43°, at Annapolis.

The greatest daily range was 52°, at Sunnyside, on the 20th.

The least daily range was 1°, at Cumberland on the 30th, Frederick on the 17th, and Westernport on the 10th.

##### PRECIPITATION, in inches and hundredths.

The monthly average (entire territory) 2.72, was 0.13 below the normal.

The greatest amount was 6.22, at Deer Park.

The least amount was 1.14, at Cumberland.

The greatest amount in twenty-four hours was 2.90, at Milford, Del., on the 10th–11th.

The average number of rainy days, 7.

##### WIND.

The prevailing direction was from the northwest.

The total movement was 3,792 miles, at Baltimore, and 5,959 miles, at Washington, D. C.

The maximum wind velocity was 39 miles per hour from the northwest, at Washington, D. C., on the 25th.

##### MISCELLANEOUS PHENOMENA.

*Snow.*—Annapolis, 19, 25, 30; Bachmans Valley, 17, 25, 27, 28; Baltimore, 17, 19, 23, 25, 27, 28, 30; Boonsboro, 17, 20, 25, 27, 28, 30; Charlotte Hall, 19; Chase, 17, 25, 30; Chestertown, 17, 18, 21, 24, 25, 30; Chewsville, 25, 26, 29; Clear Spring, 15, 19, 25, 27, 30; Coleman, 17, 19, 25, 30; College Park, 17, 24, 27, 30; Cumberland, 24, 27, 30; Darlington, 25, 30; Deer Park, 18, 19, 24, 27, 28, 29, 30; Easton, 17, 25, 30; Fallston, 17, 18, 19, 25, 27, 28, 30; Frederick, 17, 24, 30; Frostburg, 15, 18, 19, 25, 27, 28, 29, 30; Grantsville, 14, 18, 25, 27, 28; Great Falls, 25, 30, 31; Green Spring Furnace, 17, 19, 25, 26, 28, 30; Hagerstown, 7, 12, 17, 18, 19, 25, 27, 28, 29, 30, 31; Hancock, 15, 25, 30; Harney, 27, 30; Jewell, 17, 19, 25, 27, 30; Johns Hopkins Hospital, 25, 26, 30, 31; Laurel, 17, 24, 30; McDonogh, 25, 30; Milford, 10, 17, 25, 30; Millsboro, 18, 19, 25; Mount St. Marys, 14, 16, 17, 25, 30; Newark, 17, 25, 30; New Market, 17, 22; 25, 27, 30; Pocomoke City, 25; Prince Fredericktown, 17, 25, 30; Princess Anne, 17, 18, 19, 21, 25; Queenstown, 17, 25, 27, 29, 30; Rock Hall (b), 25, 30; Seaford, 18, 19, 24, 25; Sharpsburg, 17, 18, 23, 25, 27, 28, 30, 31; Smithsburg (a), 17, 19, 25, 27, 28, 30, 31; Smithsburg (b), 14, 17, 18, 19, 25, 27, 28, 30, 31; Solomons, 17, 18, 19, 25, 27, 30; St. Charles College, 17, 25, 30; Sudlersville, 17, 25, 30; Sunnyside, 12, 15, 17, 18, 19, 25, 27, 28, 29, 30, 31; Takoma Park, 17, 18, 24, 25, 30, 31; Taneytown, 17, 19, 25, 30; Van Bibber, 29; Western Maryland College, 17, 18, 25, 30; Westernport, 17, 18, 24, 25, 26, 27, 28, 29, 30, 31; Woodstock, 10, 11, 17, 20, 21, 24, 25, 30; Wyoming, 17, 25, 27, 30.

*Hail.*—Bachman's Valley, 24; Hancock, 24, 25; New Market, 24; Rock Hall (b), 25; Taneytown, 7.

*Sleet.*—Boonsboro, Clear Spring, Green Spring Furnace, New Market, Smithsburg (b), 24; Millsboro, 18, 25; Taneytown, 22.

*Thunderstorms.*—Grantsville, Sunnyside, 24.

*Fog.*—Laurel, 10; Millsboro, 11, 30; Princess Anne, 9, 11, 22; Queenstown, 30; Smithsburg (b), 10, 11; Solomons, 11; Sunnyside, 11.

*Solar Halo.*—Chewsville, 29; Green Spring Furnace, 1, 2, 6.

*Parhelia.*—Jewell, 1; Washington, 28.

*Lunar Halo.*—Baltimore, 3, 29; Boonsboro, 1, 26; Chase, 29; Clear Spring, 1, 2, 30; Jewell, 2, 3; Millsboro, 29; Mount St. Marys, 28, 29; Princess Anne, 3; Rock Hall (b), 3; Smithsburg (b), 29; Solomons, 6; St. Charles College, 29; Taneytown, 2; Washington, 1, 2, 3, 29.

*Lunar Corona.*—Hancock, 29; Millsboro, 1, 2, 6, 25, 27; Smithsburg (b), 26, 29; Solomons, 3; Taneytown, 1.

*Aurora.*—Chewsville, 28; Princess Anne, 9; Solomons, 14; Sunnyside, 15.

*High Winds.*—Clear Spring, 20; Green Spring Furnace, 28; Laurel, 18, 19, 25, 28; Millsboro, 12, 16, 19; Queenstown, 17, 18, 19, 28, 31; Solomons, 18, 19, 25, 28; Woodstock, 18, 21.

*River Closed.*—Green Spring Furnace, 4, 20, 27.

##### ERRATA.

Annual Summary, 1900: Pages 5 and 6.—Annual mean temperature at Easton, Md., 46.3, should read 56.4. Page 6.—November mean temperature at Easton, 47.6, should read 49.3; November departure, +2.1, should read +3.8; annual departure, +1.2, should read +1.3.

Climatological data for Maryland and Delaware, January, 1901.

Table with columns: Stations, Counties, Elevation, Length of record, Temperature (Mean, Departure from normal, Highest, Date, Lowest, Date, Greatest daily range), Precipitation (Total, Departure from normal, Greatest in 24 hours, Total snowfall, Number rainy days), Sky (Number clear days, Number partly cloudy days, Number cloudy days), Prevailing direction of wind, Observers.

NOTE.—All records are used in determining State or district means, but State and district departures are determined by comparison of current data of only such stations as have normals. Letters of the alphabet indicate the number of days missing—e.g. "d" denotes four days missing. † Mean of 7 a. m. + 2 p. m. + 2 † Incomplete record. \* Not included in means. ‡ On other dates also. New normals of temperature and precipitation have been computed for all stations having a record of three years or more, from the beginning of observations to include the year 1900. The use of the new normals begins in this report.

Maximum and minimum temperatures for Maryland and Delaware, January, 1901.

Table with 31 columns for days of the month and 2 sub-columns for 'Max.' and 'Min.' temperatures for each day. It includes a 'Monthly mean' column at the end of each row. The rows are labeled with station names such as Annapolis, Baltimore, and various locations in Delaware and Maryland.

CLIMATE AND CROPS: MARYLAND AND DELAWARE SECTION. JANUARY, 1901.

TOTAL PRECIPITATION, JANUARY, 1901.

