MEAN MONTHLY VALUES OF PRECIPITABLE WATER OVER THE UNITED STATES, 1946–56[1]

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ABSTRACT

Mean monthly values of precipitable water have been computed for radiosonde stations in the United States for the period 1946–56. The individual monthly values and an elementary statistical analysis are presented for 52 stations with data during all or part of the period.

1. INTRODUCTION

Precipitable water is a measure of the moisture content of the air and can be expressed as the depth to which liquid water would stand over a unit area if all the water vapor in a column from the surface to some upper level were condensed. Solot [1] has presented a derivation of an expression for precipitable water. Since precipitable water is an expression for the total amount of moisture in the air, it is used in forecasting or as a research tool whenever such a measure is needed. Despite its increasing application, little information about its magnitude is found in the literature. Shands [2] using data compiled by Ratner [3] published values of mean monthly precipitable water for 29 stations in the United States. The length of record was about 4 years for most of the stations. Since that time, few data of that type have been published.

The Institute of Atmospheric Physics of the University of Arizona has computed mean monthly values of precipitable water for 52 radiosonde stations, most of which are in the continental United States. The stations are listed in table 1 and their locations are shown in figure 1. In general, the length of record is 11 years, from 1946 through 1956. These computations were begun in 1957 in answer to a request for mean monthly precipitable water data for use by research groups at the University of Chicago. At that time, values were computed for 46 stations for a 3-year period, 1954–56. Since these original computations were made, additional mean monthly radiosonde data on IBM punchcards have been received and computations made. This report summarizes and presents the mean monthly values of precipitable water that have been computed.

2. DESCRIPTION OF THE COMPUTATIONS

The data used in these calculations were mean monthly radiosonde data on IBM punchcards obtained from the National Weather Records Center in Asheville, N.C. The cards contain the mean temperature, relative humidity, and height (mean pressure for surface observations) of pressure surfaces at 50-mb. intervals beginning at the surface, then 1,000 mb. The 50-mb. level at which temperature and relative humidity values begin is governed by the elevation and surface pressure at each station. Precipitable water was computed from the surface to 325 mb. and was based primarily on radiosonde data taken at 0300 GMT.

The mean data utilized in computing precipitable water are the temperature and relative humidity. The expression evaluated was

$$W=\frac{10^3\epsilon}{g}\frac{e_sU}{p}\Delta p$$

where W=precipitable water (cm.)
ϵ=ratio of the molecular weight of water vapor to that of dry air
g=acceleration of gravity (cm. sec.$^{-2}$)
e_s=saturation vapor pressure (mb.) determined using the mean temperature
U=relative humidity
p=pressure (mb.) at the point of observation
Δp=depth of the layer (mb.) surrounding the point of observation, usually 50 mb.

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TABLE 1.—*List of station names and numbers for which calculations of mean monthly precipitable water were made, and the number of months of record*

No.	Station Name	Number of months	No.	Station Name	Number of months
14735	Albany	86	13963	Little Rock	132
23050	Albuquerque	132	22009	Mazatlan	83
26409	Anchorage	96	24225	Medford	132
24011	Bismarck	132	12839	Miami	118
24131	Boise	132	23023	Midland	131
12919	Brownsville	132	14756	Nantucket	128
04738	Buffalo	132	13897	Nashville	126
12863	Burrwood	127	24023	North Platte	132
14607	Caribou	117	23230	Oakland	132
13880	Charleston	132	13967	Oklahoma City	132
13983	Columbia	131	94918	Omaha	101
13985	Dodge City	132	23183	Phoenix	132
23044	El Paso	131	94823	Pittsburgh	124
23154	Ely	132	14764	Portland	132
26411	Fairbanks	119	24090	Rapid City	132
13911	Fort Worth	105	14926	St. Cloud	124
23066	Grand Junction	132	12921	San Antonio	132
24143	Great Falls	132	93112	San Diego	126
13723	Greensboro	132	11636	San Juan	119
11706	Guantanamo Bay	86	23273	Santa Maria	132
13745	Hatteras	119	14847	Sault Ste. Marie	132
12864	Havana	66	24244	Seattle	90
14918	International Falls	132	24157	Spokane	132
13941	Lake Charles	120	12842	Tampa	132
24021	Lander	132	24240	Tatoosh Island	132
23169	Las Vegas	132	93722	Washington, D.C	132

The expression results from the basic derivation and the usual assumption that there is no significant difference between the density of moist and dry air. The computations were made using an IBM–650 digital computer and supporting machines operated by the Numerical Analysis Laboratory of the University of Arizona.

The value of relative humidity was determined using both the actual observations and the statistical values of relative humidity. Statistical values are Weather Bureau estimates of relative humidity when "motorboating" occurs; that is, when the moisture content of the air is low, beyond the measuring capabilities of the humidity element. When the number of actual observations (Good Counts) is less than 15, the Weather Bureau does not compute a mean monthly value of relative humidity. However, in this study, relative humidity was computed using the actual observations and the statistical values even when the number of actual observations was below 15.

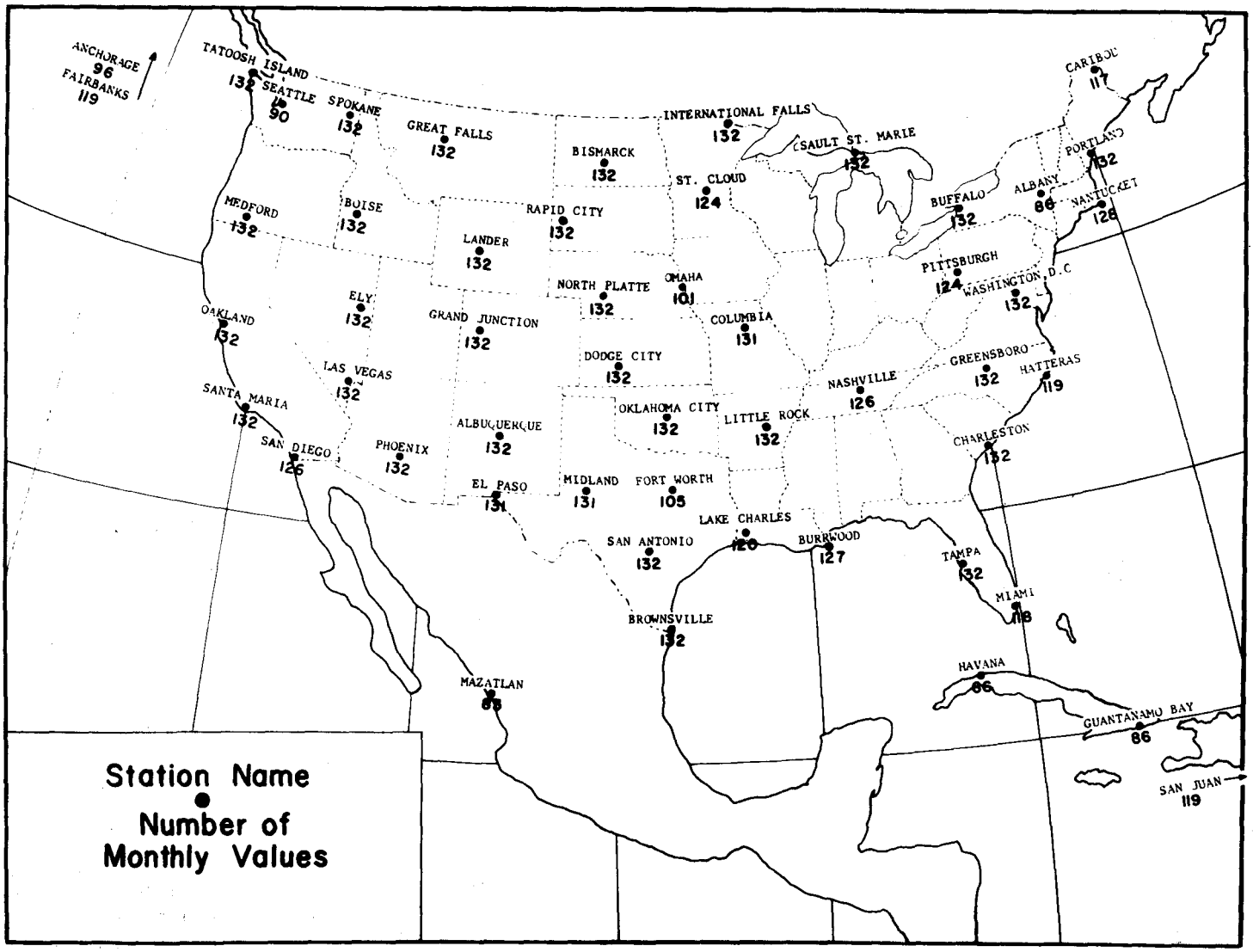

FIGURE 1.—Station names, locations, and number of months for which values of mean monthly precipitable water were computed.

TABLE 2.—*Mean monthly values of precipitable water (cm.) from the surface to 325 mb., computed using mean monthly radiosonde data. Standard deviations and coefficients of variation were computed for months with nine or more individual values of precipitable water. The yearly mean is the average of the 12 monthly values, not adjusted for variations in the length of the months.*

Albany : 14735 — Sfc. Press. 1006 mb, Elev. 86 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.69	0.56	1.07	1.09	1.95	2.41	2.96	2.70	2.45	1.93	1.20	0.81	1.65
1947	0.90	0.53	0.71	1.27	1.86	2.53	3.37	3.53	2.37	1.97	1.03	0.70	1.73
1948	0.54	0.55	0.86	1.30	2.00	2.57	2.98	2.93	2.09	1.44	1.45	0.77	1.62
1949	0.97	0.76	0.91	1.25	1.84	2.84	3.49	2.91	2.22	1.80	1.07	0.88	1.75
1950	1.10	0.67	0.68	0.99	1.75	2.51	2.74	2.82	2.15	1.69	1.24	0.75	1.59
1951	0.77	0.82	0.98	1.33	1.77	2.52	3.19	2.90	2.30	1.71	0.98		
1952													
1953													
1954													
1955										1.51	1.12	0.60	
1956	0.89	0.73	0.73	1.06	1.35	2.38	2.63	2.58	1.96	1.50	1.11	1.01	1.49
No.	7	7	7	7	7	7	7	7	7	8	8	7	
Mean	0.84	0.66	0.85	1.18	1.79	2.54	3.05	2.91	2.22	1.69	1.15	0.79	1.64
Std Dev σ													
C.V. (%)													

Bismarck : 24011 — Sfc. Press. 955 mb; Elev. 505 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.56	0.59	1.05	1.19	1.37	2.22	2.59	2.23	1.95	1.19	0.84	0.62	1.37
1947	0.59	0.44	0.55	1.03	1.28	2.25	2.53	2.76	1.90	1.64	0.63	0.67	1.36
1948	0.48	0.50	0.61	1.08	1.47	2.25	2.76	2.57	2.01	1.18	0.78	0.49	1.35
1949	0.49	0.48	0.67	0.99	1.76	2.11	2.67	2.50	1.55	1.32	0.94	0.54	1.33
1950	0.36	0.56	0.60	0.81	1.44	1.83	2.39	2.35	1.94	1.46	0.64	0.66	1.25
1951	0.44	0.61	0.49	0.81	1.36	1.85	2.51	2.55	1.73	1.32	0.67	0.46	1.23
1952	0.53	0.67	0.57	0.94	1.38	2.42	2.29	2.43	1.78	0.92	0.74	0.66	1.28
1953	0.71	0.60	0.75	0.84	1.52	2.32	2.43	2.64	1.64	1.38	0.99	0.68	1.37
1954	0.48	0.85	0.59	0.96	1.21	2.15	2.71	2.55	2.00	1.26	0.98	0.67	1.37
1955	0.55	0.48	0.52	1.15	1.67	2.18	2.94	2.74	1.75	1.22	0.60	0.57	1.36
1956	0.58	0.50	0.58	0.76	1.67	2.42	2.51	2.43	1.64	1.26	0.83	0.76	1.33
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.53	0.57	0.64	0.96	1.47	2.18	2.58	2.52	1.81	1.29	0.79	0.62	1.33
Std Dev σ	0.08	0.12	0.15	0.14	0.18	0.19	0.19	0.15	0.16	0.18	0.15	0.09	0.04
C.V. (%)	16	20	24	15	12	9	7	6	9	14	19	15	3

Albuquerque : 23050 — Sfc. Press. 837 mb; Elev. 1619 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.61	0.55	0.71	1.10	1.04	1.39	2.31	2.60	2.03	1.17	0.85	0.76	1.26
1947	0.58	0.62	0.71	0.82	1.32	1.42	2.01	2.57	1.70	1.18	0.67	0.62	1.19
1948	0.66	0.75	0.64	0.90	1.27	1.84	2.08	2.40	1.72	1.21	0.64	0.75	1.24
1949	0.64	0.58	0.70	1.01	1.17	1.88	2.65	2.25	1.99	1.10	0.75	0.60	1.28
1950	0.55	0.72	0.55	0.77	0.83	1.33	2.45	1.92	1.59	1.15	0.65	0.56	1.09
1951	0.57	0.65	0.56	0.80	1.01	0.89	2.26	2.47	1.24	1.03	0.69	0.63	1.07
1952	0.66	0.53	0.62	0.95	1.16	1.67	2.22	2.57	1.45	0.79	0.69	0.60	1.16
1953	0.64	0.50	0.73	0.74	0.89	1.39	2.53	2.11	1.08	1.05	0.80	0.50	1.08
1954	0.62	0.53	0.63	0.81	1.32	1.22	2.47	2.29	2.00	1.23	0.70	0.57	1.20
1955	0.55	0.44	0.54	0.60	1.12	1.18	2.34	2.73	1.63	1.03	0.65	0.75	1.13
1956	0.75	0.50	0.48	0.65	0.90	1.75	2.28	2.04	1.29	1.06	0.52	0.52	1.06
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.62	0.58	0.63	0.83	1.09	1.45	2.33	2.36	1.61	1.09	0.69	0.62	1.16
Std Dev σ	0.06	0 10	0.08	0.15	0.17	0.29	0.19	0.26	0.31	0.12	0.09	0.09	0.07
C.V. (%)	9	17	13	18	16	20	8	11	19	11	12	14	6

Boise : 24131 — Sfc. Press. 915 mb; Elev. 868 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.74	0.78	0.98	1.18	1.27	1.45	1.87	1.62	1.43	1.15	1.02	0.96	1.20
1947	0.67	0.95	1.05	1.09	1.57	1.63	1.52	1.44	1.55	1.56	1.01	0.91	1.25
1948	0.84	0.74	0.74	1.04	1.37	2.04	1.73	1.61	1.41	1.20	0.90	0.66	1.19
1949	0.42	0.68	0.92	1.00	1.51	1.51	1.57	1.78	1.56	1.09	1.29	0.76	1.17
1950	0.59	0.91	0.93	0.92	1.11	1.67	1.57	1.69	1.59	1.40	1.15	1.18	1.23
1951	0.76	0.85	0.76	0.96	1.29	1.33	1.67	1.67	1.12	1.23	0.96	0.76	1.11
1952	0.71	0.71	0.79	1.03	1.42	1.71	1.67	1.51	1.29	1.07	0.72	0.95	1.13
1953	1.10	0.79	0.90	0.90	1.16	1.49	1.45	1.65	1.42	1.28	1.21	0.89	1.19
1954	0.83	0.96	0.70	0.95	1.23	1.56	1.71	1.58	1.23	1.06	1.10	0.78	1.14
1955	0.70	0.63	0.68	0.96	1.16	1.55	1.82	1.29	1.38	1.20	0.89	0.86	1.09
1956	0.85	0.58	0.77	1.00	1.58	1.60	1.84	1.67	1.22	1.27	0.94	0.89	1.18
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.75	0.78	0.84	1.00	1.33	1.60	1.68	1.59	1.38	1.23	1.02	0.87	1.17
Std Dev σ	0.17	0.13	0.13	0.08	0.17	0.18	0.13	0.13	0.15	0.15	0.16	0.14	0.04
C.V. (%)	23	16	15	8	12	11	8	8	11	12	16	16	4

Anchorage : 26409 — Sfc. Press. 1003 mb; Elev. 30 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.58	0.56	0.45	0.69	1.28	1.89	2.40	2.18	1.60	1.05	0.58	0.19	1.12
1947	0.12	0.67	0.84	0.72	1.13	1.52	2.06	1.77	1.61	1.04	0.95	0.73	1.10
1948	0.66	0.38	0.48	0.62	1.14	1.67	2.10	1.85	1.38	0.98	0.48	0.39	1.01
1949	0.56	0.39	0.80	0.72	1.09	1.50	2.02	2.03	1.71	0.94	0.84	0.44	1.09
1950	0.56	0.32	0.64	0.67	1.11	1.71	2.05	2.06	1.47	0.89	0.40	0.61	1.04
1951	0.38	0.54	0.39	0.89	1.14	1.76	2.30	2.25	1.68	0.76	0.79	0.48	1.11
1952	0.37	0.62	0.59	0.64	0.86	1.46	2.11	1.82	1.44	1.17	0.88	0.59	1.05
1953	0.39	0.57	0.47	0.81	1.13	1.87	2.06	2.09	1.42	0.78	0.64	0.64	1.07
1954													
1955													
1956													
No.	8	8	8	8	8	8	8	8	8	8	8	8	8
Mean	0.45	0.51	0.58	0.72	1.11	1.67	2.14	2.01	1.54	0.95	0.70	0.51	1.07
Std Dev σ													
C.V. (%)													

Brownsville : 12919 — Sfc. Press. 1014 mb; Elev. 7 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	2.31	2.62	2.37	3.13	4.04	3.99	3.97	3.90	4.92	3.88	3.39	2.54	3.42
1947	2.44	1.99	2.19	3.14	3.48	3.65	3.99	4.47	3.86	3.42	3.08	2.76	3.21
1948	2.24	2.70	2.69	2.50	3.73	3.69	4.52	4.26	4.11	3.55	2.81	2.73	3.29
1949	2.70	3.07	2.90	3.23	3.74	4.01	4.26	3.97	4.64	3.83	1.99	3.20	3.46
1950	2.92	2.76	2.72	3.34	3.98	3.90	4.13	3.95	4.20	3.28	2.41	1.88	3.29
1951	2.26	2.01	2.60	2.79	3.72	3.97	4.18	4.26	4.56	3.51	2.80	2.83	3.29
1952	2.54	2.17	2.66	2.86	3.02	4.17	4.16	3.98	3.73	1.99	2.89	2.37	3.04
1953	1.60	2.37	3.12	2.93	3.27	3.59	4.24	4.45	3.25	3.13	2.35	2.32	3.05
1954	2.42	2.20	2.34	3.18	3.21	3.84	4.09	4.14	4.27	3.57	2.43	2.03	3.14
1955	2.30	2.31	2.53	2.83	3.20	3.28	4.54	4.56	5.01	3.08	3.24	2.31	3.27
1956	2.11	2.54	2.45	2.99	3.41	3.96	4.04	4.11	3.71	3.26	2.56	2.42	3.13
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	2.35	2.43	2.60	2.99	3.53	3.82	4.19	4.19	4.21	3.32	2.72	2.49	3.24
Std Dev σ	0.34	0.34	0.27	0.24	0.34	0.25	0.18	0.24	0.52	0.48	0.39	0.38	0.15
C.V. (%)	14	14	10	8	10	6	4	6	12	15	14	15	5

A limited amount of correction was made to these data to make the computations as complete as possible. In some instances, 1500 GMT data were substituted for the basic 0300 GMT data, a practice which does not introduce significant error. Published mean monthly radiosonde data from the *Monthly Weather Review* and *Climatological Data, National Summary* were used to correct and complete the data when appropriate. At temperatures

TABLE 2.—Continued.

Buffalo, N. Y. : 04738 Sfc. Press. 990 mb; Elev. 182 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.66	0.63	1.19	1.02	1.70	2.31	2.49	2.43	2.21	1.85	1.30	0.76	1.55
1947	0.86	0.50	0.63	1.27	1.78	2.19	2.72	3.36	2.39	1.85	0.92	0.70	1.60
1948	0.47	0.64	0.91	1.40	1.69	2.46	2.91	2.56	2.15	1.39	1.36	0.77	1.56
1949	1.01	0.79	0.86	1.08	1.70	2.65	3.29	2.64	1.93	1.71	1.03	0.80	1.62
1950	1.00	0.66	0.71	0.98	1.68	2.23	2.62	2.68	2.25	1.77	1.12	0.67	1.53
1951	0.80	0.84	0.85	1.22	1.66	2.48	2.91	2.53	2.17	1.58	0.91	0.76	1.56
1952	0.80	0.68	0.81	1.32	1.61	2.54	3.01	2.61	2.12	1.24	1.18	0.91	1.57
1953	0.89	0.73	0.95	1.08	2.13	2.53	2.78	2.59	2.08	1.45	1.08	0.83	1.59
1954	0.65	0.79	0.69	1.42	1.41	2.87	2.58	2.67	2.35	1.99	1.09	0.75	1.60
1955	0.59	0.74	0.82	1.60	1.92	2.24	3.02	3.38	2.10	1.77	1.09	0.61	1.66
1956	0.82	0.74	0.68	1.07	1.60	2.47	2.78	2.78	1.83	1.61	1.10	1.04	1.54
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.78	0.70	0.83	1.22	1.72	2.45	2.83	2.75	2.14	1.66	1.11	0.78	1.58
Std Dev σ	0.17	0.09	0.16	0.19	0.19	0.20	0.23	0.37	0.16	0.23	0.14	0.12	0.05
C.V.(%)	22	13	19	16	11	8	8	13	7	14	13	15	3

Charleston : 13880 Sfc. Press. 1016 mb; Elev. 13 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	1.74	1.55	2.06	2.21	3.25	3.55	4.73	4.40	3.88	2.56	2.67	1.71	2.86
1947	2.24	0.99	1.31	2.77	2.86	3.59	4.12	4.58	3.96	3.26	2.18	1.82	2.81
1948	1.51	2.16	2.30	2.45	3.04	3.75	4.88	4.17	3.76	2.13	2.91	2.00	2.92
1949	2.28	2.13	1.81	2.23	3.04	4.34	4.42	4.71	3.78	3.39	1.55	1.72	2.95
1950	2.34	1.60	1.68	1.66	3.26	4.06	4.58	4.08	3.67	2.86	1.51	1.38	2.72
1951	1.40	1.40	1.86	2.00	2.48	3.80	4.43	4.44	4.09	3.11	1.82	1.74	2.71
1952	1.88	1.59	1.62	1.84	2.86	4.43	4.33	4.45	3.55	1.90	1.78	1.40	2.64
1953	1.57	1.75	1.91	1.90	3.00	3.81	4.43	4.09	3.63	2.37	1.73	1.74	2.66
1954	1.55	1.42	1.58	2.62	2.54	3.44	4.22	4.43	3.70	2.32	1.66	1.37	2.57
1955	1.46	1.50	1.96	2.16	3.02	3.08	4.22	4.52	4.39	2.38	1.66	1.52	2.66
1956	1.21	2.00	1.60	1.83	3.15	3.83	4.57	4.40	3.48	3.14	1.66	1.88	2.73
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	1.74	1.65	1.79	2.15	2.96	3.79	4.45	4.39	3.81	2.68	1.92	1.66	2.75
Std Dev σ	0.39	0.35	0.27	0.35	0.25	0.39	0.23	0.20	0.26	0.49	0.47	0.21	0.12
C.V.(%)	22	21	15	16	9	10	5	5	7	18	24	13	4

Burrwood : 12863 Sfc. Press. 1017 mb; Elev. 3 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946		2.18					4.26	4.37	4.01	2.96	3.11	1.72	
1947	2.41	1.35	1.72	2.93	3.24	4.22	3.90	4.66	4.15	3.18	2.50	2.08	3.03
1948	1.78	2.41	2.70	2.55	2.97	3.83	4.54	4.52	3.84	2.29	2.70	2.24	3.03
1949	2.52	2.53	2.12	2.66	2.99	4.37	5.00	4.44	4.26	3.98	1.63	2.20	3.22
1950	2.92	2.18	1.96	2.28	3.41	4.11	4.58	4.50	4.07	2.91	1.95	1.88	3.06
1951	1.89	1.90	2.24	2.30	2.71	3.93	4.60	4.87	4.73	3.21	1.93	2.36	3.06
1952	2.38	2.10	2.10	2.04	3.01	4.01	4.26	4.61	3.99	1.72	2.08	2.20	2.87
1953	1.72	2.26	2.48	2.45	3.05	4.15	4.41	4.63	3.20	2.35	2.23	2.21	2.93
1954	1.92	1.71	1.90	2.84	2.64	3.78	4.67	4.13	3.90	2.96	1.93	1.71	2.84
1955	1.81	2.10	2.22	2.43	2.95	3.18	4.45	4.55	4.72	2.75	2.47	2.10	2.98
1956	1.61	2.36	2.26	2.31	3.36	3.45	4.04	4.06	3.61	2.89	1.90	2.16	2.83
No.	10	11	10	10	10	10	11	11	11	11	11	11	10
Mean	2.10	2.10	2.17	2.48	3.03	3.90	4.43	4.49	4.04	2.84	2.22	2.08	2.99
Std Dev σ	0.43	0.34	0.28	0.27	0.25	0.36	0.31	0.24	0.44	0.58	0.43	0.22	0.12
C.V.(%)	21	16	13	11	8	9	7	5	11	20	20	10	4

Columbia : 13983 Sfc. Press. 988 mb; Elev. 238 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946		0.79	1.55	1.79	2.19	2.88	3.39	3.27	2.72	1.91	1.51	1.12	
1947	0.93	0.58	0.86	1.78	2.09	3.43	3.00	4.10	2.63	2.41	1.19	0.96	2.00
1948	0.65	1.06	1.23	1.79	2.14	3.25	3.78	3.49	2.62	1.51	1.30	1.00	1.99
1949	1.11	0.94	1.14	1.45	2.52	3.77	4.36	3.36	2.18	2.04	1.07	0.95	2.07
1950	1.15	1.04	0.97	1.37	2.31	3.12	3.10	3.16	2.76	1.91	0.93	0.83	1.89
1951	0.78	1.16	1.08	1.37	2.06	3.21	3.70	3.37	2.55	2.07	1.00	0.91	1.94
1952	0.98	0.91	1.05	1.48	2.19	3.59	3.62	3.30	2.17	1.05	1.09	0.92	1.86
1953	0.98	0.88	1.18	1.39	2.17	3.39	3.35	2.88	2.12	1.72	1.07	0.85	1.83
1954	0.86	0.99	0.90	1.86	1.83	3.12	3.76	3.99	2.61	2.12	1.22	0.97	2.02
1955	0.81	0.89	1.06	1.70	2.38	2.74	4.16	3.32	2.55	1.63	1.01	0.92	1.93
1956	0.93	1.05	0.96	1.25	2.55	3.04	3.53	3.43	2.20	1.76	1.16	1.15	1.92
No.	10	11	11	11	11	11	11	11	11	11	11	11	10
Mean	0.92	0.94	1.09	1.57	2.22	3.23	3.61	3.43	2.47	1.83	1.14	0.96	1.95
Std Dev σ	0.15	0.16	0.19	0.22	0.21	0.31	0.41	0.34	0.24	0.36	0.16	0.10	0.08
C.V.(%)	16	17	18	14	9	9	11	10	10	20	14	10	4

Caribou : 14607 Sfc. Press. 991 mb; Elev. 191 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.44	0.44	0.74	0.84	1.44	1.95	2.47	2.45	1.88	1.48	0.87	0.49	1.29
1947	0.42	0.56	0.57	0.66	1.47	2.07	3.19	2.66	1.90	1.52	0.90	0.48	1.37
1948	0.37	0.30	0.48	0.84	1.41	1.75	2.40	2.61	1.79	1.21	1.09	0.58	1.24
1949	0.52	0.48	0.64	0.94	1.39	2.36	2.59	2.48	1.91	1.40	0.83	0.65	1.35
1950	0.57	0.42	0.50		1.25	2.15		2.37	1.51		1.12	0.70	
1951		0.68	0.68		1.37	1.86		2.43	1.86		0.84	0.54	
1952		0.58	0.63		1.46	2.10		2.35	1.92		0.89	0.63	
1953		0.53	0.76		1.43	1.97		2.25	1.95		1.06	0.69	
1954	0.42	0.69	0.54	0.78	1.56	2.03	2.43	2.10	1.78	1.43	0.88	0.65	1.27
1955	0.57	0.53	0.58	0.94	1.57	2.16	2.46	2.57	1.74	1.30	0.83	0.43	1.31
1956	0.88	0.46	0.42	0.91	1.01	2.14	2.22	2.02	1.67	1.34	0.91	0.60	1.22
No.	8	11	11	7	11	11	7	11	11	7	11	11	7
Mean	0.52	0.52	0.60	0.84	1.40	2.05	2.54	2.39	1.81	1.38	0.93	0.59	1.30
Std Dev σ		0.12	0.14		0.16	0.17		0.20	0.13		0.11	0.09	
C.V.(%)		23	23		11	8		8	7		12	16	

Dodge City : 13985 Sfc. Press. 924 mb; Elev. 792 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.70	0.68	1.07	1.49	1.65	2.40	2.75	3.15	2.44	1.67	1.17	0.88	1.67
1947	0.67	0.68	0.91	1.32	1.98	2.49	2.85	3.11	2.18	1.88	0.99	0.79	1.65
1948	0.78	0.90	0.86	1.19	1.78	2.88	3.13	3.00	2.12	1.19	0.89	0.75	1.62
1949	0.78	0.73	1.05	1.36	2.13	3.08	3.64	3.04	2.39	1.65	1.05	0.66	1.80
1950	0.70	0.84	0.75	1.15	1.71	2.64	3.25	2.97	2.34	1.63	0.89	0.84	1.64
1951	0.68	0.91	0.77	1.10	2.00	2.69	3.44	3.35	2.05	1.59	0.95	0.73	1.69
1952	0.72	0.76	0.85	1.29	1.84	2.85	2.80	3.26	1.87	0.99	0.90	0.70	1.57
1953	0.83	0.69	0.96	1.20	1.79	2.62	3.44	3.00	2.02	1.53	1.06	0.73	1.66
1954	0.77	0.85	0.76	1.33	1.89	2.35	2.97	3.13	2.16	1.66	0.94	0.69	1.62
1955	0.68	0.63	0.67	1.04	1.88	2.25	3.14	3.06	2.24	1.30	0.72	0.79	1.53
1956	0.80	0.67	0.69	0.98	2.02	2.67	2.97	2.68	1.83	1.43	0.83	0.73	1.52
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.74	0.76	0.85	1.22	1.88	2.63	3.13	3.07	2.15	1.50	0.95	0.75	1.64
Std Dev σ	0.06	0.11	0.14	0.15	0.15	0.25	0.30	0.18	0.20	0.25	0.12	0.06	0.07
C.V.(%)	8	14	16	12	8	9	10	6	9	17	12	8	5

below −40° C., relative humidity data are not obtained from radiosondes. When the mean monthly temperature for a layer was below −40° C. and no mean relative humidity was given, the precipitable water was assumed to be zero. Missing relative humidities at 350 mb. were corrected using the "motorboating" value for the appropriate temperature. This was done only at 350 mb. and only when such a correction would complete the computation for a month.

TABLE 2.—Continued.

El Paso : 23044 Sfc. Press. 881 mb; Elev. 1195 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.85		0.83	1.13	1.02	1.82	2.51	2.71	2.75	1.60	0.88	0.94	
1947	0.81	0.67	0.90	0.77	1.33	1.58	2.25	2.93	1.71	1.25	0.89	0.71	1.32
1948	0.73	0.88	0.72	0.85	1.23	2.11	2.66	2.54	2.13	1.66	0.66	1.05	1.44
1949	0.90	0.75	0.76	1.08	1.30	2.06	3.04	2.92	2.72	1.56	0.89	0.89	1.57
1950	0.92	0.88	0.76	0.88	0.97	2.00	3.17	2.33	2.17	1.74	0.83	0.76	1.45
1951	0.69	0.90	0.86	0.97	1.15	1.28	2.88	3.04	1.91	1.60	1.06	0.86	1.43
1952	1.02	0.67	0.70	1.19	1.31	2.34	2.90	2.82	1.81	0.99	0.99	0.76	1.46
1953	0.68	0.58	0.91	0.81	0.94	1.64	2.88	2.38	1.30	1.20	0.80	0.58	1.22
1954	0.72	0.69	0.77	0.95	1.33	1.62	2.66	2.96	2.45	1.64	0.77	0.66	1.43
1955	0.73	0.51	0.83	0.66	1.22	1.52	2.92	2.93	2.11	1.51	0.82	0.93	1.39
1956	0.85	0.72	0.60	0.83	1.02	2.22	2.61	2.42	1.60	1.29	0.62	0.77	1.30
No.	11	10	11	11	11	11	11	11	11	11	11	11	10
Mean	0.81	0.73	0.79	0.92	1.17	1.84	2.77	2.73	2.06	1.46	0.84	0.81	1.41
Std Dev σ	0.11	0.13	0.10	0.16	0.16	0.34	0.26	0.27	0.46	0.24	0.13	0.14	0.10
C.V.(%)	14	18	12	18	13	18	10	10	22	16	16	17	8

Fort Worth : 13911 Sfc. Press. 995 mb; Elev. 178 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	1.37	1.31	1.72	2.18	2.79	3.39	3.40	3.76	3.72	2.51	1.75	1.53	2.45
1947	1.31	0.98	1.38	2.30	2.59	3.22	3.40	3.87	3.02	2.65	1.51	1.38	2.30
1948	1.13	1.60	1.44	2.23	2.84	3.39	4.11	3.79	2.78	1.96	2.05	1.83	2.43
1949	1.62	1.43	1.82		3.29	4.15							
1950				2.13	3.11	3.68	4.34		3.43				
1951				1.55			4.00	4.39		2.54	1.77		
1952		1.54	1.59		2.89		4.26	3.57			1.71		
1953	1.19	1.22	1.87	1.94	2.73	3.70	4.46	4.46	2.77	2.59	1.65	1.25	2.49
1954	1.50	1.20	1.26	2.69	2.98	3.51	4.08	3.91	3.02	2.72	1.49	1.32	2.47
1955	1.30	1.21	1.65	2.10	2.99	3.42	4.27	4.21	3.69	2.05	1.34	1.19	2.45
1956	1.30	1.41	1.26	1.87	3.04	3.75	3.72	3.26	2.51	2.46	1.33	1.47	2.28
No.	8	9	9	9	10	9	10	9	8	8	9	7	7
Mean	1.34	1.32	1.55	2.11	2.93	3.58	4.00	3.91	3.12	2.44	1.62	1.42	2.45
Std Dev σ		0.20	0.23	0.31	0.20	0.27	0.38	0.39			0.23		
C.V.(%)		15	15	15	7	8	9	10			14		

Ely : 23154 Sfc. Press. 808 mb; Elev. 1908 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.47	0.49	0.62	0.88	0.97	0.98	1.63	1.56	1.04	0.85	0.68	0.67	0.90
1947	0.43	0.67	0.69	0.84	1.20	1.32	1.14	1.37	1.19	1.08	0.61	0.57	0.93
1948	0.55	0.51	0.47	0.69	0.84	1.20	1.12	1.12	1.03	0.77	0.59	0.50	0.78
1949	0.35	0.41	0.63	0.70	1.08	1.17	1.32	1.26	1.07	0.96	0.81	0.53	0.86
1950	0.43	0.56	0.57	0.66	0.85	0.88	1.76	1.15	1.35	0.85	0.78	0.72	0.88
1951	0.52	0.53	0.52	0.88	1.00	1.14	1.71	1.44	0.87	0.77	0.70	0.54	0.88
1952	0.49	0.44	0.54	0.83	0.94	0.98	1.65	1.48	1.10	0.57	0.50	0.63	0.85
1953	0.69	0.50	0.50	0.61	0.69	0.86	1.72	1.11	0.99	0.87	0.76	0.51	0.82
1954	0.57	0.58	0.50	0.71	0.91	1.04	1.53	1.04	1.02	0.85	0.78	0.51	0.84
1955	0.48	0.46	0.50	0.56	0.84	1.16	1.47	1.93	1.09	0.91	0.68	0.73	0.90
1956	0.61	0.41	0.50	0.75	1.06	1.00	1.35	0.95	1.02	0.94	0.56	0.59	0.81
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.51	0.51	0.55	0.74	0.94	1.07	1.49	1.31	1.07	0.86	0.68	0.59	0.86
Std Dev σ	0.10	0.08	0.07	0.11	0.14	0.15	0.23	0.29	0.12	0.13	0.11	0.08	0.04
C.V.(%)	19	16	13	15	15	14	15	22	11	15	16	14	5

Grand Junction : 23066 Sfc. Press. 852 mb; Elev. 1474 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.56	0.55	0.76	1.09	1.17	1.17	1.96	2.22	1.19	1.08	0.84	0.80	1.12
1947	0.51	0.70	0.77	0.89	1.35	1.61	1.94	2.44	1.57	1.44	0.74	0.68	1.22
1948	0.62	0.63	0.70	0.95	1.07	1.58	1.81	2.00	1.50	1.01	0.75	0.65	1.11
1949	0.58	0.54	0.88	1.06	1.41	1.74	2.28	1.90	1.64	1.21	0.90	0.65	1.23
1950	0.62	0.75	0.66	0.86	0.95	1.05	2.07	1.55	1.67	0.96	0.76	0.79	1.06
1951	0.61	0.65	0.57	0.90	1.22	1.26	1.79	1.98	1.12	1.06	0.68	0.63	1.04
1952	0.61	0.60	0.66	0.99	1.21	1.36	1.89	2.30	1.38	0.69	0.68	0.69	1.09
1953	0.80	0.57	0.74	0.78	0.99	1.16	2.19	1.98	1.23	1.13	0.94	0.55	1.09
1954	0.67	0.64	0.60	0.79	1.22	1.21	2.47	1.68	1.84	1.18	0.88	0.61	1.15
1955	0.60	0.48	0.59	0.69	1.07	1.32	1.82	2.59	1.27	0.91	0.76	0.77	1.07
1956	0.75	0.50	0.49	0.89	1.11	1.14	1.80	1.66	1.12	0.98	0.63	0.61	0.97
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.63	0.60	0.68	0.90	1.16	1.33	2.00	2.03	1.41	1.06	0.78	0.68	1.10
Std Dev σ	0.08	0.08	0.11	0.12	0.14	0.22	0.22	0.33	0.25	0.19	0.11	0.09	0.07
C.V.(%)	13	14	16	14	12	17	11	17	17	18	14	13	7

Fairbanks : 26411 Sfc. Press. 993 mb; Elev. 135 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946													
1947		0.67	0.57	0.57	1.13	1.58	2.21	1.66	1.22	0.82	0.67	0.50	
1948	0.44	0.32	0.35	0.60	1.10	1.88	2.12	1.63	1.30	0.84	0.37	0.28	0.94
1949	0.37	0.32	0.62	0.55	0.98	1.50	2.18	1.99	1.53	0.85	0.66	0.34	0.99
1950	0.46	0.18	0.52	0.49	1.00	1.53	2.04	1.97	1.36	0.78	0.37	0.41	0.93
1951	0.24	0.33	0.27	0.71	1.03	1.51	2.08	2.08	1.42	0.65	0.67	0.37	0.95
1952	0.25	0.41	0.41	0.52	0.79	1.64	2.07	1.74	1.28	0.91	0.69	0.41	0.93
1953	0.20	0.37	0.35	0.68	1.18	1.94	2.01	1.82	1.28	0.68	0.48	0.42	0.95
1954	0.28	0.21	0.41	0.43	0.92	1.65	1.96	1.97	1.26	0.84	0.60	0.28	0.90
1955	0.47	0.28	0.44	0.46	1.00	1.52	1.97	1.69	1.31	0.72	0.34	0.31	0.88
1956	0.28	0.30	0.34	0.59	1.04	1.56	2.04	1.99	1.12	0.56	0.39	0.23	0.87
No.	9	10	10	10	10	10	10	10	10	10	10	10	9
Mean	0.33	0.34	0.43	0.56	1.02	1.63	2.07	1.85	1.31	0.77	0.52	0.36	0.93
Std Dev σ	0.11	0.13	0.11	0.09	0.11	0.16	0.08	0.17	0.11	0.11	0.15	0.08	0.04
C.V.(%)	33	40	26	16	11	10	4	9	8	14	28	23	4

Great Falls : 24143 Sfc. Press. 886 mb; Elev. 1123 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.56	0.57	0.72	0.88	1.14	1.56	1.91	1.57	1.44	0.86	0.71	0.62	1.05
1947	0.46	0.50	0.70	0.86	1.15	1.52	1.71	1.78	1.50	1.17	0.70	0.66	1.06
1948	0.55	0.47	0.53	0.79	1.31	1.99	1.82	1.82	1.29	0.88	0.63	0.42	1.04
1949	0.36	0.40	0.58	0.83	1.29	1.41	1.72	1.72	1.32	0.92	0.83	0.47	0.99
1950	0.25	0.56	0.54	0.74	0.96	1.53	1.85	1.81	1.31	1.11	0.61	0.76	1.00
1951	0.42	0.52	0.50	0.72	1.09	1.36	1.84	1.87	1.30	1.04	0.71	0.46	0.99
1952	0.44	0.53	0.55	0.88	1.32	1.61	1.61	1.82	1.48	0.99	0.73	0.64	1.05
1953	0.72	0.61	0.68	0.78	1.05	1.63	1.73	1.79	1.30	1.08	0.79	0.65	1.07
1954	0.46	0.66	0.54	0.75	1.14	1.47	1.90	1.98	1.50	1.00	0.97	0.58	1.08
1955	0.55	0.48	0.42	0.80	1.16	1.61	2.14	1.50	1.40	1.10	0.55	0.58	1.02
1956	0.58	0.45	0.56	0.86	1.37	1.65	1.92	1.79	1.42	1.01	0.68	0.67	1.08
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.49	0.52	0.58	0.81	1.18	1.58	1.83	1.77	1.39	1.02	0.72	0.59	1.04
Std Dev σ	0.13	0.07	0.09	0.06	0.13	0.17	0.14	0.14	0.09	0.09	0.12	0.10	0.01
C.V.(%)	26	14	15	8	11	11	8	8	7	9	16	18	1

A major adjustment of the data was made. The relative humidity values for the period of record, 1946–56, are not homogeneous. Prior to October 1948 relative humidity at temperatures below 0° C. was expressed with respect to ice saturation and after that date with respect to water. Thus there exists a real difference in the two periods of record, and differences in computed values of precipitable water of about 10 percent could result for

TABLE 2.—Continued.

Greensboro : 13723 Sfc. Press. 986 mb; Elev. 273 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	1.20	0.97	1.56	1.69	2.51	2.98	3.75	3.46	2.92	1.92	1.76	1.28	2.17
1947	1.62	0.61	0.90	1.85	2.25	3.02	3.16	4.03	3.28	2.53	1.42	0.87	2.13
1948	0.89	1.46	1.47	1.99	2.39	3.28	3.91	3.63	2.99	1.59	1.99	1.43	2.25
1949	1.77	1.43	1.20	1.50	2.51	3.63	4.57	4.16	2.79	2.65	1.27	1.25	2.39
1950	1.83	1.22	1.13	1.32	2.86	3.18	3.86	3.42	3.08	2.25	1.10	0.88	2.18
1951	1.02	1.09	1.30	1.55	2.21	3.41	3.87	3.85	2.94	2.06	1.30	1.13	2.14
1952	1.33	1.16	1.26	1.74	2.32	3.56	3.67	3.90	2.64	1.46	1.41	1.01	2.12
1953	1.29	1.22	1.33	1.48	2.66	3.38	3.48	3.35	2.71	1.77	1.20	1.09	2.08
1954	1.06	1.04	1.18	2.19	2.13	2.97	3.53	3.68	2.57	2.00	1.34	0.95	2.05
1955	1.01	1.03	1.30	1.81	2.40	2.60	4.15	3.93	3.25	1.84	1.15	0.83	2.11
1956	0.90	1.29	1.10	1.38	2.59	3.22	3.91	3.55	3.03	2.46	1.25	1.51	2.18
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	1.27	1.14	1.25	1.68	2.44	3.20	3.81	3.72	2.93	2.05	1.38	1.11	2.16
Std Dev σ	0.34	0.24	0.18	0.27	0.22	0.30	0.37	0.26	0.24	0.39	0.27	0.23	0.10
C.V.(%)	27	21	15	16	9	9	10	7	8	19	19	21	5

Havana : 12864 Sfc. Press. 1010 mb; Elev. 49 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	3.14		3.02		4.28	4.62	4.40	4.39	4.68	3.94	3.81	3.53	
1947	3.27		2.78	3.57	3.80	4.52	4.63	4.54	4.90	4.65	4.01	3.17	
1948	2.75	2.79		3.35									
1949													
1950		2.85	3.16	2.80	3.54	3.95	4.30	4.48	4.78	4.62	2.93	2.51	
1951	2.35	2.31	2.84	3.54	3.42	4.02	4.83	4.91	4.80	4.47	3.41	3.18	3.67
1952	2.43	2.58	3.18	3.00	4.37	4.31	3.86	4.57	4.79	4.66	3.36	2.65	3.65
1953	2.68	2.72					4.52	4.67	4.88	4.13	3.63	3.14	
1954													
1955													
1956													
No.	6	5	5	5	5	5	6	6	6	6	6	6	2
Mean	2.77	2.65	3.00	3.25	3.88	4.28	4.42	4.59	4.81	4.41	3.53	3.03	3.72
Std Dev σ													
C.V.(%)													

Guantanamo Bay : 11706 Sfc. Press. 1013 mb; Elev. 25 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946													
1947													
1948								4.01	4.58	4.60	3.99		
1949						4.58	4.13	4.57		4.94	4.66	4.24	
1950					4.44	4.64		4.76	4.89	4.86	4.44	4.30	
1951	3.02	2.96		3.72	4.71	4.41	4.77	5.02	4.80	4.47	4.24	3.37	
1952	2.58	3.09	3.26	3.89	4.48	4.48	4.15	4.45	4.86	4.82	3.62	3.20	3.91
1953	3.35	3.04	3.06	3.86	4.25	4.75	4.28	4.42	4.71	4.70	4.07	3.37	3.99
1954	3.11	3.67	3.26	3.43	4.40	4.31	4.20	4.34	4.42	4.37	4.04	3.13	3.89
1955	2.78	3.14	2.80	3.19	3.98	4.60	4.29	4.62	4.85	4.69	3.63	3.78	3.86
1956	2.54	3.00	3.51	3.45	4.17	4.23	3.82	4.11	4.24	4.53	4.01	3.37	3.75
No.	6	6	5	6	7	8	7	9	8	9	9	8	
Mean	2.90	3.15	3.18	3.59	4.35	4.50	4.23	4.48	4.67	4.66	4.08	3.60	3.95
Std Dev σ								0.31		0.20	0.34		
C.V.(%)								7		4	8		

International Falls : 14918 Sfc. Press. 1016 mb; Elev. 5 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.48	0.39	0.85	0.97	1.34	1.99	2.38	2.21	1.75	1.25	0.77	0.41	1.23
1947	0.43	0.35	0.47	0.72	1.09	1.90	2.59	2.78	1.91	1.69	0.60	0.52	1.25
1948	0.33	0.38	0.53	1.03	1.25	2.03	2.68	2.58	1.78	1.15	0.81	0.53	1.26
1949	0.51	0.38	0.51	0.99	1.54	2.27	2.78	2.62	1.65	1.27	0.86	0.44	1.32
1950	0.33	0.45	0.43	0.77	1.35	1.96	2.50	2.04	1.91	1.60	0.65	0.49	1.21
1951	0.37	0.54	0.57	0.96	1.66	1.97	2.47	2.54	1.75	1.25	0.55	0.37	1.25
1952	0.43	0.48	0.51	0.93	1.28	2.37	2.49	2.25	1.80	0.89	0.70	0.64	1.23
1953	0.54	0.43	0.66	0.75	1.39	2.33	2.20	2.62	1.72	1.36	0.84	0.47	1.28
1954	0.37	0.66	0.40	0.79	1.24	2.15	2.66	2.28	1.75	1.13	0.90	0.57	1.24
1955	0.41	0.41	0.41	1.19	1.64	2.36	2.98	2.42	1.75	1.28	0.69	0.43	1.33
1956	0.57	0.37	0.45	0.70	1.15	2.24	2.28	2.24	1.46	1.38	0.77	0.56	1.18
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.43	0.44	0.53	0.89	1.36	2.14	2.55	2.42	1.75	1.30	0.74	0.49	1.25
Std Dev σ	0.08	0.09	0.13	0.15	0.19	0.17	0.23	0.23	0.13	0.22	0.11	0.08	0.03
C.V.(%)	19	21	25	17	14	8	9	10	7	17	15	16	3

Hatteras : 13745 Sfc. Press. 1017 mb; Elev. 3 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946					3.13		4.03	4.01	3.56				
1947	1.90						3.83	4.40	3.89	2.90	1.85	1.45	
1948	1.31	1.87	1.84	2.19	2.74	3.69	4.27	3.63	3.43	2.15	2.54	1.79	2.62
1949	2.08	1.70	1.45	1.95	2.64	4.00	4.36	4.53	3.51	3.07	1.54	1.61	2.70
1950	2.24	1.42	1.48	1.69	2.86	3.48	4.51	3.73	3.62	2.70	1.57	1.29	2.55
1951	1.38	1.41	1.45	1.80	2.43	3.61	4.00	4.22	3.66	2.87	1.76	1.50	2.51
1952	1.50	1.37	1.48	1.94	2.57	3.59	4.04	4.12	3.49	1.90	1.73	1.31	2.42
1953	1.53	1.55	1.63	1.83	2.95	3.18	4.00	3.80	3.10	2.44	1.63	1.62	2.44
1954	1.33	1.20	1.33	2.23	2.44	3.50	3.93	3.97	3.19	2.28	1.70	1.12	2.35
1955	1.21	1.35	1.82	2.10	2.50	2.90	4.13	4.30	3.97	2.07	1.50	1.18	2.42
1956	1.21	1.78	1.38	1.65	2.74	3.84	4.06	3.87	3.15	3.00	1.65	1.59	2.49
No.	10	9	9	9	10	9	11	11	11	10	10	10	9
Mean	1.57	1.52	1.54	1.93	2.70	3.53	4.11	4.05	3.51	2.54	1.75	1.45	2.52
Std Dev σ	0.37	0.22	0.18	0.21	0.23	0.33	0.21	0.28	0.29	0.42	0.30	0.22	0.12
C.V.(%)	24	15	12	11	9	9	5	7	8	17	17	15	5

Lake Charles : 13941 Sfc. Press. 1016 mb; Elev. 5 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946					3.34		4.58	4.34	4.23		2.86		
1947	2.20				3.10		3.72	4.55	3.53		2.27	2.05	
1948	1.72	2.36	2.47	2.57	3.20	3.70	4.72	4.29	3.69	2.24	2.41	2.12	2.96
1949	2.27	2.40	2.11	2.56	3.03	4.03	4.82	4.28	4.29	3.80	1.58	2.26	3.12
1950	2.88	2.20	1.83	2.57	3.36	4.16	4.53	4.16	3.99	2.95	1.82	1.82	3.02
1951	1.92	1.90	2.10	2.11	2.95	4.03	4.96	4.72	4.36	2.84	2.00	2.22	3.01
1952	2.35	1.84	1.78	2.15	3.04	3.80	4.67	4.45	3.37	1.48	2.12	1.85	2.74
1953	1.55	2.08	2.63	2.43	3.50	4.05	4.33	4.62	3.07	2.45	1.97	1.74	2.87
1954	1.90	1.52	1.82	2.74	2.86	3.75	4.48	4.14	3.94	2.96	1.84	1.72	2.81
1955	1.79	2.03	2.11	2.52	3.24	3.40	4.73	4.67	4.60	2.39	2.26	1.97	2.98
1956	1.65	2.13	2.04	2.40	3.38	3.95	4.17	4.22	3.43	2.80	1.94	2.13	2.85
No.	10	9	9	9	11	9	11	11	11	9	11	10	9
Mean	2.02	2.05	2.10	2.45	3.18	3.87	4.52	4.40	3.86	2.66	2.10	1.99	2.93
Std Dev σ	0.40	0.27	0.29	0.21	0.20	0.22	0.35	0.20	0.48	0.63	0.35	0.20	0.13
C.V.(%)	20	13	14	8	6	6	8	5	12	24	17	10	4

stations at high elevations during the cold months. Thus the relative humidity data for the period from January 1946 through September 1948 were adjusted so that they were expressed in terms of saturation over water.

3. VALUES OF MEAN MONTHLY PRECIPITABLE WATER

Table 1 lists the 52 stations and the number of months for which mean monthly values were determined.

TABLE 2.—Continued.

Lander : 24021 Sfc. Press. 828 mb; Elev. 1696 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.48	0.47	0.65	0.89	1.12	1.32	1.84	1.56	1.30	0.89	0.62	0.58	0.98
1947	0.41	0.45	0.60	0.80	1.25	1.29	1.72	1.60	1.31	1.07	0.60	0.53	0.97
1948	0.46	0.44	0.46	0.65	0.98	1.64	1.49	1.51	1.30	0.85	0.53	0.41	0.89
1949	0.35	0.33	0.60	0.80	1.26	1.47	1.60	1.53	1.29	0.91	0.75	0.43	0.94
1950	0.31	0.47	0.49	0.70	0.91	1.27	1.68	1.49	1.43	0.97	0.68	0.59	0.92
1951	0.36	0.47	0.47	0.74	1.13	1.25	1.88	1.66	1.22	0.89	0.53	0.45	0.92
1952	0.41	0.47	0.50	0.88	1.17	1.33	1.61	1.75	1.24	0.88	0.56	0.47	0.94
1953	0.62	0.50	0.55	0.66	0.97	1.21	1.77	1.73	1.18	1.03	0.69	0.48	0.95
1954	0.51	0.56	0.50	0.60	1.16	1.07	1.63	1.16	1.13	0.82	0.73	0.43	0.86
1955	0.40	0.40	0.37	0.61	0.83	1.36	1.41	1.80	1.20	0.81	0.54	0.55	0.86
1956	0.47	0.33	0.44	0.76	1.13	1.09	1.56	1.42	0.97	0.84	0.53	0.49	0.84
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.44	0.45	0.51	0.74	1.08	1.30	1.65	1.57	1.23	0.91	0.62	0.49	0.92
Std Dev σ	0.08	0.07	0.08	0.10	0.14	0.16	0.14	0.17	0.11	0.09	0.08	0.06	0.05
C.V.(%)	19	15	16	14	13	12	8	11	9	10	13	12	6

Mazatlan : 22009 Sfc. Press. 1010 mb; Elev. 14 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946													
1947													
1948													
1949													
1950	1.92	2.00	1.86	1.94	2.84	4.77	5.11	5.21	5.36	4.51	3.05	2.32	3.41
1951	1.99	1.79	2.33	2.26	2.68	4.21	5.50	5.52	5.13	4.49	3.70	3.36	3.58
1952	2.37	2.05	2.06		2.42	5.24	5.48	5.58	5.36	3.98	3.36	2.76	
1953	1.77	2.11	2.40	2.07	2.74	4.85	5.54	5.57	4.63	4.60	2.52	2.18	3.41
1954	2.48	2.45	1.80	1.72	2.73	4.97	5.27	5.37	5.33	4.59	2.64	2.73	3.51
1955	2.87	2.21	2.23	2.00	3.07	4.75	5.68	5.88	5.77	4.79	3.49	2.43	3.76
1956	2.38	1.87	1.70	2.13	3.99	5.24	5.10	5.28	4.94	4.40	3.50	2.65	3.60
No.	7	7	7	6	7	7	7	7	7	7	7	7	6
Mean	2.25	2.07	2.05	2.02	2.92	4.86	5.38	5.49	5.22	4.48	3.18	2.63	3.55
Std Dev σ													
C.V.(%)													

Las Vegas : 23169 Sfc. Press. 939 mb; Elev. 600 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.71	0.67	0.96	1.15	1.24	1.07	2.47	2.45	1.59	1.32	1.14	1.12	1.32
1947	0.64	0.97	1.01	1.14	1.46	1.42	1.61	2.34	1.75	1.55	1.00	0.93	1.32
1948	0.74	0.79	0.71	1.03	0.95	1.45	1.66	1.80	1.59	1.35	0.81	0.76	1.14
1949	0.67	0.77	0.89	1.14	1.38	1.87	2.08	1.84	1.51	1.24	1.04	0.76	1.27
1950	0.74	0.91	0.76	0.83	0.96	1.08	2.54	1.75	1.62	1.09	1.07	0.99	1.20
1951	0.87	0.82	0.70	1.07	1.24	1.22	2.36	2.36	1.27	1.12	0.96	0.87	1.24
1952	0.78	0.68	0.87	1.30	1.17	1.31	2.19	2.28	1.91	0.99	0.95	0.99	1.28
1953	1.04	0.61	0.72	0.88	0.83	1.15	2.90	1.92	1.34	1.15	1.02	0.60	1.18
1954	0.89	0.86	0.86	1.05	1.29	1.48	2.58	1.65	1.65	1.21	1.09	0.82	1.29
1955	0.82	0.67	0.73	0.74	1.13	1.38	2.25	3.33	1.45	1.30	1.06	1.10	1.33
1956	1.03	0.61	0.59	1.02	1.03	1.11	2.22	1.37	1.66	1.15	0.62	0.63	1.09
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.81	0.76	0.80	1.03	1.15	1.32	2.26	2.10	1.58	1.23	0.98	0.87	1.24
Std Dev σ	0.13	0.12	0.13	0.16	0.19	0.24	0.38	0.53	0.18	0.15	0.15	0.17	0.07
C.V.(%)	16	16	16	16	17	18	17	25	12	12	15	20	6

Medford : 24225 Sfc. Press. 1017 mb; Elev. 4 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	1.14	1.09	1.30	1.44	1.63	1.89	2.32	2.12	1.88	1.52	1.35	1.26	1.58
1947	1.03	1.36	1.32	1.49	1.84	1.86	2.37	2.08	1.92	1.98	1.42	1.24	1.66
1948	1.08	0.99	1.13	1.21	1.59	2.34	2.22	2.17	1.89	1.57	1.25	0.90	1.53
1949	0.67	0.99	1.15	1.44	1.77	1.81	2.10	2.14	2.11	1.46	1.56	1.07	1.52
1950	0.88	1.14	1.10	1.28	1.49	2.06	1.88	2.20	1.99	1.97	1.68	1.55	1.60
1951	1.09	1.21	0.98	1.41	1.61	1.67	2.07	1.96	1.88	1.71	1.40	1.08	1.51
1952	1.00	1.14	1.02	1.38	1.63	2.05	2.32	2.28	2.13	1.80	1.01	1.20	1.58
1953	1.34	1.20	1.12	1.21	1.51	1.73	1.92	2.51	2.16	1.68	1.60	1.33	1.61
1954	1.19	1.21	1.05	1.28	1.69	1.86	2.06	2.12	1.81	1.48	1.57	1.19	1.54
1955	1.01	0.95	1.03	1.12	1.45	2.03	2.04	1.79	1.76	1.92	1.40	1.26	1.48
1956	1.17	0.92	1.09	1.40	1.82	1.91	2.45	2.28	1.91	1.66	1.29	1.19	1.59
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	1.06	1.11	1.12	1.33	1.64	1.93	2.16	2.15	1.95	1.71	1.41	1.21	1.56
Std Dev σ	0.17	0.14	0.11	0.12	0.13	0.19	0.19	0.18	0.13	0.19	0.19	0.13	0.03
C.V.(%)	16	12	10	11	8	10	9	9	7	11	13	14	2

Little Rock : 13963 Sfc. Press. 1007 mb; Elev. 79 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	1.31	1.30	1.78	2.34	2.89	3.48	4.06	3.95	3.23	2.26	2.10	1.69	2.53
1947	1.53	0.88	1.26	2.31	2.93	3.81	3.54	4.39	3.28	2.77	1.64	1.26	2.47
1948	1.11	1.60	1.65	2.36	2.91	3.76	4.58	4.21	3.12	2.06	1.78	1.59	2.56
1949	1.98	1.39	1.64	1.99	2.93	4.07	4.85	4.26	3.20	2.99	1.47	1.46	2.69
1950	2.24	1.63	1.38	1.79	3.06	3.58	4.22	4.19	3.63	2.65	1.42	1.17	2.58
1951	1.33	1.40	1.67	1.99	2.45	3.93	4.52	4.58	3.42	2.31	1.56	1.54	2.56
1952	1.81	1.55	1.33	1.90	2.64	3.74	4.17	4.00	2.65	1.26	1.56	1.24	2.32
1953	1.47	1.20	1.81	1.78	2.97	3.92	4.15	3.92	2.51	2.01	1.31	1.13	2.35
1954	1.45	1.22	1.34	2.37	2.62	3.75	4.43	4.22	2.89	2.51	1.42	1.26	2.46
1955	1.15	1.29	1.62	2.09	2.80	3.19	4.59	4.03	3.29	2.02	1.36	1.19	2.39
1956	1.23	1.50	1.33	1.79	3.15	3.68	4.03	4.04	2.19	2.22	1.42	1.64	2.35
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	1.51	1.36	1.53	2.06	2.85	3.72	4.29	4.16	3.04	2.28	1.55	1.38	2.48
Std Dev σ	0.36	0.22	0.20	0.25	0.21	0.24	0.36	0.19	0.14	0.34	0.23	0.17	0.12
C.V.(%)	24	16	13	12	7	7	9	5	5	15	15	12	5

Miami : 12839 Sfc. Press. 1017 mb; Elev. 4 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946					4.06	4.43	4.47	4.68	4.77		3.52		
1947				3.57	3.43	4.81	4.71	4.65	4.91	4.17	3.89		
1948	2.76				3.49		4.92	4.92	4.88	4.02	3.73	3.24	
1949	2.39	2.76	2.44	3.24	3.33	4.45	4.67	4.55	4.66	4.16	2.53	2.89	3.50
1950	2.61	2.48	2.74	2.36	3.40	3.98	4.25	4.67	4.57	4.21	2.54	2.39	3.35
1951	2.01	2.02	2.43	3.08	3.11	4.07	4.82	4.95	4.64	4.18	2.99	2.69	3.41
1952	2.33	2.15	2.77	2.35	3.54	4.09	4.35	4.64	4.38	4.57	2.94	2.23	3.36
1953	2.29	2.53	2.78	2.72	3.10	4.57	4.61	4.43	4.89	3.65	3.13	2.82	3.46
1954	2.42	2.10	2.57	3.49	3.70	4.43	4.44	4.49	4.68	3.50	2.48	1.91	3.35
1955	2.10	2.44	2.49	2.88	3.05	4.08	4.41	4.61	4.57	3.51	2.73	2.88	3.31
1956	1.87	2.67	2.19	2.53	3.37	3.68	4.13	4.43	4.48	3.60	2.52	2.32	3.15
No.	9	8	8	9	11	10	11	11	11	10	11	9	8
Mean	2.31	2.39	2.55	2.91	3.42	4.26	4.53	4.64	4.68	3.96	3.00	2.60	3.44
Std Dev σ	0.28			0.46	0.30	0.33	0.25	0.18	0.19	0.37	0.51	0.41	
C.V.(%)	12			16	9	8	6	4	4	9	17	16	

Twenty-nine stations had complete records and 44 stations had more than 108 complete months (9 years). Missing monthly values result from several considerations. Some stations do not have complete records because observations were not taken during all of the 11 years. Other missing monthly values result from errors in processing and computing, and the fact that the Institute's records were not complete. It does not seem necessary to complete the records for all stations.

TABLE 2.—Continued.

Midland : 23023 Sfc. Press. 924 mb; Elev. 871m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	1.04	0.85	1.04	1.70		2.74	2.81	2.92	3.35	2.22	1.37	1.11	
1947	0.95	0.79	1.14	1.53	2.06	2.65	2.90	3.19	2.28	2.04	1.21	1.04	1.82
1948	0.86	1.13	1.00	1.40	2.12	2.74	3.38	2.98	2.28	1.74	0.93	1.13	1.81
1949	1.25	1.08	1.15	1.66	2.44	2.99	3.36	3.26	3.03	1.99	1.00	1.12	2.03
1950	1.20	1.17	0.86	1.46	2.11	2.97	3.47	2.97	2.99	1.90	0.90	0.73	1.89
1951	0.69	1.02	0.98	1.34	2.01	2.52	3.20	3.26	2.42	2.07	1.10	0.79	1.78
1952	1.18	0.78	0.86	1.40	1.81	2.79	3.32	3.12	2.41	1.13	1.22	0.84	1.74
1953	0.79	0.80	1.30	1.21	1.61	2.60	3.32	3.15	1.88	1.87	0.94	0.72	1.68
1954	0.89	0.78	0.81	1.62	1.99	2.74	2.60	3.41	2.25	1.96	1.04	0.89	1.75
1955	0.95	0.74	0.95	0.99	1.81	2.39	3.24	2.99	2.64	1.50	0.94	0.94	1.67
1956	0.93	0.84	0.75	1.15	2.00	2.75	2.75	2.53	2.02	1.66	0.78	0.93	1.59
No.	11	11	11	11	10	11	11	11	11	11	11	11	10
Mean	0.98	0.91	0.99	1.41	2.00	2.72	3.12	3.07	2.51	1.83	1.04	0.93	1.79
Std Dev σ	0.18	0.16	0.17	0.23	0.22	0.18	0.30	0.23	0.45	0.31	0.17	0.15	0.12
C.V.(%)	18	18	17	16	11	7	10	8	18	17	17	16	7

North Platte : 24023 Sfc. Press. 916 mb; Elev. 848 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.66	0.71	1.00	1.38	1.59	2.37	2.93	2.64	2.21	1.40	0.93	0.80	1.55
1947	0.59	0.60	0.76	1.15	1.73	2.40	2.80	3.09	2.23	1.85	0.80	0.78	1.57
1948	0.59	0.71	0.74	1.19	1.76	2.64	2.76	2.94	2.08	1.18	0.85	0.65	1.51
1949	0.60	0.56	0.93	1.18	2.00	2.63	2.88	2.83	1.80	1.45	0.99	0.64	1.54
1950	0.55	0.83	0.71	1.05	1.61	2.16	2.75	2.58	2.16	1.54	0.81	0.79	1.46
1951	0.58	0.77	0.63	0.95	1.77	2.27	2.90	3.08	1.84	1.39	0.76	0.67	1.47
1952	0.63	0.73	0.73	1.16	1.81	2.67	2.63	2.95	1.80	0.93	0.75	0.67	1.45
1953	0.86	0.68	0.84	1.01	1.54	2.41	2.84	2.83	1.80	1.41	1.07	0.68	1.50
1954	0.68	0.83	0.77	1.26	1.71	2.29	2.86	2.89	2.08	1.38	0.87	0.68	1.52
1955	0.59	0.57	0.67	1.02	1.65	2.20	2.86	2.62	1.95	1.22	0.67	0.76	1.41
1956	0.74	0.60	0.70	0.91	1.85	2.36	2.57	2.74	1.75	1.29	0.85	0.80	1.43
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.64	0.69	0.77	1.11	1.73	2.40	2.80	2.85	1.97	1.37	0.85	0.72	1.49
Std Dev σ	0.09	0.10	0.11	0.15	0.13	0.18	0.12	0.15	0.18	0.23	0.11	0.07	0.06
C.V.(%)	14	14	14	13	8	7	4	5	9	17	13	9	4

Nantucket, Mass. : 14756 Sfc. Press. 1015 mb; Elev. 14 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946				1.17		2.51	2.72	2.96	2.58	1.82	1.36	1.00	
1947	0.99	0.67	0.77	1.33	1.95	2.12	2.96	3.04	2.48	1.73	1.11	0.73	1.66
1948	0.73	0.75	1.17	1.33	2.13	2.63	2.91	3.27	2.20	1.77	1.73	1.00	1.80
1949	1.19	0.96	1.14	1.31	1.96	2.48	3.44	3.14	2.37	1.96	1.38	1.01	1.86
1950	1.33	0.93	0.87	1.29	1.86	2.53	3.08	2.84	2.37	1.75	1.54	1.07	1.79
1951	0.99	1.10	1.05	1.38	1.86	2.56	3.10	3.02	2.53	1.91	1.24	0.90	1.80
1952	1.02	0.78	0.99	1.53	1.71	2.74	2.93	3.14	2.27	1.53	1.23	0.90	1.73
1953	1.08	0.90	1.04	1.40	2.15	2.33	2.87	2.71	2.36	1.83	1.45	1.10	1.77
1954	0.91	0.96	0.89	1.45	1.94	2.50	2.97	2.86	2.58	2.17	1.42	1.06	1.81
1955	0.65	0.92	0.98	1.49	1.90	2.58	3.38	3.31	2.28	2.14	1.32	0.65	1.80
1956	1.00	0.91	0.90	1.18	1.55	2.73	3.02	2.93	2.37	1.68	1.39	1.25	1.74
No.	10	10	10	11	10	11	11	11	11	11	11	11	10
Mean	0.99	0.89	0.98	1.35	1.90	2.52	3.04	3.02	2.40	1.85	1.38	0.97	1.77
Std Dev σ	0.20	0.12	0.13	0.11	0.18	0.18	0.21	0.18	0.13	0.19	0.17	0.17	0.07
C.V.(%)	20	14	13	8	9	7	7	6	5	10	12	17	4

Oakland : 23230 Sfc. Press. 1016 mb; Elev. 6 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	1.08	1.21	1.51	1.45	1.74	1.71	2.24	1.67	1.76	1.65	1.53	1.52	1.59
1947	1.06	1.55	1.65	1.63	1.71	2.07	1.69	1.82	1.82	2.24	1.32	1.36	1.66
1948	1.45	1.29	1.39	1.56	1.79	2.16	1.96	1.74	1.88	1.84	1.53	1.37	1.66
1949	0.84	1.31	1.47	1.59	1.95	1.78	1.88	2.08	2.19	1.78	2.01	1.33	1.68
1950	1.32	1.49	1.41	1.50	1.52	1.92	1.88	1.93	2.24	2.20	2.13	1.90	1.79
1951	1.50	1.48	1.26	1.66	1.79	1.81	1.86	2.06	2.17	1.79	1.85	1.36	1.72
1952	1.29	1.48	1.33	1.55	1.54	1.85	2.30	1.80	2.15	1.87	1.28	1.61	1.67
1953	1.70	1.13	1.26	1.51	1.52	1.63	1.70	2.04	2.27	1.53	1.81	1.40	1.62
1954	1.40	1.35	1.34	1.70	1.50	1.89	2.00	1.86	1.64	1.62	1.82	1.44	1.63
1955	1.23	1.20	1.23	1.33	1.78	1.93	1.88	1.70	1.76	1.85	1.74	1.77	1.62
1956	1.61	1.15	1.25	1.51	1.87	1.81	2.13	1.90	2.05	1.96	1.35	1.30	1.66
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	1.32	1.33	1.37	1.55	1.70	1.87	1.96	1.87	1.99	1.85	1.67	1.49	1.66
Std Dev σ	0.26	0.15	0.13	0.10	0.16	0.15	0.20	0.14	0.22	0.22	0.29	0.20	0.04
C.V.(%)	20	11	9	6	9	8	10	8	11	12	17	13	2

Nashville : 13897 Sfc. Press. 996 mb; Elev. 177 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	1.05	1.13	1.78	2.02	2.56	3.34	4.08	3.35	3.08	1.90	1.76	1.50	2.30
1947	1.59	0.73	1.02	1.97	2.24	3.49	3.10	4.41	3.03	2.75	1.54	1.06	2.24
1948	0.89	1.49	1.62	2.11	2.37	3.40	3.96	3.40	2.71	1.63	1.74	1.27	2.22
1949	1.76	1.22	1.29	1.70	2.47	3.78	4.50	4.02	2.51	2.81	1.19	1.20	2.37
1950	2.04	1.28	1.18	1.45	2.87	3.21	3.63	3.57	3.15	2.28	1.21	0.90	2.23
1951	1.12	1.24	1.54	1.67	2.05	3.49	3.95	3.81	2.89	2.02	1.32	1.26	2.20
1952	1.50	1.15	1.06	1.59	2.29	3.55	3.51	3.73	2.38	1.23	1.16	1.13	2.02
1953	1.29	1.14	1.45	1.59	2.63	3.39							
1954	1.23	1.09	1.17	2.11	1.96	3.15	3.66	3.90	2.80	2.17	1.24	1.08	2.13
1955	0.96	1.18	1.41	1.87	2.52	2.53	4.28	4.05	2.86	1.73	1.21	1.05	2.14
1956	1.01	1.47	1.19	1.56	2.74	3.30	3.60	3.49	2.21	2.23	1.19	1.60	2.13
No.	11	11	11	11	11	11	10	10	10	10	10	10	10
Mean	1.31	1.19	1.34	1.79	2.43	3.33	3.83	3.77	2.76	2.08	1.36	1.21	2.20
Std Dev σ	0.37	0.20	0.24	0.24	0.28	0.32	0.41	0.33	0.31	0.49	0.23	0.21	0.09
C.V.(%)	28	17	18	14	12	10	11	9	11	23	17	18	4

Oklahoma City : 13967 Sfc. Press. 970 mb; Elev. 392 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	1.04	0.98	1.51	1.96	2.22	3.13	3.22	3.50	3.02	2.22	1.56	1.39	2.15
1947	1.00	0.77	1.15	1.86	2.31	3.20	3.48	3.76	2.80	2.55	1.30	1.13	2.11
1948	0.93	1.31	1.25	1.89	2.59	3.41	4.10	3.97	2.39	1.55	1.27	1.07	2.14
1949	1.26	1.10	1.24	1.68	2.80	3.52	4.06	3.24	2.88	2.10	1.20	1.09	2.18
1950	1.17	1.25	0.99	1.62	2.56	3.25	4.02	3.44	3.05	1.96	1.12	0.99	2.12
1951	0.86	1.24	1.05	1.55	2.53	3.40	3.82	3.99	2.94	2.31	1.24	0.93	2.16
1952	1.14	1.08	1.13	1.51	2.32	3.52	3.64	4.10	2.22	1.26	1.28	0.95	2.01
1953	1.00	0.93	1.34	1.44	2.27	3.19	3.77	3.38	2.26	2.07	1.33	0.87	1.99
1954	1.05	0.88	0.95	2.12	2.44	2.86	3.53	3.52	2.38	2.22	1.19	1.04	2.02
1955	1.00	0.86	1.16	1.62	2.67	2.94	3.71	3.65	3.12	1.66	0.95	1.08	2.04
1956	1.00	1.05	0.94	1.45	2.79	3.36	3.51	3.14	2.23	2.02	1.08	1.11	1.97
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	1.04	1.04	1.16	1.70	2.50	3.25	3.71	3.61	2.66	1.99	1.23	1.06	2.08
Std Dev σ	0.11	0.18	0.18	0.23	0.20	0.21	0.28	0.32	0.36	0.37	0.16	0.14	0.06
C.V.(%)	11	17	15	13	8	7	8	9	14	19	13	13	3

Table 2 lists the values of precipitable water expressed in centimeters for a column from the surface to 325 mb. The yearly average was determined from the 12 monthly averages which were not adjusted for variations in the length of the months. Standard deviations and coefficients of variation were computed when the number of individual monthly values was nine or greater. Mean surface pressures and elevations were taken for the most

TABLE 2.—Continued.

Omaha : 94918 Sfc. Press. 979 mb; Elev. 403 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946										2.05		0.69	
1947									2.58			0.90	
1948	0.54	0.81			1.93						1.15	0.78	
1949	0.80			1.20	2.42	3.34	3.54	3.11		1.79	1.08		
1950	0.68	0.87	0.80	1.13	1.99	2.65	2.92	2.84	2.41	1.85	0.88	0.75	1.65
1951	0.68	0.92	0.84	1.33	2.01	2.55	3.35	3.51	2.18	1.82	0.81	0.77	1.73
1952	0.72	0.87	0.91	1.12	1.99	3.44	3.44	3.39	2.21	1.13	0.97	0.81	1.75
1953	0.93	0.86	1.08	1.14	2.05	3.14	3.55	2.87	1.94	1.59	1.09	0.80	1.75
1954	0.68	0.94	0.82	1.54	1.66	3.10	3.46	3.79	2.48	1.82	1.07	0.83	1.85
1955	0.70	0.71	0.73	1.40	1.93	2.51	3.80	3.18	2.40	1.43	0.84	0.84	1.71
1956	0.80	0.78	0.84	0.97	2.27	2.77	3.00	3.02	1.99	1.69	0.99	0.85	1.66
No.	9	8	7	8	9	8	8	8	8	9	9	10	7
Mean	0.73	0.85	0.86	1.23	2.03	2.94	3.38	3.21	2.27	1.69	0.99	0.82	1.75
Std Dev σ	0.11				0.21					0.27	0.12	0.05	
C.V. (%)	15				11					16	12	6	

Portland, Maine : 14764 Sfc. Press. 1013 mb; Elev. 20 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.62	0.57	1.15	1.08	1.82	2.42	2.88	2.94	2.29	1.77	1.27	0.76	1.63
1947	0.78	0.61	0.71	1.06	2.00	2.42	3.45	3.10	2.22	1.87	0.89	0.61	1.64
1948	0.50	0.49	0.81	1.20	1.92	2.46	2.99	3.01	2.09	1.34	1.34	0.71	1.57
1949	0.77	0.69	0.79	1.11	1.75	2.53	3.10	2.89	2.27	1.69	1.07	0.79	1.62
1950	0.89	0.58	0.59	1.01	1.54	2.33	2.71	2.82	1.96	1.64	1.36	0.83	1.52
1951	0.81	0.94	0.92	1.34	1.85	2.47	3.16	3.10	2.49	1.73	1.09	0.81	1.73
1952	0.77	0.69	0.78	1 35	1.51	2.39	2.77	2.73	2.28	1.31	1.13	0.80	1.54
1953	0.83	0.72	0.88	1.29	1.96	2.17	2.83	2.42	2.16	1.68	1.27	0.92	1.59
1954	0.65	0.81	0.74	1.13	1.85	2.63	2.64	2.47	2.21	1.87	1.11	0.80	1.58
1955	0.54	0.73	0.77	1.31	1.91	2.63	3.23	3.29	2.07	1.78	1.08	0.54	1.66
1956	0.88	0.69	0.61	1.06	1.24	2.39	2.49	2.49	1.98	1.51	1.12	0.91	1.45
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.73	0.68	0.80	1.18	1.76	2.44	2.93	2.84	2.18	1.65	1.16	0.77	1.59
Std Dev σ	0.13	0.12	0.16	0.13	0.23	0.13	0.28	0.29	0.15	0.19	0.14	0.12	0.07
C.V. (%)	18.2	17.7	19.7	11.0	13.3	5.4	9.6	10.0	6.8	11.4	12.2	15.1	4.3

Phoenix : 23183 Sfc. Press. 972 mb; Elev. 341 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	1.12	0.79	1.11	1.56	1.40	1.83	3.56	3.80	3.34	1.77	1.38	1.27	1.91
1947	1.07	1.13	1.31	1.22	1.88	1.92	2.72	3.78	2.76	1.88	1.35	1.11	1.84
1948	1.02	1.17	0.93	1.22	1.13	1.76	2.96	3.39	2.39	1.89	0.81	1.10	1.65
1949	0.94	0.90	1.96	1.35	1.44	2.28	3.57	2.74	3.35	1.83	1.32	1.08	1.81
1950	0.97	1.22	0.98	1.19	1.10	1.65	3.80	2.73	2.32	1.73	1.26	1.00	1.66
1951	1.14	1.18	0.85	1.41	1.42	1.22	3.20	3.61	1.96	1.61	1.46	1.26	1.69
1952	1.10	0.87	1.10	1.65	1.54	1.79	2.97	3.67	2.44	1.31	1.25	1.10	1.73
1953	1.16	0.86	1.17	1.20	1.06	1.64	3.95	2.91	1.64	1.30	1.22	0.76	1.57
1954	1.05	0.88	1.04	1.01	1.46	1.70	3.87	3.43	2.81	1.56	1.15	0.98	1.75
1955	1.12	0.72	0.79	0.82	1.22	1.55	3.32	4.32	2.10	1.63	1.13	1.34	1.67
1956	1.34	0.94	0.67	1.14	1.22	2.00	3.24	2.76	2.29	1.51	0.76	0.94	1.57
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	1.09	0.97	0.99	1.25	1.35	1.76	3.38	3.38	2.49	1.64	1.19	1.09	1.72
Std Dev σ	0.10	0.17	0.18	0.23	0.24	0.27	0.41	0.52	0.54	0.21	0.22	0.17	0.11
C.V. (%)	9.4	18.0	18.2	18.7	17.6	15.2	12.0	15.3	21.5	12.8	18.7	9.2	6.1

Rapid City : 24090 Sfc. Press. 903 mb; Elev. 966 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.61	0.57	0.93	1.17	1.38	2.17	2.57	2.24	1.84	1.17	0.81	0.69	1.35
1947	0.57	0.49	0.64	1.07	1.45	2.17	2.55	2.51	1.87	1.51	0.68	0.69	1.35
1948	0.49	0.56	0.61	1.14	1.58	2.25	2.43	2.31	1.76	1.04	0.70	0.47	1.28
1949	0.51	0.46	0.75	1.05	1.73	2.15	2.39	2.20	1.60	1.30	0.89	0.60	1.30
1950	0.44	0.63	0.63	0.90	1.28	1.77	2.13	2.06	1.75	1.32	0.77	0.65	1.19
1951	0.48	0.60	0.52	0.80	1.41	1.72	2.62	2.48	1.57	1.35	0.70	0.50	1.23
1952	0.52	0.60	0.61	0.91	1.54	2.24	2.11	2.35	1.50	0.83	0.63	0.61	1.20
1953	0.75	0.66	0.71	0.86	1.36	2.24	2.55	2.50	1.42	1.23	0.88	0.61	1.31
1954	0.62	0.78	0.62	0.99	1.50	2.06	2.73	2.39	1.75	1.15	0.86	0.61	1.34
1955	0.55	0.54	0.49	0.97	1.55	2.07	2.57	2.67	1.78	1.18	0.59	0.71	1.31
1956	0.69	0.48	0.66	0.88	1.70	2.01	2.43	2.28	1.54	1.20	0.77	0.73	1.28
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.57	0.58	0.65	0.98	1.50	2.08	2.46	2.36	1.67	1.21	0.75	0.63	1.29
Std Dev σ	0.10	0.09	0.12	0.12	0.14	0.19	0.19	0.17	0.15	0.18	0.10	0.08	0.05
C.V. (%)	17.1	16.0	17.9	12.6	9.5	8.9	7.8	7.1	8.9	14.7	13.2	12.6	3.7

Pittsburgh : 94823 Sfc. Press. 973 mb; Elev. 353 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.78	0.75	1.29	1.10	1.99	2.71	2.76	2.42		1.79	1.30	0.94	
1947	0.99	0.49	0.65	1.49	1.90	2.48	2.63	3.66	2.48	2.00		0.80	
1948	0.54	0.87	1.09	1.51	1.77	2.64	3.11	2.76		1.46	1.40	0.86	
1949	1.30	0.91	0.93	1.09	1.81	2.89	3.67	2.90	2.00	2.06	1.03	0.86	1.79
1950	1.33	0.81	0.80	1.11	2.00	2.51	2.62	2.53	2.30	1.70	1.08	0.71	1.63
1951	0.87	0.89	0.97	1.32	1.84	2.63	2.90	2.54	2.00	1.57	0.95	0.86	1.61
1952	0.91	0.79	0.91	1.40	1.82	2.56	3.03	2.65	1.99	1.20	1.13	0.90	1.61
1953	1.04	0.78	1.07	1.22	2.31	2.52	2.78	2.59	1.88	1.54	1.03	0.82	1.63
1954						2.75	2.72	3.02	2.37	1.88	1.05	0.82	
1955	0.66	0.82	0.89	1.49	2.03	2.25	3.34	3.50	2.33	1.59	1.02	0.70	1.72
1956	0.81	0.86	0.84	1.15	1.77	2.71	3.06	2.99	2.12	1.84	1.07	1.23	1.70
No.	10	10	10	10	10	11	11	11	9	11	10	11	7
Mean	0.92	0.80	0.94	1.29	1.92	2.61	2.97	2.87	2.16	1.69	1.11	0.86	1.68
Std Dev σ	0.25	0.12	0.18	0.17	0.17	0.16	0.33	0.40	0.20	0.25	0.14	0.14	
C.V. (%)	27.5	15.0	18.7	13.5	8.6	6.2	11.0	14.1	9.4	14.8	12.5	16.1	

St. Cloud : 14926 Sfc. Press. 979 mb; Elev. 316 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.55	0.57	1.19	1.19	1.57	2.58	2.90	2 69	2.18	1.68	0.97	0.71	1.57
1947	0.62	0.44								1.98	0.76	0.62	
1948	0.38	0.55	0.68	1.21	1.51	2.39	2.85	2.80		1.27	0.98	0.59	
1949	0.60	0.51	0.65	1.03	1.89	2.49	3.07	2.82	1.68	1.55	1.01	0.54	1.49
1950	0.46	0.56	0.62	0.89	1.61	2.09	2.52	2.42	2.06	1.67	0.68	0.58	1.35
1951	0.45	0.69	0.69	1.06	1.85	2.28	2.70	2.66	1.90	1.46	0.63	0.56	1.41
1952	0.56	0.67	0.59	1.12	1.53	2.63	2.81	2.71	1.84	0.91	0.86	0.73	1.41
1953	0.64	0.55	0.75	0.88	1.54	2.67	2.61	2.92	1.85	1.53	0.91	0.59	1.45
1954	0.49	0.70	0.53	1.00	1.34	2.59	2.95	2.55	2.17	1.30	0.91	0.68	1.43
1955	0.51	0.51	0.54	1.33	1.79	2.44	3.68	3.10	2.09	1.37	0.74	0.58	1.56
1956	0.62	0.47	0.60	0.87	1.61	2.69	2.81	2.78	1.78	1.57	0.87	0.71	1.45
No.	11	11	10	10	10	10	10	10	9	11	11	11	9
Mean	0.54	0.57	0.68	1.06	1.62	2.49	2.89	2.75	1.95	1.48	0.85	0.63	1.46
Std Dev σ	0.08	0.09	0.19	0.16	0.17	0.19	0.32	0.19	0.18	0.27	0.13	0.07	0.08
C.V. (%)	15.0	16.0	27.8	14.7	10.5	7.7	11.1	6.9	9.2	18.5	14.8	11.5	5.2

part from U.S. Weather Bureau *Technical Paper* No. 32. The values given are not for the period of record, but are undoubtedly a very good estimate.

Data of this type are of basic meteorological, climatological, and hydrological importance. The individual monthly values are presented because it is felt that they are of interest and could prove useful to investigators in the above-mentioned fields of study. Additional work

TABLE 2.—Continued.

San Antonio : 12921 Sfc. Press. 987 mb; Elev. 243 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	1.59	1.68	1.77	2.68	3.50	3.82	3.80	4.15	4.45	3.40	2.40	1.92	2.93
1947	1.75	1.28	1.69	2.58	3.38	3.91	3.99	4.41	3.31	3.15	1.98	1.76	2.77
1948	1.46	1.98	1.89	2.35	3.28	3.78	4.46	3.88	3.49	2.68	1.78	1.93	2.75
1949	1.91	2.04	1.88	2.31	3.32	3.85	4.26	4.01	4.06	3.09	1.65	2.21	2.88
1950	2.61	2.25	1.71	2.63	3.39	3.87	4.16	3.86	3.99	2.65	1.82	1.36	2.86
1951	1.39	1.69	1.93	2.03	3.15	4.00	4.37	4.14	3.97	3.04	2.10	1.77	2.80
1952	2.04	1.55	1.81	2.11	2.67	3.78	4.21	4.08	3.21	1.58	2.07	1.55	2.56
1953	1.20	1.39	2.37	2.07	2.55	3.42	4.28	4.23	2.81	2.73	1.73	1.42	2.52
1954	1.75	1.36	1.58	2.65	2.89	3.73	3.74	4.09	3.46	2.97	1.68	1.47	2.61
1955	1.60	1.63	1.90	2.28	3.10	3.50	4.33	4.07	4.17	2.17	1.92	1.45	2.68
1956	1.46	1.69	1.66	2.10	2.76	3.61	3.58	3.51	3.04	2.53	1.59	1.65	2.43
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	1.71	1.69	1.84	2.34	3.09	3.75	4.11	4.04	3.63	2.73	1.88	1.68	2.71
Std Dev σ	0.38	0.30	0.21	0.26	0.31	0.17	0.29	0.23	0.41	0.51	0.24	0.26	0.16
C.V.(%)	22.4	18.1	11.7	11.0	10.0	4.6	7.1	5.8	11.4	18.8	12.6	15.7	5.9

Santa Maria : 23273 Sfc. Press. 1007 mb; Elev. 74 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	1.19	1.21	1.45	1.50	1.80	1.80	2.48	2.27	2.13	1.58	1.40	1.50	1.69
1947	1.01	1.42	1.63	1.67	1.94	2.05	1.82	2.21	2.13	2.09	1.34	1.29	1.72
1948	1.30	1.17	1.30	1.76	1.75	2.17	1.97	1.99	1.95	1.91	1.34	1.29	1.66
1949	0.97	1.24	1.51	1.70	1.95	1.97	2.19	2.18	2.10	1.70	1.65	1.20	1.70
1950	1.24	1.51	1.44	1.62	1.79	1.85	2.66	2.23	2.29	2.08	1.97	1.79	1.87
1951	1.45	1.41	1.29	1.71	1.84	1.93	2.20	2.09	2.23	1.68	1.57	1.43	1.74
1952	1.29	1.35	1.34	1.61	1.67	1.85	2.52	2.18	2.18	1.87	1.40	1.45	1.73
1953	1.59	1.00	1.29	1.51	1.38	1.79	2.25	2.04	2.12	1.46	1.67	1.12	1.60
1954	1.37	1.31	1.33	1.68	1.66	1.84	2.74	2.03	1.85	1.61	1.66	1.27	1.70
1955	1.15	1.17	1.17	1.28	1.77	1.90	1.99	2.39	2.03	1.76	1.55	1.91	1.67
1956	1.77	1.11	1.19	1.59	1.80	1.87	2.26	1.96	2.16	2.02	1.12	1.16	1.67
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	1.30	1.26	1.36	1.60	1.76	1.91	2.28	2.14	2.11	1.80	1.52	1.40	1.71
Std Dev σ	0.24	0.15	0.14	0.13	0.16	0.11	0.29	0.13	0.13	0.22	0.23	0.26	0.07
C.V.(%)	18	12	10	8	9	6	13	6	6	12	15	18	4

San Diego : 93112 Sfc. Press. 1014 mb; Elev. 13 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	1.13	1.12	1.53	1.67	1.79	1.94	2.77	3.39	3.33	2.39	2.07	1.93	2.09
1947	0.93	1.32	1.54	1.58	1.91	2.28	2.02	2.57	3.15	2.01	1.48	1.33	1.84
1948	1.23	1.30	1.43	1.63	1.51	2.06	2.08	2.21	1.84	1.88	1.07	1.21	1.62
1949	0.96	1.15	1.32	1.60	1.62	2.12	2.62	2.17	2.39	1.77	1.71	1.37	1.73
1950	1.42	1.52	1.56	1.65	1.56	1.82	3.37	2.47	2.38	2.07	1.89	1.70	1.95
1951	1.48	1.39	1.23	1.99	1.80	1.78	3.03	2.74	2.46	2.13	1.78	1.63	1.95
1952	1.40	1.46	1.48	1.92	1.74	1.94	2.79	3.20	2.88	2.06	1.64	1.54	2.00
1953	1.70	1.18	1.41	1.75	1.64	2.03	3.38	2.68	2.39	1.98	1.96	1.23	1.94
1954	1.53	1.39	1.65	1.68	1.97	2.07	3.41	2.34	2.38	1.71	1.66	1.42	1.93
1955	1.37	1.14	1.34	1.22	1.83	1.96	2.77	3.87	2.49	1.90	1.57	1.82	1.94
1956	1.84	1.18	1.13	1.70	1.76	1.72							
No.	11	11	11	11	11	11	10	10	10	10	10	10	10
Mean	1.36	1.29	1.42	1.67	1.74	1.97	2.82	2.76	2.57	1.99	1.68	1.52	1.90
Std Dev σ	0.28	0.14	0.15	0.20	0.14	0.17	0.50	0.56	0.43	0.19	0.27	0.25	0.14
C.V.(%)	21	11	11	12	8	9	18	20	17	10	16	16	7

Sault St. Marie : 14847 Sfc. Press. 988 mb; Elev. 221 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.52	0.44	0.93	0.93	1.37	2.08	2.50	2.24	1.98	1.62	0.98	0.60	1.35
1947	0.51	0.46	0.53	0.82	1.23	1.97	2.68	3.13	2.19	2.05	0.79	0.60	1.41
1948	0.39	0.47	0.60	1.19	1.30	1.93	2.41	2.55	1.95	1.31	1.16	0.63	1.32
1949	0.67	0.59	0.66	0.92	1.45	2.43	2.63	2.42	1.74	1.52	0.83	0.62	1.37
1950	0.61	0.46	0.54	0.77	1.46	1.91	2.27	2.05	1.86	1.58	0.86	0.61	1.25
1951	0.54	0.70	0.75	1.04	1.61	1.98	2.32	2.19	1.78	1.55	0.64	0.55	1.30
1952	0.62	0.51	0.65	1.08	1.41	2.22	2.71	2.39	2.10	0.98	1.02	0.78	1.37
1953	0.67	0.59	0.79	0.92	1.44	2.29	2.47	2.53	2.03	1.45	1.03	0.73	1.41
1954	0.50	0.65	0.54	0.98	1.23	2.52	2.29	2.33	2.10	1.50	0.99	0.58	1.35
1955	0.51	0.50	0.59	1.26	1.56	2.36	2.99	2.78	1.76	1.58	0.84	0.58	1.44
1956	0.62	0.53	0.48	0.83	1.18	2.45	2.27	2.44	1.70	1.53	0.97	0.68	1.31
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.56	0.54	0.64	0.98	1.39	2.19	2.50	2.46	1.93	1.52	0.92	0.63	1.35
Std Dev σ	0.09	0.09	0.13	0.16	0.14	0.23	0.22	0.30	0.17	0.26	0.14	0.07	0.06
C.V.(%)	15.3	16.4	20.8	16.1	10.3	10.7	9.0	12.1	9.0	16.9	15.6	10.6	4.4

San Juan : 11636 Sfc. Press. 1014 mb; Elev. 19 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	3.13	2.96	3.00		4.11	4.20	3.84	4.27	4.67	4.95	4.38	3.81	
1947	3.39	3.51	2.93	3.10	3.71	3.86	3.69	3.91	4.55	4.56	3.84	3.44	3.71
1948	3.30	3.01	3.05	3.28	4.31	4.35	4.32	4.33	4.47	4.48	4.43	3.59	3.91
1949	2.93	2.85	3.35	3.11	3.98	4.09	4.13	4.33	4.57	4.39	4.13	3.84	3.81
1950	3.03	3.50	3.01	3.41	3.84	4.16	4.12	4.51	4.47	4.71	4.17	3.69	3.88
1951	3.25	2.66	2.83	3.58	4.63	4.38	4.76	4.68	4.93	4.57	4.32	3.77	4.03
1952	3.27	3.30	3.29	4.16	4.35	4.33	4.61	4.41	4.61	4.42	3.99	3.17	3.99
1953	3.22	2.99	3.11	3.33	4.21	4.62	4.32	4.14	4.28	4.03	4.21	3.81	3.85
1954	3.14	3.67	3.12	3.41	4.13	4.08	4.07	4.44	4.50	4.23	3.95	3.49	3.85
1955	2.94	2.99	2.67	3.06	3.92	4.04	3.98	4.36	4.60	4.57	3.76	3.59	3.71
1956													
No.	10	10	10	9	10	10	10	10	10	10	10	10	9
Mean	3.16	3.14	3.04	3.38	4.12	4.21	4.18	4.34	4.57	4.49	4.12	3.62	3.86
Std Dev σ	0.15	0.33	0.20	0.34	0.27	0.22	0.33	0.21	0.17	0.25	0.23	0.21	0.12
C.V.(%)	4.9	10.5	6.6	10.1	6.5	5.1	7.9	4.8	3.7	5.6	5.5	5.8	3.1

Seattle : 24244 Sfc. Press. 1015 mb; Elev. 124 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946													
1947													
1948													
1949	0.85	1.06	1.29	1.43	1.65	1.92	2.32	2.35	2.23	1.62	1.89	1.18	1.65
1950	0.65	1.10	1.23	1.20	1.62	2.27	2.40	2.67	2.02	1.64	1.49	1.57	1.66
1951	0.98	1.21	1.02	1.21	1.72	2.00	2.30	2.43	2.21	1.76	1.37	1.02	1.60
1952	1.01	1.16	1.11	1.36	1.65	1.98	2.20	2.39	2.12	1.87	1.24	1.24	1.61
1953	1.52	1.20	1.26	1.52	1.80	2.03	2.18	2.61	2.16	1.95	1.63	1.41	1.77
1954	1.06	1.48	0.99	1.27	1.67	2.02	2.10	2.56	2.37	1.73	1.94	1.33	1.71
1955	1.26	0.99	1.03	1.19	1.60	2.33	2.52	2.14	2.18	1.89	1.21	1.16	1.63
1956	1.13	1.02	1.12	1.36	1.72	2.09							
No.	8	8	8	8	8	8	7	7	7	7	7	7	7
Mean	1.06	1.15	1.13	1.32	1.68	2.08	2.29	2.45	2.18	1.78	1.54	1.27	1.66
Std Dev σ													
C.V.(%)													

dealing with the distribution and variaton of precipitable water data as defined by these values has been presented elsewhere [4].

ACKNOWLEDGMENTS

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TABLE 2.—Concluded.

Spokane : 24157 Sfc. Press. 933 mb; Elev. 722 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	0.86	0.83	1.00	1.19	1.35	1.68	1.80	1.73	1.71	1.11	0.97	0.95	1.27
1947	0.74	0.85	0.99	1.1[illegible]	1.54	1.76	1.81	1.77	1.85	1.72	1.03	0.91	1.34
1948	0.75	0.68	0.70	0.97	1.54	2.14	1.82	1.85	1.48	1.12	0.90	0.59	1.21
1949	0.48	0.63	0.91	0.99	1.43	1.40	1.65	1.67	1.60	1.06	1.33	0.70	1.15
1950	0.41	0.86	0.85	0.90	1.12	1.87	1.76	1.78	1.35	1.43	0.95	1.11	1.20
1951	0.65	0.71	0.71	0.87	1.28	1.50	1.75	1.65	1.52	1.26	0.96	0.70	1.13
1952	0.68	0.71	0.76	1.00	1.30	1.57	1.51	1.61	1.53	1.18	0.87	0.92	1.14
1953	1.08	0.80	0.82	0.97	1.22	1.57	1.35	1.80	1.39	1.36	1.06	0.91	1.19
1954	0.70	0.89	0.66	0.78	1.23	1.45	1.67	1.75	1.55	1.15	1.28	0.84	1.16
1955	0.79	0.61	0.56	0.82	1.15	1.55	2.05	1.25	1.55	1.48	0.77	0.78	1.11
1956	0.77	0.64	0.75	1.00	1.47	1.62	1.91	1.80	1.40	1.26	1.02	0.95	1.22
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	0.72	0.75	0.79	0.97	1.33	1.65	1.74	1.70	1.54	1.29	1.01	0.85	1.19
Std Dev σ	0.18	0.11	0.14	0.13	0.15	0.22	0.18	0.17	0.15	0.19	0.16	0.15	0.07
C.V.(%)	24.9	14.1	17.3	13.2	11.2	13.1	10.6	9.9	9.5	15.2	16.2	17.3	6.0

Tatoosh Island : 24240 Sfc. Press. 1012 mb; Elev. 31 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	1.23	1.17	1.16	1.31	1.65	2.00	2.25	2.06	2.06	1.50	1.20	1.23	1.57
1947	1.07	1.35	1.36	1.48	1.71	1.98	2.17	2.01	1.88	1.73	1.45	1.39	1.63
1948	1.21	1.10	1.09	1.11	1.64	2.13	2.14	2.36	1.99	1.64	1.21	0.98	1.55
1949	0.86	1.02	1.22	1.41	1.62	1.78	2.11	2.19	2.12	1.69	1.89	1.15	1.59
1950	0.64	1.21	1.13	1.18	1.47	2.18	2.25	2.41	1.97	1.58	1.27	1.56	1.57
1951	1.09	1.11	1.01	1.13	1.61	1.90	2.20	2.00	2.22	1.75	1.36	1.05	1.54
1952	1.07	1.13	1.12	1.35	1.49	1.68	2.11	2.22	2.06	2.01	1.34	1.26	1.57
1953	1.48	1.15	1.14	1.24	1.60	1.84	2.12	2.53	2.09	1.93	1.58	1.44	1.68
1954	0.98	1.41	0.90	1.12	1.48	1.74	2.07	2.37	2.20	1.73	1.80	1.31	1.59
1955	1.21	1.01	1.01	1.06	1.34	2.11	2.16	2.08	2.04	1.74	1.17	1.07	1.50
1956	1.05	1.02	1.06	1.28	1.53	1.88	2.08	2.30	2.07	1.54	1.48	1.39	1.56
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	1.08	1.15	1.11	1.24	1.56	1.93	2.15	2.23	2.06	1.71	1.43	1.26	1.58
Std Dev σ	0.22	0.13	0.12	0.13	0.11	0.17	0.06	0.18	0.09	0.15	0.24	0.18	0.03
C.V.(%)	20.0	11.0	11.0	10.7	7.0	8.7	2.8	8.0	4.3	8.8	16.7	14.6	2.0

Tampa : 12842 Sfc. Press. 1017 mb; Elev. 7 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	2.30	2.21	2.21	2.29	3.83	4.41	4.66	4.80	4.58	3.40	3.38	2.37	3.37
1947	2.96	1.76	2.09	3.51	3.59	4.40	4.40	4.55	4.55	3.65	3.28	2.69	3.45
1948	2.19	2.57	3.08	2.95	3.06	4.03	5.00	4.85	4.45	2.98	3.24	2.76	3.43
1949	2.33	2.77	2.10	2.67	2.88	4.10	4.72	4.77	4.50	3.89	1.97	2.46	3.26
1950	2.46	2.05	2.36	2.10	3.31	4.17	4.50	4.51	4.06	3.59	2.34	1.99	3.12
1951	1.83	1.85	2.28	2.52	2.95	3.99	4.90	5.10	4.81	3.52	2.33	2.60	3.22
1952	2.07	2.17	2.65	2.16	3.16	4.41	4.53	4.85	4.83	3.74	2.38	1.95	3.24
1953	2.03	2.34	2.61	2.53	3.21	4.38	4.67	5.00	4.55	2.99	2.62	2.68	3.30
1954	1.88	1.78	2.11	3.40	3.15	4.20	4.84	4.61	4.63	2.97	2.32	1.78	3.14
1955	2.03	2.05	2.31	2.59	3.27	3.52	4.79	4.90	4.74	3.06	2.30	2.35	3.16
1956	1.54	2.36	1.89	2.35	3.65	3.78	4.12	4.58	3.87	3.19	2.01	2.21	2.96
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	2.15	2.17	2.34	2.64	3.28	4.13	4.65	4.78	4.51	3.36	2.56	2.35	3.24
Std Dev σ	0.37	0.32	0.34	0.47	0.30	0.28	0.25	0.18	0.30	0.34	0.51	0.33	0.15
C.V.(%)	17.4	14.7	14.4	17.6	9.2	6.7	5.5	3.8	6.7	10.0	19.8	14.2	4.9

Washington, D. C. : 93722 Sfc. Press. 1011 mb; Elev. 88 m

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
1946	1.01	0.94	1.48	1.47	2.48	2.99	3.38	3.22	3.00	1.97	1.51	1.14	2.05
1947	1.30	0.60	0.82	1.84	2.34	2.97	3.32	4.01	3.07	2.39	1.24	0.88	2.07
1948	0.77	1.04	1.31	1.84	2.38	3.29	3.73	3.38	2.64	1.71	1.78	1.08	2.08
1949	1.49	1.18	1.07	1.46	2.47	3.45	4.39	3.70	2.68	2.50	1.29	1.11	2.23
1950	1.64	1.05	0.97	1.33	2.49	2.96	3.57	3.40	3.04	2.12	1.32	0.86	2.06
1951	0.95	1.05	1.14	1.48	2.21	3.24	3.57	3.28	2.69	2.14	1.20	1.15	2.01
1952	1.25	0.98	1.19	1.92	2.29	3.18	3.67	3.56	2.45	1.47	1.41	1.06	2.04
1953	1.30	1.02	1.28	1.56	2.95	3.07	3.46	3.47	2.83	1.86	1.26	1.06	2.09
1954	0.98	0.94	1.02	1.99	2.18	2.89	3.27	3.65	2.78	2.14	1.28	0.94	2.01
1955	0.72	0.96	1.07	1.86	2.20	2.61	4.12	4.31	2.95	1.90	1.23	0.77	2.06
1956	0.97	1.06	1.03	1.38	2.30	3.27	3.77	3.22	2.62	2.22	1.23	1.43	2.04
No.	11	11	11	11	11	11	11	11	11	11	11	11	11
Mean	1.13	0.98	1.13	1.65	2.39	3.08	3.66	3.56	2.80	2.04	1.34	1.04	2.07
Std Dev σ	0.26	0.14	0.19	0.24	0.22	0.23	0.34	0.34	0.21	0.30	0.17	0.18	0.07
C.V.(%)	22.9	14.4	16.5	14.8	9.1	7.4	9.3	9.5	7.4	14.6	12.7	17.0	3.4

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