

U. S. DEPARTMENT OF AGRICULTURE.

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REPORT FOR JULY, 1901.

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MARYLAND AND DELAWARE SECTION

OF THE

CLIMATE AND CROP SERVICE

OF THE

WEATHER BUREAU.

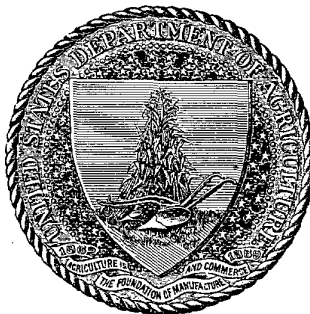
IN COOPERATION WITH THE

MARYLAND STATE WEATHER SERVICE.

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

BY

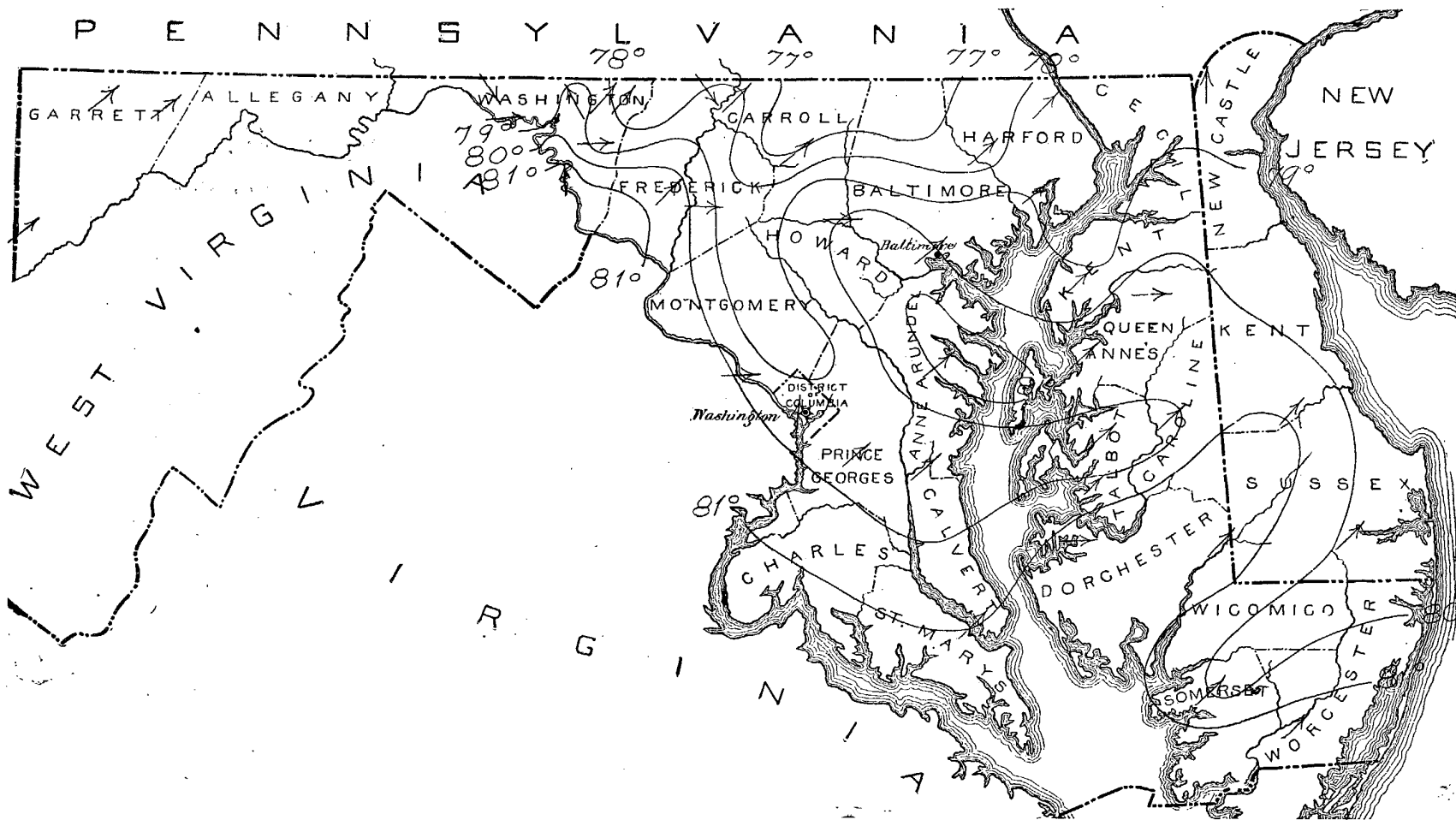
OLIVER L. FASSIG,  
SECTION DIRECTOR.



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

1901.

MONTHLY MEAN ISOTHERMS AND PREVAILING DIRECTION OF WIND, JULY, 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. 7.

**An Anomalous Rise in Temperature during May.** In European literature of meteorology, we meet with frequent reference to certain periods of regression

of temperature in spring and early summer, periods during which the steady seasonal advance is checked by a reversion lasting three or four days. One of these periods has received the attention of many writers during the past twenty or more years, namely, the three days from the 11th to the 13th of May. There are other similar days, but these, occurring at a critical period in the growth of vegetation, are more feared by the husbandman in Central Europe than those occurring earlier or later when the dangers of frost are less. The three days most liable to frost, in the estimation of the people, are usually referred to as "The three frost saints," or by some similar popular phrase.

The phenomenon has received the attention of the foremost European meteorologists, and is based upon something more than a popular belief in the occurrence of injurious frosts at this time. The explanation is found in the usual development at this time of a barometric depression over southeastern Europe, in conjunction with the appearance of an area of high pressure over the North Sea, this distribution of pressure causing north to northeast winds and clear nights, with rapid nocturnal radiation, over Central Europe.

Within the past month the writer has constructed a normal curve of temperature for Baltimore, based upon the daily mean for the past thirty years (1871-1900). Upon completion of this curve the portion representing the month of May was the first to be examined, with the hope of finding in it some trace of a departure similar to that so familiar to European meteorologists. The expected fall in temperature is not to be found in the Baltimore curve; in its place, on the contrary, there is a sharp, well-defined rise from the 9th to the 12th, amounting to three or four degrees above the average of the 8th and 13th. A temperature departure which persists to such an extent in a curve smoothed by 30 years of accurate daily observations is a significant feature of the local climate. The writer has had no opportunity as yet to investigate the geographical extent of this departure, or the peculiar distribution of atmospheric pressure to which it is probably due, but it will doubtless be found to extend over a large area, and to be associated with the appearance of the summer type of pressure distribution, namely, the development of a high area over the South Atlantic States,

or rather the westward extension of permanent area of high pressure over the North Atlantic, giving rise to a short period of light southwesterly winds and clear skies. This type does not recur regularly on the same days of the month, but the sharp rise in the normal curve from the 9th to the 12th shows a decided tendency for the type to appear at this time. The subject is worthy of further investigation as to its geographical extent and mode of occurrence.

OLIVER L. FASSIG.

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**Weather and Crop Conditions.** The hot wave that prevailed during the latter part of June continued until the 7th of July. A description of the meteorological features of this heated period, together with an account of the high death rate which it caused, appeared in the June Report. The moderate temperatures that began on the 8th lasted for a week, and brought great relief. From the middle of the month until the 25th the temperatures were again above normal—hot at times, but mostly endurable, although a number of sunstrokes and several deaths from heat resulted. Cool weather followed on the 26th and 27th, and then came a brief hot wave on the 29th and 30th. The month as a whole was warmer than normal by about three degrees. Maximum temperatures occurred on the 1st, 2d, 29th, and 30th, and reached 100° or more at thirty-eight stations. The heat was naturally least intense in the mountains, although even there unusual records were obtained; Grantsville reported a maximum of 93°, Deer Park 94°, and Sunnyside 96°. According to a note received from the voluntary observer at Sunnyside, the record of 96° was the highest temperature experienced at that station during the past thirty years.

The rainfall was above normal for the section as a whole, but the distribution was very unequal. The amounts were deficient in the northeast, southeast, and west, while over the upper portion of the plateau region and in the middle counties of Delaware and the Eastern Shore they were excessive, measuring from 8 to over 10 inches; elsewhere the falls were moderately heavy. The deficiency in the extreme west was rather remarkable, since normally the July rains are the heaviest of the year in that section. The distribution of rainfall by dates was quite satisfactory, there being no periods of drought. The heaviest falls occurred on the 6th, 8th, 11th-13th, 16th-17th, and 25th-26th. For the most part they were heavy thundershowers of brief duration, and at times were local in their occurrence. On the 13th, however, the passage of a northeast storm over the section gave a steady and continuous rain that was quite general in its extent. Thunderstorms were frequent, those of the 2d, 4th, 7th, 16th, 17th, and 25th being more severe than those of other dates. Considerable loss by lightning or strong wind gusts resulted on the 2d, 16th to 19th, 25th, and 26th.

The month was favorable to crop growth, but the rains were hurtful during the harvest period, damaging wheat, rye, oats, and hay. Wheat is generally light in yield, and of inferior quality. Rye is fair to good. Oats are short in all districts. The yields of hay have improved as the harvest

advances, and are fair to good in many localities, although below average for the section at large. Corn has grown nicely during the month, and promises an excellent crop. Tobacco was hurt to some extent by the hot weather, and suffered from heavy rains in the early and middle portions of the month, but it improved towards the close. Of the fruit crops, peaches alone are at all promising, and they will be scarce in some localities. Shipments of early varieties have been made in small lots during the month. Gardens have yielded fairly well, and potatoes also, although the early potatoes are not coming up to expectations; the late potatoes are more promising. Tomatoes have given good returns in the southeastern counties, but elsewhere they have not fruited well. Melons are backward, but show some improvement of late. The berry crop has been light.

\* \*

## CLIMATOLOGY OF THE MONTH.

## ATMOSPHERIC PRESSURE.

Monthly mean at Washington, D. C., 29.96 inches; at Baltimore, 29.95 inches; average, 29.96 inches; highest, 30.18 inches, at Washington, D. C., on the 27th; lowest, 29.78 inches, at Baltimore, on the 5th.

## TEMPERATURE.

The monthly mean (entire territory), 78.8°, is 3.1° above the normal.

The highest monthly mean was 83.0°, at Annapolis.

The lowest monthly mean was 71.0°, at Deer Park.

The highest temperature recorded during the month was 106°, at Hancock, on the 1st.

The lowest temperature recorded during the month was 40°, at Sunnyside, on the 7th.

The greatest local monthly range was 56°, at Sunnyside.

The least local monthly range was 33°, at Cambridge, Easton, and Solomons.

The greatest daily range was 41°, at Hancock, on the 11th.

The least daily range was 4°, at a number of stations on the 13th.

PRECIPITATION,  
in inches and hundredths.

The monthly average (entire territory) 5.42, was 1.32 above the normal.

The greatest amount was 10.81, at Wyoming, Del.

The least amount was 2.11, at Westernport.

The greatest amount in twenty-four hours was 5.45, at Sudlersville, on the 12th-13th.

The average number of rainy days, 11.

## WIND.

The prevailing direction was from the southwest.

The total movement was 3,689 miles, at Baltimore, and 3,962 miles, at Washington, D. C.

The maximum wind velocity was 28 miles per hour from the northwest, at Washington, D. C., on the 6th.

## MISCELLANEOUS PHENOMENA.

*Thunderstorms.*—Annapolis, 6, 7, 8, 18, 19; Bachman's Valley, 4, 6, 7, 16, 17, 21, 25; Baltimore, 2, 3, 4, 6, 7, 8, 17, 18, 19, 25; Boetcherville, 1, 2, 3, 4, 15, 16, 17, 18, 31; Boonsboro, 6, 11, 16, 17, 25; Cheltenham, 1, 2; Chestertown, 2, 3, 4, 6, 7, 16, 17, 18, 22, 25; Chewsville, 3, 4, 6, 17, 18; Clear Spring, 2, 3, 4, 6, 11, 16, 17, 22, 25, 26; Darlington, 2, 4, 6, 7, 12, 17, 18; Denton, 2, 6, 8, 18, 22, 31; Easton, 17; Fallston, 1, 3, 4, 6, 7, 11, 14, 22, 25; Frederick, 2, 6, 7, 11, 17, 25, 29; Frostburg, 6, 31; Grantsville, 1, 3, 4, 5, 6, 7, 10, 15, 16, 17, 18, 22, 25, 26, 27, 30, 31; Green Spring Furnace, 3, 4, 6, 11, 16, 17, 18, 22, 27; Hancock, 6, 11, 25; Harney, 4, 6, 12, 17, 25; Jewell, 1, 2, 3, 4, 6, 7, 8, 16, 17, 18, 19, 22, 25, 30, 31; Laurel, 4, 6, 7, 17; Longwoods, 2, 6, 16, 17, 18, 19, 23, 30; Millsboro, 2, 7, 8, 17, 18, 26; Mount St. Mary's College, 4, 7, 11; Newark, 3, 7, 18, 23, 25; New Market, 6, 7, 16, 17; Princess Anne, 1, 2, 6, 8, 17, 18, 19, 23, 26, 30, 31; Queenstown, 2, 4, 6, 7, 18, 25; Rock Hall, 2, 4, 6, 8, 18, 19, 23, 26; Seaford, 2, 6, 17, 18, 31; Sharpsburg, 3, 4, 6, 7, 11, 16, 17, 25, 29; Smithsburg, 4, 6, 11, 16, 22, 25; Solomons, 1, 2, 6, 7, 8, 16, 17, 18, 19, 22, 25, 26, 30, 31; Sudlersville, 2, 6, 7, 8; Sunnyside, 3, 4, 5, 6, 7, 16, 17, 22, 25, 26, 31; Taneytown, 4, 6, 11, 16, 25; Washington, 1, 2, 3, 4, 6, 7, 8, 11, 16, 17, 18, 19, 25, 26, 28, 30; Woodstock College, 1, 3, 7, 11, 18, 25; Wyoming, 8, 9, 13, 19, 20, 21, 22.

*Hail.*—Annapolis, 2; Baltimore, 7; Green Spring Furnace, 17; Laurel, 7; Millsboro, 8, 17; New Market, 7.

*Fog.*—Baltimore, 10; Clear Spring, 15, 25; Easton, 21; Frostburg, 27; Laurel, 31; Millsboro, 10; Sunnyside, 9, 10, 19, 27; Woodstock College, 10, 20.

*High Winds.*—Baltimore, 7; very high at Chestertown on 2d, felling trees and outbuildings; Clear Spring, 6, 11, 16; Denton, 6; Green Spring Furnace, 17; Longwoods, 17; Queenstown, 7; Rock Hall, 12; Smithsburg, 25; Solomons 6, 17; Taneytown, 4, 6; Washington, 6.

*Lunar Halo.*—Chewsville, 21; Hancock, 23.

*Parhelia.*—Chewsville, 5.

*High Tide.*—Queenstown, 11.

## ERRATA.

In June Report, under heading of Errata, the figures 3.47 in last line should read 3.74.

Climatological data for Maryland and Delaware, July, 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, Number clear days, Number partly cloudy days, Number cloudy days), Sky, Prevailing direction of wind, Observers.

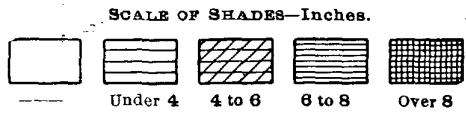
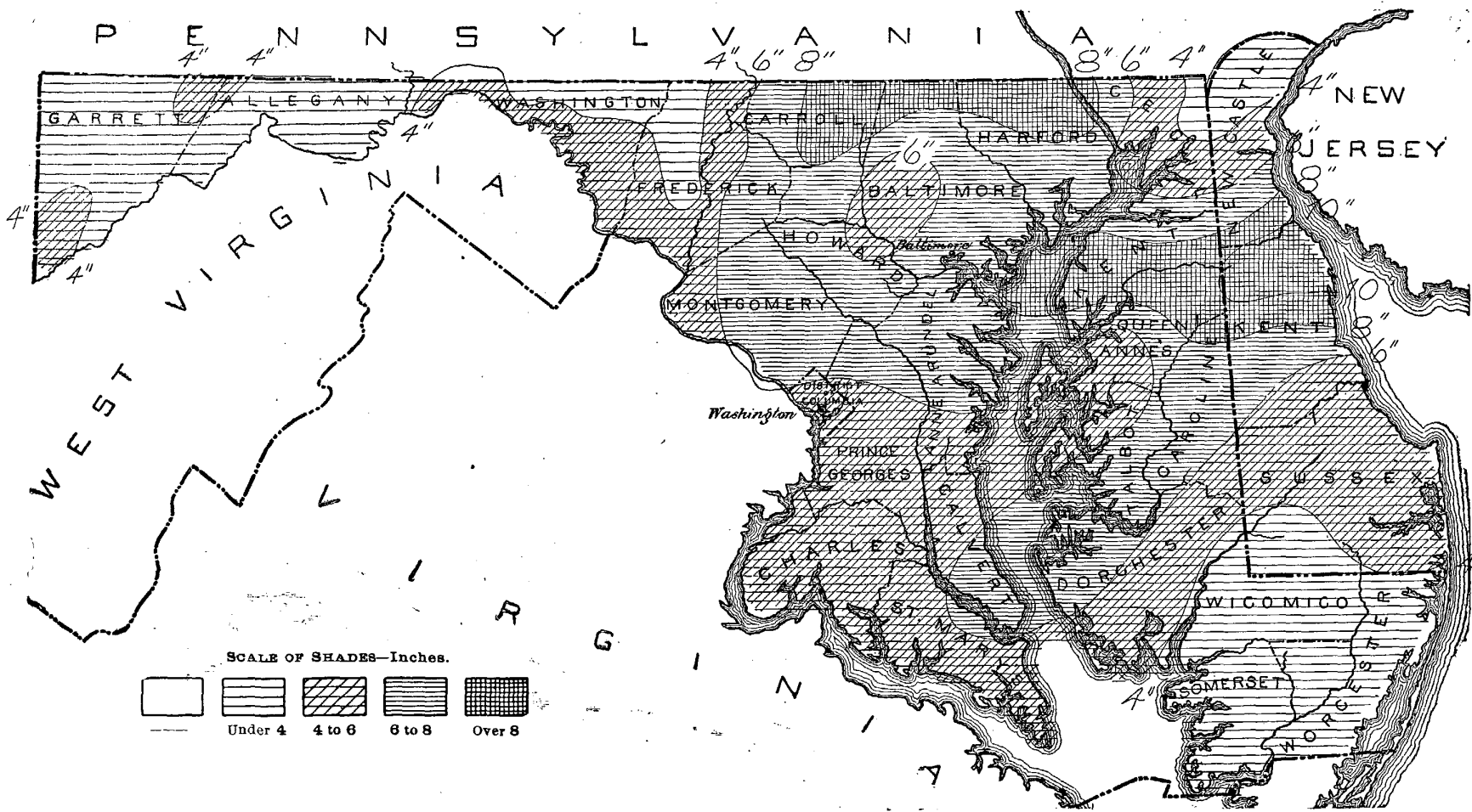
NOTE.—All records are used in determining State or district means, but State and district departures are determined by comparison of current data of only such stations as have normals. Letters of the alphabet indicate the number of days missing—e.g. "d" denotes four days missing. † Mean of 7 a. m. + 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 began in the January report.

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

Table with 32 columns for stations (1-31) and 2 columns for monthly mean (Max, Min). Rows list various locations including Annapolis, Baltimore, and Washington, D.C.

CLIMATE AND CROPS: MARYLAND AND DELAWARE SECTION.

TOTAL PRECIPITATION, JULY, 1901.



Daily precipitation for Maryland and Delaware, July, 1901.

Stations.	Day of month.																															Total.			
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.				
WESTERN MARYLAND.																																			
Boettcherville			.22	.09							.12	.53	1.05	1.47	.11	.04	.25															.13	3.08		
Boonsboro		T.			.69		.19				.34	T.	.35	.91	T.	.91	.25								.9	T.	.08				T.	.10	4.65		
Chewsville		.03	.66		.61						.37	T.	.03	.75		.65	.16									.51	T.				T.	.10	3.77		
Clear Spring		.01	.31	.32	.27						.39	.40	.28	.27		.94	.09							T.			.09	T.				T.	.10	3.47	
Cumberland			.06	.32								.08	.86	.98	.16	.10	.15															.05	2.76		
Deer Park			.55				.29																										.78	3.33	
Frostburg		.76	.12		.10						.02	1.41	.63		.49	.74	.62	.03								.18				.08	.05	T.	.22	5.49	
Grantsville		.03	.12		.05	T.						.85		.05	1.12	.16	T.						T.	.18		T.	.03	.15	T.			.22	2.63		
Green Spring Furnace		.16	.07	.65		.64					.59		.45	.45	1.10	.45	.58													.28		.06	4.48		
Hagerstown			.07	.05	T.	.57					.40	T.	.26	.70	.21	.70	.32									.30		T.				.31	5.91		
Hancock		.20		.77		.06					1.08		1.70		1.14	.04										.57	.03	T.			.22	.11	3.52		
Sharpsburg		.02	.25	.12	.43	.03	.21				1.14	.06	.26	.49	T.	.35	.70						T.			.48	.01	T.		.16	.01	4.73			
Smithsburg			.17	.20		.18	.03	.16	.64		.18	.03	.16	.64	T.	.93	.93									.22	T.	T.			T.	.25	5.33		
Smithsburg b		T.	.82		.43	T.					.12	.19	.68		.60	.11						T.				.39	T.	.08			T.	.34	3.42		
Sunnyside		T.	.34		.38	.29					.15	T.	.18	.06		1.33	.45										.28		T.		T.	.47	5.42		
Westernport		.04	.08		.06	T.					.09	.30	T.		.83	.40	.04										.15		T.		.12	.11	2.11		
NORTHERN-CENTRAL MARYLAND.																																			
Bachman's Valley			.58		.29	.20	.13				1.60	1.70	.84	T.	.09	.38	.34				T.		T.				2.45	T.	.30			8.90			
Baltimore		T.	T.		.65	.50	.54				1.72	.17	T.	.09	.23	.35	T.					T.	T.			1.99	.01	.01	T.		.01	6.18			
Baltimore, Johns Hopkins Hosp.						.85	.95	.10			.45	.53	1.00	.05	.20	.50																.10	7.10		
Chase					1.00		1.26					2.14	.80	T.	.20													1.00				.03	6.43		
Darlington Academy					1.05	.41					2.76	2.32	.56	T.		.81	.19											1.00				.06	9.16		
Fallston School		.01		1.24	.01	.61	.03	.39			.22	1.88	.99	.24		.02	.02	.03														.03	7.58		
Frederick		.04	T.	.03	.16	.05	.30				.02	1.11	.40		.70	.68																.03	3.83		
Great Falls			.35	.04		.93	.33				.76	.95	.40		.21	.26	.59	.13	.43													.05	6.05		
Harney			.33		.38	.75					.76	.95	.40		.21	.26	.59	.13	.43														4.30		
McDonogh		.01	.26		.38	.75					.76	.95	.40		.21	.26	.59	.13	.43														4.30		
Mt. St. Mary's College			.16	.65		.40					.37	.61	1.56	T.	.70	1.70	T.																4.50		
New Market		T.	T.	T.	.16	.38	.05				1.37	.61	1.56	T.	.70	1.70	T.															.02	3.11		
Takoma Park		.05	.15	.35	.07		.36	.49	.12	.02		1.05	1.76	.25	.01	.52	.03	.22				.03										.35	6.68		
Taneytown			.99		1.25	.99	.11				2.10		1.10		.50	.47	.22																7.50		
Van Bibber			.06	.03	.05	.90	.88	.75			.05	2.45	.75	.22		.02	.05	.05					T.	T.			.54					T.	6.80		
Western Maryland College					.50	.11	.67			T.		.01		2.05	.07	.14	.06											1.25	T.	.01			4.93		
Woodstock College					.50	.11	.67			T.		.01		2.05	.07	.14	.06											1.25	T.	.01			4.93		
SOUTHERN MARYLAND.																																			
Annapolis		.50			.40	.70	.20				.40	2.00	1.00		.50		.60	.30														.10	6.80		
Charlotte Hall School																																			
Cheltenham		.06	.22	T.	T.	.55	.42				.16	2.10	.53	.03		.63		.22														.01	5.59		
Distributing Reservoir, D. C.					.02	1.02	.10					.75	1.33	.42		.04		.01										.24	.04				3.97		
Jewell		.16		T.		.36		.55				3.30	3.30	.10	.18	.50	T.															.10	5.53		
Lanier		.03	T.		.81	.80	.05				.77	3.30	3.30	.10	.25	.02	T.																.11	7.49	
Maryland Agricultural College *			T.		1.29							2.63	?	.16	.40	.03																	.19		
Prince Fredericktown *					.49	.03	.21					.78	1.30	.62		.16																		5.41	
Receiving Reservoir, D. C.			.06	.32		.45	.66	.06				.93	.70		.13	.46	.05	1.43															.28	7.14	
Solomon's		.02			.20	.05	.17				T.	.93	.70		.13	.46	.05	1.43															.05	28	
Washington, D. C.		.01	T.		.69		1.18	T.			.38	1.69	.52	.02		.31	T.	.01									1.38	.04					.13	5.17	
EASTERN MARYLAND.																																			
Cambridge																																			
Chestertown		.35	.01	.07	T.	.75	.70	.15	T.		T.	4.60	.15	T.	.05	.95	.30																.05	8.48	
Coleman		.03	.57			.80	.57	.03				4.54	.19		.05	.04																	.16	7.42	
Denton		.05				.68	.21	.81			1.93	2.52			.20	.54																	.39	7.67	
Easton		.17		.02		.65		.55			.07	1.44	.03		.25	1.20	.46																	.37	5.39
Longwoods			T.			1.42		.36			T.	1.87	.02	T.	.16		.96	1.11															.29	6.32	
Mardela Springs																																			
Pocomoke City									.14			.64	.01																					T.	2.51
Port Deposit		1.60										.64	.01																						
Princess Anne		.05			.07	T.	.22	.07			.05	1.69	.03																					.39	3.10
Queenstown		.05			.60	.14	.02				1.19	1.70	.37			.03	.36											.11	.01					4.66	
Rock Hall		.44	.04	.35		1.23	.10	.70			T.	2.97	.37	.12	T.	.06	.59	1.01																.05	8.31
Sudlersville		.94				.33	.35	.07				5.45				.35																		.32	8.01
DELAWARE.																																			
Milford		.75					.40					2.45																						1.10	4.71
Millsboro		.11					.02		2.00			1.75	.79			.35		.07																T.	5.24
Newark (Delaware College)		.10	T.	.33	.35	.41	T.					1.23	.69	.16		.51																		.32	3.82
Seaford		T.	.98			.20		.47				.86				.31	.08																	.33	3.52
Wyoming							1.05	.87				2.03	1.52	.04		.05																			10.81

"T" Trace, when precipitation is less than 0.01 inch.

\* Incomplete record.