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WEATHER BUREAU

KEY TO METEOROLOGICAL RECORDS DOCUMENTATION NO. 4.11

SELECTIVE GUIDE TO PUBLISHED
CLIMATIC DATA SOURCES
PREPARED BY
U. S. WEATHER BUREAU



U. S. DEPARTMENT OF COMMERCE

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Washington D. C. 1963

THE "KEY TO METEOROLOGICAL RECORDS DOCUMENTATION" SERIES

This publication series has been established to provide guidance information to research personnel and others making use of observed data. The decimal system is used for numbering publications fitting into the series. Publications in this category that have already been printed, or are in the process of printing, when this "KEY" went to press are:

<u>Series No.</u>	<u>Title</u>
1.1	Substation Histories (issued for each state or combination of states, such as Maryland-Delaware and New England, and for Puerto Rico and Virgin Islands; 45 separate issues)
1.11	The Cooperative Weather Observer
1.12	A Key to Climatologic Observations in Hawaii
1.4	History of Soil Temperature Stations in the United States
2.01	History of Verification of Weather Records in the U. S. Weather Bureau
2.11	History of Climatological Record Forms 1009 and 612-14
2.210	History of Climatological Record Books
2.3	Ocean Vessel Station Meteorological Records Survey, Atlantic and Pacific
3.031	History of Observational Instructions on Fog
3.081	Excessive Precipitation Techniques
3.082	History of Weather Bureau Precipitation Gages
3.10	Temperature Recordings
3.12	History of Observational Instructions as Applied to Thunderstorms
3.131	History of Tornado Observations and Data Sources
3.151	History of Weather Bureau Wind Measurements
4.1	History of Climatological Publications
4.11	Selective Guide to Published Climatic Data Sources Prepared by the U. S. Weather Bureau
5.11	An Annotated Bibliography of Meteorological Observations in the United States, 1715-1818
5.31	Catalogue of Met'l Satellite Data - TIROS I Television Cloud Photography
5.32	" " " " " - TIROS II " " "
5.33	" " " " " - TIROS III " " "
5.34	" " " " " - TIROS IV " " "
6.11	Decadal Census of Weather Stations
6.2	The Decennial United States Census of Climate 1960 and its Antecedents

INTRODUCTION

This publication is designed to be of assistance to potential users of climatological data by informing them of the availability of such data in published form. Its format is planned to indicate the publication(s) in which these data in their various climatological categories (temperature, precipitation, wind, pressure, humidity, etc.), both surface and upper air, may be found.

A brief review of pertinent historical facts associated with each publication mentioned herein is given where appropriate, together with a list of the localities for which publications of a local nature are issued. In the review, mention is made of the various climatological tables, charts, and graphs included in each publication and, in many cases, abbreviated examples of the tables are shown.

Included with each review is a statement of the subscription rate (for routine periodicals) and the sale price per copy of each publication, together with the name and address of the office from which copies may be obtained. Subscription rates do not apply, however, to past years' issues; these must be purchased at the single copy price.

The Index (pages vi through xv) lists by time-period breakdowns - hourly, daily, weekly, monthly or seasonal, annual, and long-period - the separate climatological categories and derived data.

Although this publication refers specifically to published climatological data, it should be noted that a wealth of unpublished climatological summaries are available in the files of the National Weather Records Center, Asheville, North Carolina. An index to these summaries is given in the GUIDE TO STANDARD WEATHER SUMMARIES, NAVAER 50-1C-534 (U. S. Navy, January 1959).

This GUIDE was prepared in response to a recommendation by the Advisory Committee on Climatology (National Academy of Sciences - National Research Council).

Prepared by
John R. Swartz
Office of Climatology
U. S. Weather Bureau

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- Local Climatological Data (GROUP I)
- Hourly Precipitation Data (GROUP I)
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Averages by hour of day	39	15
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Coded values at 1200 GCT for Northern Hemisphere	61,62	29
Values at standard pressure surfaces for 0000 and 1200 GCT, Northern Hemisphere.	64	30
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Mean values at selected pressure surfaces.	55	24
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HUMIDITY

(This element is divided into three component parts - dew point, relative humidity, and vapor pressure. Dew point is also listed separately on Index page vii)

Dew Point

Hourly: Values for each hour.	42	16
Averages by hour of day	39	15
Daily: 24-Hour averages	40	15
Coded values at 1200 GCT for Northern Hemisphere	61,62	29
Values at standard pressure surfaces for 0000 and 1200 GCT for Northern Hemisphere.	64	30
Monthly: Average monthly.	18,101	8,76
Mean values at selected pressure surfaces.	55	24
Long Period: Monthly means, and distribution of, at synoptic hours.	--	35
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Maximum persisting 12-hour 1000-mb. values, monthly and of record.	85	51,56

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Daily: Totals	2,32,	3,14,
	51,52	21,22
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Snow, sleet, and ice on ground	32	14
Snowfall, snow on ground, and water equivalent	5	3
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Departures from normal	67	31
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	18,32,43,	8,14,17,
	51,53,54	21,22,23
Normals (1931-1960)	44,49,82,	17,18,50,
	86,87	59,60
Departures from normal	1,12,18,	2,5,8,
	32,54	14,23
Greatest in 24 hours, and date	1,18,	2,8,
	32,43	14,17
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	86,87	59,60
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Total snow/sleet	27,43	11,17
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Maximum snow/sleet in 24 hours, and year	28,44, 78,82	11,17,34, 36,42,50
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SNOWFALL AND SNOW COVER

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Total snow on ground and water equivalent	56	25
Greatest depth of snow, sleet, and ice on ground, and date	1,18,32	2,8,14
Number of days with snow/sleet 1.0 inch or more	43	17
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Number of days with snow/sleet 1.0 inch or more	27,43	11,17
Long Period: Monthly and seasonal totals.	48	18,34
Mean monthly and annual snowfall	28,44,71, 78,82	11,17,34, 36,39,42, 50,51
Maximum monthly total snow/sleet, and year	44,78,82	17,34, 42,50
Maximum snow/sleet in 24 hours, and year	28,44, 78,82	11,17,34, 36,42,50
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Occurrences of combined increments of temperature-relative humidity- wind speed	34	15
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Normal maximum, normal minimum (1931-1960)	83	35,53
Average, and departure from normal	32	14
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24-Hour averages of dry- and wet-bulb readings	40	15
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Values at standard pressure surfaces for 0000 and 1200 GCT	63,64	30
Irregular air and sea temperature values during gale conditions in the North Atlantic and North Pacific Oceans and the Great Lakes	100	76
Weekly: Average	67	31
Departure from normal	67	31
Monthly: Average.	43,101	17,76
Normals (1931-1960).	28,44,49, 82,86,87	11,17,18, 35,50, 59,60
Normal maximum, normal minimum (1931-1960)	28,44,49, 82,86	11,17,18, 35,50,59
Average, and departure from normal	1,11,18, 32,54	2,5,8, 14,23
Average maximum, average minimum	1,3,18, 32,43	2,3,8, 14,17
Maximum and date, minimum and date	1,18, 34,43	2,8, 14,17
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Number of days maximum 90° or above.	18	8
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Normals (1931-1960)	28,44,49, 82,86,87	11,17,18, 35,50, 59,60
Departure from normal	11	5
Average maximum, average minimum.	27,43	11,17
Normal maximum, normal minimum (1931-1960).	44,49, 82,86	17,18,35, 50,59
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Number of days maximum 90° or above; 32° or below	27,43	11,17
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Long Period: Monthly and/or annual average cloudiness	95	65
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Occurrences of weather by 16-point wind direction	41	16
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	<u>Exhibit</u>	<u>Page</u>
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Prevailing direction.	27,43	11,17
Fastest mile, direction, and date	27,43	11,17
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GROUP I

CURRENT PUBLICATIONS

CLIMATOLOGICAL DATA

This publication presents basic climatological data in its monthly and annual issues. It is published for each state or combination of states (Maryland-Delaware, New England); the Pacific area; and Puerto Rico and the Virgin Islands. It was first published by the Weather Bureau as the CLIMATOLOGICAL SERVICE BULLETIN beginning in February 1906. Beginning in July 1909, and continuing through December 1913, the monthly data were included as a part of the MONTHLY WEATHER REVIEW, but were presented on a drainage district basis. The annual data, however, were not included during this period. Beginning with January 1914 CLIMATOLOGICAL DATA has been published, monthly and annually, under that title. A West Indies and Caribbean issue was published through 1952 and, starting with January 1960, a few monthly issues were published but were discontinued shortly thereafter as a temporary expedient.

Currently, the monthly issue contains a general data table (Exhibit 1); a daily precipitation table (Exhibit 2); daily temperature table (Exhibit 3); a supplemental table of wind, relative humidity, etc., for selected stations (Exhibit 4); a table of snowfall and snow on ground (Exhibit 5); evaporation and wind table (Exhibit 6); daily soil temperature (Exhibit 7); and a station index table (Exhibit 8). Monthly and seasonal snowfall (Exhibit 9), and monthly and seasonal heating degree days (Exhibit 10) are published in the July issue only. When unusual or outstanding weather has occurred within the state during the month a narrative summary of the occasion is included.

The annual issue of CLIMATOLOGICAL DATA presents tables as follows: monthly and annual average temperatures and departures from normal (Exhibit 11); monthly and annual total precipitation and departures from normal (Exhibit 12); temperature extremes and freeze data (Exhibit 13); monthly and annual total evaporation and wind movement (Exhibit 14); monthly and annual average and extreme soil temperatures at selected depths (Exhibit 15); plant-available water in soil, deficit, and precipitation (Exhibit 16), together with the related description of soil moisture sites (Exhibit 17); and a station index table.

Subscription Price: 20 cents per copy, monthly and annual; \$2.50 per year (yearly subscription includes the annual issue). Checks and money orders should be made payable to the Superintendent of Documents. Remittances and correspondence regarding subscriptions should be sent to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Exhibit 1
CLIMATOLOGICAL DATA

CALIFORNIA
FEBRUARY 1963

Station	Temperature											Precipitation											
	Average Maximum	Average Minimum	Average	Departure From Normal	Highest	Date	Lowest	Date	Degree Days	No. of Days				Total	Departure From Normal	Greatest Day	Date	Snow, Sleet			No. of Days		
										90° or Above	32° or Below	32° or Below	32° or Below					Total	Max. Depth on Ground	Date	.10 or More	.50 or More	1.00 or More
PORTOLA	56.6	29.7	43.2	11.4	69	7	19	23	604	0	0	18	0	2.11	- 1.28	1.26	1	.0	0	0	4	1	1
QUINCY RS	60.4	34.7	47.6	10.8	70	7	23	23	483	0	0	6	0	5.29	- 1.97	3.47	1	.0	0	0	6	3	1
RED BLUFF WB AP	64.8	46.8	55.8	6.1	75	23	40	17+	250	0	0	0	0	2.28	- 1.03	.86	12	.0	0	0	5	1	0
REDDING FIRE STA 2	66.2	47.3	56.8	7.4	78	23	39	18	225	0	0	0	0	3.27	- 2.92	.78	12	.0	0	0	11	1	0
ROCKLIN	53.8	47.2	55.9	5.7	71	26	39	28+	249	0	0	0	0	2.90	- 1.46	1.45	1	.0	0	0	3	2	2
SACRAMENTO WB AP	64.5	47.2	55.9	5.7	73	6	39	28+	249	0	0	0	0	2.09	- .90	.90	12	.0	0	0	3	2	0
SACRAMENTO WB CITY	66.0	49.1	57.6	6.6	73	6	43	28+	202	0	0	0	0	1.75	- 1.72	.83	12	.0	0	0	3	2	0

Exhibit 2

DAILY PRECIPITATION

CALIFORNIA
FEBRUARY 1963

Station	Total	Day of Month																																
		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		
LUCERNE VALLEY 1 SSW	.54																																	
LYTLE CREEK PH	7.93	2.35	.01								.16																							
LYTLE CREEK RS	5.82		.03								4.96	.31																						
MADLINE MNTNC STA	4.57	.23	T								5.60	.16																						
MADERA	2.34	.47	.02								.93	.01	.35							.14														
MAD RIVER RS	9.84	4.63	*	1.64				.85	.04		.08	.44	*	.15																				
MANDEVILLE ISLAND	2.17	.60									.05	.06	.47							*	*	.65												
MANZANITA LAKE	5.16	1.63	.68	.95		.02	.39				.02	.12	.03	.06	.22																.02			
MARCH FIELD	2.15	.03	T								.08	.91	.94																					
MARE ISLAND	2.27	.23									1.00	.10							.04															

Exhibit 3

DAILY TEMPERATURES

CALIFORNIA
FEBRUARY 1963

Station		Day Of Month																															Average	
		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		
BUTTONWILLOW	MAX	73	68	72	71	78	80	69	74	76	64	63	64	70	68	63	55	54	61	66	68	65	66	65	71	71	74	73	66					68.1
	MIN	57	45	49	46	42	42	43	45	47	47	48	40	41	47	44	38	39	39	40	44	42	45	38	37	38	44	41	37					43.0
CABRILLO NM	MAX	62	74	82	79	75	69	60	60	59	63	59	61	62	62	61	62	63	64	59	63	60	64	70	78	70	71	66	70					66.0
	MIN	56	54	56	60	58	56	53	52	53	53	51	51	50	54	51	51	52	51	49	51	50	51	49	54	55	47	51	56					52.7
CACHUMA DAM	MAX	59	66	77	87	81	83	75	78	70	57	56	64	70	67	66	67	61	67	72	71	71	75	75	80	78	82	80	77					71.9
	MIN	52	53	49	51	46	46	46	46	51	48	48	47	49	48	38	44	42	39	41	46	43	41	39	37	38	45	47	41					45.0
CALAVERAS BIG TREES	MAX	60	50	54	63	58	61	64	68	60	49	47	52	48	44	48	60	50	50	49	57	58	55	60	64	64	64	59	60					56.3
	MIN	44	40	40	42	38	38	40	38	36	37	34	32	34	30	28	29	32	32	32	34	30	30	32	30	32	36	30	32					34.4
CALLAHAN RS	MAX	55	57	65	57	61	59	62	62	58	55	60	54	54	54	52	48	47	60	58	57	56	59	62	57	58	55	58	54					56.9
	MIN	41	32	40	45	39	44	33	46	32	42	29	32	30	27	27	33	34	39	37	40	29	29	27	27	33	32	25	29					34.0

Exhibit 4

SUPPLEMENTAL DATA

Station	Wind direction		Wind speed m. p. h.				Relative humidity averages percent				Number of days with precipitation							Percent of possible sunshine	Average sky cover sunrise to sunset
	Prevailing	Percent of time from prevailing	Average	Fastest mile	Direction of fastest mile	Date of fastest mile	4:00A PST	10:00A PST	4:00P PST	10:00P PST	Trace	Number of days with precipitation							
												.01-.09	.10-.49	.50-.99	1.00-1.99	2.00 and over	Total		
BAKERSFIELD WB AIRPORT	NNW	14	6.2	++35	NNE	15	79	61	43	64	4	6	1	0	0	0	11	-	5.9
BISHOP WB AIRPORT	-	-	-	-	-	-	-	24	14	-	1	0	1	0	0	0	2	-	5.9
BLUE CANYON WB AIRPORT	SSW	-	9.4	67	ENE	28	-	71	-	0	2	7	7	3	0	19	-	7.8	
BURBANK WB AIRPORT	SSE	15	7.5	++31	NW	17	69	49	40	64	3	3	1	0	0	0	7	-	5.6
EUREKA WB CITY	↑S	-	8.6	34	S	16	-	-	-	3	2	11	8	0	0	24	49	8.3	
FRESNO WB AIRPORT	NW	24	7.6	24	NW	23	87	60	39	70	7	2	4	0	0	13	81	5.9	

Exhibit 5

SNOWFALL AND SNOW ON GROUND

COLORADO
FEBRUARY 1963

Station		Day of month																																
		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		
AKRON FAA AIRPORT	SNOWFALL SN ON GND										T	1.0	T	1	T	T							T	T	T	T	1.0	T						
ALAMOSA WB AIRPORT	SNOWFALL SN ON GND WTR EQUIV	.4	T							2.8	9.8	1.4	.5	T	9	.8	6	1.1	5	5	5	4	3	2	1	T	T	T	T					
ALTENBERN	SNOWFALL SN ON GND	T																																1.0
ASPEN	SNOWFALL SN ON GND	3.0	T	13	12	11	11	10	10	10	10	1.5	11	11	11	1.0	2.0	1.3	.5	1.0	1.0	1.0	1.4	14	13	12	12	3.0	2.0	14	14			

Exhibit 6

EVAPORATION AND WIND

CALIFORNIA
FEBRUARY 1963

Station	Day of month																															Total or Avg.		
	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			
ANTIOCH PUMPING PLANT 3	EVAP	.04	.02	.03	.02	.01	.04	.04	.03	.07	.00	.07	.02	.04	.06	.07	.02	.01	.05	.04	.06	.12	.15	.15	.07	.08	.15	.11					B1.63	
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BACUS RANCH	EVAP	.07	.18	.14	.16	.13	.21	.17	.25	.11	.06	.16	.14	.12	.23	.12	.11	.28	.18	.13	.22	.32	.28	.25	.21	.28	.39	.36	.17					5.43
	WIND	217	70	8	15	7	11	14	75	88	112	122	115	27	162	110	15	188	130	32	135	298	130	28	42	31	194	213	25					2614
BEAUMONT PUMPING PLT (A)	EVAP	.10	.10	.50	.80	.20	.20	.17	.07	-	-	.08	.20	-	.04	.10	.12	.09	.14	.12	.13	.10	.12	.17	.21	.23	.17	.22					B5.11	
	WIND	12	39	7	40	24	1	10	16	15	11	21	14	13	3	12	8	12	13	7	15	19	8	32	2	10	25	16	54				459	
	MAX	52	52	53	71	72	72	70	69	53	52	58	53	65	57	58	55	58	61	63	69	67	69	64	60	71	73	71	71					62.5
	MIN	44	48	48	48	47	49	47	45	48	45	43	45	45	46	42	45	42	41	41	31	36	39	44	44	44	42							43.6
BERRYESSA LAKE	EVAP	28	05	09	11	03	04	09	03	00	08	02	04	07	04	04	06	04	05	06	04	08	12	14	10	11	.07	.15	20				2.23	
	WIND	118	48	26	47	23	32	* 27	43	36	28	28	52	29	29	22	21	22	11	0	45	53	16	18	25	63	107						969	
	MIN	54	65	66	66	66	66	72	71	63	57	59	67	63	63	63	68	67	68	72	64	74	71	72	73	71	71							67.3
	MAX	57	56	55	55	55	54	56	55	55	52	52	51	52	48	47	48	48	50	53	51	46	47	46	46	45	46	44						50.6

Exhibit 7

DAILY SOIL TEMPERATURES

CALIFORNIA
FEBRUARY 1963

STATION, DEPTH AND TIME	Day of month																															Average		
	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			
BRAWLEY 2 SW																																		
4 INCHES (A) 9:00 A.M.	MAX	57	63	60	61	61	61	62	63	65	62	58	60	57	58	60	60	58	60	60	61	63	62	64	60	62	63	64	62					61.0
	MIN	65	73	80	79	79	81	82	82	78	78	68	75	75	73	76	78	77	77	79	80	82	83	78	80	83	85	83	81					
8 INCHES 9:00 A.M.	MAX	59	63	64	64	64	65	65	66	66	65	63	63	63	64	64	64	63	64	65	65	66	66	66	66	66	67	67	67					64.5
	MIN	62	65	69	69	69	70	70	70	70	70	67	69	68	67	67	69	69	69	70	70	71	72	71	72	71	73	73	72					69.5
12 INCHES 9:00 A.M.	MAX	58	62	63	64	64	64	64	65	65	66	65	62	62	62	63	63	63	63	63	64	64	66	66	66	66	67	67	67					64.1
	MIN	61	63	65	65	66	66	67	67	68	67	66	66	65	65	66	66	66	66	66	66	67	68	68	67	68	68	69	69					66.4
20 INCHES 9:00 A.M.	MAX	62	63	64	64	65	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	67	67	67	67	68	68	68	68					66.0
	MIN	62	63	64	64	65	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	67	67	67	67	68	68	68	68					66.0
39 INCHES 9:00 A.M.	MAX	64	65	65	65	65	66	66	66	66	67	67	67	67	67	67	67	67	67	67	67	67	67	67	68	68	68	68					66.7	
	MIN	64	65	65	65	65	66	66	66	66	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	68	68	68	68					66.7
79 INCHES 9:00 A.M.	MAX	72	72	72	72	72	72	72	72	72	72	72	71	71	71	71	72	72	72	72	72	72	72	72	72	72	72	72					71.9	
	MIN	72	72	72	72	72	72	72	72	72	72	72	72	72	71	71	71	71	72	72	72	72	72	72	72	72	72	72	72					71.9
DAVIS 1 WSW																																		
4 INCHES (B)	MAX	54	56	56	57	56	55	57	55	56	54	55	56	53	54	53	52	52	53	54	53	54	57	58	58	59	60	60	60	58				55.8
	MIN	53	53	53	54	51	53	53	52	54	53	52	52	52	51	48	50	49	49	50	53	51	50	48	50	50	53	50	47					51.2

Exhibit 8

STATION INDEX

CALIFORNIA
1963

STATION	INDEX NO.	COUNTY	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES			OBSERVER	STATION	INDEX NO.	COUNTY	DRAINAGE	LATITUDE	LONGITUDE	ELEVATION	OBSERVATION TIME AND TABLES			OBSERVER
							TEMP.	PRECIP.	SPECIAL									TEMP.	PRECIP.	SPECIAL	
ABBOTT MINE	D006	LAKE	23 39 02	122 26	1965	3P			A ALLEN FECHT	CARIBOU POWER HOUSE	B522	PLUMAS	8 40 05	121 09	2986	5P			P G + E COMPANY		
ACTON ESCONDIDO	FC2618	D014	29 34 30	118 17	2920	5P			J C FASOLD	CARNEAL VALLEY	B534	MONTREY	8 30 29	121 44	425	5P			A A COLLINS JR		
ADELANTO	D024	SAN BERNARDINO	15 34 35	117 25	2845	5S			FRANK EBERT	CATHAY BULL RUN RANCH	B588	MARIPOSA	27 37 24	120 03	1425	9A	9A		MR H ALISON		
ADIR RANGER STATION	D029	MOJOC	21 41 32	120 57	4193	5P			U S FOREST SERVICE	CAZADERO	B602	SOMONA	22 38 32	123 08	1040	5P			MISS HAZEL L BOROTRA		
ALAMO 1 M.	D064	CONTRA COSTA	6 37 52	122 02	435	7A			FRANK J COZZILLO	CECILVILLE SAWYER	B606	SISKIYOU	12 41 06	123 03	3000	6P	6P		MOUNTAIN VIEW RANCH		
ALDERPOINT	D088	HUMBOLDT	7 40 11	123 36	435	9A			MRS CORA C OLSEN	MOUNTAIN VIEW	B609	FRESNO	11 36 47	116 40	4650	8A	8A		US NAT PARK SERVICE		
ALISO CN OAT HT FC 446	D115	LOS ANGELES	118 34 19	118 33	2367	5P			TIDEWATER OIL CO	CEDAR GROVE	B614	MOJOC	18 41 32	120 10	4670	8A	8A		US SOIL CON SERVICE		
ALPINE	D136	SAN DIEGO	33 32 30	116 46	1735	5S			ALPINE FIRE DEPT	CEDARVILLE	B624	BUTTE	23 39 47	121 40	322	4P	4P		P G + E COMPANY		
ALTADENA	D144	LOS ANGELES	15 34 11	118 08	1127	5P			RUBIO CANON L-W ASN	CENTERVILLE POWER HOUSE	B624	BUTTE	8 39 29	121 14	2575	8A	8A		U S FOREST SERVICE		
ALTURAS RANGER STATION	D161	MOJOC	21 41 29	120 32	4968	8A		C H	U S FOREST SERVICE	CHALLENGE RANGER STA	B653	TUBA									

Exhibit 9

MONTHLY AND SEASONAL SNOWFALL

Season of 1961-1962

INDIANA

Station	July	August	September	October	November	December	January	February	March	April	May	June	Total	Long-term means July-June
ALBION 5 E					T	5.0	2.2	13.5	-	T			-	-
ANDERSON SEWAGE PLANT					1.2	5.8	4.1	10.3	2.0	T			23.4	-
ANDERSON WATERWORKS					*4	5.2	4.0	10.1	2.5	T			22.2	-
ANGOLA					*7	-	6.5	15.9	6.5	T			-	-
BEDFORD					T	-	7.0	4.0	-	T			-	-
BEDFORD 4 SW				T	T	12.8	5.5	3.7	4.0	T			27.2	-
BERNE					2.0	15.5	4.4	12.5	8.9	T			43.3	-

Exhibit 10

MONTHLY AND SEASONAL HEATING DEGREE DAYS

Season of 1961-1962

INDIANA

Station	July	August	September	October	November	December	January	February	March	April	May	June	Total	Long-term means July-June
ALBION 5 E	9	10	75	369	724	1158	1366	1112	1013	504	130	21	6491	6094
ANDERSON SEWAGE PLANT	2	6	96	323	700	1113	1281	1033	1012	518	69	17	6763	6763
ANGOLA	6	6	90	344	764	1161	1418	1202	1012	565	140	37	4856	4856
BEDFORD	1	4	49	207	603	975	1120	761	732	389	18	2	5911	5911
BERNE	1	4	61	260	682	1133	1267	1032	922	464	72	13	5911	5911

Exhibit 11

AVERAGE TEMPERATURES AND DEPARTURES FROM NORMAL

IOWA 1962

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual			
	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure	Temperature	Departure		
ADEL 3 ESE	14.7	- 7.9	22.5	- 2.8	29.1	- 4.7	48.5	- 0.8	67.9	- 0.4	72.6	- 0.6	72.9	- 0.6	62.3	- 2.8	56.2	- 1.1	41.1	- 2.6	26.3	- 1.5	48.6	- 1.1	50.5	- 1.5	50.5	- 1.1
ALBIA	16.5	- 7.9	23.0	- 2.8	32.7	- 4.7	50.5	- 0.8	70.4	- 0.4	74.3	- 0.8	74.5	- 0.6	64.1	- 2.8	57.3	- 1.1	42.4	- 2.6	27.5	- 1.5	48.6	- 1.1	50.5	- 1.5	50.5	- 1.1
ALBIA PASTURE IMP FARM	16.0	- 7.9	23.0	- 2.8	31.0	- 4.7	49.6	- 0.8	69.6	- 0.4	73.5	- 0.4	73.5	- 0.6	62.4	- 2.8	56.6	- 1.1	40.3	- 2.6	27.7	- 1.5	48.6	- 1.1	50.5	- 1.5	50.5	- 1.1
ALGONA 3 W	9.9	- 7.5	18.0	- 3.1	24.6	- 7.3	44.6	- 1.0	63.9	- 1.2	70.6	- 1.0	70.4	- 1.0	58.6	- 4.8	52.9	- 0.5	38.9	- 4.0	23.0	- 0.2	45.3	- 1.9	46.5	- 1.9	46.5	- 1.9
ALLISON	12.4	- 6.9	21.2	- 2.7	28.4	- 5.8	47.6	- 1.5	66.7	- 1.4	71.3	- 3.5	71.8	- 0.6	60.9	- 3.4	54.8	- 1.5	39.8	- 3.1	25.2	- 0.1	47.5	- 1.2	47.5	- 1.2	47.5	- 1.2
AMES 3 SW	13.1	- 6.9	20.7	- 2.9	29.5	- 4.6	46.7	- 1.5	65.3	- 1.4	70.4	- 3.5	70.4	- 0.6	60.9	- 3.4	54.8	- 1.5	37.0	- 2.0	22.0	- 0.2	46.2	- 1.6	46.2	- 1.6	46.2	- 1.6
ANAMOSA 1 NW	14.0	- 7.2	23.2	- 2.8	29.1	- 6.3	48.3	- 1.6	67.6	- 2.5	72.5	- 3.4	72.2	- 1.8	60.6	- 4.7	55.2	- 1.1	39.8	- 2.3	27.0	- 0.2	48.2	- 1.6	48.2	- 1.6	48.2	- 1.6
ANKENY 2 SW	13.3	- 5.9	21.9	- 2.0	29.2	- 4.9	48.0	- 1.1	67.1	- 1.7	71.9	- 3.7	71.9	- 1.6	60.2	- 4.5	53.7	- 0.0	37.9	- 1.5	23.5	- 2.1	47.3	- 1.7	47.3	- 1.7	47.3	- 1.7
ATLANTIC 1 NE	14.2	- 7.2	23.2	- 2.8	29.1	- 6.3	48.3	- 1.6	67.6	- 2.5	72.5	- 3.4	72.2	- 1.8	60.6	- 4.7	55.2	- 1.1	39.8	- 2.3	27.0	- 0.2	48.2	- 1.6	48.2	- 1.6	48.2	- 1.6
AUDUBON	14.2	- 5.9	21.9	- 2.0	29.2	- 4.9	48.0	- 1.1	67.1	- 1.7	71.9	- 3.7	71.9	- 1.6	60.2	- 4.5	53.7	- 0.0	37.9	- 1.5	23.5	- 2.1	47.3	- 1.7	47.3	- 1.7	47.3	- 1.7

Exhibit 12

TOTAL PRECIPITATION AND DEPARTURES FROM NORMAL

IOWA 1962

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure
ADEL 3 ESE	4.26	- 1.7	1.15	- 4.3	0.98	- 2.08	1.90	- 1.69	6.58	- 4.25	3.09	- 6.21	3.68	- 4.44	2.99	- 4.89	2.81	- 4.46	4.50	- 4.87	0.81	- 1.10	0.30	- 1.12	29.05	- 5.37
AKRON	1.32	- 0.7	3.82	- 3.01	2.42	- 1.31	2.08	- 0.76	1.69	- 0.59	8.02	- 4.20	4.44	- 1.25	5.23	- 1.24	1.54	- 1.72	4.87	- 2.79	1.42	- 1.47	0.42	- 0.96	0.12	- 0.55
ALBIA	1.41	- 0.7	2.42	- 1.31	0.93	- 1.40	1.40	- 1.69	8.02	- 4.20	2.97	- 1.99	5.26	- 1.62	5.23	- 1.24	1.54	- 1.72	4.87	- 2.79	1.42	- 1.47	0.42	- 0.96	0.12	- 0.55
ALBIA PASTURE IMP FARM	1.41	- 0.7	2.42	- 1.31	0.93	- 1.40	1.40	- 1.69	8.02	- 4.20	2.97	- 1.99	5.26	- 1.62	5.23	- 1.24	1.54	- 1.72	4.87	- 2.79	1.42	- 1.47	0.42	- 0.96	0.12	- 0.55
ALGONA 3 W	4.31	- 5.6	2.31	- 1.58	1.60	- 1.14	2.49	- 0.24	3.08	- 0.75	3.98	- 1.46	5.67	- 2.36	9.13	- 5.12	2.69	- 1.24	1.78	- 1.19	0.31	- 1.21	0.19	- 0.81	23.09	- 4.32
ALLISON	5.52	- 6.0	2.11	- 1.06	1.25	- 0.96	1.68	- 0.83	5.08	- 1.07	2.37	- 2.80	7.41	- 3.52	4.68	- 6.4	1.52	- 2.07	2.14	- 1.15	0.20	- 1.71	0.27	- 0.96	229.23	- 3.49
ALTON	1.30	- 1.41	2.65	- 1.75	2.34	- 0.89	2.26	- 0.00	4.04	- 0.66	4.50	- 1.10	5.81	- 2.59	5.16	- 1.25	1.93	- 0.69	1.05	- 0.85	0.37	- 0.69	0.35	- 0.89	30.76	- 4.37
AMES 3 SW	1.15	- 0.93	1.51	- 0.53	1.36	- 0.52	1.64	- 0.95	5.31	- 1.03	4.03	- 1.18	3.84	- 0.53	1.73	- 2.12	1.71	- 1.59	2.68	- 0.68	0.30	- 1.32	0.22	- 0.80	24.48	- 6.64
ANAMOSA 1 NW	0.88	- 1.81	1.81	- 2.63	1.27	- 1.44	8.60	- 4.49	5.22	- 2.55	3.05	- 2.55	8.78	- 3.05	2.26	- 2.30	1.96	- 1.98	3.30	- 3.70	0.54	- 0.40	0.69	- 0.36	37.21	- 4.64
ANKENY 2 SW	0.21	- 1.06	1.15	- 1.15	1.44	- 1.44	8.60	- 4.49	5.22	- 2.55	3.05	- 2.55	8.78	- 3.05	2.26	- 2.30	1.96	- 1.98	3.30	- 3.70	0.54	- 0.40	0.69	- 0.36	229.42	- 4.64

Exhibit 13

TEMPERATURE EXTREMES AND FREEZE DATA

IOWA 1962

Station	Highest	Date	Lowest	Date	Last spring minimum of										First fall minimum of										Number of days between dates									
					16° or below		20° or below		24° or below		28° or below		32° or below		32° or below		28° or below		24° or below		20° or below		16° or below		16° or below		20° or below		24° or below		28° or below			
					Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.
					Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.	Date	Temp.
ADEL 3 ESE	95	8-22	-28	3-1	3-17	5	4-15	20	4-17	27	4-19	30	9-20	31	10-24	25	11-5	20	11-5	20	12-6	10	264	204	190	154	204	191	154					
ALBIA	98	8-23	-16	1-20	3-17	15	3-17	15	4-15	23	4-15	23	4-16	30	10-24	28	10-24	28	11-5	22	12-6	14	264	264	204	192	191	153	153					
ALBIA PASTURE IMP FARM	95	8-23	-18	3-1	3-17	14	3-17	14	4-15	21	4-16	28	9-20	32	10-24	26	10-25	24	11-5	19	12-6	15	264	233	193	191	191	153	153					
ALGONA 3 W	92	6-17	-25	3-1	4-13	16	4-16	20	4-16	20	4-20	29	9-26	32	10-24	22	10-24	22	11-5	19	12-6	6	237	203	191	191	159	159						
ALLISON	92	8-29	-20	3-1	3-18	15	4-15	20	4-16	24	4-16	24	5-2	31	10-23	30	10-24	23	11-5	20	12-6	11	263	204	191	191	174	174						
AMES 3 SW	93	7-7	-25	3-1	3-17	8	3-17	8	4-15	22	4-16	25	4-19	32	10-24	26	10-24	26	10-26	24	11-9	18	12-6	11	264	237	194	191	188					
ANAMOSA 1 NW	93	8-23	-25	12-26	3-18	13	4-16	20	4-16	20	4-20	28	4-20	28	9-20	28	9-20	28	10-24	21	10-26	15	10-26	15	222	193	191	153	153					
ANKENY 2 SW	93	8-23	-23	3-1	3-17	14	3-17	14	4-15	21	4-16	26	4-19	32	10-24	27	10-24	27	11-5	21	11-9	19	12-6	12	264	237	194	191	184					
ATLANTIC 1 NE	93	7-7	-32	3-1	3-17	2	4-15	17	4-17	23	4-19	25	5-2	32	9-20	28	9-20	28	10-24	23	11-5	18	11-24	15	252	204	190	154	141					
AUDUBON	97	8-19	-23	3-1	3-17	2	4-15	18	4-16	24	4-17	26	4-17	26	9-20	28	9-20	28	10-24	22	10-25	19	11-5	16	233	193	191	156	156					

Exhibit 14

TOTAL EVAPORATION AND WIND MOVEMENT

LOUISIANA 1962

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
CALHOUN EXP STATION	EVAP DEP WIND	- B 3.40 1956	B 5.02 1687 2031	B 5.38 1645	B 8.31 1448	B 7.08 809	B 8.15 740	B 8.69 853	5.58 721	4.72 1041	B 2.83 1334	B 2.13 1453	- 15718
WOODWORTH STATE FOREST	EVAP DEP WIND MAX MIN	B 2.17 1064 67.7 41.0	B 2.72 999 82.8 52.0	B 4.10 925 81.5 									

Exhibit 15

SOIL TEMPERATURES

IOWA
1962

Station and Depth	January		February		March		April		May		June		July		August		September		October		November		December		Annual		
	Average	Extremes	Average	Extremes	Average	Extremes	Average	Extremes	Average	Extremes	Average	Extremes	Average	Extremes	Average	Extremes	Average	Extremes	Average	Extremes	Average	Extremes	Average	Extremes	Average	Extremes	
AMES 3 SW																											
1 INCH	29.2	32/26	29.3	32/19	33.6	65/29	48.8	75/31	68.4	95/46	76.2	99/54	78.6	100/60	78.3	100/54	66.5	95/44	54.7	79/30	39.2	56/23	28.9	54/10	52.6	100/10	
2 1/4 INCHES	29.4	32/26	29.7	32/20	33.8	61/31	48.6	71/32	68.5	91/48	76.2	97/56	78.5	98/61	79.7	98/55	66.8	92/46	55.5	78/33	40.8	52/32	29.6	55/11	53.1	98/11	
4 INCHES	30.3	32/28	29.9	32/22	33.3	54/31	48.0	69/33	67.5	85/50	75.2	92/58	77.5	92/64	77.6	92/59	66.1	86/51	55.1	72/36	40.4	48/33	30.5	53/15	52.6	92/15	
8 INCHES	31.8	33/30	30.6	32/27	33.1	48/31	46.1	63/35	64.6	75/52	72.4	84/59	75.2	85/66	74.2	83/64	65.7	77/56	55.3	69/40	42.1	47/36	32.2	50/23	51.9	85/23	
20 INCHES	33.8	36/32	32.0	32/32	33.0	37/32	43.4	54/36	59.7	64/52	66.9	72/60	71.2	74/68	71.3	73/69	64.7	70/61	56.6	63/48	46.0	49/41	36.8	48/32	51.3	74/32	
40 INCHES	39.4	41/38	37.1	38/37	36.6	37/36	41.0	47/37	52.5	56/47	59.9	64/56	67.4	66/64	66.4	67/65	63.8	67/61	58.7	61/54	48.2	54/47	43.3	48/39	51.2	67/36	
72 INCHES	43.3	45/42	40.8	42/40	39.7	40/39	41.1	44/39	48.7	53/44	55.3	58/52	60.3	61/58	62.4	63/61	61.7	63/60	59.1	60/56	44.7	56/55	47.6	51/44	50.4	63/39	

BURLINGTON WB AIRPORT

1 INCH	29.7	32/26	30.5	32/22	35.8	59/26	57.9	80/40	78.1	92/58	84.0	94/70	83.6	91/74	85.9	96/71	72.7	85/60	59.1	78/40	43.7	51/36	31.1	48/16	57.7	96/16
2 1/4 INCHES	28.8	32/24	30.2	32/22	35.8	59/26	58.7	80/41	78.6	93/58	84.9	94/70	84.7	92/77	87.0	97/73	75.3	87/61	63.3	79/44	44.8	53/38	31.3	50/17	58.6	97/17
4 INCHES	29.8	32/26	30.9	32/25	35.8	57/27	57.9	78/42	77.5	91/58	83.5	91/68	84.1	91/76	85.7	95/71	74.9	86/60	60.9	78/43	44.3	51/38	31.5	49/19	58.1	95/19
8 INCHES	31.1	33/30	31.1	32/27	34.3	50/30	53.4	71/41	72.3	84/58	76.9	88/66	81.5	87/76	85.2	88/73	74.1	83/63	61.9	75/47	45.9	50/42	33.7	50/27	56.8	88/27
20 INCHES	34.4	37/33	32.8	32/32	33.8	40/32	45.4	55/39	63.0	70/56	70.0	75/65	74.4	76/72	72.5	77/72	70.6	77/66	61.6	68/53	48.4	54/45	38.6	47/35	53.8	77/32
40 INCHES	38.8	43/39	37.6	39/37	37.1	39/36	43.3	50/39	56.5	62/51	64.2	68/62	69.8	71/67	71.0	72/70	70.1	73/67	64.4	67/60	54.5	59/50	46.1	51/42	52.8	73/36
72 INCHES	46.5	49/45	43.1	44/42	41.0	42/40	42.3	45/40	49.4	54/45	56.8	60/54	62.5	64/60	65.3	67/64	66.7	67/66	64.5	66/63	59.2	63/56	52.9	56/49	54.2	67/40

Exhibit 16

PLANT-AVAILABLE WATER IN SOIL, DEFICIT, AND PRECIPITATION (Inches)

INDIANA
1962

Location and date	Depth (ins.)	0-6	6-12	12-24	24-36	36-48	48-60	Total	Precipitation
CULVER, PURDUE SAND F. COLOMA SANDY LOAM JULY 12	Available Deficit	0.5	0.2	0.1	0.1	0.6	1.0	2.5	
CULVER, PURDUE SAND F. COLOMA SANDY LOAM JULY 27	Available Deficit	0.3	0.2	0.1	0.2	0.7	0.9	2.4	1.76
DUBOIS S IND FORAGE F. ZANESVILLE SILT LOAM MAY 4	Available Deficit	1.0	1.0	1.9	1.3	1.1	-	6.3	
DUBOIS S IND FORAGE F. ZANESVILLE SILT LOAM MAY 15	Available Deficit	0.9	0.7	1.8	1.4	1.1	-	5.9	1.06
DUBOIS S IND FORAGE F. ZANESVILLE SILT LOAM JUNE 20	Available Deficit	1.0	0.8	1.6	1.5	1.0	-	5.9	5.77
DUBOIS S IND FORAGE F. ZANESVILLE SILT LOAM JULY 6	Available Deficit	0.5	0.7	1.7	1.4	1.1	-	5.4	1.21
DUBOIS S IND FORAGE F. ZANESVILLE SILT LOAM JULY 18	Available Deficit	0.3	0.4	1.5	1.0	0.5	-	3.7	1.19
DUBOIS S IND FORAGE F. ZANESVILLE SILT LOAM OCTOBER 5	Available Deficit	0.4	0.5	0.6	0.7	0.8	-	3.0	7.21
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM (a) MAY 25	Available Deficit	0.4	0.8	1.5	2.6	-	-	5.3	

Location and date	Depth (ins.)	0-6	6-12	12-24	24-36	36-48	48-60	Total	Precipitation
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM JUNE 1	Available Deficit	0.3	0.7	1.5	2.5	-	-	5.0	1.46
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM (b) JUNE 8	Available Deficit	0.7	0.5	0.1	-0.9	-	-	0.4	
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM JUNE 18	Available Deficit	0.4	0.6	1.0	2.3	-	-	4.3	0.99
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM JUNE 25	Available Deficit	0.6	0.6	0.6	-0.7	-	-	1.1	
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM JULY 6	Available Deficit	0.3	0.7	1.2	2.1	1.5	-	5.8	1.63
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM JULY 7	Available Deficit	0.7	0.5	0.4	-0.5	-0.2	-	0.9	
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM JULY 27	Available Deficit	0.1	0.4	0.7	1.9	1.4	1.5	6.0	0.40
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM SEPTEMBER 6	Available Deficit	0.9	0.8	0.9	-0.3	-0.1	0.0	2.2	
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM OCTOBER 15	Available Deficit	1.4	1.2	1.6	2.3	2.2	1.5	10.2	5.39
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM OCTOBER 15	Available Deficit	-0.4	0.0	0.0	-0.7	-0.9	0.0	-2.0	
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM OCTOBER 15	Available Deficit	1.0	1.2	1.8	2.4	1.9	2.2	10.5	3.76
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM OCTOBER 15	Available Deficit	0.0	0.0	-0.2	-0.8	-0.6	-0.7	-2.3	
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM OCTOBER 15	Available Deficit	0.4	0.7	0.9	1.4	1.2	1.4	6.0	3.81
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM OCTOBER 15	Available Deficit	0.6	0.5	0.7	0.2	0.1	0.1	2.2	
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM OCTOBER 15	Available Deficit	0.4	0.6	0.9	0.6	1.1	1.7	5.3	2.86
W. LAFAYETTE AGRON. F. PURDUE UNIVERSITY RUSSELL SILT LOAM OCTOBER 15	Available Deficit	0.6	0.6	0.7	1.0	0.2	-0.2	2.9	

Exhibit 17

DESCRIPTION OF SOIL MOISTURE SITES

Location	Soil		Slope		Method of Measurement	Field Capacity (Inches) for Depth Increments Reported						Remarks
	Type	Cover	Per- cent	Direction (facing)		Top Layer	2nd Layer	3rd Layer	4th Layer	5th Layer	6th Layer	
CULVER, SAND EXP. FARM	Coloma Sandy Loam	Fescue Grass	0	--	Neutron	0.7	0.7	1.3	1.1	1.3	1.5	Cooperator: Purdue University, Department of Agronomy
DUBOIS, S. IND. FORAGE FARM	Zanesville Silt Loam	Fescue Grass	0	--	Neutron	1.9	1.9	3.9	3.4	3.0	-	Cooperator: Purdue University, Department of Agronomy
W. LAFAYETTE, AGRONOMY FARM	Russell Silt Loam	Fescue Grass	0	--	Neutron	1.7	1.7	3.8	3.3	3.0	3.0	Cooperator: Purdue University, Department of Agronomy

CLIMATOLOGICAL DATA, NATIONAL SUMMARY

This publication is issued monthly and annually, and contains selected climatological data on a national basis. It began with the January 1950 issue, but prior to that much of the data appeared in the MONTHLY WEATHER REVIEW, the U. S. METEOROLOGICAL YEARBOOK (last published for the period 1943-1949), and THE REPORT OF THE CHIEF OF THE WEATHER BUREAU (last published for 1931).

The monthly issue presents narrative summaries of general weather conditions, and of river and flood conditions (the latter with related tables). Included also are tables of basic climatological data for selected stations published in English units (Exhibit 18) and in Metric units; a condensed summary table which lists the highest and lowest temperatures for the month, and the greatest and least monthly totals of precipitation for each state, together with the names of the locations at which they occurred (Exhibit 19); heating degree days for selected stations (Exhibit 20); monthly and seasonal heating degree days and seasonal departures from normal, published in June issue only (Exhibit 21); storm summary (Exhibit 22); rawinsonde data for standard pressure surfaces (Exhibit 23); solar radiation data (Exhibits 24 and 25); total ozone data, indicating the total daily amounts of ozone in the atmosphere at a few selected stations (Exhibit 26). Charts published in the monthly issue present average temperature; departure from normal temperature; total precipitation; percentage of normal precipitation; total snowfall; percentage of mean monthly snowfall; depth of snow on ground; percentage of possible sunshine; percentage of mean monthly sunshine; average daily values of solar radiation; percentage of mean daily solar radiation; tracks of the centers of cyclones and anticyclones at sea level; average sea level pressure and surface wind roses, and departure of average pressure from the normal; average height and temperature, and resultant winds, at 1200 GMT for the 850, 700, 500, 300, 200, and 100 millibar surfaces; and resultant winds at 1200 GMT for the 50 and 30 millibar surfaces.

The annual issue presents narrative summaries of general weather conditions, tornadoes, river and flood conditions, and of tropical cyclones occurring in the North Atlantic, Eastern North Pacific, and Western North Pacific Oceans, including related charts and tables. Additional tables include those on basic climatological data for the year in English units (Exhibit 27) and in Metric units; long period normals, means, and extremes table (Exhibit 28); excessive short duration rainfall (Exhibit 29); monthly and annual total sunshine and percent of possible (Exhibit 30); and monthly and annual solar radiation data (Exhibit 31). In this issue there are also charts showing the "highlights" of unusual weather during the year; the departure from normal of annual temperatures; total annual precipitation; percentage of normal annual precipitation; and tornado tracks.

Subscription Price: Monthly 20 cents and annual 40 cents per copy; yearly subscription, including monthly and annual issues, \$2.50 domestic, \$3.50 foreign. Checks and money orders should be made payable to the Superintendent of Documents. Remittances and correspondence regarding subscriptions should be sent to "Superintendent of Documents, Government Printing Office, Washington 25, D. C."

Exhibit 18
CLIMATOLOGICAL DATA
 ENGLISH UNITS

JANUARY 1963

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation					Wind			No. of days (sunrise to sunset)		Possible sunshine								
		Station ϕ	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, Sleet		Average speed		Prevailing direction	Fastest mile		Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)	
												Max. 90° F. or above	Min. 32° F. or below						.01 inch or more	With thunderstorms	Total	Maximum depth on ground				Speed	Direction					
		Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	In.	In.	In.	In.	In.	M.p.h.	M.p.h.	M.p.h.	M.p.h.		M.p.h.	M.p.h.	M.p.h.	M.p.h.	M.p.h.	M.p.h.	M.p.h.	%
COLORADO																																
COLORADO SPRINGS	6173	808.1	1020.9	36	8	21.9	-6.7	66	31	-21	12	0	31	2	46	0.53	0.24	0.32	9	0	5.8	2	10.2	NNE	35*	N	26+	13	9	9	4.8	
DENVER	5283	834.9	1020.2	33	5	19.1	-10.9	65	31	-25	12+	0	31	4	57	0.71	0.16	0.26	9	0	9.1	3	11.3	S	38	NW	8	10	11	10	5.5	
GRAND JUNCTION	4849	862.9	1027.8	23	2	12.1	-13.9	47	31	-23	13	0	30	4	73	0.99	0.35	0.39	8	0	17.7	12	3.1	ENE	21	NE	19	11	7	13	5.6	
PUEBLO	4639	855.3	1021.5	36	3	19.3	-10.7	67	8	-26	12	0	30	4	57	0.33	0.02	0.18	5	0	7.0	4	7.9	SE	43	NW	4	17	6	8	4.1	
CONNECTICUT																																
BRIDGEPORT	7	1018.3	1019.2	34	21	27.6	-2.6	51	10	3	25+	0	28	19	70	2.34	-1.35	0.89	9	0	8.3	7	13.4	N	46*	NNW	23	11	5	15	5.7	
HARTFORD	169	1011.6	1018.0	32	15	23.6	-3.0	44	10	-10	29	0	31	16	73	2.92	-0.66	1.00	9	0	7.7	7	8.2	N	38	NW	27	9	6	16	6.5	
NEW HAVEN	6	1017.9		35	20	27.5	-2.1	49	10	3	25	0	30			2.84	-1.12	1.01	11	0	6.5	5	8.3	N	33	NW	24	12	5	14	5.7	

Exhibit 19
CONDENSED CLIMATOLOGICAL SUMMARY

Section	Temperature										Precipitation			
	Monthly extremes										Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least				
Alabama	Thomasville	79	11	Waterloo	-8	24	Brookwood	In.		In.				
Alaska	Cape Sarichef Lgt. Sta.	57	28	Allakaket	-60	8+	Port Alexander	9.66	Waterloo	1.26				
Arizona	Tombstone	88	26	2 Stations	-37	13+	Maverick	3.47	7 Stations	.13				
Arkansas	Crossett 78	79	10	Mammoth Spring	-15	24	Arkadelphia	2.80	Lead Hill	.00				
California	Santa Monica Pier	84	7	Bridgeport	-19	12	Strawberry Valley	17.77	6 Stations	.00				

Exhibit 20
HEATING DEGREE DAYS

(Base 65° F.)

JANUARY 1963

State and station	Current season			Normals	State and station	Current season			Normals	State and station	Current season			Normals
	This month	Period July through this month	July through this month			This month	Period July through this month	July through this month			This month	Period July through this month	July through this month	
ALABAMA					IDAHO (Cont'd.)					NEBRASKA				
Birmingham	822	1999	1753		Lewiston	1259	3324	3278		Grand Island	1689	4236	3641	
Huntsville	905	2311	1922		Pocatello	1454	3933	4063		Lincoln (U)	1541	3704	3411	
Mobile	575	1299	1068							Norfolk	1686	4216	4038	
Montgomery	715	1786	1468		ILLINOIS					North Platte	1807	4055	3891	
										SOUTH CAROLINA				
										Charleston (U)	538	1414	1112	
										Lincoln	604	1643	1283	
										Columbia	726	1883	1576	
										Florence	714	1895	1497	

Exhibit 21

MONTHLY AND SEASONAL HEATING DEGREE DAYS

(Base 65° F)

Table with columns: State and Station, July, Aug., Sept., Oct., Nov., Dec., Jan., Feb., Mar., Apr., May, June, Total for Season, Normals July-June. Rows include New Jersey (Atlantic City, Newark, Trenton), New Mexico (Albuquerque, Clayton, Raton, Roswell, Silver City).

Exhibit 22

STORM SUMMARY

Table with columns: STATE, TORNADES, HAILSTORMS, WINDSTORMS, LIGHTNING, # HEAVY SNOWSTORMS AND BLIZZARDS, # ICE STORMS, ALL OTHER. Sub-columns include Number, Days, Deaths, Injuries, Property, Crops.

Exhibit 23

RAWINSONDE DATA

Average monthly values

JANUARY 1963

Table with columns: Station Name (Great Falls, Mont., Green Bay, Wis., Greensboro, N. C., Guam, Mariana Is., Hilo, Hawaii) and various meteorological parameters like Standard pressure surface, Number of observations, Dynamic height, Temperature, Relative humidity, Wind direction/speed, etc.

Exhibit 26

TOTAL OZONE DATA

These provisional ozone data are obtained from measurements made with a Dobson ozone spectrophotometer, and are applicable approximately to local apparent noon. The data are presented in the code $\lambda \beta \mu \rho$ defined in the August 1962 WMO circular entitled "PUBLICATION OF DATA FOR METEOROLOGICAL RESEARCH, WORLD OZONE DATA."

Units: Milli-atmo-cms.

Station	Day of month																															Mean O ₃
	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	
Bismarck, N. Dak.	00350	20335	37348	33379	34339	00344	20307	34317	36414	33395	36400	20396	20374	00393	00363	33379	34364	00392	00366	34350	36338	38429	00441	02456	00429	36461	00417	00424	00485	00424	33372	386
Caribou, Maine	03441	03388	00397	36389	36371	34361	33353	37373	00367	34369	02398	34361	-----	03419	33418	00371	00425	35428	00430	-----	-----	03424	-----	-----	33491	34467	-----	38509	00468	34416	00438	411
Green Bay, Wis.	-----	35390	35419	-----	34380	-----	37344	37331	33352	33359	35343	-----	34451	32429	00422	00420	34413	00409	-----	02529	02394	00390	-----	08473	00434	00438	00493	34430	35378	00444	00370	409
Mauna Loa, Hawaii	-----	00265	00264	00258	00261	00265	00271	00288	00281	00273	00265	00263	00275	00267	00246	00250	00241	00240	-----	00248	00245	00250	00252	00251	00250	00239	00241	00231	00235	256		
Midland, Texas	04287	03299	-----	00300	00287	00290	00303	00279	00298	00304	00292	-----	00307	00304	00290	00296	05299	-----	00354	00300	00306	-----	00293	00283	03276	04279	04255	00254	03256	290		
Nashville, Tenn.	03377	00385	00339	00329	04364	-----	03373	03336	00317	05349	05338	05327	-----	00312	00340	00314	00329	-----	-----	-----	-----	00330	-----	-----	-----	-----	-----	-----	-----	341		
Sterling, Va.	-----	00352	05377	00388	-----	-----	37328	06377	03340	00331	07342	-----	-----	00336	00341	00330	00314	05319	-----	-----	00388	00356	05357	00382	03359	-----	-----	00385	03320	06333	00366	351

Exhibit 27

ANNUAL CLIMATOLOGICAL DATA
ENGLISH UNITS

State and Station	Temperature							Heating degree days Base 65 °F	Precipitation			Relative humidity				Wind				Possible sunshine Average sky cover sunrise to sunset	Number of days															
	Averages			Extremes					Total	Greatest in 24 hours	Date (s)	Snow, Sleet			100 a.m. EST.	7:00 a.m. EST.	1:00 p.m. EST.	7:00 p.m. EST.	Average speed		Prevailing direction	Fastest mile			Clear, 0-3	Sunrise to sunset		Precipitation 0.1 inch or more	Snow, Sleet 1.0 inch or more	Thunderstorms	Heavy fog	90 °F and above	32 °F and below	Min. temp. 0 °F and below		
	Daily maximum	Daily minimum	Monthly	Highest	Date	Lowest	Date					In.	In.	In.								In.	In.	DEC. 27+		DEC. 16-17	JAN. 27+								JAN. 28	JAN. 28+
	°F	°F	°F	°F	SEP. 25+	JAN. 2	Base 65 °F		In.	In.	FEB. 20-21 DEC. 16-17 JUN. 19-20 FEB. 24-25	T	T	%	%	%	%	M.p.h.	M.p.h.		%	%	%	%	%	Tenths	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
ALABAMA	73.5	51.6	62.6	96	13	2610	76.48	6.57	T	T	81	86	58	63	8.0	ENE	54	NE	59	6.1	104	97	164	129	0	57	4	57	2	44	0					
BIRMINGHAM	71.8	49.4	60.6	96	10	3127	56.07	3.43	T	6	80	85	56	62	7.2	SE	46	E	6.2	95	106	164	129	0	58	8	56	2	59	0						
HUNTSVILLE	76.7	56.5	66.6	96	5	2122	82.73	7.38	T	3	85	87	59	70	10.0	N	43	NNW	5.9	105	101	159	134	0	86	43	60	0	22	0						
MOBILE	75.0	52.8	63.9	94	15	2272	64.82	5.63	T	T	86	90	60	67	7.3	NW	43	W	5.9	106	97	162	119	0	72	26	68	0	36	0						
MONTGOMERY																																				

Exhibit 28

NORMALS, MEANS AND EXTREMES

State and Station	Elevation ground (feet)	Temperature (°F)							Normal degree days (1921-1950)	Precipitation (inches)						Relative humidity (percent)				Wind Speed (m.p.h.)		Sunshine (percent of possible)	Annual mean number of days																		
		Normal (1921-1950)			Extremes					(1921-1950)	Extremes	Snow, sleet		Relative humidity (percent)				Wind Speed (m.p.h.)		Sunrise to sunset	Precipitation 0.1 inch or more		Snow, sleet 1.0 inch or more	Thunderstorms	Heavy fog	90 °F and above	32 °F and below	Zero and below													
		January	July	Annual	Record highest	Record lowest	Length, yrs	Wettest month				Driest month	Annual	Wettest month	Driest month	Maximum in 24 hours	January	Seasonal	Maximum in 24 hours										January	July	Mean hourly	Fastest mile	January	July	Clear	Partly cloudy	Cloudy				
		Daily maximum	Daily minimum	Daily maximum	Daily minimum	Annual	Record highest	Record lowest		Length, yrs	Wettest month	Driest month	Annual	Wettest month	Driest month	Maximum in 24 hours	January	Seasonal	Maximum in 24 hours	January	July		Mean hourly	Fastest mile	January	July	Clear	Partly cloudy	Cloudy												
		7:00 a.m. EST	1:00 p.m. EST	7:00 p.m. EST	7:00 a.m. EST	1:00 p.m. EST	7:00 p.m. EST	January		July	Mean hourly	Fastest mile	January	July	Clear	Partly cloudy	Cloudy																								
COLORADO (Cont'd.)																																									
6173	40.9	16.6	84.8	57.6	49.1	1	97	-13	1122	6254	2.72	0.22	14.26	5.90	T	3.09	4.5	39.8	18.0	51	29	39	78	41	48	10.3	10.0	---	---	---	138	122	105	88	11	59	23	10	184	6	
Colorado Springs	5221	42.5	20.3	85.9	61.5	51.4	87	105	-29	1042	2.06	.50	13.43	8.57	T	00	6.53	5.9	54.6	23.0	54	37	41	55	27	30	7.6	6.9	65	67	68	146	151	68	84	15	42	4	23	137	7
Denver (U)	5283	41.7	15.6	87.5	58.3	49.8	1	99	-16	1125	2.20	.50	14.20	7.31	T	00	3.43	8.6	60.3	19.4	58	43	50	73	32	36	9.8	9.0	56	71	71	113	137	115	87	18	42	10	31	168	7
Grand Junction	4825	33.8	14.1	92.5	63.8	52.1	15	102	-14	1271	1.20	.45	9.06	3.48	T	00	1.24	8.1	27.6	8.1	75	63	61	45	26	20	5.8	9.9	66	58	78	140	108	117	71	9	39	7	56	138	3
Pueblo	4639	44.9	13.8	89.8	59.9	51.5	21	105	-31	1104	1.81	.38	11.87	6.17	T	00	3.77	6.3	33.6	16.8	69	46	48	73	35	35	7.5	7.9	80	74	77	137	125	103	72	10	45	8	56	158	8

Exhibit 29

EXCESSIVE SHORT DURATION RAINFALL

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
FLORIDA (Cont'd.)												
Apalachicola (Cont'd.)												
June 16	0.22	0.37	0.49	0.52	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
June 21	.42	.55	.68	.82	1.04	1.21	1.23	1.35	1.46	1.54	1.62	1.64
July 21	.34	.46	.54	.74	.89	1.24	1.30	1.32	1.32	1.32	1.32	1.32
Aug. 5	.31	.49	.63	.63	.63	.63	.63	.76	.77	.77		
Aug. 23	.25	.34	.48	.52	.55	.58	.59	.60	.61	.62	.63	.63
Dec. 12	.27	.46	.59	.63	.73	.80	.98	1.15	1.21	1.27	1.32	1.38
Daytona Beach AP												
Apr. 9	.32	.59	.77	.83	.87	.87	.87	.88	.89	.89	.89	.89
May 9	.43	.75	.98	1.12	1.17	1.20	1.27	1.29	1.31	1.31	1.31	1.31
May 20	.14	.25	.33	.40	.43	.44	.47	.48	.49	.49	.49	.49
May 28	.36	.45	.46	.47	.55	.75	.81	.82	.82	.88	.88	.88
June 16	.29	.31	.33	.33	.33	.33	.33	.33	.33	.33	.58	.65
June 28	.50	.65	.72	.72	.73	.86	.94	1.02	1.41	1.62	1.78	2.28
July 4	.45	.80	.90	1.04	1.08	1.14	1.16	1.18	1.20	1.22	1.23	1.23
July 18	.22	.32	.38	.53	.60	.60	.68	.90	.90	1.04	1.06	
Aug. 19	.25	.40	.52	.61	.69	.70	.71	.72	.72	.73	.74	.74
Aug. 26	.55	1.00	1.27	1.64	2.02	2.24	2.29	2.32	2.34	2.36	2.41	2.42
Aug. 29	.29	.42	.55	.75	.94	.98	1.03	1.03	1.04	1.10	1.12	1.22
Sept. 16	.25	.50	.58	.68	.74	.85	.86	.87	.87	.94	.95	.95
Sept. 17	.28	.36	.38	.40	.61	.69	.69	.69	.72	.73	.74	
Sept. 18	.23	.36	.54	.61	.85	1.01	1.04	1.09	1.10	1.10	1.10	1.10
Nov. 15	.25	.41	.44	.45	.45	.45	.45	.45	.47	.68	.79	.85
Orlando Airport												
Feb. 22	.37	.50	.51	.51	.57	.57	.57	.58	.59	.60	.61	.67
Mar. 18	.32	.55	.63	.70	.90	1.01	1.04	1.06	1.12	1.16	1.30	1.33
June 7	.24	.34	.49	.62	.83	1.01	1.06	1.06	1.06	1.06	1.06	1.06
June 12	.30	.52	.65	.80	1.18	1.32	1.39	1.40	1.40	1.40	1.40	1.40
June 15	.17	.27	.39	.49	.60	.62	.62	.62	.62	.62	.62	.62
June 20	.25	.43	.65	.75	.81	.82	.83	.83	.83	.83	.83	.83
June 26	.35	.48	.54	.62	.74	.81	.86	.86	.86	.86	.86	.86
June 28	.30	.47	.71	.87	1.07	1.16	1.20	1.23	1.25	1.25	1.25	1.25
July 3	.65	1.05	1.53	1.77	2.05	2.34	2.68	2.85	2.90	2.90	2.90	2.90
July 5	.56	.93	1.08	1.27	1.41	1.56	1.66	1.75	1.80	1.80	1.80	1.80
July 19	.18	.35	.42	.45	.53	.60	.81	.90	.91	.91	.91	.91
July 22	.27	.36	.39	.49	.56	.57	.57	.60	.65	.70	.73	.75
July 26	.26	.38	.43	.46	.48	.48	.48	.48	.48	.48	.48	.48
Aug. 17	.27	.41	.50	.54	.58	.67	.70	.71	.71	.71	.72	.72
Aug. 19	.26	.39	.43	.47	.51	.54	.54	.54	.54	.54	.54	.54
Aug. 26	.55	.83	1.24	1.51	1.76	1.82	1.95	2.09	2.11	2.12	2.17	2.25
Sept. 16	.18	.30	.40	.49	.64	.89	1.04	1.25	1.34	1.44	1.47	1.78
Oct. 13	.56	1.00	1.55	1.90	2.24	2.34	2.35	2.35	2.36	2.37	2.42	2.44

Exhibit 30

SUNSHINE, AMOUNT AND PERCENT

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
ALABAMA																										
Birmingham	159	50	126	41	172	46	274	71	288	67	242	56	291	66	266	64	295	79	281	80	133	42	119	38	2646	58
Montgomery	159	50	128	41	186	50	276	70	282	66	219	51	297	68	222	54	255	69	272	77	136	43	143	45	2575	59
ALASKA																										
Anchorage	72	36	74	29	207	56	201	45	336	62	275	48	199	35	171	35	138	36	127	41	61	28	72	41	1933	43
Juneau	83	37	61	23	127	34	131	30	216	41	184	34	280	52	117	25	190	49	70	22	53	23	5	3	1517	34
Nome	34	20	205	86	205	56	195	43	296	51	193	30	206	34	217	43	100	25	106	35	32	17	52	41	1841	40

Exhibit 31

SOLAR RADIATION DATA

Average daily values (direct and diffuse) received
on a horizontal surface, tabulated in langley's.

Station	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Albuquerque, N. Mex.	315	416	485	671	734	769	740	---	550	488	306	279	---
Ames, Iowa	205	253	290	375	493	604	553	517	322	317	170	147	354
Annette, Alaska	61	103	195	339	468	466	608	422	319	121	60	30	266
Apalachicola, Fla.	267	329	437	607	644	635	634	454	489	462	338	273	464
Astoria	106	104	246	338	472	566	508	424	388	227	135	68	300
Atlanta, Ga.	267	240	335	493	491	481	554	439	446	399	243	---	---
Barrow, Alaska	#4	51	190	441	482	523	373	238	119	41	111	---	---
Bethel, Alaska	30	157	286	437	473	401	314	274	168	133	51	29	229
Bismarck, N. Dak.	166	262	320	466	558	636	563	534	337	280	166	137	369
Blue Hill Obs., Mass.	234	234	295	336	436	493	464	433	359	222	160	124	316

LOCAL CLIMATOLOGICAL DATA

This publication comprises three issues - LOCAL CLIMATOLOGICAL DATA (Monthly), LOCAL CLIMATOLOGICAL DATA (Monthly Supplement), and the LOCAL CLIMATOLOGICAL DATA WITH COMPARATIVE DATA (Annual). They are published individually for the Weather Bureau stations listed on pages 19 and 20.

The monthly issue of LOCAL CLIMATOLOGICAL DATA presents basic climatological data, together with a table of hourly precipitation for the month (Exhibits 32 and 33). Predecessor issues of this monthly summary were first published as the MONTHLY METEOROLOGICAL SUMMARY in 1897. In 1948 the name was changed to MONTHLY CLIMATOLOGICAL SUMMARY; and in 1952 to its present title. The earlier issues varied greatly in format and content from station to station, and from time to time. They ranged from a postcard size single-table issue to a 7-page issue containing numerous tables of current and comparative data. The current issue, however, is uniform for all stations except a few located in the largest metropolitan areas; these contain additional tabular material. Also, the four columns on the right-hand side of the table shown in Exhibit 32 may be used by the station for presenting climatological values of particular interest locally.

The LOCAL CLIMATOLOGICAL DATA (Monthly Supplement) contains frequency tables of hourly wind, ceiling, visibility, humidity, temperature, and other climatological values as shown in Exhibits 34 through 42. It is issued only for those stations for which 24 hourly observations are available daily. Changes in its format have been made from time to time. It was first published as the SPECIAL METEOROLOGICAL SUMMARIES from 1949 to 1951 for a few selected stations.

The LOCAL CLIMATOLOGICAL DATA WITH COMPARATIVE DATA (Annual) was originally issued in 1909 as the ANNUAL METEOROLOGICAL SUMMARY. It was changed to LOCAL CLIMATOLOGICAL SUMMARY in 1949, and was assigned its present title in 1952. It contains a table of basic climatological data for the current year (Exhibit 43); a table of normals, means, and extremes covering varying long periods (Exhibit 44); and sequential tables of monthly and annual values of temperature, precipitation, snowfall, and heating degree days (Exhibits 45 through 48). Included also is a Station Location table showing in detail a history of changes in the location and exposure of instruments, and related information (Exhibit 50).

NOTE: The 1962 annual issue did not contain a table of normals, means, and extremes; or sequential tables of monthly and annual temperatures, precipitation, snowfall, and heating degree days. However, a table of the 1931-1960 monthly and annual normals of these elements (except snowfall) was included in each station's issue (see Exhibit 49). This temporary departure of format resulted from the need for economy, but it is planned that for 1963 and subsequent years the publication will be much the same as heretofore.

Subscription Price: Monthly \$1.00 per year including annual summary if published; \$1.00 per year for monthly supplement only; \$1.50 per year for monthly summary, monthly supplement, and annual summary if published. Single copy prices: 10 cents for monthly summary; 10 cents for monthly supplement; 15 cents for annual summary. Remittances and correspondence regarding this publication should be sent to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Exhibit 32

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
LOCAL CLIMATOLOGICAL DATA

BUFFALO, NEW YORK
 GREATER BUFFALO INTERNATIONAL AIRPORT
 JANUARY, 1963

Latitude 42° 56' N. Longitude 78° 44' W. Elevation (ground) 705 ft. Eastern Standard time used

Date	Temperature (°F)					Precipitation		Snow, Sleet, or Ice on ground (In.) 7:00 am	Wind			Sunshine		Sky cover		Thunderstorm or distant lightning	Weather restricting visibility to 1/4 mile or less	Wind			Date		
	Maximum	Minimum	Average	Departure from normal	Degree days (base 65°)	Total (Water equivalent) (In.)	Snow, Sleet (In.)		Prevailing direction	Average speed (m. p. h.)	Fastest mile Speed (m. p. h.)	Direction	Total (hours and minutes)	Percent of possible	Sunrise to sunset (tenths)			Midnight to midnight (tenths)	Peak	Gust		Direction	
1																							
2	19	5	12	-13	53	T	11	WSW	12.0	18	NW	7:10	79	4	17					1402	25	NW	1
3	23	14	19	-6	46	T	10	WSW	5.5	14	NW	0:00	0	10	10					0056	17	NW	2
4	23	23	23	0	40	T	9	WSW	7.3	10	W	2:27	27	10	10					1448	14	W	3
5	24	24	24	+2	38	T	9	S	7.3	10	W	0:00	0	10	10					1313	13	W	4
6	27	27	27	+4	35	T	6	S	6.0	9	W	0:00	0	10	10					1203	13	W	5
7	29	26	28	+4	38	T	6	WSW	8.9	13	W	0:00	0	10	10					1938	16	W	6
8	28	26	28	+4	37	T	6	WSW	9.4	14	W	0:00	0	10	10					1832	17	W	7
9	28	29	29	+4	34	T	6	SW	12.0	17	SW	0:00	0	10	10					1448	23	SW	8
10	31	31	31	+7	31	T	5	SSW	15.1	29	W	0:30	6	10	10					1500	35	W	9
11	45	39	42	+12	24	T	4	E	5.8	11	N	4:26	48	8	9					2007	14	N	10
12	33	27	30	+3	28	T	4	NE	14.2	29	E	0:00	0	10	10			F		1848	31	E	11
13	33	27	30	+3	28	T	5	WSW	14.7	31	W	0:00	0	10	10					2308	36	W	12
14	29	22	25	+3	28	T	5	W	19.5	33	W	0:11	2	10	10			S		0103	40	W	13
15	19	11	15	-9	50	T	11	SW	21.8	33	W	0:00	0	10	10			SBS		1700	43	SW	14
16	13	3	8	-8	57	T	19	WNW	13.2	20	NW	9:10	98	3	7					1404	31	NW	15
17	20	-9#	6	-6	59	T	19	WSW	13.1	29	W	6:16	67	8	8					2142	36	W	16
18	21	16	19	-5	46	T	19	W	7.8	16	W	1:55	20	10	10					0007	23	W	17
19	39	12	26	+2	39	T	18	WNW	9.6	16	W	3:04	32	8	6					1333	24	W	18
20	38	21	30	+6	35	T	14	ENE	10.5	16	E	1:54	20	10	10					1527	23	E	19
21	39	9	24	0	41	T	13	WSW	22.2	45	SW	0:39	7	10	10			SBS		1934	60	SW	20
22	9	4	7	-17	58	T	13	WSW	23.1	34	SW	7:36	80	4	5					1007	44	SW	21
23	24	4	14	-10	51	T	13	SSW	16.1	32	SW	0:00	0	10	10					1357	39	SW	22
24	18	-5	7	-16	58	T	17	W	12.1	29	W	0:00	0	10	9					2153	39	W	23
25	1	-11#	-5	-28	70	T	20	WSW	31.1	47	W	3:20	35	9	9			SBS		0901	55	W	24
26	11	1	6	-17	59	T	21	WSW	20.4	30	W	7:01	72	7	8			BS		1017	43	SW	25
27	27	11	19	-4	46	T	21	NE	7.1	16	SW	6:44	69	7	9					0135	23	SW	26
28	22	11	17	-6	48	T	22	WNW	16.1	29	NW	0:40	7	10	8					1907	39	NW	27
29	12	5	9	-14	56	T	23	W	17.4	20	NW	7:33	77	4	3					0002	31	NW	28
30	28	1	15	-8	50	T	21	SSW	12.4	29	SW	4:24	45	9	7					2257	37	SW	29
31	27	11	19	-3	46	T	20	WSW	10.5	29	W	0:21	4	10	8					0009	38	W	30
31	17	3	10	-12	55	T	20	SW	11.0	17	SW	9:06	91	4	4					1250	22	SW	31
Sum	785	387					1.51	31.5		413.2		84:27		265	264								Sum
Avg	25.3	12.5								13.3	Fastest			8.5	8.5								Avg
T in columns 7, 8, 9 and in the Hourly Precipitation table indicates an amount too small to measure. Misc. 45 SW 292:32 29																							

TEMPERATURE: (°F) Average monthly 18.9 Departure from normal -4.6 Highest 45 on 10th Lowest -11 on 24th Number of days with - Max. 32° or below 24 Max. 90° or above 0 Min. 32° or below 31 Min. 0° or below 3

HEATING DEGREE DAYS (base 65°): Total this month 1420 Departure from normal +133 Seasonal total (since July 1) 4146 Seasonal departure from normal +258

PRECIPITATION: (In.) Total for the month 1.51 Departure from normal -1.33 Greatest in 24 hours 0.38 on 22-23rd Snow, Sleet— Total for the month 31.5 Greatest in 24 hours 7.8 on 14th Greatest depth on ground 23 on 27-28th Dates of - Hail 0 Sleet 11,12,20 Glaze/Rime 6,7,8,11, 12

BAROMETRIC PRESSURE (In.) Avg. station (elev. 768 *feet, m. s. l.) 29.215 Highest sea level 30.66 on 28th Lowest sea level 29.43 on 20th

ERRATA: November 1962 percent of possible sunshine should be 44.

January was rough. The traditional thaw did not occur and December snow remained. Outstanding weather features were two blizzards and several days of blinding, blowing snow. A moderate blizzard on the 14th caused school closings and temporarily blocked highways. The blizzard and cold wave on the 23rd-24th was severe. Practically all schools were closed for at least two days. Commercial operations closed down or operated with minimum staff. Transportation slowed down to a trickle. Eleven deaths have been reported as in some way attributable to storm effects. Lake Erie was frozen over with only small breaks reported by aircraft. Ice in the Niagara River caused damage to waterfront facilities and posed a threat of more severe damage. One seagoing tug is trapped in the river ice off Niagara-On-The-Lake after having broken loose from its moorings. The ice bridge below the Falls was heavy enough at one time for some hardy souls to cross from Canada to the States.

Exhibit 33

HOURLY PRECIPITATION (In.)

Date	A. M. Hour ending at												P. M. Hour ending at												Date
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
1					T	T																			1
2	T	T											T	T	T										2
3	T	T	T																						3
4																									4
5																									5

Exhibit 34

TEMPERATURE AND WIND SPEED-RELATIVE HUMIDITY OCCURRENCES (HOURLY OBSERVATIONS):

Table with columns for Wind (0-3 knots, 4-10 knots, 11-21 knots, 22 knots and over), Rel. Humid. (under 30, 30-40, 40-50, 50-60, 60-70, 70-80, 80-90, 90-100), and Total Obs. Rows include times like 4/9/45, 4/4/40, etc.

Exhibit 35

WIND DIRECTION AND SPEED OCCURRENCES:

Table showing hourly observations of wind speed (0-3, 4-6, 7-10, 11-16, 17-21, 22-27, 28-33, 34-40, 41 over) and wind direction (N, NNE, NE, etc.).

Exhibit 36

HOURLY AND DAILY OCCURRENCES OF PRECIPITATION AMOUNTS:

Table with columns for Amounts (0, .01 to 3.00), Frequency of Occurrence (A.M. and P.M. ending at 1-12), and No. of Days with (A.M. and P.M. ending at 1-12).

Exhibit 37

CEILING-VISIBILITY OCCURRENCES (HOURLY OBSERVATIONS):

Table showing hourly observations of ceiling (feet) and visibility (miles) with columns for various visibility and ceiling ranges and a total column.

Exhibit 38

OCCURRENCES OF WEATHER BY HOUR OF DAY:

Table with columns for Hour of Day, Clouds (0-10), Ceiling or Visibility (less than), Weather Types (fog, smoke, etc.), Relative Humidity (%), and Wind Speed (knots).

Exhibit 39

AVERAGES BY HOURS

Table showing averages by hours with columns for Hour, Direction, Speed, etc.

Exhibit 40

24-HOUR AVERAGES

Table showing 24-hour averages with columns for Day, Direction, Speed, etc.

* Resultant Wind: The vectorial sum of all surface wind directions and speeds for each day. It is obtained by resolving each hourly wind observation into components from north and east, summing them over the day, and recombining the summed components into a single vector. The daily resultant wind speed may be obtained by dividing the Total Movement by 24.

ANNUAL SUMMARY

LATITUDE 42° 56' N
LONGITUDE 78° 44' W
ELEVATION (ground) 705 FEET

Table with columns for Month, Temperature (Averages, Extremes), Precipitation (Total, Greatest in 24 hr, Snow, Sleet), Relative humidity (7:00 a.m., 1:00 p.m., 7:00 p.m., EST), Wind (Average hourly speed, Prevailing direction, Fastest mile), and Number of days (Sunrise to sunset, Precipitation, Snow, Sleet, Thunderstorms, Heavy fog, Temperatures).

NORMALS, MEANS, AND EXTREMES

Table with columns for Month, Temperature (Normal, Extremes), Precipitation (Normal total, Maximum monthly, Minimum monthly, Maximum in 24 hrs, Mean total, Maximum monthly, Year, Minimum monthly, Year, Maximum in 24 hrs, Year), Relative humidity (Midnight CST, 6:00 A.M. CST, Noon CST, 6:00 P.M. CST, Mean hourly speed, Prevailing direction, Fastest mile), Wind (Speed, Direction, Year), and Mean number of days (Sunrise to sunset, Precipitation, Snow, Sleet, Thunderstorms, Heavy fog, Temperatures).

(a) Length of record, years. (b) Normal values are based on the period 1921-1950, and are means adjusted to represent observations taken at the present standard location.

Means and extremes in the above table are from the existing location (or last comparable location). Annual extremes have been exceeded at prior locations as follows: Highest temperature 106 in July 1936 and earlier date(s); lowest temperature -24 in January 1918; maximum monthly precipitation 10.09 in August 1926; minimum monthly precipitation 0.20 in February 1920; maximum precipitation in 24 hours 4.93 in August 1926; maximum monthly snowfall 25.4 in January 1918; maximum snowfall in 24 hours 12.4 in February 1912.

Exhibit 45

AVERAGE TEMPERATURE

Table with 13 columns (Year, Jan., Feb., Mar., Apr., May, June, July, Aug., Sept., Oct., Nov., Dec., An'l) and rows for years 1925-1929, 1960, 1961, and RECORD MEAN (TEMP, MAX, MIN).

Exhibit 46

TOTAL PRECIPITATION

Table with 13 columns (Year, Jan., Feb., Mar., Apr., May, June, July, Aug., Sept., Oct., Nov., Dec., Annual) and rows for years 1925-1929, 1960, 1961, and RECORD MEAN.

Exhibit 47

MONTHLY AND SEASONAL DEGREE DAYS

Table with columns for Season, July, Aug., Sept., Oct., Nov., Dec., Jan., Feb., Apr., May, June, Total. Includes rows for 1924-25 to 1928-29 and 1959-60 to 1961-62.

Exhibit 48

MONTHLY AND SEASONAL SNOWFALL

Table with columns for Season, July, Aug., Sept., Oct., Nov., Dec., Jan., Feb., Mar., Apr., May, June, Total. Includes rows for 1924-25 to 1928-29 and 1959-60 to 1961-62.

Exhibit 49

* CLIMATOLOGICAL STANDARD NORMALS (1931-1960)

Table with columns for ELEMENT, January, February, March, April, May, June, July, August, September, October, November, December, Annual. Rows include MAXIMUM TEMPERATURE, MINIMUM TEMPERATURE, AVERAGE TEMPERATURE, DEGREE DAYS, and PRECIPITATION.

* See note on Page 13

Exhibit 50

STATION LOCATION

Large table with columns for Location, Occupied from, Occupied to, Airline distance and direction from previous location, North Latitude, West Longitude, and various meteorological instruments (Ground, Actual barometer elevation, Wind instruments, etc.). Includes remarks on temperature records and equipment.

Stations for which Local Climatological Data are issued, as of July 1, 1963

a Monthly Summary b Monthly Supplement c Annual Summary

<u>ALABAMA</u>		<u>COLORADO</u>		<u>ILLINOIS (Cont'd)</u>		<u>MICHIGAN (Cont'd)</u>	
abc	Birmingham	ac	Alamosa	abc	Moline	abc	Sault Ste. Marie
abc	Huntsville	abc	Colorado Springs	abc	Peoria		
abc	Mobile	abc	Denver	abc	Rockford		<u>MINNESOTA</u>
abc	Montgomery	abc	Grand Junction	abc	Springfield	abc	Duluth
		abc	Pueblo			abc	International Falls
						abc	Minneapolis
						abc	Rochester
						ac	St. Cloud
<u>ALASKA</u>		<u>CONNECTICUT</u>		<u>INDIANA</u>		<u>MISSISSIPPI</u>	
abc	Anchorage			abc	Evansville	abc	Jackson
abc	Annette	abc	Bridgeport	abc	Fort Wayne	abc	Meridian
abc	Barrow		Hartford -	abc	Indianapolis	ac	Vicksburg
abc	Barter Island	abc	Bradley Field	abc	South Bend		
abc	Bethel	a	Brainard Field				<u>MISSOURI</u>
abc	Cold Bay	ac	New Haven			abc	Columbia
abc	Cordova					abc	Kansas City
abc	Fairbanks		<u>DELAWARE</u>	abc	<u>IOWA</u>	ac	St. Joseph
abc	Juneau	abc	Wilmington	abc	Burlington	abc	St. Louis -
abc	King Salmon				Des Moines	abc	Airport
abc	Kotzebue			ac	Dubuque	a	City Office
abc	McGrath		<u>DISTRICT OF COLUMBIA</u>	abc	Sioux City	abc	Springfield
abc	Nome	abc	Washington	abc	Waterloo		
abc	St. Paul Island						<u>MONTANA</u>
abc	Shemya		<u>FLORIDA</u>	abc	<u>KANSAS</u>	abc	Billings
abc	Yakutat	ac	Apalachicola	abc	Concordia	ac	Glasgow
		abc	Daytona Beach	abc	Dodge City	abc	Great Falls
		ac	Fort Myers	abc	Goodland	ac.	Havre
		abc	Jacksonville	abc	Topeka		Helena -
		abc	Key West	abc	Wichita	abc	Airport
abc	Flagstaff	ac	Lakeland			a	City Office
a	Gila Bend	ac	Miami -		<u>KENTUCKY</u>	ac	Kalispell
abc	Phoenix		Airport	abc	Lexington	c	Miles City
abc	Prescott	abc	City Office	abc	Louisville	abc	Missoula
abc	Tucson	a	Miami Beach				
abc	Winslow	ac	Orlando		<u>LOUISIANA</u>		<u>NEBRASKA</u>
abc	Yuma	abc	Pensacola	abc	Alexandria	abc	Grand Island
		ac	Tallahassee	abc	Baton Rouge	ac	Lincoln
		abc	Tampa	abc	Lake Charles	abc	Norfolk
		abc	West Palm Beach	abc	New Orleans -	abc	North Platte
				abc	Airport	abc	Omaha -
				ac	City (Audubon Pk)	a	Airport
				abc	Shreveport	abc	North Airport
			<u>GEORGIA</u>			ac	Scottsbluff
		abc	Athens			ac	Valentine
		abc	Atlanta				
		abc	Augusta		<u>MAINE</u>		<u>NEVADA</u>
		ac	Columbus	abc	Caribou	abc	Elko
		abc	Macon	abc	Portland	abc	Ely
		ac	Rome			abc	Las Vegas
		abc	Savannah		<u>MARYLAND</u>	abc	Reno
		ac	Thomasville	abc	Baltimore -	ac	Winnemucca
				abc	Airport		
				ac	City Office		
				ac	Frederick		
			<u>HAWAII</u>				
		abc	Hilo				
			Honolulu -		<u>MASSACHUSETTS</u>		
		abc	Airport	ac	Blue Hills Obs'y		
		a	City Office	abc	Boston		
		abc	Kahului	abc	Nantucket		
		abc	Lihue	ac	Pittsfield		
				abc	Worcester		
			<u>IDAHO</u>				
		abc	Boise		<u>MICHIGAN</u>		
			Idaho Falls -	ac	Alpena		
		ac	46 West		Detroit -		
		ac	42 Northwest	abc	City Airport		
		ac	Lewiston	abc	Metropolitan AP	abc	Atlantic City -
		abc	Pocatello	abc	Willow Run AP	a	Airport
				ac	Escanaba	abc	State Marina
				abc	Flint	ac	Newark
			<u>ILLINOIS</u>	abc	Grand Rapids		Trenton
		ac	Cairo	abc	Lansing		
		abc	Chicago -	ac	Marquette		
		ac	Midway Airport	abc	Muskegon		
		ac	O'Hare Airport				

Stations for which Local Climatological Data are issued, as of July 1, 1963 (Cont'd)
a Monthly Summary b Monthly Supplement c Annual Summary

	<u>NEW MEXICO</u>		<u>PACIFIC ISLANDS</u>		<u>TEXAS (Cont'd)</u>
abc	Albuquerque	abc	Canton		Galveston -
ac	Clayton	ac	Eniwetok	abc	Airport
ac	Raton	ac	Guam	ac	City Office
ac	Roswell	a	Johnston Island		Houston -
ac	Silver City	abc	Koror	abc	Airport
		abc	Kwajalein	ac	City Office
		abc	Majuro	abc	Laredo
abc	<u>NEW YORK</u>	abc	Ponape	abc	Lubbock
abc	Albany	abc	Truk (Moen)	abc	Midland
abc	Binghamton	abc	Wake Island	abc	Port Arthur
abc	Buffalo	abc	Yap	abc	San Angelo
	New York -			abc	San Antonio
ac	Central Park			ac	Victoria
ab	Int'l Airport		<u>PENNSYLVANIA</u>	abc	Waco
abc	LaGuardia Field	abc	Allentown	abc	Wichita Falls
abc	Rochester	abc	Erie		
a	Schenectady	abc	Harrisburg		<u>UTAH</u>
abc	Syracuse	abc	Philadelphia -	ac	Milford
		abc	Airport	abc	Salt Lake City
		a	City Office	ac	Wendover
			Pittsburgh -		
ac	<u>NORTH CAROLINA</u>	abc	Airport		<u>VERMONT</u>
abc	Asheville	a	City Office	abc	Burlington
abc	Cape Hatteras	ac	Reading		
abc	Charlotte	abc	Scranton		<u>VIRGINIA</u>
abc	Greensboro	abc	Williamsport	ac	Lynchburg
abc	Raleigh			abc	Norfolk
abc	Wilmington		<u>RHODE ISLAND</u>	abc	Richmond
abc	Winston-Salem	ac	Block Island	abc	Roanoke
		abc	Providence		
					<u>WASHINGTON</u>
abc	<u>NORTH DAKOTA</u>			abc	Olympia
abc	Bismarck		<u>SOUTH CAROLINA</u>		Seattle -
abc	Fargo	abc	Charleston -	b	Boeing Field
ac	Williston	a	Airport	abc	Seattle-Tacoma AP
			City Office	ac	City Office
		abc	Columbia	abc	Spokane
		abc	Florence	ac	Stampede Pass
		abc	Greenville -	abc	Tatoosh Island
			Spartanburg	ac	Walla Walla
				abc	Yakima
			<u>SOUTH DAKOTA</u>		
		abc	Huron		<u>WEST INDIES</u>
		abc	Rapid City		San Juan, P. R. -
		abc	Sioux Falls	ab	Airport
				ac	City Office
				a	Swan Island
			<u>TENNESSEE</u>		
		abc	Bristol		<u>WEST VIRGINIA</u>
		abc	Chattanooga	ab	Beckley
		abc	Knoxville	abc	Charleston
			Memphis -	abc	Elkins
abc	<u>OKLAHOMA</u>	abc	Airport	abc	Huntington
abc	Oklahoma City	a	City Office	ac	Parkersburg
	Tulsa	abc	Nashville		
			Oak Ridge -		
		ac	Area Stations		
		ac	City Office		
					<u>WISCONSIN</u>
abc	<u>OREGON</u>			abc	Green Bay
ac	Astoria	abc	<u>TEXAS</u>	abc	La Crosse
ac	Burns	abc	Abilene	abc	Madison
ac	Eugene	abc	Amarillo	abc	Milwaukee
ac	Meacham	abc	Austin		
abc	Medford	abc	Brownsville		
abc	Pendleton	abc	Corpus Christi		
	Portland -	abc	Dallas	abc	Casper
ab	Airport	abc	El Paso	abc	Cheyenne
ac	City Office	abc	Fort Worth	abc	Lander
ac	Roseburg			abc	Sheridan
abc	Salem				
ac	Sexton Summit				

HOURLY PRECIPITATION DATA

This is published for each state or combination of states (Maryland-Delaware, New England) except Alaska and Hawaii. The predecessor publication was known as the HYDROLOGIC BULLETIN issued by drainage districts. It began in January 1940. In 1948 the HYDROLOGIC BULLETIN was discontinued and hourly precipitation values were included in the monthly issues of CLIMATOLOGICAL DATA. This continued until October 1951, when these hourly data were published under the present title.

The monthly issue presents daily and hourly precipitation data from stations equipped with automatic recording gages (Exhibits 51 and 52). The annual issue contains monthly and annual totals of precipitation, together with a station index (Exhibit 53).

Subscription Price: 10 cents per copy, monthly and annual, \$1.00 per year (yearly subscription includes the annual). Checks or money orders should be made payable to the Superintendent of Documents. Remittances and correspondence regarding subscriptions should be sent to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Exhibit 51

HOURLY PRECIPITATION DATA

MARYLAND AND DELAWARE

OCTOBER 1962

DAILY TOTALS

Volume 12 No. 10

Station	Total	Day of month																																		
		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				
MARYLAND																																				
BALTIMORE WB AP	2.96				2.74																	.01													.08	.06
BALTIMORE WB CITY	2.76			.02	2.39	.01																.01				.06	.01							.21	.05	
BELTSVILLE	-				2.11																													-	-	
BELTSVILLE PLT STA 5	3.17			.02	2.74	.13																												.02	.13	
COLLEGE PARK	2.71				2.48	.02																												.02	.11	
FREDERICK WB AP	1.94				.92	.01				.01																								.08	.11	
GRANTSVILLE	3.24				.87				.50	.13												.05		.09		.05			.15	.43	.02	.95	.05	.05		
HANCOCK FRUIT LAB	2.12				.85				.23	.08																			.03	.03	.74	.14	.14	.14		
LEONARDTOWN 3 NW	1.85				.70		.15		.80	.01					.03																			.03	.03	
LUKE	2.41			.02	1.27				.13	.03															.02		.08		.01	.04	.81	.10	.10	.10		
NEW GERMANY	3.32				1.29				.32	.10												.06		.04		.03				.29	.05	1.14	.14	.14		
PARKTON 2 SW	2.96				2.10	.05																					*		.03	.59	.07	.07	.07	.07		
PERRY POINT	1.19				.89	.01				.16																								.91	.91	
SAVAGE RIVER DAM	2.85			.03	1.34	.01			.22	.03																			.10	.02	.06	.05	.05	.05		
SINES DEEP CREEK	3.73				.57		.09		.22	.30								.06				.20		.03	.05	.13	.30	.18	.30	1.43	.10	.10	.10	.10		
UNIONVILLE	2.14				1.29																													.66	.12	
WASHINGTON DC WB CITY	1.87				1.63	.02																						.07					.02	.06	.09	
DELAWARE																																				
GEORGETOWN 5 SW	.76				.23				.14	.05																								.05	.05	
NEWMARK UNIV FARM	1.60				.30	.05			.04	.75	.05												.06	.04					*		.27	.11	.03	.03		
WILMINGTON NCASTLE WB AP	1.51				.27	.05			.48	.16																			.23	.16	.10	.10	.06	.06		

Exhibit 52

HOURLY PRECIPITATION

ARKANSAS
OCTOBER 1962

Station	A. M. Hour Ending												P. M. Hour Ending												Total
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
	-1st-																								
ALICIA				.01		.01	.02																	.17	
ALUM FORK	.03	.10																						.04	
ANTOINE		.01	.03																					.08	
APPLETON			.02																					.08	
ARKADELPHIA	.20	.16																						.36	
AUGUSTA	.17				.02	.06																		.25	
BATESVILLE LVSTK	.02	.10	.04																					.16	
BATESVILLE L + D 1	.35	.19	.47		.33	.04																		1.38	
BEEBE	.20	.03	.01		.40	.01																		.65	
BOTKINBURG 2 S	*	*	*		*	*																		*	
BRINKLEY	.19	.05	.01																					.25	
CARPENTER DAM	.03	.03	.06																					.12	
CORNING	.01	.01	.04		.04																			.05	
DAISY 3 E	*.01	*.01	*.04		.01	.01	.02	.04																.14	
FORREST CITY	*	*	1.05											.09	.06	.02								1.05	
HARDY	*	*	1.54																					.17	
HEBER SPRINGS 3 SW	.01	.32	.04		.01																			1.54	
HUTTIG DAM	.05	.18	.03																					.38	
KINGSLAND 3 SSE	.01	.02																						.03	
LITTLE ROCK WB AP	.05																							.03	
MAGNOLIA 5 N	.10	.02																						.05	
MARIANNA 2 S	.02	.01																						.12	
MAUMEE	.01	.01	.01																					.03	
MOROBYA L AND D B	.18	.14	.04																					.36	
NARROWS DAM			.04		.06																			.10	
NASHVILLE SCS			.01	.01	.05																			.07	
NIMROD DAM	.01	.01	.02																					.04	
NORFORK DAM	.02	.01																						.03	
PINE BLUFF	.06	.01																						.07	
REMPEL DAM	.06			.06	.03																			.15	
STUTTGART 9 ESE			.05						.01	.02	.01													.09	
WHEELING	.03	.06	.01																					.10	
	-2d-																								
BERRYVILLE 4 NW																		.01		.01				.02	
BULL SHOALS DAM																		.01		.14				.15	
COMPTON						.03												.05		.03	.01			.08	
EUREKA SPRINGS																		.02	.01	.03	.26			.03	
HUNTSVILLE																			.01	.03	.28	.02		.29	
MOUNTAIN HOME C OF E																			.12	.01	.28	.02		.30	
NORFORK DAM																			.03	.11	.21	.02		.13	
PYATT																			.03	.11	.21	.02		.37	
WHEELING																								.37	

Exhibit 53

HOURLY PRECIPITATION DATA

FLORIDA

ANNUAL SUMMARY 1961

Volume 11 No. 13

STATION INDEX WITH PRECIPITATION TOTALS

Station	Index No.	County	Drainage	Latitude N	Longitude W	Elevation ft.	Years of record	Changes during year		January	February	March	April	May	June	July	August	September	October	November	December	Annual
								Month opened	Month closed													
APALACHICOLA WB CITY	0211	FRANKLIN	5 29 44	84 59	13 59					4.39	3.96	3.45	1.55	3.78	4.92	2.45	10.90	0.78	0.41	1.86	3.22	41.67
AVON PARK	0369	HIGHLANDS	7 27 35	81 30	165 64					2.29	3.19	4.19	.99	4.34	9.17	4.04	4.49	2.73	2.10	.58	.74	38.85
BELLE GLADE HRN GATE 4	0616	PALM BEACH	7 26 42	80 43	31 20					2.25	.83	1.14	1.97	8.03	5.56	10.27	5.40	4.02	1.19	.44	.14	41.24
BLACKMAN 4 WNW	0765	OKALOOSA	5 30 57	86 42	200 19					3.46	9.68	6.94	8.04	3.34	9.92	10.04	8.84	4.39	.00	4.42	8.27	878.34
BOCA RATON	0845	PALM BEACH	2 26 21	80 05	21 20					8.56	.85	1.09	.67	6.47	2.80	1.22	5.06	4.50	6.93	1.09	.16	39.40
BRISTOL	1020	LIBERTY	1 30 26	84 59	160 21					E4.26	E4.94	4.57	5.63	2.76	6.12	5.59	7.14	2.15	.00	1.42	4.49	E49.07
BROOKSVILLE CHIN HILL	1046	HERNANDO	5 28 37	82 22	200 69					2.36	1.45	2.25	1.02	4.07	E6.09	E5.20	11.46	2.58	.68	E2.53	E1.83	E41.52
CANAL POINT GATE 5	1271	PALM BEACH	7 26 52	80 38	36 22					3.37	.34	3.72	2.06	E6.98	2.35	5.73	8.29	1.34	2.90	.63	.14	E37.85
CLEWISTON U S ENG	1654	HENDRY	7 26 45	80 55	20 13					E3.22	E1.59	3.76	1.82	8.83	4.56	4.69	5.53	3.75	1.57	.36	.21	E39.89
CRESTVIEW RADIO WJSB	1984	OKALOOSA	5 30 46	86 35	276 3					3.67	8.00	7.74	6.40	2.68	10.20	E4.77	15.56	4.14	.00	3.22	8.37	E74.75
CROSS CITY	2006	DIXIE	5 29 38	83 07	45 10					3.43	3.58	.66	2.08	1.07	5.08	E5.04	7.63	1.39	1.17	1.98	2.21	E35.32
DAYTONA BEACH WB AP	2158	VOLUSIA	2 29 11	81 03	31 48					1.96	3.70	1.17	2.16	2.39	6.81	5.16	7.68	3.20	2.25	2.85	.73	40.06
DEER PARK	2200	OSCEOLA	8 28 05	80 54	43 5					4.09	1.24	3.11	1.82	3.68	3.70	6.96	E5.67	E7.22	2.46	E1.93	E.27	E42.15
*DOWLING PARK	2391	SUNNEE	10 30 16	83 15	78 16					E4.08	E3.21	E1.36	3.55	1.51	4.97	2.34	10.57	1.98	.35	2.85	1.86	E38.63
FELDA	2923	HENDRY	4 26 32	81 26	18 22					2.95	1.77	1.94	2.39	4.36	3.13	5.26	3.06	2.12	3.81	.68	.30	31.77

MONTHLY CLIMATIC DATA FOR THE WORLD

This publication contains monthly mean values of surface temperature, pressure, relative humidity, and precipitation; and of upper air temperature, dew point, and wind direction and speed for hundreds of locations throughout the world. The publication originated in May 1948 under the title MONTHLY CLIMATIC DATA FOR WORLD BY CONTINENTS as a 4-page mimeograph issue. The title was changed to MONTHLY CLIMATOLOGICAL DATA FOR THE WORLD with the July 1948 issue; to MONTHLY CLIMATIC DATA FOR WORLD with the August 1948 issue, and to the present title beginning with the May 1949 issue. It is sponsored by the World Meteorological Organization in cooperation with the U. S. Weather Bureau. There is no annual issue. Abbreviated examples of the tables shown therein are found in Exhibits 54 and 55.

Subscription Price: Monthly 25 cents per copy; \$2.75 per year domestic, \$3.75 per year foreign. Address subscriptions to Superintendent of Documents, Government Printing Office, Washington 25, D. C., with remittance made payable to the "Superintendent of Documents".

Exhibit 54
SURFACE DATA

JANUARY 1963

Station	Latitude	Longitude	Elevation	Number of days of obsns.	Pres- sure	Temperature			Relative Humidity		Precipitation			
					Average	Average	Average	Departure	Average	Departure	No. of days ≥ 1 mm.	Total	Departure	Quintile
	°	'	Meters		Mbs.	°C.	°F.	°C.	%	%		Mm.	Mm.	
EUROPE														
ALDERGROVE	54 39 N	06 13 W	67	31	1027	- 0.5	31.1	-4.2	85	- 6	7	32A	- 48	1
LONG KESH	54 29 N	06 06 W	37			U								
MOUNT BATTEN	50 21 N	04 07 W	30	31	1022	- 0.2	31.6	-6.4	85	- 4	4	21A	- 84	1
ESKDALEMUIR	55 19 N	03 12 W	242	31	1029	- 1.9	28.6	-3.3	90	0	15	53A	-122	1
MANCHESTER AIRPORT	53 21 N	02 16 W	76	31	1026	- 1.4	29.5	-4.7	83	- 6	4	11A	- 66	0
ABERDEEN/DYCE	57 12 N	02 12 W	58	31	1030	- 0.6	31.0	-3.0	86	- 2	18	50A	- 27	2
LERWICK	60 08 N	01 11 W	82	31	1029	- 1.0	33.8	-2.1	87	- 6	9	40A	- 71	1
WADDINGTON	53 10 N	00 31 W	72	31	1026	- 1.9	28.6	-4.9	88	- 3	5	22A	- 32	1
GATWICK	51 09 N	00 11 W	59	31	1023	- 2.7	27.1		89		4	14A		
KEW	51 28 N	00 19 W	5	31	1024	- 1.1	30.0	-5.3	80	- 8	4	20A	- 33	0
CRAWLEY	51 05 N	00 13 W	144			U								
CLONES	54 11 N	07 14 W	89		1027	- 0.2	31.6		83			20		
GORLESTON	52 31 N	01 43 E	2	31	1025	- 0.5	31.1	-4.6	87	+ 1	6	22A	- 35	1
DENMARK														
ALBORG	57 06 N	09 52 E	3		1026	- 5.3	22.5	-4.8	89	- 1		4	- 41	0
KOBENHAVN/KASTRUP	55 38 N	12 40 E	5		1024	- 4.1	24.6	-4.2	81	- 6		10	- 39	0
JAEGERSBORG	55 46 N	12 32 E	40			U								
DUEODDE	55 00 N	15 05 E	6		1023	- 3.4	25.9	-3.7	79	- 8		20	- 28	0
NORWAY														
TROMSO/SKATTORA	69 42 N	19 01 E	9		1014	- 3.7	25.3	-1.0	76	- 5	22	202A	+ 84	5
VARDO	70 22 N	31 06 E	15		1008	- 5.5	22.1	-1.2	83	- 2	17	47A	+ 15	3
BODO	67 16 N	14 22 E	17		1018	- 2.5	27.5	-0.4	76	- 3	23	110A	+ 17	4
TRONDHEIM/VOLL	63 25 N	10 27 E	133		1025	- 3.2	26.2	+0.2	92	+14	20	111A	+ 43	4
ORLANDET	63 42 N	09 37 E	13		1024	- 0.9	30.4	-0.1	87	+ 2	22	104A	+ 12	
OSLO/BLINDERN	59 56 N	10 44 E	96		1027	- 8.6	16.5	-3.9	73	-11	2	4A	- 45	1
OSLO/GARDERMOEN	60 12 N	11 05 E	211		1027	-13.6	7.5	-6.7	86	- 2	1	4A	- 55	
BERGEN/FREDRIKSBERG	60 24 N	05 19 E	44		1028	- 2.1	28.2	-3.6	80	- 2	7	42A	-137	1
STAVANGER/SOLA	58 53 N	05 38 E	13		1028	- 4.7	23.5	-5.4	89	+ 5	4	11A	- 77	

Exhibit 55

UPPER AIR DATA

JANUARY 1963

Station	850 mb					700 mb					500 mb					300 mb					200 mb					150 mb					100 mb				
	Dynamic height	Temperature	Dew point	Wind		Dynamic height	Temperature	Dew point	Wind		Dynamic height	Temperature	Dew point	Wind		Dynamic height	Temperature	Dew point	Wind		Dynamic height	Temperature	Dew point	Wind		Dynamic height	Temperature	Dew point	Wind						
				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed				Direction	Speed	Direction	Speed			
Gpm	°C	°C	°	Mps	Gpm	°C	°C	°	Mps	Gpm	°C	°C	°	Mps	Gpm	°C	°C	°	Mps	Gpm	°C	°C	°	Mps	Gpm	°C	°C	°	Mps						
EUROPE (Cont'd.)																																			
France (Cont'd.)																																			
Trappes	1435	-5.5	-11.1	65	6	2946	-11.1	-20.7	34	5	5459	-26.1	-36.6	360	7	8970	-50.7		353	11	11,554	-56.9		327	12	13,367	-55.0		306	12	15,964	-55.4			
Nîmes	1419	-2.5	-9.4	7	5	2943	-9.8	-18.2	310	7	5464	-25.6	-34.8	310	10	8974	-50.8		298	17	11,571	-55.5		291	19	13,413	-54.4		288	17	16,000	-55.7			
Ajaccio/Campo del Oro	1417	-1.8	-7.0	263	4	2844	-10.1	-17.3	280	9	5470	-25.1	-34.8	288	13	9003	-48.3		288	16	11,616	-54.0				13,468	-51.9								
Belgium																																			
Uccle	1445	-7.0	-12.2	61	8	2943	-12.8	-22.2	46	8	5438	-27.6	-37.9	31	13	8920	-52.3		9	16	11,490	-58.2		344	13	13,310	-56.2		332	13	15,880	-57.1		320	15
Netherlands																																			
De Bilt	1455	-7.7	-15.4	58	4	2949	-13.9	-24.9	44	4	5432	-28.8	-38.9	28	5	8891	-54.2		17	6	11,432	-58.5		6	5	13,242	-57.2		342	5	15,806	-57.8		340	8
Switzerland																																			
Payerne (st. aerol.)	1425	-6.7	-10.1	60	4	2925	-12.5	-18.3	359	2	5423	-27.2	-34.0	328	8	8916	-50.6		327	13	11,516	-54.3		316	14	13,368	-53.5		315	13	15,962	-54.7		307	13
Germany																																			
Köln/Bonn	1447	-8.4	-13.5			2939	-14.4	-24.0			5420	-28.9	-38.7			8900	-51.6	-60.3			11,478	-56.8				13,312	-55.0				15,896	-56.2			
Stuttgart/Cannstatt	1438	-8.7	-12.5	79	3	2927	-14.7	-23.8	15	4	5402	-29.8	-38.8	339	7	8869	-52.3	-60.8	342	12	11,451	-55.7		317	11	13,290	-54.8		309	14	15,877	-56.1		303	15
München/Riem	1430	-8.6	-12.4	120	6	2918	-15.3	-21.5	346	3	5387	-30.5	-36.8	326	7	8848	-52.2	-59.3	317	13	11,439	-55.0		300	13	13,282	-54.5		288	15	15,871	-56.2			
Hannover	1452	-9.8	-16.1	62	7	2933	-15.6	-26.1	40	8	5404	-30.1	-40.2	25	11	8868	-51.6	-61.0	27	18	11,435	-57.3		332	11	13,262	-55.7		321	13	15,841	-57.0		301	17
Wahnsdorf *	1436	-10.5	-12.7			2916	-15.9	-21.2			5379	-31.0	-37.8			8824	-53.3				11,396	-57.3				13,230	-56.1				15,841	-56.9			
Lindenberg **	1441	-9.9	-13.0			2922	-16.1	-21.8			5386	-30.8	-37.1			8834	-53.2				11,406	-57.4				13,233	-56.2				15,816	-57.0			
Schleswig	1463	-9.1	-17.0	43	7	2948	-15.5	-27.3	36	9	5419	-29.9	-40.7	18	14	8883	-53.4	-61.9	7	17	11,436	-59.0		348	14	13,251	-57.0		324	14	15,814	-58.0		310	16
Greifswald *	1448	-10.1	-13.6			2925	-16.3	-22.3			5378	-31.8	-38.1			8818	-54.0				11,368	-59.2				13,181	-58.0								
Emden	1467	-8.7	-14.6	57	8	2957	-14.3	-23.6	44	10	5440	-28.8	-37.6	30	14	8919	-52.5	-59.9	14	17	11,479	-58.7		352	14	13,299	-56.5		329	13	15,870	-57.4		319	16
Wernigerode *	1448	-10.2	-13.1			2932	-15.3	-21.6			5406	-30.4	-37.8			8859	-52.9				11,428	-57.4				13,254	-56.3				15,823	-57.1			

SNOW COVER SURVEY

This annual report presents monthly data on snow depths and their water equivalents for the season December through April (Exhibit 56). These data are submitted to the Records Committee of the Eastern Snow Conference by various participating agencies. The Committee in turn furnishes the data to the Weather Bureau for publication. The area covered by the report includes more than 700 stations in New York State and New England, with a few stations reporting from Pennsylvania. Additional detailed information, if available, may be obtained from the agency furnishing the data. The names of these agencies are listed in the report.

This publication carries no sales price. Inquiries concerning its distribution should be directed to the U. S. Weather Bureau, Washington 25, D. C., Attention: Library.

Exhibit 56
SNOW SURVEY DATA

STREAM BASINS SNOW COURSES AND STATE	LOCATION			DECEMBER		JANUARY		FEBRUARY		MARCH		APRIL		AGENCY FURNISHING DATA				
	ELEV.	LAT.	LONG.	INCHES		INCHES		INCHES		INCHES		INCHES						
				DATE	SNOW DEPTH	WATER EQUIV.	DATE	SNOW DEPTH	WATER EQUIV.	DATE	SNOW DEPTH	WATER EQUIV.	DATE		SNOW DEPTH	WATER EQUIV.		
Richford, Vt.	460	44°58'	72°42'					21	12.1	5.02				U.S. Geological Survey				
<u>OTTER CREEK</u>																		
Center Rutland, Vt.	500	43°36'	73°01'			3	9.2	1.20	6	Patches ----	13	12.2	5.38	"				
Middlebury, Vt.	400	44°03'	73°10'			3	12.4	1.64	6	Patches ----	13	11.9	2.66	"				
<u>POULTNEY RIVER</u>																		
Fairhaven, Vt.	250	43°58'	73°19'			3	11.8	1.88	6	9.4	1.82	13	19.5	5.38	"			
<u>LAKE CHAMPLAIN (EAST SIDE)</u>																		
Burlington (Airport), Vt.	331	44°28'	73°09'			15	5.0	0.70	5	2.0	0.30	5	11.0	1.40	3	2.0	0.20	U.S. Weather Bureau
						29	1.0	----	20	6.0	0.40	19	4.0	1.40				
<u>THAMES RIVER</u>																		
Wales, Mass.	1000	42°04'	72°14'			15	5.8	1.85	5	1.3	0.35	5	14.2	4.20	3	Patches ----	----	Corps of Engineers, Walt
						20	14.4	2.95	19	9.0	3.65							
Sturbridge, Mass.	640	42°06'	72°05'			15	5.6	1.70	5	0		5	13.5	4.70				"
						29	Patches ----	----	20	13.3	2.70	19	6.3	2.40				
Quinebaug, Conn.	380	42°01'	71°57'			15	5.6	1.50	5	Patches ----	----	5	11.4	3.90	3	0		"
						20	12.8	2.10	19	Patches ----	----							
Mansfield Hollow Dam, Conn.	250	41°46'	72°11'			15	2.2	1.00	5	0		5	6.8	2.60				"
						20	10.0	2.30	19	0		19	0					
Spring Hill, Conn.	620	41°48'	72°14'			15	3.6	1.40	5	0		5	9.3	3.30				"
						20	10.6	2.60	19	10.6	2.60	19	Patches ----	----				
South Willington, Conn.	450	41°50'	72°18'			15	3.6	1.10	5	0		5	10.0	3.00				"
						20	10.2	2.60	19	10.2	2.60	19	Patches ----	----				
Stafford Spring, Conn.	450	41°56'	72°18'			15	3.0	1.10	5	0		5	9.4	3.10				"
						20	10.0	2.80	19	10.0	2.80	19	Patches ----	----				
Union, Conn.	930	42°00'	72°10'			15	5.6	2.10	5	Patches ----	----	5	12.0	5.20				"
						20	12.4	3.40	19	12.4	3.40	19	8.3	4.05				
Kenyonville, Conn.	600	41°56'	72°05'			15	6.2	2.60	5	Patches ----	----	5	12.0	3.50				"
						20	13.6	3.50	19	13.6	3.50	19	4.8	2.10				

STORAGE-GAGE PRECIPITATION DATA FOR WESTERN UNITED STATES

This annual publication presents precipitation data from remote areas in the West from stations equipped with storage precipitation gages that require reading and maintenance only at monthly or seasonal intervals. Prior to 1940 these data were published in the monthly issues of CLIMATOLOGICAL DATA for those states having numerous storage-gage stations. In January 1940 most of the storage-gage data were issued for basin areas (rather than for States) in the HYDROLOGIC BULLETINS. Publication of these data again reverted to the CLIMATOLOGICAL DATA on an annual basis (for the season July through June) and included in the June issue at first, but later in the July issue.

The storage gage observations published in Table 1 (Exhibit 57) presents the date of observation, amount since last observation, and depth of snow on ground. Pro-rated monthly precipitation totals are presented in Table 2 (Exhibit 58). In pro-rating, two or three nearby, reliable stations with daily readings were selected for interpreting purposes. A "Station and History" table (Exhibit 59) is included.

For sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. - Price 50 cents.

Exhibit 57

Precipitation Measurements

Observation date	Amount since last obs.(in.)	Snow on ground (in.)	Observation date	Amount since last obs.(in.)	Snow on ground (in.)	Observation date	Amount since last obs.(in.)	Snow on ground (in.)	Observation date	Amount since last obs.(in.)	Snow on ground (in.)
ARIZONA			ARIZONA			ARIZONA			ARIZONA		
FRAZIER WELL 4 NE (Continued)			LITTLE WILDCAT			MT ORD LOOKOUT			RUSTLERS PARK (Continued)		
1962			1961			1961			1961		
May 1	.25		May 4			Jul. 2			Aug. 10	.10	
31	.00		Aug. 3	5.35		3	.03		11	1.50	
Jun. 22	.08		29	4.10		13	.57		12	.60	
30	.54		Sep. 21	2.45		14	.05		13	.80	
			Oct. 11	.85	4	19	.15		14	.40	
			31	1.75		28	.03		15	1.20	
GREER LAKES			1962			Aug.					
1961			Jan. 30	12.45		2	.20		16	.40	
Jul. 4			Feb. 14	1.10		6	.10		17	.20	
Aug. 2	2.15		28	3.95		11	.05		18	.10	
Sep. 6	3.13		Mar. 14	2.22		12	.30		20	.05	
Oct. 5	1.22		Apr. 12	.16		13	.15		21	.10	
Nov. 6	3.95		May 16	.14		14	.55		28	1.10	
Dec. 1	1.95					Sep. 23	2.60		29	.80	
						Nov. 6	1.80		30	.30	

Exhibit 58

Prorated Monthly Precipitation

Station	1961						1962						TOTALS	
	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	1961 Cal. yr.	July- June
UTAH														
(Continued)														
WHITE RIVER 1	1.90	3.55	2.95	3.05	2.15	1.00	4.50	5.55	2.25	1.35	1.80	.48	21.15	30.53
WIDTSOE ESCALANTE 3	2.74	4.90	2.97	2.05	1.00	2.35	1.80	5.70	3.10	.45	1.65	1.55	25.93	30.26
WIDTSOE RS	1.42	2.55	2.18	.54	.32	.59	.43	2.03	1.15	.20	.95	1.02	12.17	13.38
YANKEE RESERVOIR	1.90	5.25	.95	.80	.85	1.40	1.30	4.30	4.00	.95	1.27	1.58	23.70	24.55
YELLOWSTONE RS	1.75	2.45	4.30	2.10	.90	.55	1.55b	2.95b	1.10b	.75a	1.18	1.23	15.85	20.81
WASHINGTON														
BEAVER PASS	.95	1.73	2.40	7.40	5.50	8.75	6.70	1.75	4.60	4.60	3.05	2.00	63.51	49.43
CARNATION 15 E	2.61	2.34	6.33	15.41	13.20	22.22	15.40	3.87	10.17	8.27	5.24	5.75	131.67	110.81
CEDAR FALLS 4 SE	1.75	1.41	5.58	13.30	10.23	19.37	10.72	5.87	11.92	7.66	5.35	3.10	127.23	96.26
CEDAR FALLS 5 SE	1.40	1.12	4.15	8.75	7.70	16.50	8.60	4.85	9.60	5.90	3.19	1.62	97.88	73.38
CEDAR FALLS 7 SE	1.48	1.20	4.68	11.00	9.12	18.85	9.33	5.39	10.25	6.00	4.16	2.93	112.74	84.39

Exhibit 59

Station Description and History

Storage precipitation stations

ARIZONA

Station	County	Index number	Latitude N. (deg. & min.)	Longitude W. (deg. & min.)	Elevation (feet, msl)	Type of gage; height of tower or gage	Period of record		Remarks
							From	To	
AZTEC PEAK	GILA	0571	33 49	110 54	7700	8 x 24", 8' tower	Nov. 1951		In small clearing 100 feet across, summit of Aztec Peak. Relatively level area covered with medium growth of pines.
BONITA CREEK 2	GRAHAM	0904	32 54	109 29	3280	8 x 24", 8' tower	Apr. 1956		On rock shelf 150 feet above Bonita Creek. Desert area with shale-covered hills Drainage to ESE.
BRIGHT ANGEL RS	COCONINO	1001	56 12	112 04	8400	8 x 42", 10' tower	Jul. 1958		Heavily forested, high plateau to N, deep canyon 3/4 mile SW and 1 mile E. Observations from storage gage from about September 15 to May 15. Daily precipitation from standard rain gage published in CD remainder of year.
CORN CREEK	APACHE	2122	33 45	109 45	7730	8 x 24", 8' tower	Oct. 1955		Pine-timbered mountains. On E-W ridge, gentle downslope to N.
FLUTED ROCK	APACHE	3060	35 53	109 15	7880	8 x 24", 6' tower	Oct. 1951		Mountain meadow in rolling timbered country. Gradual downslope toward SW.
FORT VALLEY	COCONINO	3160	35 16	111 44	7350	8 x 24", 8' tower	Nov. 1938		In timbered valley with higher mountains all directions. Valley opens to S. Standard rain gage 400 feet N.
FOUR PEAKS	GILA	3193	33 43	111 20	6700	8 x 24", 10' tower	Jun. 1952		On ridge in a small opening among oak and pine trees.
FRAZIER WELL 4 NE	COCONINO	3237	35 50	113 02	6500	8 x 24", 6' tower	Oct. 1950		Near top of ridge in rough, timbered area. Narrow winding valley and steep ridges.
GREER LAKES	APACHE	3688	34 02	109 27	8500	8 x 24", 10' tower	Oct. 1941		Large flat meadow with Greer Lakes 200 yards E. Timbered mountains 4 to 5 miles E, W, and S. About 1.5 mile from Greer (precipitation only) station. Two gages, until 8/31/54, about 165 yards apart. Records from No. 2 until 8/31/54. Subsequent records from No. 1.

STORM DATA

This publication, issued monthly only, began with data for January 1959. It presents a chronological listing, by states, of occurrences of storms and unusual weather phenomena, together with data on the paths of individual storms; deaths, injuries, and property damage resulting therefrom; and a brief narrative of associated details attending each occurrence (Exhibit 60). From 1950 through 1959 these data were published in the monthly issues of CLIMATOLOGICAL DATA, NATIONAL SUMMARY, but prior to that chronological listings of severe local storms (particularly tornadoes) were published in the MONTHLY WEATHER REVIEW from 1921 through 1949; in THE REPORT OF THE CHIEF OF THE WEATHER BUREAU from 1929 through 1935; and in the U. S. METEOROLOGICAL YEARBOOK from 1936 through 1949.

Subscription Price: 15 cents per copy; yearly subscriptions \$1.50 domestic, \$2.00 foreign. Checks and money orders should be made payable to the Superintendent of Documents. Remittances and correspondence regarding subscriptions should be sent to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Exhibit 60

STORM DATA AND UNUSUAL WEATHER PHENOMENA

MARCH 1963

PLACE	DATE	TIME	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSONS		ESTIMATED DAMAGE		CHARACTER OF STORM
					KILLED	INJURED	PROPERTY	CROPS	
TENNESSEE (Cont'd) Parrottsville area, Cooke County	11	10:00 p.	10	200	1	1	5	4	Tornado
									Tornado first struck between Parrottsville and Salem where several houses were destroyed, barns unroofed, and trees uprooted. A 17 year old boy was killed there when a brick wall collapsed on his bed, and a woman received minor burns from a stove as the house collapsed. Tornado moved eastward and dissipated in the mountains.
East and Central Tennessee	11- 12				4	3	6	7	Rain, wind and lightning
									Heavy rains, up to 6 inches, during thunderstorms caused severe flash flooding and heavy damage in many areas, particularly in Sevier and Marion Counties. In Marion County nearly 100 homes washed away and damage was heavy in many other areas. In Sevier County alone 150 to 200 bridges were washed out. A family of 4 drowned when their home was washed away by the Sequatchie River near Jasper. A total of at least 500 families were forced to flee their homes; 200 at Sevierville. Three women were hospitalized for shock and exposure after rescue from their car which was washed off the highway near Gainsboro, Jackson County. Rain and floods caused numerous landslides and did heavy damage to bridges, roads, streets, homes, businesses, automobiles, boats, farmland, and livestock. There was wind damage in scattered areas to buildings, utilities, trees and automobiles. Lightning damaged utilities and started fires in a few areas. Most damage was due to heavy rain and flooding.
Putnam County and Smith County	16	5:00- 11:00 p.			0	0	5	?	Rain
									Heavy rains damaged roads, fences, bridges, culverts, drowned livestock, flooded buildings and basements, and eroded farmlands.
Lebanon area, Wilson County	16	7:30- 11:00 p.			0	0	5	?	Rain
									Heavy rains during thunderstorms left 4 feet of water standing in downtown Lebanon. More than 15 business houses were flooded, 2 blocks of homes were evacuated, several rural bridges were washed out, and roads and farmland damaged.
TENNESSEE (Cont'd) Near Athens, McMinn County	19	7:30 p.	3	200	0	1	4	?	Tornado and rain
									Funnel sighted as tornado demolished a barn, crib and garage, badly damaged a house, and cut a swath through timber 5 miles west of Athens. Other roof, porch, shed, and automobile damage, and livestock injury was reported in the area. A woman was treated at a local hospital for shock and dismissed.
Near Mountain City, Johnson County	20	Night			0	0	5	0	Wind
									Strong winds hit the Rainbow Hurlley Warehouses on Highway 421 south of Mountain City demolishing one of the houses and doing great damage to a second one.
TEXAS									
Brownfield Terry County	10	2:30 p	?	?	0	0	?	?	Wind
									Winds gusting to 60 mph destroyed a 79 x 20 foot building, leaving only a small north part of the building standing. The rest of the structure was picked up and carried about 40 feet by the wind and struck like match sticks over the highway. The building was a storage shed.
Jonah Williamson County	10	10:00 p- 10:30 p	short	200	0	0	?	?	Tornado
									A small tornado caused minor damage in the small community of Jonah, disrupting power and telephone service, uprooting small trees, smashing signs, blowing over barns and other farm out-buildings, and wrecking an unoccupied building. On one farm it picked up a four-wheeled cotton trailer and dropped it on the opposite side of a barn from where it had been parked. All four tires were blown out.
W. Mart McLennan County	10	10:13 p	1	13	0	0	3	0	Tornado
									A small tornado dipped down on Edgar Johnson farm a few miles west of Mart, cutting a path 1 mile long and about 40 feet wide. The tornado destroyed one garage and two barns. Damage was estimated at \$2000.

SYNOPTIC SERIES, DAILY WEATHER MAPS, NORTHERN HEMISPHERE
SEA LEVEL AND 500-MILLIBAR MAPS AND DATA TABULATIONS

This series comprises two separate publications, one of which presents the Northern Hemisphere maps (monthly), the other containing the data tabulations (daily). The series begins with data for January 1899, but until July 1955 both the maps and the data tabulations were published on a monthly basis.

Part I - "Northern Hemisphere Sea Level Charts and 500-Millibar Charts" is a series of daily synoptic weather maps. Each volume of the series consists of Northern Hemisphere maps for one month, there being one sea level map and one upper air constant pressure surface map (500 millibars) for each day. Both maps are prepared from data observed at 1200 GMT, unless otherwise indicated. Not all issues of Part I are available.

Part II - "Northern Hemisphere Data Tabulations" is issued on a daily basis and contains synoptic surface and upper air reports. Sea level data are presented in two sections, one for land reports (Exhibit 61), the other for marine reports (Exhibit 62). Upper air information includes radiosonde and rawinsonde reports for 0000 and 1200 GMT (Exhibits 63 and 64); and upper wind reports for 0000, 0600, 1200, and 1800 GMT (Exhibits 65 and 66) for North America (WMO Region IV), the Atlantic and Pacific Ocean Weather Stations, and for stations outside Region IV for which data are available, including Greenland and the North Pacific Ocean. Upper air reports for the remainder of the Northern Hemisphere are given for one observation per day, usually at 0000 GMT.

Subscription or Sale Price: Part I, \$2.75 per month, if available. Part II, \$5.00 per month, separate copies 25 cents. Checks, money orders, remittances and correspondence regarding subscriptions should be made payable to and sent to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

The publication NORMAL WEATHER CHARTS FOR THE NORTHERN HEMISPHERE (Weather Bureau Technical Paper No. 21) issued in October 1952, contains normal monthly charts of sea level pressure, 700-millibar height and temperature, 700- and 1000-millibar thickness, and 500-millibar height. This is now out of print.

Exhibit 61

SURFACE SYNOPTIC DATA — 1200 GCT

IN-DEX NO.	STATION NAME	Mddff	VVwwW	PPPTT	MnChCmCh	TdTjdj	ejeje	p	7RRBj
	BLOCK 51								
156	HOPOUKSAIL	72004	84142	14815	49762	52201			
379	CHITAI	72202	12032	17316	11732	-9707			7 97
573	TULUFAN	81802	81038	10921	6976-	00505			
644	KUCHE	82202	56062	11824	09907	51708			
777	NOCHIANG	10203	61011	10924	00902	52700			
828	HO TIEN	82711	30062	07324	00901	03605			
855	CHICHMO	70000	59061	11235	009-2	55500			
	BLOCK 52								
203	HAMI	72801	82022	10021	00932	50611			
533	CHIUCHUAN	70000	8002-	15515	00948	56212			
818	KARMU	83205	66021	-15	55007	63210			
889	LANCHOW	82701	65012	12517	00932	51302			
	BLOCK 53								
068	ERHLIEN	10000	75020	17212	00902	56608			
276	WENTULMIAO	13401	80020	19680	00902	61203			
480	CHINING	22904	80020	20207	00902	65209			
614	YINCHWAN	83201	82031	18612	00902	52601			
646	YULING	20000	98031	12111	00902	64704			
698	SHIHCHIACHWA	11802	75020	19416	00902	54207			
845	YENAN	70402	70022	19314	00902	54400			
915	PINGLIANG	81402	65032	19112	00-7-	5121-			

Exhibit 62

SURFACE MARINE DATA

LOCATION OF SHIP & TIME OF OBSERVATION	TOT. CLD. AMT. & WIND	VIS. & WEA.	PRES. & TEMP.	CLOUDS	SHIP DIR. SPEED DIR. PRES. CHG.	SEA TEMP. DIFF. & DEW PT.	WAVES	SHIP NO.	
									YQLaLaLa	LsLaLoGG	Mddff	VVwwW	PPPTT	MnChCmCh	DsYsppp	OTsTjTj	UuWwWw	SHIP NO.
60213	84012	40903	98020	15578	32410	75105	05371	10921	2390
60236	82312	30916	98020	16978	21310	15110	05170	10523	5370
60255	84512	10510	99020	18072	12500	36207	05672	10521	3349
60257	84912	21106	99020	18077	00905	36210	05170	11132	5339
60258	82812	20804	98020	18371	00905	45205	05368	10820	8329
60271	89512	41410	98021	13976	21535	76603	05170	11422	2305
60292	88412	20910	98020	15276	11420	76224	05169	10921	2304
60226	86512	40912	98031	14678	33405	36204	05171	10921	4400
60255	85312	41316	98030	16676	41 00	36000	05467		4401
60263	86712	31416	98031	16977	32300	35214	05370	11423	3603
60242	87112	51415	98031	14678	32640	55400	05572	11421	2991
60245	89712	31320	98051	12875	22304	34215	05172		4978
60253	84212	00908	98000	18673	00900	35400	05667	10821	7982
60258	86412	41415	98031	16976	32501	36210	05266	11422	2976
60267	89112	41418	99022	14274	42400	36217	05367	11422	2970
60270	88412	11418	99021	15278	11400	36214	05269	11433	2909
60288	86812	01406	98020	13975	00900	33400		11411	6988
60245	80412	21411	69000	18076	11501	10	05470	11421	5 544
60258	70212	80920	98022	17074	854-	86110	05371	10922	1203
60279	78912	71608	97038	18676	75400	55703	00067	11622	7248
60288	70212	51115	98022	20072	54233	35203	00068	11122	2281
60200	70712	50506	98031	15977	32260	76107	05370	10520	2327
60212	74112	40908	98030	18077	48460	85130	05273	10922	4342
60213	75812	10910	98020	17676	11400	34	05168	10921	7331

WEEKLY WEATHER AND CROP BULLETIN

Especially valuable to agriculturists, this weekly periodical briefly summarizes the weather and its effect on crops and farm activities over the entire United States. Its publication began in 1872 as the WEEKLY WEATHER CHRONICLE and, except for a brief period (1881-1884), continued under various titles until the present time. Its present title was established in January 1924.

Aside from the narrative summaries of the weather over the country and its effect on crops, condensed summaries furnish this information for each state. Special articles on these subjects and related matters of interest are included on occasion. In the early spring a summary of the weather during the previous winter, and one of ice conditions in the Great Lakes, are featured. Weekly and monthly charts depicting departure of average temperature, and of total precipitation, from the normals are shown, while a chart presenting the depth of snow on the ground is included during the winter season only. There is also a monthly chart portraying weather "highlights" over the country.

Tables presenting the weekly average temperature and total precipitation for selected stations, together with their departures from the normal (Exhibit 67); and snow depth on ground, its water equivalent, and ice thickness in rivers, harbors, lakes, etc. (Exhibit 68) are included, the latter being published only during the winter season. There is also a monthly table of heating degree days published for each month, October through March (Exhibit 69).

Subscription Price: \$3.00 per year domestic, foreign mailing \$1.00 extra; for period December through March \$1.00 domestic, foreign mailing 50 cents extra. Single issue 10 cents. Order from Superintendent of Documents, Government Printing Office, Washington 25, D. C.

A publication entitled AVERAGE PRECIPITATION IN THE UNITED STATES presents charts depicting the average weekly precipitation for a large number of stations in the United States (see page 48). There is also a discussion of the month's weather to be found in each issue of the MONTHLY WEATHER REVIEW.

Exhibit 67

Weekly Weather and Crop Bulletin

March 11, 1963

Data for the Week Ending Midnight, l. s. t., March 10, 1963

States and Stations	Temperature °F		Precipitation (Ins.)		States and Stations	Temperature °F		Precipitation (Ins.)		States and Stations	Temperature °F		Precipitation (Ins.)	
	Average	Departure from normal	Total	Departure from normal		Average	Departure from normal	Total	Departure from normal		Average	Departure from normal	Total	Departure from normal
ALA, Birmingham . . .	54	+ 2	2.41	+1.07	LA, New Orleans . . .	61	+ 2	0.95	-0.07	OKLA, Okla. City . . .	45	- 1	1.35	+1.01
Mobile	59	+ 1	1.15	- .27	Shreveport	56	+ 1	.27	-.53	Tulsa	47	+ 1	1.92	-1.52
Montgomery	55	+ 1	1.78	+ .49	MAINE, Caribou	14	- 6	1.35	+ .91	OREG, Astoria	46	+ 1	.04	-1.79
ALASKA, Anchorage	---	---	---	---	Portland	29	0	1.60	+ .69	Burns U.	37	+ 1	0	-.26
Barrow	-28	-11	.18	+ .15	MD, Baltimore	42	+ 2	1.36	+ .57	Medford	45	0	0	-.48
Fairbanks	25	+20	.42	+ .36	MASS, Boston	37	- 2	1.48	-.57	Pendleton	43	0	T	-.28
Juneau	39	+10	.67	-.07	Nantucket	38	- 4	1.63	+ .63	Portland	46	+ 1	.02	-1.01
Nome	16	+ 9	.63	+ .43	MICH, Alpena	18	- 6	1.00	+ .58	Salem	43	- 2	T	-1.21
ARIZ, Flagstaff	31	- 3	.02	-.35	Detroit	33	+ 1	.53	-.01	PA, Allentown	36	+ 1	1.26	+ .42
Phoenix	57	- 2	0	-.18	Escanaba U.	20	- 3	.35	+ .03	Harrisburg	39	+ 1	1.54	+ .78
Tucson	52	- 4	0	-.17	Grand Rapids	30	- 1	.87	-.40	Philadelphia	38	0	1.58	+ .77
Winslow	40	- 4	.09	-.02	Marquette U.	20	- 4	.07	-.32	Pittsburgh	36	+ 2	2.80	-2.07
Yuma	61	- 4	0	-.07	S. Ste. Marie	12	- 8	.29	-.11	Scranton	34	+ 1	.44	-.17
ARK, Fort Smith	48	- 1	.66	-.13	MINN, Duluth	16	- 2	.24	-.07	R.I, Providence	38	+ 3	1.57	-.71
Little Rock	52	+ 3	2.21	+1.17	Intern'l Falls	13	- 2	.28	-.07	S.C, Charleston	56	+ 1	.23	-.61
CALIF, Bakersfield	56	0	.02	-.25	Minneapolis	23	- 1	.16	-.13	Columbia	57	+ 5	.91	-.11
Eureka U.	49	0	.14	-1.28	Rochester	19	- 6	.34	-.04	Greenville	52	+ 3	4.50	+3.36
Fresno	53	- 1	.08	-.41	St. Cloud	22	0	.20	-.04	S.DAK, Huron	30	+ 4	.01	-.14
Los Angeles U.	57	- 2	.11	-.45	MISS, Jackson	56	+ 1	.72	-.50	Rapid City	34	- 5	.05	-.08
Red Bluff	51	- 2	.01	-.69	Meridian	54	0	1.12	-.29	Sioux Falls	29	- 2	.01	-.24
Sacramento	52	- 2	.19	-.48	Vicksburg U.	58	- 2	.67	-.60	TENN, Chattanooga	51	- 3	3.77	+2.53
San Diego	57	- 1	0	-.44	MO, Columbia	40	- 1	2.38	-1.95	Knoxville	50	+ 4	3.15	-1.92
San Francisco	51	- 2	.08	-.66	Kansas City	40	- 1	1.83	-1.14	Memphis	54	+ 5	2.69	+1.66

Exhibit 68

Snow Depth on Ground (1), Its Water Equivalent (2), and Ice Thickness in Rivers, Harbors, Lakes, etc. (3), in Inches

Districts and Stations (1) (2) (3)			Districts and Stations (1) (2) (3)			Districts and Stations (1) (2) (3)			Districts and Stations (1) (2) (3)			
ATLANTIC COAST			MISSOURI VALLEY			MISSOURI VALLEY			MISSOURI VALLEY			
MAINE,Caribou(628)	45	8.4	TENN.Chattanooga(676)	0	MO,Columbia(778)	0	WOLF CREEK PASS(10642)*	51				
Eastport	27		Knoxville(949)	0	Kansas City(741)	0	N.MEX.Albuquerque(5,314)	0				
Gardiner**	21		Nashville(585)	0	KANS,Concordia(1,375)	0	Augustine(7,025)*	0				
Greenville(1,061)†	49	33.0	LAKE REGION			Goodland(3,845)	0	Chama(7,800)*	5			
Portland	14	5.0	N.Y.Alfred(1,760)**	16	Hill City(2,186)	0	Cloudcroft(8,575)*	0				
N.H.Berlin(1,110)**	16	3.3 28.0	Boonville(1,575)**	22	Salina(1,271)	0	Eagle Nest(8,240)*	2				
Concord	15		Rafailo(602)	9 4.2	Topeka(879)	0	Socorro(4,618)	0				
Lakeport(560)*	33		Little Valley(1,575)**	25	NEBR,Burwell(2,177)	0	ARIZ,Alpine(8,000)†	0				
VT.Burlington(610)**	16		Ogdensburg	22	Grand Island(8,841)	0	Grand Canyon(6,968)*	0				
Burlington	18	3.1	Rochester(543)	23	North Platte(2,805)	0	Greer(8,470)†	0				
Cavendish(940)*	36		Syracuse	10 2.8	Omaha(978)	0	Prescott(5,354)	0				
MASS,Asherist	13		OHIO,Akron-Canton(1,210)	0	Sidney(4,292)	1	UTAH,Blanding(6,036)	1				
Boston	0		Cleveland(787)	0	Valentine(2,581)	0	Clear Creek(8,300)*	3				
Middleton	3		Toledo(689)	0	IOWA,Sioux City(1,097)	0	Salt Lake City(4,222)	2 0.2				
Stockbridge(850)**	20		IND,Fort Wayne(777)	0	Spencer(1,331)	0	Silver Lake(8,700)**	48				
CONN.Hartford	3	8	South Bend(768)	2 2.2	S.DAK,Aberdeen(1,296)	0	NEV,Austin(6,543)	0				
Norfolk(1,380)*	35		ILL,Chicago(610)	1	Huron(1,282)	0	Ely(6,257)	0				
N.Y.Albany	11	2.1	MICH,Alpena(587)	18 3.9 23.0	Leonard(2,586)	0	Las Vegas(2,500)†	0				
Binghamton(858)	11	3.3	Detroit(619)	1	Picktown(1,485)	0	Pioche(6,110)†	0				
Lake Placid(1,880)*	40		Escanaba(594)	7 1.4 35.0	Rapid City(3,242)	0	Reno(4,493)	0				
New York	0		Houghton(1,200)	19	Sioux Falls(1,420)	0	Tonopah(5,426)	2				
Norwich(1,030)*	16		Lansing(856)	5	St. Louis(1,452)	22	Wells(5,833)†	0				
Tannersville(1,950)*	32		Marquette(677)	10 4.6	Devils Lake(1,472)	2	Winnemucca(4,287)	0				
N.J.Trenton	0		Muskogee(627)	20 4.1	Fargo(895)	1	IDAH,Boise(2,542)	0				
PA.Allentown	0		Sault Ste. Marie(607)	9 1.1 33.0	Williston(1,877)	1	Idschum(5,823)*	3				
Coudersport(2,425)*	21		WIS,Green Bay(689)	9 1.1 33.0	MONT,Billings(3,570)	0	Pierce(3,175)*	12				
Phleges Mere(2,020)*	42		Milwaukee(619)	16 1.9 36.0	Glasgow(2,090)	0	Pocatello(4,468)	0				
Harrisburg	0	5	MINN,Duluth(1,128)	18 2.1	Haugan(3,150)**	0	Salmon(3,949)	0				
Philadelphia	0		International Falls(1,175)	18 2.1	Helen(2,488)	0	OREG,Burns(4,140)	1				
Williamsport(570)*	1	S	MISSISSIPPI VALLEY		Kalispell(2,956)	0	Meacham(4,050)*	0				
MD,Baltimore	0		MINN,Bemidji(1,392)	1	Lima(6,265)**	0	WASH,Sherman Pass(5,24)*	21				
D.C.Washington	0		Minneapolis(830)	1	Miles City(2,507)	0	Spokane(1,878)	0				
VA,Roanoke(1,192)	0		Rochester(1,017)	4 6	Sioux Falls(1,420)	0	Yakima(1,068)	0				
N.C.Greenboro(891)	0		WIS,La Crosse(674)	6 2.1	S.DAK,Bismarck(1,652)	0	PACIFIC COAST					
OHIO VALLEY			Madison(938)	2 6	Summit(5,213)**	23	WASH,Mt. Baker Lodge(4,200)*	90				
W.VA,Charleston(989)	0		Park Falls(1,492)	14	West Yellowstone(6,662)	23	Paradise(5,550)*	35				
Flat Top(3,225)	0		Wausau(1,196)	8	WYO,Alva(4,390)†	2	Seattle	0				
Parkersburg(615)	0		IOWA,Burlington(698)	0	Midwest(4,850)*	10 0.7	Snoqualmie Pass(3,020)*	32				
PA,Pittsburgh(1,286)	0		Des Moines(800)	5	Kansas City(2,507)	23	Stevens Pass(4,061)*	62				
Somerset(2,140)*	6		Dubuque(641)	3	Colorado Springs(5,587)	12	OREG,Crater Lake(6,475)*	39				
Wrentham(2,600)*	6	16.0	Springfield(598)	0	Foxpark(9,060)†	34	Government Camp(3,890)*	4				
OHIO,Cincinnati(761)	0		MO,St. Louis	0	Kemperer(6,954)†	0	Medford(1,329)	0				
Columbus(724)	0		Springfield(1,005)	0	Lander(5,563)	10 0.7	Portland	0				
Dayton(1,092)	0		West Plains(1,403)	0	Moorecroft(4,275)	0	CALIF,Chester(4,525)*	1				
IND,Evanoville	0		KANS,Chanute(977)	0	Sheridan(3,775)	1	Giant Forest(6,360)*	1				
Indianapolis(718)	0		Dodge City(2,594)	0	COLO,Denver(5,221)	4 4	Huntington Lake(7,920)*	0				
Dayton(1,092)	0		Wichita(1,372)	0	Grand Junction(4,587)	0	Mt. Shasta(3,543)*	0				
KY,Lexington(979)	0		OKLA,Guyton(3,125)	0	Leadville(10,177)*	12	Soda Springs(6,902)*	3				
Louisville	0		TEXAS,Amarillo(3,590)	0	Pueblo(4,868)	2 1	Squirrel Inn(5,750)*	0				
Pikeville(686)	0		Lubbock(3,243)	0	Steamboat Springs(6,770)*	9	Yosemite(3,985)*	0				
N.C.Asheville(2,203)	0											

Exhibit 69

Heating Degree Days (Base 65° F)

February 1963

States and Stations	This month		July to-date		States and Stations	This month		July to-date		States and Stations	This month		July to-date						
	Total	Percent of normal	Total	Percent of normal		Total	Percent of normal	Total	Percent of normal		Total	Percent of normal	Total	Percent of normal					
ALA,Birmingham	672	137	2671	119	Springfield	1198	126	4885	116	Lincoln U.	970	95	4674	106	S.C.Charleston	545	140	2188	139
Mobile	474	151	1773	128	IND,Evanoville	1008	127	4282	121	Norfolk	1069	91	5285	101	Columbia	641	136	2524	123
Montgomery	591	142	2202	117	Fort Wayne	1294	124	5296	111	North Platte	901	87	4956	101	Greenville	720	135	2750	119
ALASKA,Anchorage	1153	88	7202	93	Indianapolis	1222	129	4955	117	Omaha	1103	97	5124**	103	S.DAK,Huron	1251	93	5967	100
Barrow	2295	98	12666	95	South Bend	1312	123	5454	116	Valentine	984	84	5221	96	Rapid City	968	85	4973	95
Cold Bay	1830	96	9884	92	IOWA,Burlington	1212	116	5195	112	NEV,Ely	786	73	4733	88	Sioux Falls	1261	98	5766	99
Fairbanks	1830	96	9884	92	Des Moines	1285	114	5429	110	Las Vegas	254	54	1833	83	TENN,Chattanooga	839	142	3349	124
Juneau	885	83	5660	91	Dubuque	1364	113	5976	109	Reno	572	71	4047	102	Knoxville	835	133	3405	121
Nome	1506	90	9050	94	Sioux City	861	93	4361	101	N.H.Concord	1287	109	5637	106	TENN,Knoxville	603	133	3033	120
ARIZ,Flagstaff	788	82	4569	94	Wichita	780	97	3823	106	N.Y.Atatlantic City	986	116	3997	114	Memphis	100	63	3033	120
Phoenix	148	49	1072	79	Dodge City	722	86	3823	101	Trenton U.	1051	119	4247	115	Nashville	855	133	3532	124
Tucson	215	60	1216	79	Goodland	762	80	4332	97	N.MEX,Albuquerque	680	97	3405	102	TEX,Abilene	502	107	2233	103
Winslow	618	82	3440	93	Topeka	893	100	4300	108	WYO,Cheyenne	610	89	3176	97	Amarillo	648	92	3193	98
Yuma	28	17	588	75	Wichita	780	97	3823	106	NEW,Albuquerque	680	97	3405	102	Austin	374	115	1649	115
ARK,Fort Smith	722	121	2980	112	KY,Lexington	1314	124	4209	117	N.Y.Albany	1331	115	5590	111	Corpus Christi	271	156	1100	137
Little Rock	709	123	2893	109	Louisville	968	118	4175	116	Dallas	1348	115	5890	110	Dallas	500	114	2162	111
CALIF,Bakersfield	179	49	1568	91	LA,Lake Charles	433	155	1643	132	Buffalo	1288	110	5434	107	El Paso	438	102	2197	102
Eureka U.	266	57	2788	92	New Orleans	468	167	1671	137	New York	1028	117	4124	117	Fort Worth	517	118	2277	112
Fresno	234	55	1830	89	Wichita	780	97	3823	106	Rochester	1309	117	5408	112	Galveston U.	366	142	1277	126
Los Angeles U.	99	43	784	84	MAINE,Caribou	1650	112	7167*	103	Syracuse	1300	114	5418	111	Houston	351	139	1344	124
Red Bluff	250	58	1795	92	Portland	1327	112	5650	106	N.C.Asheville U.	857	125	3610	117	Laredo	228	170	961	133
Sacramento	249	60	1909	99	MD,Baltimore	1037	126	4210	118	Charlotte	766	135	3142	126	Lubbock	627	102	2886	101
San Diego	114	49	851	87	MASS,Boston	1087	112	4404	109	Greensboro	865	129	3468	117	Midland	487	104	2230	102
San Francisco	250	63	2069	102	Nantucket	1016	108	4170	106	Hatteras R.	658	127	2397	128	San Angelo	451	107	1963	106
COLO,Denver	768	84	4332	101	MICH,Alpena	1572	125	6548	115	Raleigh	803	130	3242	120	San Antonio	349	122	1490	113
Grand Junction	733	81	4379	93	Detroit	1287	122	5209	115	Wilmingon	633	137	2457	130	Victoria	318	138	1307	131
Pueblo	732	84	4092	93	Escanaba U.	1521	117	6410	109	N.DAK,Bismarck	1341	91	6277	94	Waco	452	116	1921	113
CONN,Bridgeport	1106	114	4557	113	Grant Rapids	1342	118	5485	110	FARGO	1565	99	7046	97	Wichita Falls	565	105	2441	101
Hartford	1209	116	4245	117	Marquette U.	1487	117	6419	111	N.Y.Concord	1287	109	5637	106	UTAH,Blanding R.	545	136	2162	111
D.C.Washington	946	124	3801	117	S.St. Marie	1648	118	6861	115	OHIO,Akron-Canton	1282	123	5208	113	Salt Lake City	731	82	4359	100
FLA,Apalachicola	399	153	1438	131	MINN,Duluth	1620	108	7351	103	CINCINNATI(ABBE)	1327	128	5148	111	VT,Burlington	1514	119	6380	114
Fort Myers	100	99	414	109	Intern'l Falls	1759	109	7786	101	Lincoln U.	970	95	4674	106	W.Va,Lynchburg	931	127	3773	117
Jacksonville	379	154	1336	134	Minneapolis	1478	107	6474	103	Buffalo	1288	110	5434	107	Norfolk	815	124	3162	120
Key West	6	19	80	81	Rochester	1446	108	6366	106	Columbus	1186	129	4997	123	Richmond	881	125	3443	113
Lakeland U.	230	158	764	136	St. Cloud	1512	105	6612	101										

GROUP II

**PUBLICATIONS
CARRYING ADDITIONAL
TIME-SEQUENTIAL TABLES**

II

CLIMATIC GUIDE

This series of climatological data is published only for the larger cities of the country. Those published to date, and the year of issue for each, are -

CLIMATIC GUIDE FOR BALTIMORE, MD. (1956)
CLIMATIC GUIDE FOR NEW YORK CITY, N. Y. AND NEARBY AREAS (1958)
CLIMATIC GUIDE FOR SEATTLE, WASH., AND ADJACENT PUGET SOUND AREA (1961)
CLIMATIC GUIDE FOR CHICAGO, ILL. AREA (1962)
CLIMATIC GUIDE FOR HOUSTON-GALVESTON, TEXAS AREA (1962)

(Plans are being made to issue more of these summaries as time and circumstances permit.)

A forerunner of this series was THE CLIMATIC HANDBOOK for Washington, D. C. (1949). It presented numerous tables and charts containing basic climatological information for the Washington, D. C. area, many of which were used (in format) for the CLIMATIC GUIDES for other locations. In general each CLIMATIC GUIDE follows the same pattern as the other, although each issue contains some tables and charts of particular interest to the locality. Each contains a narrative summary of general climatic conditions for the area, a station location table, and a map of the area. The following tables and graphs, however, appear in all or most of the issues published to date:

Monthly and annual average temperatures
Highest temperature of record for each day of year and year of occurrence
Lowest temperature of record for each day of year and year of occurrence
Distribution of monthly average, average maximum, average minimum temperatures
Mean hourly temperatures
Mean, and distribution of, dry bulb temperatures
Highest daily minimum temperatures
Total heating degree days
Distribution of monthly and seasonal totals of heating degree days
Percentage frequency of occurrences of dry bulb temperature vs. wind speed
Seasonal temperature departures from long-period averages (graph)
Critical low temperatures with mean and extreme dates and length of seasons
Mean daily temperatures at substations in area
Mean daily maximum temperatures at substations in area
Mean daily minimum temperatures at substations in area
Rainfall intensity-duration-frequency curves (graph)
Total precipitation
Distribution of precipitation totals
Maximum precipitation by time intervals
Mean total precipitation at substations in area
Total snowfall
Distribution of snowfall totals
Maximum snowfall
Percentage chance of first and last snowfall (graph)
Mean total snowfall at substations in area
Mean station pressure and extremes of sea level pressure
Number of days fastest mile of wind exceeded specified limits
Percentage frequency and mean speed of surface winds
Annual wind rose (graph)
Percentage frequency of temperature-relative humidity index
Cooling degree day totals, based on temperature-humidity index

CLIMATIC GUIDE (Cont'd)

Mean, and distribution of, relative humidity
Mean, and distribution of, dewpoint
Mean, and distribution of, wet bulb
Percentage frequency of selected ceiling heights
Percentage frequency of selected visibilities
Percentage frequency of selected combinations of ceiling-visibility
Average daily solar radiation, langleys, on horizontal surface
Times of sunrise and sunset
Percentage frequency of selected climatic elements
Summary of selected climatic elements
Daily, monthly, and annual normals of temperature, and accumulated heating degree days
Comparative data for selected cities

Sale Price: Variable, 30 to 40 cents per copy according to size of publication.
Remittances and correspondence should be sent to Superintendent of Documents,
Government Printing Office, Washington 25, D. C. The CLIMATIC HANDBOOK for
Washington, D. C. is now out of print.

CLIMATIC SUMMARY OF THE UNITED STATES (1930 Ed.)

This summary, often referred to as BULLETIN W, comprises 106 issues, one for each of the climatological sections as shown on the following page, and for Puerto Rico and the Virgin Islands. Alaska and Hawaii were not included in this edition. However, a SUMMARY OF THE CLIMATOLOGICAL DATA OF ALASKA, published in 3 sections, and containing data up to 1921, was issued in 1925. Similarly, an issue was published for Hawaii with data through 1918, but unnumbered as to section.

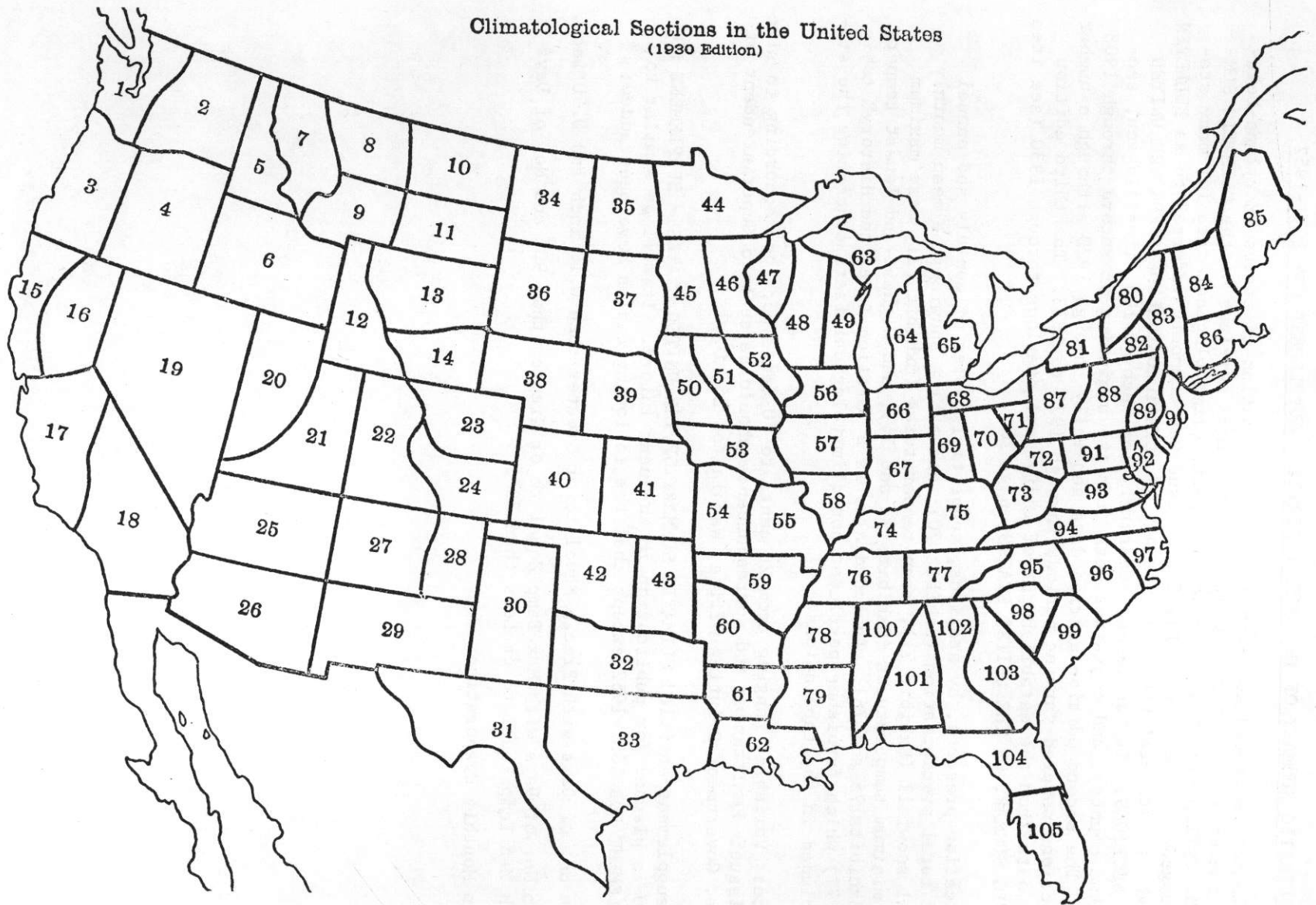
Each issue of this publication carries a narrative summary of the topographic features and climatic conditions of the section, the latter containing special emphasis on precipitation in general, snowfall, temperature, wind, and humidity. Included also are tables presenting data covering varying periods of years, as follows:

1. Monthly and annual averages and extremes of temperature, precipitation, relative humidity, sunshine, and wind; excessive short-duration precipitation; monthly and annual values of short-duration maximum falls of precipitation and greatest in 24 hours, and miscellaneous data, for a few selected stations.
2. Sequential tables of monthly and annual average, average maximum and minimum, and highest and lowest temperatures for a few selected stations; and of total monthly and annual precipitation for numerous stations.
3. Average monthly and annual snowfall; average number of days with 0.01 inches or more of precipitation; average monthly, average maximum, and average minimum temperatures; highest and lowest temperatures; average relative humidity; percentage of sunshine; prevailing wind direction and average hourly speed; maximum wind speed (with direction and date); and frost data for numerous stations.

Sale Price: 10 cents per copy, with reprints slightly more. Correspondence and remittances should be sent to the National Weather Records Center, U. S. Weather Bureau, Federal Building, Asheville, North Carolina.

A more recent publication of somewhat similar content, THE CLIMATES OF THE STATES, is outlined on page 49.

Climatological Sections in the United States
(1930 Edition)



CLIMATIC SUMMARY OF THE UNITED STATES - SUPPLEMENT FOR 1931-1952

This supplement is issued for each state or combination of states (Maryland-Delaware, New England). It is a supplement to previous editions of the CLIMATIC SUMMARY OF THE UNITED STATES which contained basic climatological data for many stations throughout the country. The first issue was commonly referred to as BULLETIN W, although its official title was SUMMARY OF CLIMATOLOGICAL DATA FOR THE UNITED STATES BY SECTIONS. It was issued separately for each of 106 climatological sections of the country, and contained data from the beginning of record through 1908 and 1909. The second edition carried data generally through 1920 although a number of the sections covered varying periods through 1921 to 1923. The third edition contained data from the establishment of individual stations through 1930 (see item on CLIMATIC SUMMARY OF THE UNITED STATES, page 36).

The publication presents, by stations, sequential tables of monthly and annual values of total precipitation (Exhibit 70); and tables showing the mean monthly and annual snowfall (Exhibit 71), mean temperatures (Exhibit 72), mean maximum and mean minimum temperatures (Exhibits 73 and 74), and highest and lowest temperatures (Exhibits 75 and 76). Included also is a "Station Index and History" table (Exhibit 77) which furnishes pertinent non-climatological facts concerning the stations included in the tabulations.

Sale Price: Variable, ranging from 20 cents to 70 cents per copy according to size of each issue. Remittances and correspondence should be sent to Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Another supplement entitled CLIMATIC SUMMARY OF THE UNITED STATES - SUPPLEMENT FOR 1951-1960 is planned for publication in the near future. It will be similar to the SUPPLEMENT FOR 1931-1952 except that the following tables have been added:

Mean No. of Days with Precip. Equal to or Greater than 0.10 inch and 0.50 inch.

Mean No. of Days with Max. Temp. Equal to or Greater than 90° and No. of Days with Min. Temp. Equal to or Less than 32°.

Mean Monthly Evaporation.

Exhibit 70

TOTAL PRECIPITATION

SUMMERVILLE 2 WNW

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
D	3.14	3.93	3.36	3.48	3.44	5.71	7.03	6.59	5.09	3.06	2.27	3.43	50.52
F	32	32	32	32	32	32	33	33	33	33	33	33	-
1931	3.22	1.30	3.29	2.97	2.75	3.00	7.94	7.99	.24	.12	.13	2.16	35.11
1932	2.90	2.80	2.08	.23	8.48	9.90	4.27	7.59	6.64	5.35	2.82	1.21	54.27
1933	2.85	5.29	1.43	2.37	2.04	6.19	4.94	4.00	7.20	1.43	4.66	.27	42.67
1934	1.07	4.17	1.19	3.38	2.73	2.70	2.53	8.34	2.39	2.87	2.28	1.70	35.35
1935	1.72	1.94	1.66	1.93	2.53	.85	12.27	5.58	7.13	.20	1.41	2.26	39.48
1936	3.72	4.03	5.10	3.22	1.04	3.54	3.42	5.43	1.93	6.85	.42	3.59	42.29
1937	4.59	4.24	2.59	6.55	.78	4.70	4.72	8.07	2.95	3.39	4.16	2.82	49.56
1938	.89	1.21	.51	.06	4.44	3.33	6.24	5.83	7.66	1.38	1.13	1.28	40.16
1939	2.51	6.39	2.17	2.59	4.88	7.90	6.43	7.91	2.44	.25	1.03	1.55	46.05
1940	2.28	7.51	3.18	.84	2.17	5.02	4.47	16.45	2.79	.07	1.49	2.68	48.95
1941	1.49	1.43	6.04	2.57	.15	15.88	8.68	6.80	.87	3.85	.23	8.50	56.40
1942	2.31	3.73	4.94	1.34	3.68	5.11	4.42	13.68	6.06	.37	1.85	4.46	55.42
1943	2.98	.80	7.36	4.26	4.07	6.81	8.88	1.64	3.13	.15	.59	2.29	39.49
1944	3.03	4.62	9.98	3.21	1.69	2.23	4.72	2.05	3.39	5.39	1.43	.45	42.19
1945	1.92	4.21	1.12	2.31	3.85	7.51	12.48	4.99	13.78	2.13	1.39	4.22	59.91
1946	3.65	2.02	3.60	2.85	5.09	1.87	6.75	7.29	4.38	5.35	3.77	.35	46.97
1947	3.74	.08	6.47	4.10	3.50	3.56	12.74	8.61	6.96	2.83	3.14	6.47	62.40
1948	3.21	4.16	8.29	4.55	9.13	2.63	8.14	6.29	8.67	1.66	8.16	4.70	69.59
1949	-	3.49	1.58	2.93	2.98	7.85	4.21	11.47	3.58	.41	2.38	1.01	-
1950	-	.42	3.87	1.70	3.80	4.28	9.18	2.77	8.26	3.32	.82	4.34	-
1951	1.01	.92	3.14	1.53	1.05	3.54	8.97	3.14	4.93	1.32	3.63	1.65	34.83
1952	1.31	6.55	3.72	2.55	5.12	3.89	7.72	6.91	6.06	1.12	2.18	2.04	49.17
G	2.52	3.24	3.79	2.92	3.45	5.10	7.01	6.96	5.07	2.26	2.23	2.73	47.28
H	20	22	22	22	22	22	22	22	22	22	22	22	-

D Means or extremes for the period of record prior to 1931.
 F Number of years' record used to obtain means in (D).
 G Means or extremes for period of record beginning with 1931.
 H Number of years' record used to obtain mean in (G).

Exhibit 71

MEAN SNOWFALL

Station	No. of Yrs.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	An'l
EUREKA SPRINGS	D 28	3.7	4.3	1.7	T	.0	.0	.0	.0	.0	.2	.3	2.7	12.9
EVENING SHADE	G 19	2.5	3.1	1.6	.5	T	T	.0	.0	.0	.0	1.8	1.5	11.0
FAYETTEVILLE	G 7	1.8	3.1	.4	T	.0	.0	.0	.0	.0	.0	.3	.6	6.2
FAYETTEVILLE EXP STATION	G 11	3.4	3.5	1.9	.2	T	.0	.0	.0	.0	.0	1.0	1.3	11.3
FORDYCE	D 38	4.2	3.5	1.2	T	.0	.0	.0	.0	.0	.0	.5	2.2	11.6
FORESTER	G 18	2.4	2.0	1.2	.7	T	T	.0	.0	.0	.0	1.0	1.0	6.3
FORT SMITH WATER PLANT	G 12	3.1	.5	.3	.0	.0	.0	.0	.0	.0	.0	T	T	4.8
FREEMAN SPRINGS	G 7	2.3	.9	1.2	.0	T	.0	.0	.0	.0	.0	.1	.3	4.8
FULTON	D 6	1.9	2.2	.3	T	.0	.0	.0	.0	.0	.0	T	.6	5.1
GEORGETOWN	G 5	.8	.5	1.1	.3	.0	.0	.0	.0	.0	.0	.5	1.4	9.0
	D 21	1.1	.4	.2	.0	.0	.0	.0	.0	.0	.0	T	1.9	4.6
	G 7	2.4	.6	.2	T	T	.0	.0	.0	.0	.0	T	.4	2.2
	D 18	2.4	2.2	.3	.0	.0	.0	T	.0	T	.0	T	.3	3.5
	G 13	1.3	1.9	.4	.0	.0	.0	.0	.0	.0	.0	T	.3	6.8
													.3	3.9

Exhibit 72

MEAN TEMPERATURE

Station	No. of Yrs.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	An'l
MALVERN	D 42	42.8	47.1	54.0	61.7	69.9	77.8	81.1	80.1	74.6	63.1	52.0	43.4	62.3
MAMMOTH SPRING	G 7	46.2	46.6	52.2	62.9	70.8	79.7	82.8	80.6	75.1	64.0	51.2	46.2	63.2
MARIANNA	D 25	37.0	39.8	50.0	59.2	65.0	74.2	78.2	77.4	71.4	58.9	48.4	39.2	58.2
MARKED TREE	G 21	38.1	40.5	49.2	58.9	66.8	75.9	79.5	78.6	70.7	60.2	47.5	39.5	58.8
MARSHALL	D 18	41.2	45.3	54.0	62.1	70.2	78.3	80.8	79.8	73.8	63.3	52.0	43.2	62.0
MENA	D 14	38.2	45.2	53.2	61.9	70.4	78.7	81.0	80.3	73.8	64.0	51.4	44.0	62.3
MONTICELLO	D 21	39.6	43.6	51.1	61.6	69.0	78.0	80.8	79.0	73.6	61.0	48.8	41.2	60.5
MORRILTON 2 SSW	D 15	38.9	43.8	51.8	60.8	67.2	75.5	78.9	73.6	72.2	61.8	51.0	42.3	59.8
	G 12	40.6	41.7	48.1	58.6	66.3	75.8	78.9	77.8	70.5	61.0	49.1	40.9	59.1
	D 38	41.2	44.0	52.4	61.8	68.9	77.2	80.6	80.8	73.9	64.1	51.3	43.8	61.9
	G 22	42.4	45.3	52.4	61.8	68.9	77.2	80.6	80.8	73.9	64.1	51.3	43.8	61.9
	G 13	43.8	47.4	55.3	63.8	71.3	79.3	81.5	81.8	76.2	66.6	53.2	46.3	63.9
	D 8	40.0	46.0	51.6	63.0	69.2	78.4	82.6	81.8	75.1	63.0	50.6	44.4	62.1

Exhibit 73

MEAN MAXIMUM TEMPERATURE

Station	No. of Yrs.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	An'l
MALVERN	D 42	53.2	57.0	65.9	74.2	81.9	89.6	93.2	92.6	87.5	76.4	64.6	54.1	74.2
	G 7	57.1	58.5	64.5	75.9	83.3	92.3	94.6	92.8	87.6	76.0	63.9	57.3	75.5
MAMMOTH SPRING	D 25	48.3	51.9	63.1	71.9	76.4	85.9	90.2	89.5	83.9	72.4	61.7	50.3	70.5
	G 21	49.8	52.9	62.3	72.5	79.8	88.7	92.5	91.5	84.2	75.4	60.7	51.3	71.8
MARIANNA	D 18	51.1	55.5	64.7	73.2	80.8	89.0	91.9	89.6	85.0	75.0	63.3	53.4	72.7
	G 18	53.0	55.2	64.1	72.7	81.5	89.5	91.9	91.4	85.2	76.9	62.9	54.1	73.2
MARKED TREE	D 14	49.0	54.2	62.7	72.7	80.2	89.6	92.7	91.3	86.3	74.5	61.0	51.3	71.7
	G 21	49.6	51.9	61.2	71.5	80.9	89.5	92.2	91.4	84.9	75.9	60.6	50.9	71.7
MARSHALL	D 15	49.4	54.6	62.9	72.3	78.4	86.4	90.5	80.1	83.5	73.8	61.6	52.1	70.5
	G 12	51.1	53.4	59.8	70.8	78.2	86.9	91.0	89.5	83.1	75.0	61.1	51.8	71.0
MENA	D 38	50.6	54.4	63.3	72.7	79.2	86.9	87.1	91.1	91.1	85.1	74.1	62.4	71.9
	G 22	52.2	56.0	64.0	73.6	80.2	88.4	92.4	92.9	86.1	76.5	62.0	53.3	73.1

Exhibit 74

MEAN MINIMUM TEMPERATURE

Station	No. of Yrs.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	An'l
MALVERN	D 42	32.3	37.2	42.0	49.2	57.9	65.9	69.0	67.6	61.7	49.8	39.7	32.7	50.4
	G 7	35.2	34.6	39.6	49.5	58.2	67.1	70.9	68.4	62.6	49.5	38.4	35.1	50.8
MAMMOTH SPRING	D 25	25.6	27.7	37.0	46.4	53.6	62.4	66.2	65.3	59.0	45.4	35.2	28.2	46.0
	G 21	26.4	28.1	35.9	45.2	53.9	63.1	66.5	65.7	57.2	45.1	34.2	27.7	45.8
MARIANNA	D 18	31.2	35.1	43.4	51.0	59.5	67.6	69.8	70.1	62.5	51.6	40.6	33.0	51.3
	G 21	33.3	35.2	42.2	51.1	59.2	67.7	70.0	69.2	62.4	50.5	39.6	34.1	51.2
MARKED TREE	D 14	27.6	33.1	39.5	50.4	57.7	66.3	69.0	66.8	60.8	47.5	36.7	31.0	48.9
	G 21	29.6	30.9	38.4	48.5	57.5	66.4	69.3	68.2	60.2	48.1	36.8	30.4	48.7
MARSHALL	D 15	28.4	33.0	40.6	49.2	56.1	64.6	67.3	67.1	61.0	49.7	40.4	32.5	49.2
	G 12	29.6	30.0	36.8	46.3	54.4	64.4	66.9	66.0	57.8	47.0	37.1	30.0	47.2
MENA	D 38	31.7	33.6	41.5	50.4	58.1	65.7	68.7	68.5	62.8	51.5	41.9	33.3	50.6
	G 22	32.6	34.6	40.8	49.9	57.6	65.9	68.8	68.6	61.7	51.8	40.5	34.4	50.6

Exhibit 75

HIGHEST TEMPERATURE

Station	No. of Yrs.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	An'l
ALUM FORK	G 14	80	77	85	91	97	102	106	106	105	93	85	81	106
	D 35	83	84	92	91	102	107	114	110	105	97	89	80	114
AMITY 3 NE	G 6	75	84	88	91	98	109	110	115	107	98	84	80	115
	D 12	81	81	89	93	100	106	106	111	102	93	84	80	111
ARKADELPHIA	G 14	84	88	91	93	99	106	107	110	108	102	86	82	110
	G 5	83	85	93	90	97	100	104	107	104	94	84	80	107
ASHDOWN	G 13	79	78	85	92	96	102	110	110	108	98	86	78	110
	G 10	79	79	89	92	92	108	108	109	109	94	86	77	109
BATESVILLE AIRWAY	D 10	79	79	89	92	92	108	108	109	109	94	86	76	111
	D 24	79	84	91	94	97	103	111	110	107	98	88	76	111

Exhibit 76

LOWEST TEMPERATURE

Station	No. of Yrs.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	An'l
ALUM FORK	G 14	-5	-7	7	27	35	50	51	51	36	24	14	5	-7
	D 35	-12	-12	18	27	32	47	53	50	32	22	12	8	-12
AMITY 3 NE	G 6	14	-1	13	29	40	50	61	56	44	29	15	2	-1
	D 12	5	0	20	30	34	51	57	51	39	27	11	12	0
ARKADELPHIA	G 14	-1	-6	9	29	39	50	52	51	33	25	14	10	-6
	G 5	6	-7	-10	13	27	39	49	54	50	36	18	12	-6
ASHDOWN	G 13	-10	10	8	27	36	47	49	48	35	26	11	6	-10
	G 10	-10	-15	3	24	33	43	47	44	28	21	4	-1	-15
BATESVILLE AIRWAY	D 10	-10	-15	3	24	33	43	47	44	28	21	4	-1	-15
	D 24	-18	-7	10	23	31	41	48	49	33	23	12	0	-18

Exhibit 77

STATION INDEX AND HISTORY

Station	County	Index number	Latitude N.	Longitude W.	Elevation	Distance and dir. from post office	Distance and direction from previous location	Record begins				Record ends				Type of change	Refer to station number		
								Temp.		Precip.		Temp.		Precip.					
								Year	Month	Year	Month	Year	Month	Year	Month				
Stamps (near) Stamps Stamps	Lafayette	6804	33 24	93 27	A	2NE	3SW				1941	Jun							
	Lafayette	6804	33 22	93 30	270	0					1949	Apr					1947	Sep	3
	Lafayette	6804	33 22	93 30	270	1NE					1952	Feb					1952	Jan	3
Steve	Yell	6856	34 53	93 19	750	0				1943	Oct								
Story	Montgomery	6890	34 42	93 31	700	0				C			1950	Aug	1				
Stuttgart Stuttgart Stuttgart	Arkansas	6918	34 29	91 32	228	0			C			1933	Feb	1933	Feb	3			
	Arkansas	6918	34 29	91 32	228	1S	1S	1933	Mar	1933	Mar	1944	Feb	1944	Feb	3			
	Arkansas	6918	34 29	91 32	214	1S	0	1944	Mar	1944	Mar								

CLIMATOLOGICAL SUBSTATION SUMMARIES

A program for publication of climatological summaries for the smaller communities was started in 1955. Under this plan cooperation with State and Federal agencies; public groups such as Chambers of Commerce, trade organizations, schools or colleges; and state-wide public utilities and industrial organizations was sought for their preparation and printing. Nearly 700 of these substation summaries have been published to date; a list of the stations for which they are available is shown on pages 43, 44, and 45.

These issues (usually printed on a single sheet) present a "means and extremes" table (Exhibit 78) and sequential tables of monthly and annual average temperature and total precipitation (Exhibit 79). Included is a narrative summary of the local climate and a history of changes in station location, exposure of instruments, and related information. The period of record covered is usually 15 to 30 years.

Since the printing of these summaries is the responsibility of the cooperator there is no sale price. However, only limited quantities of each summary are furnished to the Weather Bureau. Correspondence concerning their availability for any state should be directed to the Weather Bureau State Climatologist for that state. State Climatologists' addresses are listed on the inside of the back cover page.

A new series of substation summaries entitled CLIMATIC SUMMARIES OF RESORT AREAS has been inaugurated. Two have now been issued, one for Berkeley Springs, West Virginia, and the other for Sarasota Springs, New York; several others are in preparation. Their format and content will vary to some extent, but all issues (4 to 6 pages each) will carry a narrative text describing the topography, general and specific climatic conditions as they relate to health and vocational advantages, and other similar information. Tables and graphs will be used to supplement the text. Summaries in this series will be for sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. - Price variable, 5 cents or 10 cents per copy, according to size.

LOCATIONS FOR WHICH CLIMATOLOGICAL SUBSTATION SUMMARIES ARE PUBLISHED

ALASKA

Aniak
 Ft. Yukon
 Gulkana
 Haines
 Homer
 Kenai
 Matanuska Valley
 McKinley Park
 Middleton Island
 Petersburg
 Seward
 Talkeetna
 Tanana
 Valdez
 Wales

ARIZONA

Aguila
 Ajo
 Alpine
 Apache Powder Co.
 Ashfork
 Bagdad
 Bartlett Dam
 Benson
 Bisbee
 Blue
 Bowie
 Buckeye
 Canelo
 Casa Grande
 Casa Grande Nat'l Park
 Childs
 Chinle
 Chiricahua Nat'l Mon.
 Cibecue
 Clifton
 Cochise
 Crown King
 Douglas
 Drake Ranger Station
 Dudleyville
 Duncan
 Eagle Creek
 Elgin
 Fairbank
 Flagstaff
 Florence
 Fort Grant
 Fort Huachuca
 Fort Valley
 Gila Bend
 Gisela
 Globe
 Gould's Ranch
 Grand Canyon Nat'l Park
 Granite Reef Dam
 Holbrook
 Intake
 Jerome
 Kayenta
 Kingham
 Lees Ferry
 Leslie Canyon
 Litchfield Park
 Maricopa
 Marinette

ARIZONA (Cont'd)

McNary
 Mesa
 Miami
 Mohawk
 Montezuma Castle
 Mormon Flat
 Mount Trumbull
 Natural Bridge
 Nogales
 Oracle
 Parker
 Painted Canyon
 Patagonia
 Payson
 Phoenix
 Pinal Ranch
 Pinedale
 Portal
 Prescott
 Red Rock
 Reno Ranger Station
 Roosevelt
 Ruby
 Rucker Canyon
 Sacaton
 Safford
 Saint Johns
 Salome
 San Rafael Ranch
 San Simon
 Santa Margarita
 Santa Rita Ex. Range
 Seligman
 Sentinel
 Sierra Ancha
 Silver Bell
 Snowflake
 Springerville
 Stephens Ranch
 Superior
 Sycamore
 Tempe
 Tempe 3 S
 Tombstone
 Tuba City
 Tucson
 Wallace Ranger Station
 Walnut Creek
 Walnut Grove
 Wellton
 White River
 Wickenburg
 Wilcox
 Williams
 Window Rock
 Winslow
 Wittman
 Yaeger Canyon
 Y-Lightning Ranch
 Young
 Yuma
 Yuma Citrus Station
 Yuma Valley

ARKANSAS

Fayetteville
 Harrison

ARKANSAS (Cont'd)

Hot Springs Nat'l Park
 Pine Bluff
 Pocahontas
 Warren

CALIFORNIA

Alpine
 Antelope Valley
 Berkeley
 Chico
 El Cajon
 Escondido
 Freemont
 La Mesa
 Lodi
 Los Gatos
 Marysville
 Modesto
 Napa
 Pasadena
 Redding
 St. Helena
 Salinas
 San Jose
 Santa Barbara
 Santa Clara
 Santa Cruz
 Santa Rosa
 Sonoma
 Squaw Valley
 Stockton
 Tehachapi
 Vista
 Woodland

COLORADO

Boulder
 Cortez
 Craig
 Fort Collins
 Fort Morgan
 Greeley
 Lamar
 Salida
 Sterling

CONNECTICUT

Cockaponset

FLORIDA

Clearwater
 Eustis
 Ft. Lauderdale
 Gainesville
 Homestead
 Palatka
 Panama City
 St. Augustine
 St. Petersburg
 Stuart

GEORGIA

Alapaha
 Americus
 Bainbridge
 Blakely
 Brooklet

GEORGIA (Cont'd)

Brunswick
 Cairo
 Carlton (Bridge)
 Clayton
 Cornelia
 Covington
 Dahlonega
 Dublin
 Eastman
 Fitzgerald
 Fort Gaines
 Fort Valley
 Gainesville
 Glenville
 Greensboro
 Griffin
 Hartwell
 Hawkinsville
 Louisville
 Milledgeville
 Millen
 Monticello
 Newman
 Quitman
 Talbotton
 Tallapoosa
 Tifton
 Toccoa
 Warrenton
 Washington
 Waycross
 West Point

ILLINOIS

Monmouth
 Mt. Vernon
 Urbana

INDIANA

Anderson
 Bedford
 Columbia City
 Frankfort
 Lafayette
 La Porte
 Madison
 Marion
 Muncie
 Richmond
 Rochester
 Salem
 Seymour
 Shelbyville
 Valparaiso
 Vincennes
 Whitestown

IOWA

Albia
 Cedar Rapids
 Clinton
 Marshalltown
 Ottumwa
 Spencer

KANSAS

Healy

LOCATIONS FOR WHICH CLIMATOLOGICAL SUBSTATION SUMMARIES ARE PUBLISHED (CONT'D)

LOUISIANA

Alexandria

MAINE

Augusta
Eastport
Winthrop
Woodland

MASSACHUSETTS

Amherst
East Wareham
Fall River
Haverhill
Orange-Athol-Royalton
(Tully Dam)
Plymouth

MICHIGAN

Adrian
Allegan
Alma
Alpena
Ann Arbor
Atlanta
Battle Creek
Bay City
Benton Harbor
Big Rapids
Bloomingdale
Cadillac
Calumet
Caro
Charlotte
Chatham
Cheboygan
Coldwater
Dunbar For. Exp. Sta.
East Jordan
East Tawas
Eau Claire
Fayette-Sack Bay
Grayling
Greenville
Harbor Beach
Harrisville
Hart
Hastings
Higgins Lake
Hillsdale
Holland
Houghton Lake
Ionia
Iron Mountain
Ironwood
Ishpenning
Jackson
Kalamazoo
Kenton U. S. Forest
Lake City Exp. Sta.
Ludington
Mackinaw City
Manistee
Manistique
Midland
Milford
Mio
Monroe
Mount Clemens

MICHIGAN (Cont'd)

Mount Pleasant
Newaygo Hardy Dam
Newberry
Onoway
Onoway Black Forest
Ontonagon
Owosso
Pellston
Pontiac
Port Huron
Saginaw
St. Johns
Sandusky
Stambaugh
Three Rivers
Traverse City
Vanderbilt Trout Sta.
West Branch

MINNESOTA

Albert Lea
Canby
Crookston NW School
Fairmont
Farmington
Fergus Falls
Grand Rapids
Hallock
Montevideo
Morris
Pipestone
Virginia
Wadena
Waseca
Winona
Worthington

MISSISSIPPI

Biloxi
Hattiesburg

MISSOURI

Lebanon

MONTANA

Bozeman
Choteau
Cutbank
Glacier Nat'l Park (3):
 Poleridge
 Summit
 West Glacier
Glendive
Lewistown
Livingston
Polson
Poplar
Red Lodge
Thompson Falls

NEBRASKA

Beatrice
Columbus
Crete
Falls City
Hastings
McCook
O'Neill

NEBRASKA (Cont'd)

York

NEW HAMPSHIRE

Berlin
Durham
Franklin
Hanover
Keene

NEW MEXICO

Albuquerque
Alamogordo
Bluewater
Carlsbad
Carrizozo
Chama
Clayton
Clovis
Cuba
Deming
Espanola
Estancia
Farmington
Ft. Sumner
Gallup
Hobbs
Las Cruces
Las Vegas
Lordsburg
Los Alamos
Los Luna
Portales
Raton
Reserve
Roswell
Roy
Ruidoso
Santa Fe
Santa Rosa
Silver City
Socorro
Taos
Truth or Consequences
Tucumcari
Valmora

NEW YORK

Jamestown
Lake Placid
Schenectady
Utica
Watertown

NORTH CAROLINA

Asheboro
Durham
Elizabeth City
Fayetteville
Goldsboro
Greenville
Hendersonville
Hickory
Kinston
Lexington
Lumberton
Morganton
Newbern
Oxford

NORTH CAROLINA (Cont'd)

Reidsville
Salisbury
Siler City
Statesville
Tarboro
Tryon
Wilson

NORTH DAKOTA

Dickinson
Edgeley
Fessenden
Grafton
Grand Forks
Jamestown
Minot

OHIO

Athens
Chillicothe
Circleville
Gallipolis
Hillsboro
Jackson
Lima
Zanesville

OKLAHOMA

Ardmore
Cushing
Duncan
Frederick
Lawton
Mangum
Marlow
Muskogee
Ponca City
Shawnee
Stillwater

OREGON

Ashland
Bend
Brookings
Crater Lake Nat'l Park
(includes Chemult)
Enterprise
Forest Grove
Hermiston
Hood River Exp. Sta.
Klamath Falls
LaGrande
Lakeview
McMinnville
Newport
North Bend
Nyassa
Redmond
The Dalles
Tillamook

PENNSYLVANIA

State College
Uniontown

SOUTH CAROLINA

Aiken
Anderson

LOCATIONS FOR WHICH CLIMATOLOGICAL SUBSTATION SUMMARIES ARE PUBLISHED (CONT'D)

SOUTH CAROLINA (Cont'd)

Beaufort
Caesars Head
Camden
Cheraw
Chester
Clemson College
Conway
Georgetown
Greenwood
Kingstree
Newberry
Orangeburg
Rock Hill
Sumter
Walterboro
Winnboro

SOUTH DAKOTA

Armour
Brookings
Madison
Pierre
Redfield

TENNESSEE

Dickson
Gatlinburg

TEXAS

Alice
Alpine
Bay City
Brownwood
Denton
Ft. Stockton
Harlingen
Kerrville
Lamesa
Lampasas
Longview
McAllen
Muleshoe
Nacogdoches
Palacios
Plainview
Taylor
Tyler

UTAH

Beaver
Blanding
Brigham
Cedar City
Coalville
Duchesne
Emery
Farmington

UTAH (Cont'd)

Fillmore
Green River
Heber
Kanab
Levan
Logan
Manti
Moab
Morgan
Ogden
Panguitch
Price
Provo
Richfield
St. George
Salt Lake City Airport
Tooele
Vernal

VERMONT

Rutland
St. Johnsbury

WASHINGTON

Aberdeen
Anacortes
Battle Ground
Bellingham
Blaine
Bremerton
Centralia
Chelan
Clarkston
Cle Elum
Colfax
Colville
Coupeville
Davenport
Dayton
Deer Lake
Ellensburg
Ephrata
Everett
Forks
Goldendale
Grand Coulee
Holden
Kennewick
Kosmos
Longview
Monroe
Moses Lake
Mount Baker
Mt. Rainier Nat'l Pk.(2):
 Longmire R. S.
 Paradise R. S.
Olga

WASHINGTON (Cont'd)

Olympia
Omak
Othello
Parkway Crystal Creek
Pomeroy
Port Angeles
Port Townsend
Pullman
Puyallup
Quincy
Republic
Ritzville
Seattle
Sedro Woolley
Sequim
Shelton
Snowqualmie Pass
Spokane
Stampede Pass
Stehekin
Sunnyside
Tacoma
Vancouver
Vashon Island
Walla Walla
Wash'n Ocean Beaches (5):
 Grayland
 Hoquiam
 Long Beach
 North Head
 Point Grenville
Wenatchee
Willapa Harbor
Winthrop
Yakima

WISCONSIN

Amery
Antigo
Appleton
Ashland
Beloit
Big St. Germain Dam
Blair
Brodhead
Brule Island
Burnett
Chilton
Crivitz High Falls
Cumberland
Dalton
Danbury
Darlington
Dodgeville
Eau Claire
Fond du Lac
Fort Atkinson

WISCONSIN (Cont'd)

Germantown
Hancock
Hatfield
Janesville
Kenosha
Kewaunee
Lake Geneva
Lancaster
Laona
Manitowoc
Marinette
Marshfield
Medford
Mellen
Menominee
Merrill
Mondovi
Montello
Neilsville
New London
Oconto
Oshkosh
Plymouth
Portage
Prairie du Chien
Prentice
Racine
Reedsburg
Rhineland
Richland Center
River Falls
Shawano
Sheboygan
Solon Springs
Sparta
Spooner
Stanley
Stevens Point
Sturgeon Bay
Viroqua
Watertown
Waukesha
Wausau
West Bend
Weyerhaeuser
Winter

WYOMING

Cody
Worland
Yellowstone Nat'l Park

WORLD WEATHER RECORDS (1941-1950)

This single-volume publication of world-wide climatological data is a continuation of three previous volumes with the same title, published as Volumes 79, 90, and 105 of SMITHSONIAN MISCELLANEOUS COLLECTIONS. Volume 79 contained data from the earliest observations available at that time up to 1920. Volume 90 included data for the decade 1921-1930, and Volume 105 contained the decade 1931-1940.

The present volume continues, insofar as possible, the record of monthly and annual values of mean station and sea level pressures, mean temperatures, and total precipitation. It includes long homogeneous records from some stations not included in previous volumes, and for a number of stations in geographic areas not represented previously. Items of a quasi-climatological nature, such as lake and river levels and dates of freezing and thawing of rivers and lakes are included for a few locations.

The data listing for each station is headed with the name of the station, the political subdivision or country within which it is located, and the station International Index Number. The latitude, longitude, height above sea level, and corresponding page on which "Station Notes" may be found, are included in the heading.

Preparation for another volume for the period 1951-1960 is now well advanced.

Sale Price: \$4.75 per copy, by Superintendent of Documents, Government Printing Office, Washington 25, D. C.

GROUP III

**SPECIAL CLIMATOLOGICAL
PUBLICATIONS**

III

AVERAGE PRECIPITATION IN THE UNITED STATES

This booklet, published in 1944, presents weekly charts of average total rainfall (or snowfall reduced to liquid equivalent), and 24-hour average precipitation intensity, based on a 30-year record of data (1906-1935) from about 8000 stations in the United States exclusive of Alaska and Hawaii. The standard weekly period used starts with Week 1 (beginning January 1) and ends with Week 52 (beginning December 24).

Although this publication is out of print, photocopies of it may be obtained at cost of preparation by request to the National Weather Records Center, U. S. Weather Bureau, Federal Building, Asheville, N. C.

Current weekly precipitation data are published in the NATIONAL WEEKLY WEATHER AND CROP BULLETIN, issued each Tuesday by the U. S. Weather Bureau (see page 31).

CLIMATES OF THE STATES

This series, published for each state and for Puerto Rico and the Virgin Islands, contains narrative climatological summaries; a table of freeze data (Exhibit 80); monthly and annual means of temperature and precipitation by climatic divisions (Exhibit 81); normals, means and extremes for selected stations within the state (Exhibit 82); charts depicting the mean maximum and mean minimum temperatures for the months of January and July, and a chart presenting mean annual precipitation. Included also in those issues for the eastern and southern states is a chart showing the number of times destruction was caused by tropical storms in the period 1901-1955.

For sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. - Price variable, 10 cents to 25 cents according to size.

Data somewhat similar to the above, but for an earlier period, was published in the Department of Agriculture Yearbook 1941, CLIMATE AND MAN, in a section entitled CLIMATES OF THE UNITED STATES. Although this publication is out of print, a few reprints of the sections devoted to each state are still available. Requests for information on their availability should be directed to the National Weather Records Center, U. S. Weather Bureau, Federal Building, Asheville, N. C.

EXHIBIT 80

FREEZE DATA

STATION	Freeze threshold temperature	Mean date of last Spring occurrence	Mean date of first Fall occurrence	Mean No. of days between dates	Years of record	No. of occurrences		STATION	Freeze threshold temperature	Mean date of last Spring occurrence	Mean date of first Fall occurrence	Mean No. of days between dates	Years of record	No. of occurrences		
						Spring	in Spring							Spring	in Fall	Spring	in Spring	Fall	in Fall
SOMERSET WATER WORKS	32	05-24	09-21	120	29	29	28	WARREN	32	05-14	10-06	146	30	30	30	30
	28	05-14	10-04	143	28	28	28	28	28	04-30	10-22	175	30	30	30	30
	24	04-30	10-15	168	28	28	28	28	24	04-15	11-09	208	30	30	30	30
	20	04-15	10-27	195	28	28	28	28	20	04-04	11-19	229	30	30	30	30
	16	03-27	11-12	230	28	28	28	28	16	03-21	11-28	252	30	30	30	30
SPRINGS 1 SW	32	05-25	09-29	126	25	25	27	WELLSBORO 3 S	32	05-27	09-22	118	30	30	29	29
	28	05-06	10-09	156	25	25	27	28	28	05-12	10-05	146	30	30	30	30
	24	04-23	10-22	183	26	26	27	24	24	04-24	10-16	176	30	30	30	30
	20	04-13	11-04	206	26	26	27	20	20	04-14	10-27	196	30	30	30	30
STATE COLLEGE	32	04-29	10-12	166	30	30	30	WEST CHESTER	32	04-18	10-25	189	30	30	29	29
	28	04-17	10-21	187	30	30	30	28	04-04	11-05	215	30	30	29	29	
	24	04-05	11-10	219	30	30	30	24	03-21	11-23	247	30	30	29	29	
	20	03-23	11-19	241	30	30	30	20	03-12	12-02	265	30	30	29	29	
TOWANDA	32	05-12	10-02	143	30	30	30	16	03-05	12-12	282	30	30	29	26	
	28	04-29	10-15	169	30	30	30	WILLIAMSPORT WR AP	32	05-03	10-13	164	30	30	30	30
	24	04-14	10-25	194	30	30	30	28	04-17	10-25	191	30	30	30	30	
	20	03-30	11-13	228	30	30	30	24	03-30	11-09	224	30	30	30	30	
UNIONTOWN	32	04-30	10-15	167	30	30	30	20	03-19	11-24	250	30	30	30	30	
	28	04-18	10-27	193	30	30	30	16	03-17	12-05	271	30	30	30	29	
	24	04-04	11-12	222	30	30	30	YORK 3 SW PUMP STA	32	05-02	10-09	160	30	30	30	30
	20	03-19	11-26	252	30	30	30	28	04-20	10-23	186	30	30	30	30	
	32	05-12	10-02	143	30	30	30	24	04-02	11-08	220	30	30	30	30	
	28	04-29	10-15	169	30	30	30	20	03-17	11-21	249	30	30	30	30	
	24	04-14	10-25	194	30	30	30	16	03-08	12-07	274	30	30	30	30	
	20	03-30	11-13	228	30	30	30									

CLIMATIC MAPS FOR THE NATIONAL ATLAS

The National Atlas of the United States is a series of map sheets showing economic, physical, and cultural information about the Nation. The U. S. Weather Bureau is gradually preparing climatic atlas sheets which are an integral part of the National Atlas. These sheets are 16" x 22" unless otherwise indicated. As new sheets are issued, they are listed by the Superintendent of Documents in his "Monthly Catalog of United States Government Publications". The following climatic sheets are now available:

Maximum Persisting 12-Hour 1000-mb. Dew Points (°F), Monthly and of Record
Pan and Lake Evaporation
Mean Annual Number of Days Maximum Temperature 90°F and Above
Mean Annual Number of Days Minimum Temperature 32°F and Below
Mean Daily Maximum Temperature (°F) January
Mean Daily Maximum Temperature (°F) July
Mean Daily Minimum Temperature (°F) January
Mean Daily Minimum Temperature (°F) July
Mean Date of First 32° (F) Temperature in Autumn
Mean Date of Last 32° (F) Temperature in Spring
Mean Length of Freeze-Free Period (Days)
Standard Deviation of Monthly Average Temperature (°F)
Mean Annual Precipitation in Millions of Gallons of Water per Square Mile by State Climatic Divisions, with Mean Annual Precipitation in Millions of Gallons of Water per Capita by State Climatic Divisions on the reverse side.
Mean Annual Total Precipitation (in.) with Graphs of Mean Monthly Total Precipitation for Selected Stations on the reverse side
Mean Annual Total Precipitation (in.) by State Climatic Divisions with Graphs of Mean Monthly Total Precipitation for Selected State Climatic Divisions on the reverse side
Mean Total Precipitation (in.) Monthly, and January through August, by State Climatic Divisions
Mean Total Precipitation (in.) Monthly, and September through December, and Division Names (by State Climatic Divisions)
Mean Annual Total Snowfall (in.) with Graphs of Mean Monthly Total Snowfall for Selected Stations on the reverse side
Mean Relative Humidity (%), Monthly and Annual
Mean Percentage of Possible Sunshine, Monthly and Annual
Mean Sky Cover, Sunrise to Sunset, Monthly and Annual
Mean Number of Days with 0.01 (in.) or More Precipitation, Monthly and Annual

For sale by Superintendent of Documents, Government Printing Office, Washington 25, D. C. - Price 10 cents per sheet.

CLIMATOLOGICAL DATA FOR ANTARCTIC STATIONS

and

CLIMATOLOGICAL DATA FOR ARCTIC STATIONS

These two series summarize polar meteorological observations for the Antarctic and Arctic stations. Issue No. 1 in each case presents data for the International Geophysical Year July 1957 through December 1958. Issue No. 2 for the Antarctic series covers data for 1959 and all data prior to the International Geophysical Year; and Issue No. 3 for this series contains data for 1960. Subsequent issues in the Antarctic series will appear annually. Issues subsequent to No. 1 for the Arctic series will be published irregularly.

Stations in Antarctica for which data are included in that series are Amundsen-Scott, Byrd, Ellsworth, Hallett, Little America V, and Wilkes, except that Little America V has been discontinued and data from that location will be found only in Issues Nos. 1 and 2. Only two stations - Drifting Station A and Drifting Station B - are represented in the Arctic Series.*

Data tabulated in both issues are:

Average and Extreme of Maximum and Minimum Daily Temperature (°F)
Average Air Temperature (°F)
Frequency of Pressure by 10 MB Intervals
Station Pressure (Mbs.)
Number of Observations with Occurrences of Weather
Days with Rain, Days with Snow, Rain Amount (In.), and Snowfall (In.)
Temperature and Wind Speed (°F and KNOTS)
Three Hourly Observations of Wind Speed (KNOTS)
Ceiling - Visibility (Feet and Miles)
Total Cloud Amount

Rawinsonde Data

Total Radiation (Solar and Sky) (T) on a Horizontal Surface
Total Radiation (Solar and Sky) (R) Reflected from the Surface
Total Radiation Balance (Q)
Total Incoming Radiation (Short-Wave and Long-Wave) on a Horizontal Surface

The Antarctic issue includes also a table listing the "Surface Energy Budget Observations" for the Amundsen-Scott (South Pole) IGY station.

These publications are for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Sale prices for the Antarctic issues are \$1.50 for Issue No. 1, \$1.25 for Issue No. 2, and \$0.65 for Issue No. 3; for Issue No. 1 of the Arctic series \$0.40 per copy.

* Summaries for the jointly-operated Arctic stations of the Canadian Meteorological Service and the U. S. Weather Bureau may be obtained from the Department of Transport, Meteorological Branch, 315 Bloor Street West, Toronto 5, Ontario, Canada.

DAILY NORMALS OF TEMPERATURE AND HEATING DEGREE DAYS

This publication, a single-volume issue, presents tables of daily normals of maximum, minimum, and average temperatures, and of heating degree days (base 65°F) for each of more than 300 selected localities in the United States, Puerto Rico, and the Pacific Area (Exhibit 83). Calculations are based on the period 1931-1960. These normals were not determined from the sums of specific daily values over 30 years, but were adjusted to furnish a smooth transition from month to month based upon curve fitting over several months. The values, therefore, should not be expected to assist in any search for singularities.

For sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. - Price \$1.75 per copy. Separate copies of these normals for each station have been printed and, while available, can be obtained without cost upon request to the National Weather Records Center, U. S. Weather Bureau, Federal Building, Asheville, N. C. When their supply of these copies has been exhausted, photocopies may be obtained from that office at the cost of preparing copy.

Publications carrying monthly normals of temperatures and heating degree days are:

HEATING DEGREE DAY NORMALS, 1931-1960, Washington, D. C., 1963.

MONTHLY NORMALS OF TEMPERATURE, PRECIPITATION, AND HEATING DEGREE DAYS, 1931-1960, Washington, D. C., 1962.

EXHIBIT 83

AKRON, OHIO
Akron-Canton Airport

DAY	JANUARY				FEBRUARY				MARCH				APRIL				MAY				JUNE			
	TEMPERATURE MAX	TEMPERATURE MIN	TEMPERATURE AVG	DEG DAY	TEMPERATURE MAX	TEMPERATURE MIN	TEMPERATURE AVG	DEG DAY	TEMPERATURE MAX	TEMPERATURE MIN	TEMPERATURE AVG	DEG DAY	TEMPERATURE MAX	TEMPERATURE MIN	TEMPERATURE AVG	DEG DAY	TEMPERATURE MAX	TEMPERATURE MIN	TEMPERATURE AVG	DEG DAY	TEMPERATURE MAX	TEMPERATURE MIN	TEMPERATURE AVG	DEG DAY
1	35	20	28	37	35	19	27	38	39	22	31	35	51	32	42	24	65	42	54	12	74	53	64	5
2	35	20	28	37	35	19	27	38	39	22	31	35	51	32	42	24	65	42	54	11	75	53	64	4
3	35	20	28	37	35	19	27	38	39	22	31	35	51	32	42	23	65	43	54	11	75	54	65	4
4	35	20	28	37	35	19	27	38	40	23	32	34	52	32	42	23	65	43	54	10	76	54	65	3
5	35	20	28	37	35	19	27	38	40	23	32	34	53	33	43	22	66	44	55	10	76	55	66	3
6	35	20	28	37	35	19	27	38	40	23	32	34	53	33	43	22	66	44	55	10	76	55	66	3
7	35	20	28	37	35	19	27	38	41	24	33	33	53	34	44	21	67	44	56	10	77	55	66	3
8	35	20	28	37	35	19	27	38	41	24	33	33	54	34	44	21	67	44	56	10	77	55	66	3
9	35	20	28	37	35	19	27	38	42	24	33	32	55	35	45	20	67	45	56	9	77	56	67	3
10	35	20	28	38	35	19	27	38	42	25	34	32	55	35	45	20	67	45	56	9	78	56	67	2
11	35	20	28	38	35	19	27	38	42	25	34	31	56	35	46	19	68	45	57	9	78	56	67	2
12	35	20	28	38	35	19	27	38	43	25	34	31	56	35	46	19	68	46	57	9	78	56	67	2
13	35	20	28	38	35	20	28	38	43	26	35	31	56	36	46	19	68	46	57	8	78	57	68	2
14	35	20	28	38	35	20	28	37	43	26	35	30	57	36	47	18	69	46	58	8	79	57	68	2
15	35	20	28	38	35	20	28	37	44	26	35	30	58	37	48	18	69	46	58	8	79	58	69	1
16	35	20	28	38	35	20	28	37	44	27	36	29	58	37	48	18	69	47	58	7	79	58	69	1
17	35	20	28	38	35	20	28	37	45	27	36	29	58	38	48	17	69	47	58	7	79	58	69	1
18	35	20	28	38	35	20	28	37	45	27	36	28	59	38	49	17	70	48	59	7	80	58	69	1
19	34	20	27	38	36	20	28	37	46	28	37	28	60	38	49	16	70	48	59	7	80	58	69	1
20	34	20	27	38	36	20	28	37	46	28	37	28	60	39	50	16	70	48	59	7	80	58	69	1
21	34	20	27	38	36	20	28	37	46	28	37	28	60	39	50	16	71	49	60	6	80	59	70	1
22	34	20	27	38	36	20	28	37	47	28	38	27	61	39	50	15	71	49	60	6	80	59	70	1
23	34	20	27	38	36	20	28	37	47	29	38	27	61	40	51	15	71	50	61	6	81	59	70	1
24	34	20	27	38	36	20	28	36	47	29	38	27	62	40	51	14	72	50	61	6	81	59	70	1
25	34	20	27	38	37	20	29	36	48	29	39	26	62	40	51	14	72	50	61	6	81	59	70	1
26	34	20	27	38	37	21	29	36	48	30	39	26	62	40	51	13	72	50	61	5	81	60	71	1
27	34	20	27	38	38	21	30	36	48	30	39	26	63	41	52	13	72	51	62	5	81	60	71	1
28	34	20	27	38	38	21	30	36	49	30	40	25	63	41	52	13	73	51	62	5	81	60	71	1
29	34	20	27	38					49	31	40	25	64	42	53	12	73	52	63	5	81	60	71	1
30	34	20	27	38					50	31	41	25	64	42	53	12	74	52	63	5	81	60	71	1
31	34	20	27	38					50	31	41	24					74	52	63	5				

Feb. 29 values
same as Feb. 28

EXTREME TEMPERATURES IN THE UPPER AIR
(Weather Bureau Technical Paper No. 3)

In this paper, published in 1947, the maximum and minimum temperatures for the surface, and for each standard level, are given for each month and for the year. The period of record covered ranges up to 82 years for surface data, and to 14 years for upper air data. Tables are included for 77 stations in the United States, 2 in Mexico, and 1 each in Puerto Rico, Virgin Islands, Swan Island, and the Canal Zone.

This publication is now out of print, but photocopies may be obtained at cost of preparation upon request to the National Weather Records Center, U. S. Weather Bureau, Federal Building, Asheville, N. C.

Other Weather Bureau publications containing upper air temperatures are:

UPPER-AIR AVERAGE VALUES OF TEMPERATURE, PRESSURE, AND RELATIVE HUMIDITY OVER THE UNITED STATES AND ALASKA, Washington, D. C., May 1945 (Weather Bureau Technical Paper No. 6).

UPPER AIR CLIMATOLOGY OF THE UNITED STATES, Washington, D. C., 1959 (Weather Bureau Technical Paper No. 32).

Benjamin Ratner, TEMPERATURE FREQUENCIES IN THE UPPER AIR, Washington, D. C., January 1946.

HEATING DEGREE DAY NORMALS

This single-volume publication presents, by states, monthly and annual normals of heating degree days (base 65°F) based on 1931-1960 data. Normals are included for all regular Weather Bureau stations and a large number of cooperating stations for which data are available for the full 30-year period (Exhibit 84).

For sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Price 30 cents per copy. Separate copies of these normals for each state have been printed and, while available, can be obtained without cost upon request to the National Weather Records Center, U. S. Weather Bureau, Federal Building, Asheville, N. C. When their supply of extra copies has been depleted, photocopies may be obtained from the National Weather Records Center at the cost of preparing copy.

Other publications furnishing heating degree day normals are:

DAILY NORMALS OF TEMPERATURE AND HEATING DEGREE DAYS, Washington, D. C., 1963 - for period 1931-1960.

MONTHLY NORMALS OF TEMPERATURE, PRECIPITATION, AND HEATING DEGREE DAYS, Washington, D. C., 1962 - for period 1931-1960.

EXHIBIT 84

ALABAMA

The Climatology of the United States No. 83 series presents, by states, monthly and annual normals of heating degree days (base 65°F.), based on 1931-1960 data. Normals are included for all regular Weather Bureau stations and cooperators for which data are available for the full 30-year period. The values were calculated from the climatological standard normals of monthly average temperature, using the method described by H. C. S. Thom in "The Rational Relationship Between Heating Degree Days and Temperature," *Monthly Weather Review*, Vol. 82, No. 1, January 1954. The monthly temperature normals are available in the series "Climatology of the United States No. 81, Monthly Normals of Temperature, Precipitation, and Heating Degree Days." The heating degree day data that are included in the latter series are only those for the regular Weather Bureau stations.

MONTHLY AND ANNUAL HEATING DEGREE DAY NORMALS

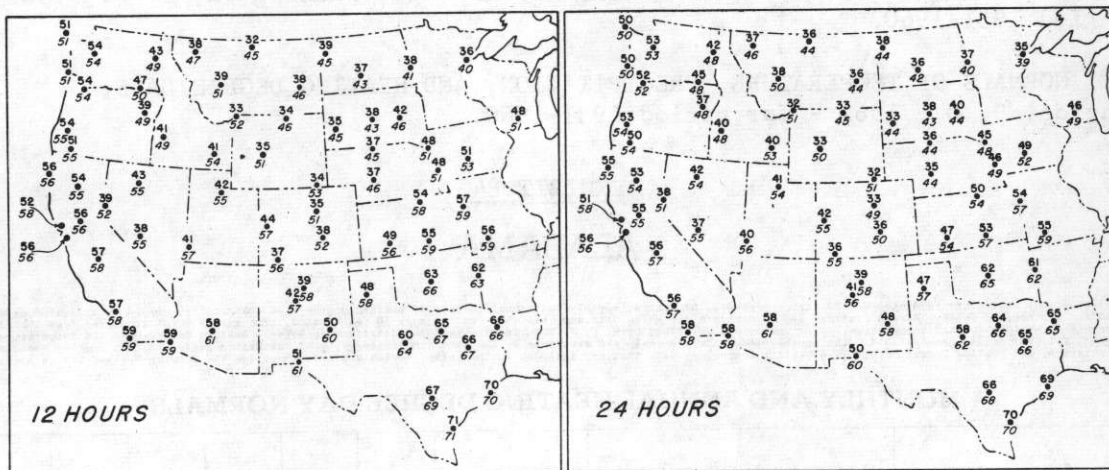
Station	July	August	September	October	November	December	January	February	March	April	May	June	Total
ALBERTVILLE 2 SE	0	0	24	149	444	676	698	577	456	165	31	0	3220
ALBURN 3 SW	0	0	0	71	306	515	527	417	329	93	6	0	2264
BIRMINGHAM AP	0	0	18	124	402	595	614	490	388	126	22	0	2779
BREWTON 3 SSE	0	0	0	59	276	425	446	333	251	63	0	0	1853
CENTREVILLE	0	0	0	90	351	555	570	442	338	96	6	0	2448
CITRONELLE	0	0	0	37	219	378	412	305	226	48	0	0	1625
CLANTON	0	0	0	102	369	564	583	459	353	102	9	0	2541
DECATUR	0	0	9	118	408	629	663	529	412	120	16	0	2904
EUFULA	0	0	0	62	270	453	456	353	254	54	0	0	1902
FAIRHOPE	0	0	0	28	213	360	397	291	214	48	0	0	1551
GADSDEN GAS PLANT	0	0	9	133	408	626	642	515	406	132	22	0	2893
GREENSBORO	0	0	0	56	282	477	515	395	301	72	0	0	2098
GREENVILLE	0	0	0	53	261	434	456	347	254	54	0	0	1859
HIGHLAND HOME	0	0	0	59	267	450	462	353	264	63	0	0	1918
HUNTSVILLE AP	0	0	12	127	426	663	694	557	434	138	19	0	3070
MADISON	0	0	0	136	432	663	701	568	453	147	25	0	3143
MOBILE AP	0	0	18	31	234	381	422	314	226	51	0	0	1659
MOBILE	0	0	0	25	213	366	409	302	214	45	0	0	1574
MONTGOMERY AP	0	0	0	68	330	527	543	417	316	90	0	0	2291
OZARK 6 NNW	0	0	0	43	228	403	428	322	239	48	0	0	1711
PRATTVILLE	0	0	0	87	324	505	524	400	301	87	0	0	2228
PUSHMATAHA	0	0	0	81	318	502	524	403	307	87	0	0	2222
SAINT BERNARD	0	0	24	158	453	676	691	563	456	156	34	0	3211
SCOTTSBORO	0	0	21	143	438	660	673	546	437	150	28	0	3096
SELMA	0	0	0	62	267	446	465	353	260	60	0	0	1913
TALLADEGA	0	0	0	109	369	564	570	459	357	105	9	0	2542
THOMASVILLE	0	0	0	65	291	471	505	381	282	72	0	0	2067
TROY	0	0	0	59	273	456	474	358	270	63	0	0	1953
TUSCALOOSA OLIVER DAM	0	0	6	93	354	552	580	445	341	96	0	0	2467
TUSKEGEE 2	0	0	0	74	294	487	499	386	291	78	6	0	2115
UNION SPRINGS 5 S	0	0	0	62	279	474	484	370	288	69	6	0	2032
VALLEY HEAD	0	0	24	161	471	679	716	582	484	189	43	0	3349

HIGHEST PERSISTING DEWPOINTS IN WESTERN UNITED STATES
(Weather Bureau Technical Paper No. 5)

Presented in this report, published in 1948, are the results of a survey of dew-point records for 70 selected stations in the western half of the United States. Values derived from a smoothed envelopment of the highest observed, persisting dewpoints, and these values reduced to the 1,000-mb. surface for durations of 12, 24, 36, 48, 60, 72, 84, 96, 108, and 120 hours at the midperiod of each month of the year, are plotted on a series of maps to show geographical variations. Charts for the 12- and 24-hour periods are shown in Exhibit 85.

This publication is now out of print, but photocopies may be obtained at cost of preparation upon request to the National Weather Records Center, U. S. Weather Bureau, Federal Building, Asheville, N. C.

EXHIBIT 85



MAXIMUM RECORDED UNITED STATES POINT RAINFALL
(Weather Bureau Technical Paper No. 2 - Revised 1963)

This publication presents the maximum falls of precipitation for durations from 5 minutes to 24 hours, for 296 selected stations in the United States, together with their dates of occurrence. Only stations with at least 5 years of data were used; most stations, however, have a longer record, 146 having more than 50 years of record. The data are also shown on maps, one map for each of the tabulated durations.

Sale Price: 45 cents per copy, by Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Other Weather Bureau publications carrying maximum falls of precipitation for short-duration periods are:

MAXIMUM PRECIPITATION FOR 1, 2, 3, 6, 12, and 24 HOURS (Weather Bureau Technical Paper No. 15 - in 10 Parts, issued from 1951 through 1961), Washington, D. C.

MAXIMUM 24-HOUR PRECIPITATION IN THE UNITED STATES, Washington, D. C., 1952 (Weather Bureau Technical Paper No. 16).

RAINFALL INTENSITIES FOR LOCAL DRAINAGE DESIGN IN THE UNITED STATES, Washington, D. C. (Weather Bureau Technical Paper No. 24 - in 3 Parts, issued in 1953-1954).

RAINFALL INTENSITY-DURATION-FREQUENCY CURVES, Washington, D. C., 1955 (Weather Bureau Technical Paper No. 25).

RAINFALL INTENSITIES FOR LOCAL DRAINAGE DESIGN IN WESTERN UNITED STATES, Washington, D. C., 1956 (Weather Bureau Technical Paper No. 28).

RAINFALL INTENSITY-FREQUENCY REGIME, Washington, D. C. (Weather Bureau Technical Paper No. 29 - in 4 Parts, issued 1957 through 1959).

RAINFALL FREQUENCY ATLAS OF THE UNITED STATES FOR DURATIONS FROM 30 MINUTES TO 24 HOURS AND RETURN PERIODS FROM 1 TO 100 YEARS, Washington, D. C. (Weather Bureau Technical Paper No. 40).

MAXIMUM STATION PRECIPITATION FOR 1, 2, 3, 6, 12, AND 24 HOURS
(Weather Bureau Technical Paper No. 15)

This series of publications, planned to cover the entire United States, presents maximum observed precipitation amounts for durations of 24 hours and under. To date 26 issues have been printed and are listed below:

Part I - Utah	Part X - New York	Part XIX - Tennessee
Part II - Idaho	Part XI - North Carolina	Part XX - Indiana
Part III - Florida	Part XII - Oregon	Part XXI - Illinois
Part IV - Md., Del., D.C.	Part XIII - Kentucky	Part XXII - Ohio
Part V - New Jersey	Part XIV - Louisiana	Part XXIII - California
Part VI - New England	Part XV - Alabama	Part XXIV - Texas
Part VII - South Carolina	Part XVI - Pennsylvania	Part XXV - Arkansas
Part VIII - Virginia	Part XVII - Mississippi	Part XXVI - Oklahoma
Part IX - Georgia	Part XVIII - West Virginia	

Part I was issued in 1951; Part XXVI in 1961.

In this series a separate table is shown for each station equipped with a recording gage. Each table presents the monthly and annual maximum fall of precipitation for 1, 2, 3, 6, 12, and 24 hours, together with the dates of occurrence. The period of record, except at Weather Bureau first order stations, is limited generally to the 11-year period 1940-1950, but in some cases a shorter period was used. However, records for stations in operation less than 5 years were not used unless they were active through 1950.

Sale Price: Variable, ranging from 25 cents to \$1.50 per copy according to size of each issue. Remittances and correspondence should be sent to Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Additional publications on maximum falls of precipitation for short durations:

MAXIMUM RECORDED UNITED STATES POINT RAINFALL (Weather Bureau Technical Paper No. 2)

MAXIMUM 24-HOUR PRECIPITATION IN THE UNITED STATES (Weather Bureau Technical Paper no. 16).

RAINFALL INTENSITIES FOR LOCAL DRAINAGE DESIGN IN THE UNITED STATES (Weather Bureau Technical Paper No. 24).

RAINFALL INTENSITY-DURATION-FREQUENCY CURVES (Weather Bureau Technical Paper No. 25).

RAINFALL INTENSITIES FOR LOCAL DRAINAGE DESIGN IN WESTERN UNITED STATES (Weather Bureau Technical Paper No. 28).

RAINFALL INTENSITY-FREQUENCY REGIME (Weather Bureau Technical Paper No. 29).

RAINFALL FREQUENCY ATLAS OF THE UNITED STATES (Weather Bureau Technical Paper No. 40).

MONTHLY NORMALS OF TEMPERATURE, PRECIPITATION, AND HEATING DEGREE DAYS

The climatological standard normals presented in this publication are based on records for the 30-year period 1931-1960. It is issued for each state or combination of states (Maryland-Delaware, New England). These issues contain the normal values of monthly and annual maximum, minimum, and average temperature; precipitation; and heating degree days for more than 300 selected Weather Bureau stations (Exhibit 86). It also contains the monthly and annual normal values of temperature and precipitation for a large number of substations, by state climatic divisions (Exhibit 87). An earlier publication of the same title was published as Weather Bureau Technical Paper No. 31 in 1956 and contained normals for the 1921-1950 period; it did not, however, include the substation normals.

For sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. - Price 5 cents per copy.

Other Weather Bureau publications of climatological normals include:

DAILY NORMALS OF TEMPERATURE AND HEATING DEGREE DAYS, 1931-1960, Washington, D. C., 1963.

HEATING DEGREE DAY NORMALS, 1931-1960, Washington, D. C., 1963.

EXHIBIT 86
NORMALS FOR FIRST ORDER STATIONS

PENNSYLVANIA

STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	ANNUAL
ALLENTOWN AP H 376 T 6													
MAX TEMP	36.7	38.0*	47.0	60.5*	72.0	80.7	85.2	82.7	75.6	64.9	51.2	39.3*	61.2
MIN TEMP	21.3	20.4*	28.1	38.1*	48.8	58.1	63.0	61.2	53.7	42.6	32.5	23.2	40.9
AVG TEMP	29.0	29.2*	37.6	49.3*	60.4	69.4	74.1	72.0	64.7	53.8	41.9	31.3*	51.1
DEG DAYS	1116	1002*	849	471*	167	24	0	0	90	353	693	1045*	5810
PRECIP	3.17	2.64	3.79*	3.76*	4.08	4.07	4.82	4.47	3.75	2.97	3.33	3.27*	44.12
ERIE AP H 732 T 25													
MAX TEMP	34.0	34.0	41.5	54.7*	66.1	76.1	80.1	78.5	72.1	61.0	48.0	36.8	56.9
MIN TEMP	20.5	18.8*	25.6	36.3*	46.7	57.2	62.0*	61.1	54.5	44.2	34.3	24.5	40.5
AVG TEMP	27.3	26.4*	33.6	45.5*	56.4	66.7	71.1*	69.8	63.3	52.6	41.2	30.7	48.7
DEG DAYS	1169	1081*	973	505*	288	60	0	25	102	391	714	1063	6451
PRECIP	2.67	2.32	2.08	3.56	3.54	3.05	3.67	2.98*	3.56	3.30	3.36	2.61	37.50

EXHIBIT 87

NORMALS BY CLIMATOLOGICAL DIVISIONS

STATIONS (By Divisions)	TEMPERATURE (°F)												PRECIPITATION (In.)													
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	ANNUAL	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	ANNUAL
POCONO MOUNTAINS																										
#FREELAND	25.4	25.8	33.4	45.8	57.7	63.9	70.3	68.4	61.6	51.1	38.8	27.7	47.5	3.09	2.72	3.82	4.10	4.84	4.20	5.38	4.27	3.95	3.68	4.15	3.77	47.97
#GOULDSBORO	.	.	.	.	.	.	.	.	.	.	.	.	.	3.10	2.89	3.84	4.09	4.60	3.89	4.86	4.41	3.81	3.83	4.10	3.48	46.90
HAWLEY	.	.	.	.	.	.	.	.	.	.	.	.	.	2.79	2.62	3.42	3.58	4.03	3.47	4.35	4.28	3.70	3.38	3.33	3.02	41.97
#HOLLISTERVILLE	.	.	.	.	.	.	.	.	.	.	.	.	.	2.93	2.85	3.66	3.97	4.08	3.93	4.81	4.00	3.50	3.49	3.56	3.20	43.98
LAKEVILLE 1 NNE	.	.	.	.	.	.	.	.	.	.	.	.	.	2.72	2.76	3.59	3.81	4.12	3.84	4.91	4.35	3.73	3.69	3.56	3.12	44.2:
#MATAMORAS	.	.	.	.	.	.	.	.	.	.	.	.	.	3.02	2.65	3.45	3.92	3.96	3.91	4.29	4.24	3.99	3.42	3.65	3.29	43.79
MT POCONO 2 N	.	.	.	.	.	.	.	.	.	.	.	.	.	3.60	3.09	4.46	4.34	4.52	4.33	5.23	5.25	4.40	4.32	4.30	3.97	51.81
#PAUPACK 2 WNW	.	.	.	.	.	.	.	.	.	.	.	.	.	2.89	2.77	3.61	3.83	4.07	3.67	4.62	4.38	3.64	3.60	3.60	3.20	43.88
#PLEASANT MOUNT 1 W	.	.	.	.	.	.	.	.	.	.	.	.	.	3.34	2.95	3.83	4.09	4.32	4.06	4.63	4.12	4.18	3.82	3.96	3.50	46.80
SCRANTON	28.4	28.6	36.5	48.5	59.6	68.3	70.5	70.7	63.4	53.0	41.8	30.8	50.0	2.24	2.12	2.88	3.43	3.62	3.73	4.81	3.86	3.03	2.98	3.01	2.44	38.15
SCRANTON AP	26.7	27.3	35.2	47.4	58.6	67.2	71.4	69.0	61.5	51.0	39.6	28.9	48.7	2.29	1.99	2.82	3.27	3.95	3.91	4.79	3.58	2.97	3.50	2.94	2.47	38.48
STROUDSBURG	28.0	28.8	36.6	48.7	59.3	68.0	72.7	70.5	63.0	52.5	41.4	30.6	50.0	3.36	2.86	4.12	4.15	4.01	4.21	4.70	4.57	4.29	3.65	4.15	3.89	47.96
WILKES BARRE	.	.	.	.	.	.	.	.	.	.	.	.	.	2.31	2.27	2.89	3.38	3.73	3.66	4.64	4.03	3.36	3.28	3.07	2.75	39.37
DIVISION	25.9	26.2	34.0	46.3	57.3	65.6	70.0	68.1	60.9	50.8	39.4	28.3	47.7	2.93	2.61	3.67	3.90	4.16	3.97	4.81	4.31	3.61	3.61	3.70	3.26	44.74
EAST CENTRAL MOUNTAINS																										
ALLENTOWN AP	29.0	29.2	37.6	49.3	60.4	69.4	74.1	72.0	64.7	53.8	41.9	31.3	51.1	3.17	2.64	3.79	3.76	4.08	4.07	4.82	4.47	3.75	2.97	3.33	3.27	44.12
#ALLENTOWN GAS CO	30.1	30.5	38.2	50.0	60.9	69.7	74.5	72.2	65.0	54.4	43.1	32.3	51.7	3.24	2.69	3.75	3.74	4.09	4.00	4.72	4.80	3.75	3.11	3.42	3.25	44.56
#BETHLEHEM LEHIGH UNIV	31.1	32.1	39.8	51.5	62.2	71.1	75.5	73.5	66.8	56.2	44.5	33.5	53.2	3.11	2.59	3.60	3.63	3.85	3.72	4.66	4.44	3.56	2.99	3.36	3.25	42.76
#PALMERTON	29.2	29.6	37.4	49.0	59.7	68.4	73.1	70.9	63.5	52.9	41.6	31.3	50.6	2.96	2.49	3.54	3.49	3.88	3.86	5.10	4.75	3.99	3.24	3.49	3.24	44.07
#PINE GROVE 1 NE	.	.	.	.	.	.	.	.	.	.	.	.	.	3.15	2.59	3.89	3.89	4.63	4.09	4.66	4.08	3.92	3.95	3.90	3.58	46.33
PORT CLINTON	29.6	30.0	37.5	49.0	59.7	68.2	72.7	70.6	63.4	52.8	41.8	31.4	50.6	3.29	2.81	4.20	4.11	4.51	3.66	4.74	4.45	4.32	3.57	3.75	3.58	46.99
#TAMAUQUA 4 N DAH	.	.	.	.	.	.	.	.	.	.	.	.	.	3.32	2.89	4.17	4.26	4.74	4.12	5.03	4.94	4.19	3.96	4.18	3.71	49.51
DIVISION	29.2	29.7	37.3	49.1	59.9	68.5	73.0	70.9	63.9	53.3	41.9	31.2	50.7	3.16	2.67	3.87	3.85	4.32	3.88	5.01	4.54	3.85	3.34	3.67	3.44	45.60
SOUTHEASTERN PIEDMONT																										
COATESVILLE 1 SW	31.4	31.6	39.2	50.7	61.3	70.4	74.9	72.8	65.7	54.7	43.3	32.9	52.4	3.30	2.78	4.11	3.49	4.17	4.42	4.26	5.06	3.49	3.19	3.55	3.39	45.21
CONSHOHOCKEN	.	.	.	.	.	.	.	.	.	.	.	.	.	3.25	2.86	3.99	3.52	3.97	3.77	4.45	4.62	3.68	3.12	3.61	3.20	44.04
#DOYLESTOWN	32.1	32.9	40.7	52.0	62.8	71.4	75.8	73.7	66.6	55.6	44.3	33.8	53.5	2.98	2.52	3.65	3.41	3.83	4.20	4.74	4.71	3.76	3.20	3.30	3.07	43.37
#EPRHATA	31.8	32.4	39.8	51.0	61.5	70.1	74.8	72.9	66.2	55.6	44.4	33.5	52.8	3.34	2.70	4.07	3.64	3.95	3.75	4.94	4.74	3.66	3.18	3.76	3.35	45.08
#GEORGE SCHOOL	.	.	.	.	.	.	.	.	.	.	.	.	.	3.25	2.71	3.99	3.49	4.26	3.84	4.85	4.43	3.47	3.18	3.55	3.28	44.30
#GRATERFORD	.	.	.	.	.	.	.	.	.	.	.	.	.	3.08	2.60	3.77	3.64	4.37	3.93	3.94	4.27	3.24	3.37	3.38	3.25	42.84
#HARRISBURG NORTH	32.8	33.2	40.7	52.1	63.4	72.5	77.5	75.7	68.8	57.4	45.3	34.7	54.5	2.63	2.31	3.34	3.09	3.25	3.50	3.79	4.21	3.21	2.66	2.94	2.73	37.66
#HOLYWOOD	31.6	32.5	40.6	51.6	62.2	70.3	74.4	72.4	65.4	54.0	43.1	32.8	52.6	2.89	2.48	3.81	3.60	3.90	3.90	4.89	4.94	3.51	3.22	3.16	2.99	43.29
#LANCASTER 2NE PUMP STA	30.3	30.9	38.7	50.4	61.5	70.4	75.1	72.9	65.5	54.5	42.6	31.9	52.1	3.10	2.59	3.75	3.65	4.23	3.93	4.39	4.27	3.89	3.55	3.36	3.28	43.99
LEBANON 3 W	35.8	36.5	43.9	54.6	65.6	74.6	79.0	77.1	70.2	59.8	47.9	38.0	56.9	3.36	2.82	3.98	3.64	3.73	3.54	3.88	5.06	3.22	2.87	3.51	3.12	42.73
#MARCUS HOOK	.	.	.	.	.	.	.	.	.	.	.	.	.	3.26	2.83	4.27	3.64	3.97	3.96	4.71	4.98	3.56	3.33	3.66	3.17	45.34
#MESHANBY FALLS	32.3	33.2	41.0	52.0	62.6	71.0	75.6	73.6	66.7	55.7	44.3	33.9	53.5	3.20	2.80	3.80	3.40	3.74	4.05	4.16	4.63	3.46	2.78	3.40	2.94	42.48
#PHILADELPHIA AP-INTL	35.1	35.8	42.9	53.7	64.6	73.2	77.8	76.0	69.8	59.2	48.0	37.2	56.1	3.20	2.70	3.74	3.25	3.76	3.96	3.97	4.55	3.33	2.82	3.36	2.85	41.49
#PHILADELPHIA PT BREEZE	32.9	33.5	41.5	52.8	63.2	71.7	76.3	74.1	67.3	56.3	45.1	34.4	54.1	4.28	4.22	3.50	4.17	3.82	4.47	4.98	3.55	3.21	3.79	3.40	4.00	45.37
#PHOENIXVILLE 1 E	.	.	.	.	.	.	.	.	.	.	.	.	.	3.43	2.90	4.18	3.43	4.17	3.85	4.73	5.13	3.80	3.16	3.88	3.37	46.03
#QUAKERTOWN 1 E	30.0	30.6	38.6	50.0	60.4	68.7	73.4	70.6	63.8	53.2	42.5	31.9	51.1	3.38	2.71	4.00	3.89	4.16	4.19	4.63	4.85	3.74	3.47	3.71	3.45	46.18
READING CO	32.7	33.4	41.3	52.6	63.3	72.2	76.9	74.8	67.5	57.2	45.1	34.7	54.3	3.07	2.64	3.78	3.42	3.79	3.72	4.24	4.03	3.32	2.84	3.40	3.14	41.43
#WEST CHESTER	33.0	33.5	41.0	52.1	62.5	71.0	75.5	73.5	66.9	56.4	45.2	34.7	53.8	3.43	2.90	4.18	3.43	4.17	3.85	4.73	5.13	3.80	3.16	3.88	3.37	46.03
#WEST GROVE 1 SE	.	.	.	.	.	.	.	.	.	.	.	.	.	3.39	2.75	4.24	3.56	4.21	3.69	4.59	5.27	3.46	3.00	3.52	3.35	45.03
#YORK HAVEN	.	.	.	.	.	.	.	.	.	.	.	.	.	2.72	2.36	3.47	3.47	4.06	3.68	3.84	3.94	3.04	3.24	3.16	2.91	39.89
DIVISION	32.4	33.0	40.6	51.8	62.6	71.1	75.7	73.7	66.8	56.1	44.7	34.2	53.6	3.21	2.67	3.88	3.51	3.99	3.90	4.40	4.66	3.52	3.16	3.48	3.15	43.53

- 09 -

NORMAL PRESSURES AND TENDENCIES FOR THE UNITED STATES
(Weather Bureau Technical Paper No. 1)

The charts in this publication have been prepared to furnish normals of both station pressure and pressure tendency in a form convenient for use by forecasters and students of meteorology. The data are presented in two parts. Part I contains normal pressure tendency charts, of which there are four, for each month for the hours 0100, 0700, 1300, and 1900 E.S.T., covering a 10-year period of record. Each chart shows the 3-, 6-, and 12-hourly barometric tendencies. Part II contains normal hourly station pressure charts, two for each month. Each monthly chart presents normal hourly pressure graphs for one group of 50 airports. Each graph shows the normal hourly pressure in millibars, the normal 3-hourly tendency, and the station elevation.

This publication is now out of print, but photocopies may be obtained at cost of preparation by request to the National Weather Records Center, U. S. Weather Bureau, Federal Building, Asheville, N. C.

A Supplement to this publication, entitled NORMAL 3-HOURLY PRESSURE CHANGES FOR THE UNITED STATES AT THE INTERMEDIATE SYNOPTIC HOURS, was issued by the United States Weather Bureau in 1945. It presents 3-hourly pressure changes for the hours 0400, 1000, 1600, and 2200 E.S.T. This Supplement, too, is out of print but photocopies thereof may be obtained as stated above.

SUMMARY OF HOURLY OBSERVATIONS (1951-1960)

This summary is published for Weather Bureau stations where 24 hourly observations are recorded daily. All data are based on monthly data published in LOCAL CLIMATOLOGICAL DATA SUPPLEMENTS (see page 13) for all or part of the period 1951-1960. Where the full 10-year period is not covered by the monthly data, summaries are based on the period 1956-1960.

This series supersedes the series entitled "Climatology of the United States No. 30 - SUMMARY OF HOURLY OBSERVATIONS, a 5-year summary published in 1956.

The tables in this pamphlet are similar to Tables A through E in the monthly LOCAL CLIMATOLOGICAL DATA SUPPLEMENT except that Tables B, D, and E give percentage frequencies instead of total occurrences. A set of tables is included for each month of the year, with another set for the annual values. The total number of observations is indicated on each page. In the percentage tables the symbol "+" indicates more than 0 but less than 0.5 in Table E, and 0.05 in Tables B and D. Values are not adjusted to make their sums equal to column or row totals.

A narrative description of the location and topography of the station, together with one pertaining to smoke sources, is included and where available, a smoke source map of the local area is shown. Examples of the five data tables (Exhibits 88 through 92) are shown on the following pages, as is a "Station Location Table" (Exhibit 93) which presents non-climatological information about the station.

For sale by the Superintendent of Documents, Government Printing Office, Washington 25, D.C. - Price 10 cents per copy.

The stations for which these summaries are available are:

Albany, N. Y.	Columbia, S. C.	Knoxville, Tenn.
Albuquerque, N. M.	Columbus, Ohio	Lake Charles, La.
Amarillo, Texas	Corpus Christi, Texas	Laredo, Texas
*Anchorage, Alaska	Dallas, Texas	Little Rock, Ark.
Atlanta, Ga.	Denver, Colo.	Los Angeles, Calif.
Austin, Texas	Des Moines, Iowa	*Lubbock, Texas
Bakersfield, Calif.	Detroit (City AP), Mich.	*Macon, Ga.
Baltimore, Md.	Duluth, Minn.	Madison, Wis.
Birmingham, Ala.	El Paso, Texas	Medford, Ore.
Bismarck, N. D.	Fairbanks, Alaska	Memphis, Tenn.
Boise, Idaho	Fresno, Calif.	Miami, Fla.
Boston, Mass.	Galveston, Texas	Midland, Texas
Brownsville, Texas	Great Falls, Mont.	Milwaukee, Wis.
Buffalo, N. Y.	Harrisburg, Penn.	Minneapolis, Minn.
Burbank, Calif.	*Hartford, Conn.	Mobile, Ala.
*Burlington, Vt.	*Hilo, Hawaii	Montgomery, Ala.
*Casper, Wyo.	Honolulu, Hawaii	Nashville, Tenn.
Charleston, S. C.	Houston, Texas	Newark, N. J.
*Charleston, W. Va.	Huron, S. D.	New Orleans, La.
*Chicago (O'Hare), Ill.	Indianapolis, Ind.	New York (Int'l), N. Y.
Chicago (Midway), Ill.	Jackson, Miss.	New York (LaGuardia), N. Y.
Cincinnati, Ohio	Jacksonville, Fla.	Norfolk, Va.
Cleveland, Ohio	Kansas City, Mo.	Oakland, Calif.
*Cold Bay, Alaska	*King Salmon, Alaska	Oklahoma City, Okla.

Omaha, Nebr.
 *Orlando, Fla.
 Philadelphia, Penn.
 Phoenix, Ariz.
 *Pittsburgh, Penn.
 Portland, Ore.
 Providence, R. I.
 Raleigh, N. C.
 *Reno, Nev.
 Richmond, Va.
 *Roanoke, Va.

Sacramento, Calif.
 St. Louis, Mo.
 Salt Lake City, Utah
 San Antonio, Texas
 San Diego, Calif.
 San Francisco, Calif.
 San Juan, P. R.
 Savannah, Ga.
 *Scranton, Penn.
 Seattle-Tacoma AP, Wash.
 Shreveport, La.

Spokane, Wash.
 Springfield, Ill.
 Syracuse, N. Y.
 Tampa, Fla.
 *Tucson, Ariz.
 Tulsa, Okla.
 *Waco, Texas
 *Wake Island, Pacific
 Washington, D. C.
 *West Palm Beach, Fla.
 Wichita, Kansas
 Wilmington, Del.

* Five-year summaries, for period 1956-1960

EXHIBIT 88

TEMPERATURE AND WIND SPEED-RELATIVE HUMIDITY OCCURRENCES:

WIND REL HUMID. TEMP. (°F)	0-4 M.P.H.					5-14 M.P.H.					15-24 M.P.H.					25 M.P.H. AND OVER					TOTAL OBS.					
	UNDER R	30-49%	50-69%	70-79%	80-89%	90-100%	UNDER R	30-49%	50-69%	70-79%	80-89%	90-100%	UNDER R	30-49%	50-69%	70-79%	80-89%	90-100%	UNDER R	30-49%		50-69%	70-79%	80-89%	90-100%	
69/ 65																										1
64/ 60																										3
59/ 55																										40
54/ 50																										88
49/ 45																										132
44/ 40																										231
39/ 35																										738
34/ 30																										1630
29/ 25																										4155
24/ 20																										21368
19/ 15																										917
14/ 10																										615
09/ 05																										335
04/ 00																										11
-01/-05																										62
-06/-10																										14
TOTAL	9	90	170	168	104	45	816	1094	1104	740	46	776	769	669	408	211	151	127	102	677	440					

EXHIBIT 89

**PERCENTAGE FREQUENCIES
 OF WIND DIRECTION AND SPEED:**

DIRECTION	HOURLY OBSERVATIONS OF WIND SPEED (IN MILES PER HOUR)													AV. SPEED
	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47 OVER	TOTAL				
N	+	1	2	1	+	+					4	11.4		
NNE	+	1	2	1	+	+					4	10.5		
NE	+	1	3	2	+	+					6	11.7		
ENE	+	1	2	1	+						4	11.4		
E	+	1	1	+	+						3	9.0		
ESE	+	1	1	+							2	8.6		
SE	+	1	2	1	+	+					4	8.9		
SSE	+	1	2	1	+	+					4	11.0		
S	1	2	2	3	2	1	+				10	13.3		
SSW	+	1	1	3	2	1	+				8	14.4		
SW	+	1	1	3	2	1	+				8	15.5		
WSW	+	1	3	4	4	+	+				14	17.3		
W	+	1	3	5	3	+	+				12	15.3		
WNW	+	1	2	3	1	+	+				7	14.6		
NW	+	1	2	2	1	+	+				6	13.1		
NNW	+	1	1	1	+	+					4	12.0		
CALM	+										+			
TOTAL	4	13	30	30	17	5	1	+	+	100	13.5			

EXHIBIT 90

OCCURRENCES OF PRECIPITATION AMOUNTS:

INTENSITIES	FREQUENCY OF OCCURRENCE FOR EACH HOUR OF THE DAY																								NO OF DAYS WITH
	A.M. HOUR ENDING AT												P.M. HOUR ENDING AT												
	1	2	3	4	5	6	7	8	9	10	11	NOON	1	2	3	4	5	6	7	8	9	10	11	MID.	
TRACE	91	102	93	100	123	113	109	102	112	107	110	111	134	150	126	107	93	89	93	101	92	93	110	78	
01 IN.	22	21	32	33	30	36	36	28	27	29	26	22	22	13	22	23	20	13	17	21	21	26	21	16	17
02 TO 09 IN.	27	35	37	34	25	27	27	31	22	26	22	20	11	9	14	22	26	22	22	24					
10 TO 24 IN.	6	2	2	3	3	4	2	2																	
25 TO 49 IN.	1					1	1																		
50 TO 99 IN.																							1		
1.00 TO 199 IN.																									
2.00 IN AND OVER																									
TOTAL	147	160	164	171	182	180	174	163	161	164	160	157	171	174	164	153	139	128	136	138	146	144	144	152	89

EXHIBIT 91

PERCENTAGE FREQUENCIES OF
CEILING-VISIBILITY:

VISIBILITY (MILES)	CEILING (FEET)										TOT.
	0	100-300	300-600	600-900	1000-1900	2000-2900	3000-4900	5000-9500	OVER 9500		
0 TO 1/8	+	+	+	+	+						1
3/16 TO 3/8	+	+	+	+	+				+		1
1/2 TO 3/4				1	1	+		+			2
1 TO 2 1/2			1	3	5	2	1	+			12
3 TO 6			1	3	8	7	4	2	6		32
7 TO 15				1	6	9	7	6	23		52
20 TO 30											
35 OR MORE											
TOTAL	+	2	3	8	19	18	12	9	29		100

EXHIBIT 92

PERCENTAGE FREQUENCIES OF
SKY COVER, WIND, AND
RELATIVE HUMIDITY:

HOUR OF DAY	CLOUDS SCALE 0-10			WIND SPEED (M. P. H.)					RELATIVE HUMIDITY (%)				
	0-3	4-7	8-10	0-3	4-12	13-24	25-& OVER	0-29	30-49	50-69	70-79	80-89	90-100
00	18	8	75	4	46	46	5		+	17	30	32	20
01	17	7	75	4	46	46	4		1	18	27	35	19
02	15	6	79	5	45	45	5		1	16	29	34	20
03	17	5	78	5	45	46	5		1	16	30	33	20
04	15	7	77	4	48	43	5		1	15	28	34	22
05	15	9	76	4	47	42	7		1	16	28	34	21
06	14	7	79	5	48	41	6		1	15	32	32	20
07	10	11	78	5	47	42	6		1	15	34	32	18
08	10	8	82	4	48	43	5		1	14	33	34	18
09	12	10	78	5	44	44	7		1	20	34	28	16
10	12	12	76	4	38	52	6		2	29	28	27	14
11	11	14	75	2	40	52	6		3	35	25	22	15
12	10	14	77	2	35	54	9		3	36	28	18	15
13	10	13	77	5	31	54	11		3	40	25	16	15
14	9	15	76	4	35	55	7		5	42	22	16	15
15	10	14	76	3	35	55	8		5	40	22	18	15
16	11	15	74	2	41	52	5		4	37	25	18	16
17	14	15	71	3	47	45	5		2	31	30	21	16
18	15	13	72	5	45	46	4		2	27	29	27	16
19	18	9	73	5	43	48	5		1	24	29	29	17
20	16	11	73	4	42	50	5		2	21	31	28	19
21	18	11	71	4	43	50	4		1	21	31	30	18
22	18	9	73	4	44	47	5		+	18	35	29	18
23	20	8	72	5	44	45	6		1	16	31	32	19
AVG	14	10	76	4	43	48	6		2	24	29	27	18

EXHIBIT 93

STATION LOCATION

BUFFALO, NEW YORK
GREATER BUFFALO INTERNATIONAL AIRPORT

Location	Occupied from	Occupied to	Airline distance and direction from previous location	Latitude	Longitude	Elevation above (feet)											Remarks
						Sea level		Ground									
						Ground	Actual barometer elevation (H ₁)	Wind instruments	Extreme thermometers	Psychrometer	Telepsychrometer	Tipping bucket rain gage	Weighing rain gage	8" rain gage	Hygrothermometer	Telethermoscope	
Buffalo Airport, Administration Bldg.	11-18-39	8-23-59	750 ft. ESE	42° 56' N	78° 44' W	693	711	96	34	34		b 32	c 32	32			b Tipping bucket and WBO consolidation 7-1-43. c. Weighing rain gage at 4' 7-1-43 to 7-27-53.
Buffalo Airport, Administration Bldg.	8-24-59	8-22-60		42° 56' N	78° 44' W	693	711	20	34	34		32	32	32			Wind instruments located 400' NW of glidepath bldg. on field.
Buffalo Airport, Weather Bureau Observatory	8-23-60	Present		42° 56' N	78° 44' W	693	715	20	5	5		4	4	3	5	34	Moved to ground floor of Weather Bureau Observatory on East side of Airport.

SUNSHINE AND CLOUDINESS AT SELECTED STATIONS IN THE UNITED STATES
AND PUERTO RICO (Weather Bureau Technical Paper No. 12)

This publication, issued in 1951, presents monthly and annual values of the average number of hours and percentage of possible sunshine, average cloudiness, and average number of days clear, partly cloudy, and cloudy (Exhibits 94, 95, 96), for about 200 selected stations. The period of record is indicated for each station and ranges up to 78 years.

This Technical Paper is now out of print. Photocopies of its 16 pages of tabular material may be obtained at cost of preparation, by request to the National Weather Records Center, U. S. Weather Bureau, Federal Building, Asheville, N. C.

EXHIBIT 94

AVERAGE NUMBER OF HOURS AND PERCENTAGE OF POSSIBLE SUNSHINE

Stations	Yrs. Thru 1948	Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.		Oct.		Nov.		Dec.		Annual	
		Hrs.	%	Hrs.	%	Hrs.	%	Hrs.	%	Hrs.	%	Hrs.	%	Hrs.	%	Hrs.	%	Hrs.	%	Hrs.	%	Hrs.	%	Hrs.	%	Hrs.	%
ALABAMA																											
Birmingham	43	149	47	159	51	217	58	248	64	289	67	298	69	274	63	271	65	253	68	241	69	189	60	136	44	2724	61
Mobile	41	165	52	172	54	225	61	263	69	302	71	290	68	258	60	256	63	243	65	246	70	198	63	149	46	2767	62
Montgomery	37	165	52	171	54	229	62	267	68	310	72	307	72	283	65	281	68	254	69	248	70	202	64	149	48	2866	64
ARIZONA																											
Phoenix	52	238	75	240	78	303	81	340	87	397	92	401	93	363	83	342	83	327	88	308	88	260	83	233	75	3752	84
Yuma	39	257	81	261	84	332	89	365	95	415	97	418	97	401	92	375	91	346	93	327	93	280	89	254	82	4031	90
ARKANSAS																											
Fort Smith	41	161	52	170	56	218	59	242	62	287	66	316	73	341	77	312	75	268	72	231	66	174	56	153	50	2873	64
Little Rock	53	153	49	162	53	216	58	247	63	288	66	316	73	318	72	304	73	264	71	244	70	176	57	143	47	2831	63

EXHIBIT 95

AVERAGE CLOUDINESS (0 to 10)

Stations	Yrs. Thru 1948	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann'l
MISSOURI (Cont'D)														
St. Louis	76	5.6	5.6	5.5	5.2	5.0	4.8	4.1	4.1	4.0	4.0	5.1	5.9	4.9
Springfield	43	5.4	5.1	4.9	4.8	4.3	3.9	3.3	3.6	3.7	4.0	4.7	5.5	4.4
MONTANA														
Billings	8	6.8	6.8	7.3	7.2	6.6	6.4	4.4	4.2	5.6	5.6	6.8	6.7	6.2
Great Falls	6	6.8	6.9	7.2	7.2	6.9	7.3	4.3	4.4	5.6	5.7	7.0	6.9	6.4
Havre	62	5.9	5.6	5.5	5.3	5.2	4.9	3.5	3.5	4.6	5.0	5.7	5.9	5.0
Helena	59	6.7	6.5	6.5	6.4	6.4	5.9	4.0	4.1	5.1	5.6	6.5	6.7	5.9
Kalispell	48	7.7	6.7	6.2	5.6	5.6	5.4	3.4	3.9	4.9	5.7	7.6	8.2	5.9
Missoula	12	7.8	7.6	7.3	7.2	6.3	6.6	3.7	3.6	4.9	6.0	7.5	8.4	6.4

EXHIBIT 96

AVERAGE NUMBER OF CLEAR, PARTLY CLOUDY, AND CLOUDY DAYS.

Stations	No. yrs. Thru 1948	Jan.			Feb.			Mar.			Apr.			May			June			July			Aug.			Sept.			Oct.			Nov.			Dec.			Annual			
		Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy	Clear	Partly Cldy.	Cloudy				
		FLORIDA																																							
Apalachicola	22	12	7	12	10	8	10	12	9	10	13	9	8	14	11	6	10	13	7	7	15	9	9	13	9	12	9	9	17	8	6	15	7	8	10	8	13	141	117	107	
Jacksonville	76	11	10	10	10	9	9	13	10	8	13	11	6	12	13	6	8	14	8	7	16	8	8	16	7	9	13	8	12	10	9	12	12	9	9	11	9	11	126	140	99
Key West	74	13	12	6	14	10	4	17	10	4	16	10	4	13	13	5	5	15	7	8	17	6	8	17	6	6	16	7	11	13	7	13	11	6	13	12	6	6	141	156	68
Miami	37	10	12	9	11	10	7	13	11	7	11	12	7	8	13	10	5	12	13	5	16	10	6	15	10	5	14	11	8	12	11	9	12	9	10	12	9	101	151	113	
Pensacola	67	10	9	12	9	8	11	11	10	10	12	10	8	13	11	7	10	14	6	7	15	9	8	15	8	13	10	7	17	7	7	14	8	8	11	8	12	135	125	105	
Tampa	58	10	12	9	11	10	7	13	11	7	13	12	5	12	13	6	7	16	7	5	19	7	5	18	8	7	15	8	13	11	7	13	11	6	12	10	9	121	158	86	
GEORGIA																																									
Atlanta	67	10	7	14	9	7	12	12	8	11	11	9	10	11	11	9	9	12	9	7	12	12	8	12	11	12	10	8	16	7	8	13	7	10	10	7	14	128	109	128	
Augusta	77	11	8	12	10	8	10	12	9	10	12	10	8	12	11	8	9	13	8	8	14	9	9	14	8	12	11	7	16	8	7	14	8	8	11	8	12	136	122	107	
Macon	49	10	7	14	10	6	12	12	7	12	12	8	10	12	10	9	8	13	9	6	14	11	8	14	9	11	10	9	15	7	9	14	6	10	10	7	14	128	109	128	
Savannah	75	11	9	11	10	8	10	12	10	9	13	9	8	12	12	7	9	13	8	8	15	8	8	14	9	10	11	9	14	9	8	13	9	8	12	8	11	132	127	106	

TEMPERATURES AT SELECTED STATIONS IN THE UNITED STATES
(Weather Bureau Technical Paper No. 9)

In this issue, published in 1949, are tables of the monthly and annual temperatures, average daily highest, average daily lowest, absolute highest, and absolute lowest temperatures, for each of more than 200 selected stations. The period of record, ranging up to 92 years, is indicated for each station. Exhibit 97 below is an abbreviated example of one of the tables included.

Although this Technical Paper is now out of print, photocopies of its 20 pages of tabular material may be obtained at cost of preparation by request to the National Weather Records Center, U. S. Weather Bureau, Federal Building, Asheville, N. C.

Tables of similar nature to those stated above may be found also in the CLIMATIC SUMMARY OF THE UNITED STATES (1930 Edition), and SUPPLEMENT thereto (1931-1952) as described on pages 36 and 38, respectively. Many cooperative substation records are included in these two summaries.

EXHIBIT 97

AVERAGE DAILY LOWEST TEMPERATURE (° F.)

Stations	Number of years (through 1947)	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
NORTH CAROLINA														
Asheville.....	39	29	30	36	44	52	59	63	64	57	45	36	30	45
Charlotte.....	68	34	35	42	50	59	66	69	68	63	52	42	35	51
Greensboro.....	55	28	28	36	44	54	62	67	65	60	46	36	29	46
Hatteras.....	65	40	40	45	53	62	70	73	73	70	61	51	43	57
Raleigh.....	60	33	34	41	49	58	66	69	68	63	51	42	34	51
Wilmington.....	73	38	40	46	52	61	69	72	71	66	56	46	39	55
NORTH DAKOTA														
Bismarck.....	72	-2	1	15	32	43	53	58	55	45	33	18	6	30
Devils Lake.....	42	-6	-2	13	29	40	51	56	53	44	32	17	2	28
Fargo.....	67	-5	-1	14	30	43	53	56	54	46	34	18	3	29
Williston.....	69	-2	0	14	31	42	52	56	54	43	32	17	5	29
OHIO														
Akron.....	46	19	19	28	37	49	58	62	60	55	43	33	23	40
Cincinnati.....	76	25	26	34	44	54	64	67	66	59	47	36	28	46
Cleveland.....	70	17	18	26	36	47	56	60	59	53	43	31	23	39
Columbus.....	68	22	23	32	42	52	61	65	63	57	46	35	26	44
Dayton.....	65	22	23	31	41	51	61	64	63	56	44	34	25	43
Sandusky.....	69	21	21	29	40	51	61	66	64	58	46	35	25	43
Toledo.....	74	20	20	28	39	50	60	64	62	56	45	34	24	42

UPPER AIR AVERAGE VALUES OF TEMPERATURE, PRESSURE, AND RELATIVE HUMIDITY
OVER THE UNITED STATES AND ALASKA
(Weather Bureau Technical Paper No. 6)

The data presented in this publication are of value to the armed services, manufacturers and designers of aircraft, airlines, institutions of learning, and scientific organizations. Tabular material is shown for all months for all standard levels; temperature-height graphs for the months of January, April, July, and October. Included also are charts depicting the temperature and pressure distribution patterns for these same seasonal mid-months for 1500, 3000, 5000, 10,000, 13,000, and 16,000 meters. Data are shown for 37 stations for varying periods, mostly from the late 30s through the early 40s.

This Technical Paper is now out of print, but photocopies of it can be obtained by request to the National Weather Records Center, U. S. Weather Bureau, Federal Building, Asheville, N. C.

A publication entitled NORMAL WEATHER MAPS, NORTHERN HEMISPHERE UPPER LEVEL (for limited distribution) was prepared shortly after this one, through the joint cooperation of the Army, Navy, and Weather Bureau, and presents normal charts of temperature and pressure for selected levels for the Northern Hemisphere.

Additional sources of related upper air data are:

Benjamin Ratner, TEMPERATURE FREQUENCIES IN THE UPPER AIR, Washington, D. C., 1946.

EXTREME TEMPERATURES OF THE UPPER AIR, Washington, D. C., July 1947 (Weather Bureau Technical Paper No. 3).

NORMAL WEATHER CHARTS FOR THE NORTHERN HEMISPHERE, Washington, D. C., October 1952 (Weather Bureau Technical Paper No. 21).

UPPER-AIR CLIMATOLOGY OF THE UNITED STATES, Washington, D. C., June 1957 (Weather Bureau Technical Paper No. 32).

UPPER-AIR CLIMATOLOGY OF THE UNITED STATES
(Weather Bureau Technical Paper No. 32)

This publication is issued in three parts -

- Part I - AVERAGES FOR ISOBARIC SURFACES
- Part II - EXTREMES AND STANDARD DEVIATIONS OF AVERAGE HEIGHTS
AND TEMPERATURES
- Part III - VECTOR WINDS AND SHEAR

Part I presents the average height, temperature, relative humidity, and density at constant pressure surfaces for a network of stations in the United States and the Caribbean Area. It includes also a series of analyzed charts and cross sections further depicting these data. The data are based on the 0300 GCT observations made during the 10-year period 1946-1955, except that all data from Weather Bureau stations having at least an 8-year record during that period also are shown.

Part II provides information on the distribution of daily values around the monthly averages of the height and temperature by a presentation of the standard deviations and extreme values for the individual stations included in the network. In Section A of Part II, data for the 950-, 850-, 700-, 500-, 300-, 200-, 150-, and 100-millibar surfaces for each month are shown in tabular form. Section B is composed of two series of charts for the months of January, April, July, and October for the 850-, 700-, 500-, 300-, 200-, 150-, and 100-millibar surfaces. These charts present (1) height contours, with isolines of standard deviations of height superimposed thereon, and extreme values of height for each station; and (2) isotherms, with standard deviations of temperature superimposed thereon, and extreme values of temperature for each station. Section C contains two series of tabulations of the absolute extremes of height, temperature, and density.

Part III presents a series of charts portraying mean vector winds and standard vector deviations for a network of stations over the United States, presented for each of the four seasons at 500 and 300 millibars, the surface of maximum wind speed, and at 100, 50, and 30 millibars. Charts are included to show the seasonal vertical wind profiles for 12 selected stations, with others showing the average seasonal vector wind shears for several layers between 700 and 500 millibars.

For sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. - Price: Part I, \$1.25; Part II, 65 cents; Part III, 50 cents.

Additional sources of published upper air climatological data may be found in the following publications:

EXTREME TEMPERATURES OF THE UPPER AIR, Washington, D. C., July 1947 (Weather Bureau Technical Paper No. 3).

UPPER AIR VALUES OF TEMPERATURE, PRESSURE, AND RELATIVE HUMIDITY OVER THE UNITED STATES AND ALASKA, Washington, D. C., May 1945 (Weather Bureau Technical Paper No. 6).

UPPER WIND DISTRIBUTION STATISTICAL PARAMETER ESTIMATES, Washington, D. C., November 1958 (Weather Bureau Technical Paper No. 34).

MERIDIONAL CROSS-SECTIONS UPPER WINDS OVER THE NORTHERN HEMISPHERE, Washington, D. C., June 1961 (Weather Bureau Technical Paper No. 41).

Benjamin Ratner, TEMPERATURE FREQUENCIES IN THE UPPER AIR, Washington, D. C., January 1946.

Benjamin Ratner, CLASSIFIED FLYING WEATHER FOR THE UNITED STATES, Washington, D. C., December 1946.

U. S. Navy, UPPER WINDS STATISTICS CHARTS OF THE NORTHERN HEMISPHERE, NAVAER 50-1C-535, in 3 Volumes. Volume I (August 1959) is for the 850-, 700-, and 500-millibar surfaces; Volume II (August 1959) for the 300-, 200-, and 100-millibar surfaces; and Volume III (March 1962) for the 50-millibar surface.

A CATALOGUE OF 100 FCC-POSITIONED TRANSOSONDE FLIGHTS, Washington, D. C., June 1962 (Weather Bureau Technical Paper No. 44).

GROUP IV

COLLATERAL CLIMATOLOGICAL PUBLICATIONS

CLIMATOLOGICAL AND OCEANOGRAPHIC ATLAS FOR MARINERS (VOLUMES I AND II)

These volumes are the first two of a series to be published by the U. S. Weather Bureau in cooperation with the U. S. Navy Hydrographic Office, and are intended to fill the specific needs of the mariner. Volume I (published in 1959) pertains to the North Atlantic Ocean; Volume II (published in 1961) to the North Pacific Ocean. The climatic data are presented in chart form. The basic elements used from surface weather observations are precipitation, wind, pressure, visibility, cloudiness, and temperature. A list of the climatological charts included are:

Surface Chart of Areas and Stations
Annual Precipitation

Surface Winds)	
Storm Tracks)	
Tropical Storms and Hurricanes)	
Visibility)	
Total Cloud Amount	)	by months
Air Temperature)	
Dew Point)	
Sea Level Pressure)	
Low Pressure Centers)	
Air-Sea Temperature Differences)	
Height of 500-mb Pressure Surface	)	by seasons
500-mb Wind Roses)	

Volume I of this publication is now out of print. Volume II is for sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. - Price: \$4.00 per copy.

Publications of a somewhat similar nature, issued by the U. S. Navy are:

UPPER WIND STATISTICS CHARTS OF THE NORTHERN HEMISPHERE, NAVAER 50-1C-535, in 3 volumes. Volume I (August 1959) is for the 850-, 700-, and 500-millibar surfaces; Volume II (August 1959) is for the 300-, 200-, and 100-millibar surfaces; and Volume III (March 1962) is for the 50-millibar surface.

U. S. NAVY MARINE CLIMATIC ATLAS OF THE WORLD, published in 5 volumes during the period November 1955 through November 1959, with 2 additional volumes planned.

CLIMATOLOGY AND WEATHER SERVICES OF THE ST. LAWRENCE SEAWAY
AND GREAT LAKES (Weather Bureau Technical Paper No. 35)

This publication is intended to familiarize masters, mates, and steamship company officials of vessels now plying the water and those who will, in the future, come to use the expanded facilities, with weather conditions and available weather services in the area. The elements described are primarily those affecting ship operations.

The area covered includes the St. Lawrence River from Quebec to Lake Ontario and all the Great Lakes. Climatology of the sea approaches to the St. Lawrence River and from the mouth of the river to Quebec can be found in U. S. Navy Hydrographic Office Publications No. 73 - SAILING DIRECTIONS FOR NEWFOUNDLAND, and No. 100 - SAILING DIRECTIONS FOR THE GULF AND RIVER ST. LAWRENCE.

Articles on the climatology of the area, and on lake levels, lake temperatures, and currents, accompanied by appropriate tables, charts, and maps are presented. Included also are tables of the normals, means, and extremes of basic climatological elements for major ports in the area.

For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C. - Price 45 cents.

DAILY RIVER STAGES

This annual publication contains river gage data and related information for about 625 stations located on the principal rivers of the United States. Miscellaneous facts about each station, such as elevation of gage zero above mean sea level, distance of gage above mouth of river, drainage area above gage, flood stage, and highest stages for period of record are shown for each station (Exhibit 98). Cumulative monthly tabulations of daily river stages, together with the highest and lowest monthly readings with dates of occurrence are also furnished (Exhibit 99).

For sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Price \$1.00 per copy.

EXHIBIT 98

RIVER STATIONS AND MISCELLANEOUS INFORMATION

[River stations, arranged by drainage area, and miscellaneous information pertaining thereto]

Station	River	Length of record ¹	Elevation of gage zero above mean sea level ²	Distance of gage above mouth of river ³	Drainage area above gage ⁴	Flood stage	Highest stages from gage readings ⁵			
							Highest Prior to 1960	Date	Highest During 1960	Date
EAST GULF OF MEXICO DRAINAGE--Continued										
Columbia, Miss.	Pearl	56	115.81	133.8	5,690	17	26.40	Apr. 9, 1938	19.30	Mar. 19
Bogalusa, La.	do.	22	55.00	75.5	6,630	15	20.32	Jan. 13, 1950	19.30	Mar. 22
Pearl River, La.	do.	61	0.36	21.9	.....	12	19.7	Apr. 19, 1900	15.22	Mar. 11
MISSISSIPPI SYSTEM										
Upper Mississippi Basin										
Mankato, Minn.	Minnesota	57	747.92	106.4	14,900	19	26.2	Apr. 9, 1951	20.41	May 23
Durand, Wisc.	Chippewa	27	694.59	17.4	9,010	11	15.43	Sept. 2, 1941	10.58	Aug. 31
Neillsville, Wisc.	Black	51	962.77	80.0	756	18	23.8	Sept. 10, 1938	12.73	May 7
Merrill, Wisc.	Wisconsin	58	1,228.65	303.0	2,676	11	18.26	Aug. 31, 1941	11.20	May 7
Wisconsin Rapids, Wisc.	do.	54	980.20	216.0	5,294	12	14.1	Mar. 24, 1935	12.0	May 8
Portage, Wisc.	do.	88	775.09	116.0	7,900	17	20.5	Sept. 14, 1938	19.60	May 10
Moline, Ill.	Rock	32	551.34	7.0	10,771	13	14.9	Mar. 11, 1929	14.3	Jan. 30, 31
Waterloo, Iowa	Cedar	20	824.09	155.1	5,190	15	18.8	Apr. 9, 1951	18.10	Mar. 31
Waterloo, Iowa	do.	56	700.33	80.5	6,640	13	20.1	Mar. 19, 1929	16.75	Apr. 2
Cedar Rapids, Iowa	Iowa	46	548.51	15.4	12,489	10	R 16.85	June 17, 1947	R 17.02	Apr. 5
Wapello, Iowa	do.	45	521.69	12.2	4,303	15	23.0	May 26, 1944	25.0	Apr. 3
Augusta, Iowa	Raccoon	46	841.16	30.0	3,410	13	21.6	June 13, 1947	21.18	Apr. 2
Boone, Iowa	Des Moines	54	871.52	257.8	5,511	12	25.34	June 22, 1954	17.08	Mar. 31
Des Moines, Iowa	do.	64	773.84	202.0	6,245	23	30.16	June 24, 1954	25.30	Apr. 1, 2
Tracy, Iowa	do.	41	671.78	130.0	12,479	14	20.2	June 1, 1947	23.00	Apr. 2
Ottumwa, Iowa	do.	44	622.77	92.6	13,374	9	20.2	June 1, 1947	17.49	Apr. 1
Keosauqua, Iowa	do.	54	557.30	50.6	14,038	15	27.85	June 1, 1903	18.34	Apr. 2
Morris, Ill.	Illinois	67	478.59	263.1	7,380	13	23.91	July 14, 1957	15.39	Mar. 31
La Salle, Ill.	do.	53	430.00	224.7	11,835	20	31.0	May 22, 1943	25.90	Mar. 31
Peoria, Ill.	do.	88	428.39	162.3	13,520	18	28.6	May 23, 1943	21.6	Apr. 5
Havana, Ill.	do.	66	424.28	119.6	17,560	14	27.3	May 25, 1943	19.95	Apr. 6
Beardstown, Ill.	do.	80	419.89	88.6	23,445	14	29.7	May 26-27, 1943	21.80	Apr. 7
Union, Mo.	Bourbeuse	44	488.58	13.0	798	15	24.55	July 1, 1957	11.15	May 8
Sullivan, Mo.	Meramec	26	570.75	108.1	1,475	11	32.35	June 9, 1945	7.97	Mar. 28
Valley Park, Mo.	do.	44	392.92	22.1	3,807	16	33.0	June 11, 1945	10.65	Apr. 10
Fort Ripley, Minn.	Mississippi	55	1,134.71	1,945.8	11,010	10	13.3	May 22, 1950	8.60	May 7
Minneapolis, Minn.	do.	23	794.3	1,821.8	19,500	16	19.5	Apr. 14, 1952	9.2	Apr. 5
St. Paul, Minn.	do.	94	683.68	1,803.1	36,760	14	22.02	Apr. 16, 1952	10.50	May 28
Hastings, Minn.	do.	82	670.17	1,778.9	36,990	15	20.93	Apr. 16, 1952	12.02	May 30
Red Wing, Minn.	do.	67	664.65	1,754.7	46,680	14	16.85	Apr. 18, 1952	9.50	May 31-June 1
Winona, Minn.	do.	42	639.64	1,689.5	59,245	13	17.91	Apr. 20, 1952	9.48	June 3
LaCrosse, Wisc.	do.	86	625.83	1,661.6	62,840	12	16.5	June 19, 1880	10.10	May 11
Lansing, Iowa	do.	49	611.70	1,526.8	66,280	18	18.14	Apr. 23, 1952	11.76	May 15
McGregor, Iowa	do.	82	604.84	1,597.5	67,500	18	S 21.5	June 22, 1880	16.05	May 15
Dubuque, Iowa	do.	92	584.94	1,543.7	81,600	17	22.70	Apr. 25, 1952	17.47	May 17
Clinton, Iowa	do.	70	566.29	1,481.8	85,600	16	20.92	Apr. 28, 1952	16.3	May 18, 19
Davenport, Iowa	do.	101	542.00	1,446.8	88,449	15	20.9	Mar. 10, 1868	15.3	Apr. 3
Muscatine, Iowa	do.	83	530.97	1,419.0	99,400	16	21.05	Apr. 28, 1952	18.38	Apr. 3
Keithsburg, Ill.	do.	68	522.72	1,391.8	113,000	12	17.1	Apr. 29, 1951	16.58	Apr. 4
Keokuk, Iowa	do.	93	477.41	1,328.0	119,000	16	20.85	May 27, 1944	21.86	Apr. 3
Quincy, Ill.	do.	61	458.22	1,290.8	135,000	17	23.9	June 10, 1947	24.38	Apr. 4
Hannibal, Mo.	do.	82	449.07	1,273.7	137,200	16	24.1	June 10, 1947	23.38	Apr. 4
Grafton, Ill.	do.	81	408.79	1,181.8	171,300	18	29.0	May 24, 1943	25.7	Apr. 10
St. Louis, Mo.	do.	103	379.94	1,143.8	701,013	20	40.28	July 22, 1951	33.78	Apr. 10
Chester, Ill.	do.	70	341.05	1,073.3	712,565	27	39.28	July 23, 1951	33.68	Apr. 11
Cape Girardeau, Mo.	do.	69	304.65	1,015.9	716,000	32	42.37	May 27, 1943	38.17	Apr. 11

EXHIBIT 99
ATLANTIC SLOPE DRAINAGE
DAILY RIVER STAGES

SUSQUEHANNA RIVER AT WILKES-BARRE, PA.
 GAGE ZERO, 512.07 FEET, M.S.L. FLOOD STAGE, 22 FEET.

1960	Day of month																															Highest or crest	Date	Lowest	Date
	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				
JAN	10.6	8.9	8.2	11.2	13.4	11.9	9.4	8.0	7.3	6.6	6.2	FG5.4	FG5.6	FG5.3	5.8	5.8	6.0	5.3	5.1	F 4.7	FG4.7	FG4.4	FG4.2	FG4.1	G 4.1	3.8	3.9	3.9	4.1	4.2	13.4	5	3.8	27	
FEB	4.2	4.1	4.0	G 4.0	3.4	3.4	4.5	6.1	5.8	5.4	5.9	16.6	17.4	13.6	F10.6	FG8.8	FG8.2	F 8.1	7.8	7.8	7.3	6.7	6.4	6.1	5.9	5.6	5.6	5.4	4.1	4.2	K 18.4	12	3.4	5+	
MAR	5.2	4.9	5.6	4.5	F 4.4	F 3.8	FG4.0	FG4.0	FG3.8	F 3.9	FG3.9	FG3.8	FG3.6	FG3.7	FG3.7	FG3.5	3.5	3.5	3.4	3.4	3.4	3.5	3.4	3.3	3.3	3.2	3.2	3.2	4.9	11.5	21.7	31	3.2	26+	
APR	28.3	29.4	23.9	Q23.3	R24.9	23.9	20.4	17.7	14.8	12.5	11.5	10.7	10.2	9.8	9.5	9.0	9.2	9.3	8.5	7.9	7.5	6.7	6.4	6.3	6.1	5.7	5.7	6.4	6.8	6.3	L 29.6	1	5.7	26+	
MAY	5.9	5.5	5.2	4.9	4.7	4.5	4.2	4.0	3.8	4.6	10.9	8.6	8.9	9.7	S10.2	10.3	8.8	7.7	7.2	7.1	6.5	6.6	6.9	8.9	12.0	11.9	9.6	8.1	7.1	6.3	5.9	12.2	26		
JUN	6.2	6.9	6.9	6.3	5.8	5.5	6.5	6.1	5.5	6.8	4.3	3.9	4.3	5.5	7.0	13.7	14.2	T10.8	11.8	10.4	8.9	7.5	6.5	5.8	9.9	8.8	7.0	5.8	5.0	4.5	M 14.9	16	3.9	12	
JUL	4.2	4.6	4.2	4.7	4.3	3.9	3.5	3.4	3.1	2.9	2.7	2.6	2.4	2.6	2.9	3.0	2.8	2.7	2.5	2.6	2.5	2.3	2.2	2.0	1.9	1.8	1.8	1.7	1.6	1.9	4.7	4	1.6	30	
AUG	1.8	1.7	1.6	1.7	2.0	4.2	3.7	3.2	2.7	2.7	3.2	2.6	2.4	2.3	2.1	2.4	1.9	1.7	1.6	1.6	1.5	1.4	1.5	1.7	1.6	1.4	1.3	1.2	1.2	1.0	1.0	4.2	6	1.0	30+
SEP	1.2	1.2	1.1	1.0	1.0	0.9	0.8	0.8	0.7	0.7	0.6	1.4	9.1	10.1	8.7	7.3	5.7	4.7	4.0	U 4.9	7.3	7.0	5.6	*5.0	4.2	3.7	3.4	3.2	2.9	3.0	10.2	14	0.6	11	
OCT	3.1	3.0	2.8	2.7	2.5	2.5	2.4	2.2	2.2	2.1	2.0	1.9	1.8	1.6	1.6	1.5	1.4	1.3	1.3	1.4	1.7	2.0	2.3	2.6	2.7	2.6	2.4	2.5	2.8	3.4	3.3	3.4	30	1.3	18+
NOV	3.2	3.4	3.3	3.2	3.3	3.3	3.1	3.0	2.9	2.9	2.9	2.9	3.0	3.1	3.1	2.8	2.7	2.6	2.7	2.6	2.5	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.5	3.4	2	2.1	29
DEC	2.6	2.4	2.5	2.7	2.6	2.4	2.3	2.3	2.3	2.2	2.3	2.0	B 1.1	B 1.2	B 1.1	B 1.4	B 1.7	B 1.7	B 1.6	B 1.6	B 1.8	B 1.5	B 1.5	B 1.4	B 1.3	B 1.5	B 1.5	B 1.3	B 1.2	B 1.3	B 1.4	2.7	4	B 1.1	13+

SUSQUEHANNA RIVER AT SUNBURY, PA.
 GAGE ZERO, 419.66 FEET, M.S.L. FLOOD STAGE, 16 FEET.

1960	Day of month																															Highest or crest	Date	Lowest	Date
	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				
JAN	6.2	5.2	4.6	6.4	6.7	6.8	5.7	4.7	4.2	3.8	3.5	3.3	3.0	3.0	3.2	3.7	3.7	3.6	3.4	3.2	FG3.2	FG2.9	FG2.6	FG2.5	FG2.4	FG2.3	F 2.3	2.2	2.3	2.2	2.3	6.8	6	2.2	28+
FEB	2.3	2.3	2.2	FG2.2	G 2.0	1.9	2.3	2.8	3.2	3.1	3.0	6.2	9.5	8.0	FG6.2	FG5.2	FG4.5	F 4.2	F 4.3	4.7	4.3	3.9	3.6	3.4	3.2	3.1	3.0	2.9	2.9	2.9	9.5	13	1.9	6	
MAR	2.8	F 2.7	FG2.5	FG2.3	FG2.3	FG2.1	FG2.2	FG2.0	FG2.1	FG2.1	FG2.0	FG2.0	FG2.0	FG1.9	FG1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.7	1.8	2.4	4.4	11.8	16.2	31	1.7	27
APR	17.5	18.5	15.9	14.2	15.8	14.8	12.5	10.6	8.8	7.3	6.3	5.8	5.3	5.0	4.8	4.5	4.3	4.4	4.2	3.9	3.7	3.5	3.3	3.1	3.0	2.9	2.8	3.0	3.3	3.3	N 18.6	2	2.8	27	
MAY	3.1	2.9	2.7	2.6	2.4	2.4	2.3	2.1	2.5	5.1	V 7.4	7.3	6.9	6.6	6.4	6.4	5.7	5.3	5.5	5.2	4.8	4.4	4.7	4.7	4.6	4.7	4.6	4.5	4.1	3.8	8.5	25	2.1	8	
JUN	3.8	4.1	4.0	3.9	3.6	3.4	3.2	3.3	3.1	2.8	2.5	2.3	2.3	2.5	3.0	7.2	8.0	6.8	6.4	5.5	4.7	4.1	3.5	3.1	3.8	4.3	3.7	3.0	2.6	2.4	8.1	16	2.3	12+	
JUL	2.2	2.1	2.2	2.2	2.5	2.2	2.0	1.8	1.7	1.6	1.5	1.5	1.4	1.5	1.8	2.0	1.9	1.8	1.7	1.6	1.6	1.6	1.5	1.4	1.3	1.3	1.2	1.2	1.1	1.2	2.5	5	1.1	30	
AUG	1.3	1.3	1.2	1.1	1.4	1.8	2.4	2.0	1.8	1.8	1.8	1.7	1.5	1.4	1.3	1.3	1.3	1.2	1.1	1.1	1.1	1.0	1.0	1.0	1.0	0.9	0.9	0.8	0.9	1.0	2.4	7	0.8	29	
SEP	1.0	1.0	1.0	0.9	0.8	0.8	0.8	0.7	0.7	0.7	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	5.0	13	0.7	8+	
OCT	1.7	1.7	1.6	1.5	1.4	1.4	1.4	1.4	1.3	1.3	1.2	1.2	1.1	1.1	1.0	1.0	1.0	0.9	0.9	1.0	1.1	1.1	1.1	1.2	1.3	1.3	1.3	1.3	1.3	1.5	1.7	1.4	0.9	19+	
NOV	1.5	1.7	1.7	1.7	1.6	1.7	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.4	1.7	2+	1.2	26+	
DEC	1.6	1.5	1.4	1.4	1.4	1.4	1.4	1.3	1.3	FG1.3	FG1.2	FG1.2	FG0.8	FG1.0	A .	A .	A .	A .	A .	A .	A .	A .	A .	A .	A .	A .	A .	A .	A .	A .	1.6	1	.	.	

MARINERS WEATHER LOG

This bimonthly publication contains meteorological and climatological information for use by the maritime industry. Subjects include articles on tropical cyclones in the North Atlantic and North Pacific Oceans, and on the Great Lakes; and matters of current maritime interest, with attendant graphs and charts. Rough logs of general weather conditions prevailing over the North Atlantic and North Pacific Oceans during the two months prior to preparation of copy for each issue, and smooth logs of conditions in these areas for the third and fourth months preceding preparation of copy are also furnished. Tables of selected gale data in the areas mentioned above are included (Exhibit 100), together with a bimonthly summarization of basic climatological conditions for the six United States Ocean Station Vessels (Exhibit 101).

This publication carries no sale price. Inquiries concerning its distribution should be directed to the U. S. Weather Bureau, Washington 25, D. C., Attention: Publications Section.

EXHIBIT 100
**SELECTED GALE OBSERVATIONS NORTH ATLANTIC
 NOVEMBER AND DECEMBER 1962**

Vessel	Nationality	Date	Position of ship		Time (GMT)	Wind		Vis. (Naut. mi.)	Pres. Wea. (code)	Pressure (mb.)	Temperature °F		Dir.	Waves	
			Lat.	Long.		Dir.	Speed (knots)				Air	Sea		Period (Sec.)	Height (ft.)
NORTH ATLANTIC OCEAN															
		Nov.													
SS AMERICA	American	1	48.4°N.	25.6°W.	12	WNW	47	5	18	1007.8	51	58	W	7-9	14
SS AMERICAN HUNTER	American	1	45.9°N.	28.4°W.	18	NW	45	5	02	1021.7	52	61	NW	15-17	14
SS AMERICAN IMPORTER	American	1	53.0°N.	31.5°W.	00	NNW	58	5	18	1001.7	46	50	W	7-9	14
SS AMERICAN SCIENTIST	American	1	46.6°N.	27.8°W.	18	NW	47	10	14	1018.0	52	55	NW	7-9	21
SS MORMACPENN	American	1	57.0°N.	24.5°W.	18	N	45	2	02	994.2	45	50	N	11-13	14
MV SLOTERDYK	Netherlands	1	47.8°N.	26.7°W.	18	NW	46	5	02	1014.8	51	53	NW	11-13	29
SS AMERICAN HUNTER	American	2	46.7°N.	24.1°W.	06	NW	48	10	02	1015.2	49	61	NW	15-17	17.5
SS AMERICAN SCIENTIST	American	2	47.0°N.	28.0°W.	00	NW	47	10	02	1020.0	52	61	NW	7-9	5
MV ATHELSTANE	British	2	43.7°N.	24.0°W.	06	NW	50	5	02	1016.6	55	63	NW	9-11	27
USNS GEN. A. M. PATCH	American	2	47.9°N.	11.2°W.	12	WNW	45	5	03	993.9	54	57	WNW	13-14	21

EXHIBIT 101
**CLIMATOLOGICAL DATA—U. S. OCEAN STATION VESSELS
 FOR SEPTEMBER AND OCTOBER 1962**

	SEPTEMBER-1962								OCTOBER-1962									
	Average Air Temperature, °F.	Average Sea Temperature, °F.	Average Dew Point, °F.	Average Sea Level Pressure mb.	Average Wind Speed, Knots	Prevailing Wind Direction	Maximum Wind Speed, Knots	Date(s) of Maximum Wind	Direction of Maximum Wind	Average Air Temperature, °F.	Average Sea Temperature, °F.	Average Dew Point, °F.	Average Sea Level Pressure mb.	Average Wind Speed, Knots	Prevailing Wind Direction	Maximum Wind Speed, Knots	Date(s) of Maximum Wind	Direction of Maximum Wind
NORTH ATLANTIC																		
Station "BRAVO" 56°30'N., 51°00'W.	45.6	47.6	40.3	1011.7	19.0	NW	46	19	SE	41.6	45.1	37.4	1001.7	23.0	NW	53	31	NW
Station "CHARLIE" 52°45'N., 35°30'W.	51.4	52.5	46.1	1011.4	22.5	WNW	60	1	WNW	49.5	50.5	44.1	1008.3	22.7	SW	60	31	W
Station "DELTA" 44°00'N., 41°00'W.	65.1	69.1	57.0	1017.1	15.6	W	35	29	N	61.2	62.6	54.8	1015.8	16.9	S	40	16,22	ESE,S
Station "ECHO" 35°00'N., 48°00'W.	77.0	78.6	70.3	1021.0	11.3	SW	30	9,10	NW	74.5	76.2	67.0	1020.0	12.2	SW	32	16	WNW

MEAN MONTHLY AND ANNUAL EVAPORATION, FROM FREE WATER SURFACE
FOR THE UNITED STATES, ALASKA, HAWAII, AND WEST INDIES
 (Weather Bureau Technical Paper No. 13)

In this publication, issued in 1950, the monthly and annual mean evaporation is given in tabular form for about 260 stations in the United States, about 200 of which are Class A evaporation stations (Exhibit 102). The period of record for which data were available at that time is shown for each station.

This publication is now out of print.

A later publication issued in 1959, entitled EVAPORATION MAPS FOR THE UNITED STATES (Weather Bureau Technical Paper No. 37), presents a series of maps portraying average annual evaporation values and related data.

EXHIBIT 102

MEAN MONTHLY AND ANNUAL EVAPORATION (INCHES)
 PART I
 CLASS A STATIONS

STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	ANN- UAL	YRS. R'CD.	RECORD BEGAN	USED ENDED
ALABAMA																
Auburn.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5/47	-
Fairhope.....	1.98	2.36	3.64	4.91	6.12	6.20	5.88	5.61	4.53	3.68	2.37	1.62	48.90	14	8/34	12/48
Silverhill.....	2.56	2.94	4.39	5.58	6.12	6.79	6.32	6.23	5.81	3.95	2.76	2.25	55.70	13	3/18	12/30
ALASKA																
College (A).....	-	-	-	-	-	4.52	4.41	2.63	1.26	-	-	-	-	B	5/29	8/47
Matanuska.....	-	-	-	-	-	4.38	4.24	3.02	1.90	-	-	-	-	B	8/29	7/47
ARIZONA																
Bartlett Dam.....	4.09	4.50	7.10	10.43	14.55	17.03	17.23	14.50	12.70	9.25	6.06	4.19	121.63	8	6/40	12/48
Davis Dam.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3/48	-
Lees Ferry.....	1.67	2.81	6.01	8.48	11.70	13.74	13.72	11.59	9.24	6.13	3.07	1.74	89.90	16	10/21	7/37
Mesa.....	2.83	3.49	5.67	7.54	10.18	11.30	11.23	9.37	7.45	5.39	3.54	2.55	80.54	32	11/16	12/48
Pierce Ferry.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10/48	-
Roosevelt.....	1.83	2.66	4.90	7.16	10.42	12.25	12.28	10.26	8.10	5.33	2.87	1.81	79.87	33	1/16	12/48
Sacaton.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6/47	-
Safford.....	1.99	3.35	5.32	7.68	9.84	10.90	9.82	8.27	6.47	4.40	2.78	1.89	72.71	6	10/40	2/47
San Carlos Reservoir.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5/48	-
Sierra Ancha.....	1.96	2.36	4.27	6.86	9.14	10.83	10.36	8.68	7.73	5.65	3.34	2.21	73.39	13	2/36	12/48
Tucson.....	2.32	3.09	5.80	8.49	11.22	12.73	11.72	9.38	8.01	5.77	3.33	1.09	82.95	20	1/29	12/48
Willcox.....	3.30	4.64	7.15	9.83	10.50	11.14	9.72	8.12	7.32	5.96	4.58	3.27	85.53	19	1/17	12/35
Yuma (Citrus).....	3.99	4.98	8.02	10.45	13.67	14.86	16.22	14.30	11.46	8.26	5.36	3.84	115.41	28	10/20	12/48
Yuma Valley.....	3.49	4.34	6.77	8.66	10.38	11.08	11.72	10.74	8.47	6.12	3.99	3.14	88.90	C22	1/17	6/40

MEAN NUMBER OF THUNDERSTORM DAYS IN THE UNITED STATES
(Weather Bureau Technical Paper No. 19)

This pamphlet presents a table of the mean monthly, seasonal, and annual number of days on which thunderstorms were recorded at each of 289 Weather Bureau stations in the United States, Puerto Rico and Virgin Islands, and the Pacific Area (Exhibit 103). It also includes charts depicting the monthly distribution of days with thunderstorms in continental United States.

This publication is now out of print.

EXHIBIT 103
THUNDERSTORMS
(Mean number of days)

State and Station	Years of record	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Spring	Summer	Autumn	Winter	Annual
														March- May	June- August	Sept.- Nov.	Dec.- Feb.	
ALABAMA																		
Anniston	45	1	2	4	5	7	11	12	10	5	1	1	1	16	33	7	4	60
Birmingham	48	1	2	4	5	7	12	14	12	6	2	1	1	16	38	9	4	67
Mobile	71	1	2	3	4	6	10	14	13	6	2	1	2	13	37	9	5	64
Montgomery	79	1	2	4	4	6	10	11	9	4	1	1	1	14	30	6	4	54
ARIZONA																		
Flagstaff	19	*	*	*	1	1	2	6	11	12	2	*	*	2	19	14	*	35
Fayon	4	0	0	1	3	3	5	15	13	9	4	*	*	7	33	13	1	54
Phoenix	56	*	1	1	1	1	1	7	8	4	1	1	*	3	16	6	1	26
Prescott	9	*	*	1	1	1	1	15	15	7	2	*	*	3	31	9	*	43
Tucson	11	*	*	1	*	*	1	11	12	6	3	1	*	1	24	10	*	35
Winslow	3	0	0	*	2	*	3	12	7	7	1	0	0	4	22	8	0	34
Yuma	28	*	*	*	*	*	*	3	4	2	1	*	*	*	7	3	*	10
ARKANSAS																		
Fort Smith	70	1	2	4	6	8	8	7	7	4	3	2	1	18	22	9	4	53
Little Rock	59	2	2	5	7	7	9	9	8	4	2	1	2	19	26	7	6	58
Texarkana	9	2	4	7	7	11	9	10	7	6	3	3	2	25	26	12	8	71

MEAN PRECIPITABLE WATER IN THE UNITED STATES
(Weather Bureau Technical Paper No. 10)

Based upon the publication UPPER AIR AVERAGE VALUES OF TEMPERATURE, PRESSURE, AND RELATIVE HUMIDITY OVER THE UNITED STATES AND ALASKA (Weather Bureau Technical Paper No. 6), Washington, D. C., 1945, integrations of moisture content (in inches) were made for selected stations. Tables and charts present monthly average values from the surface to 8 kilometers; and monthly and annual charts of the United States show the areal patterns. An example of one of the tables is shown in Exhibit 104. This Technical Paper was published in 1949.

This publication is now out of print.

Tables for computations of precipitable water are available in TABLES OF PRECIPITABLE WATER (Weather Bureau Technical Paper No. 14), Washington, D. C., 1952.

EXHIBIT 104

MEAN PRECIPITABLE WATER (Inches)

Oakland, Calif.

LAYER (Km)	Elev 2 M						July 1938 - Dec. 1943					
	J	F	M	A	M	J	J	A	S	O	N	D
Sfc - 0.5	.139	.143	.150	.158	.168	.180	.200	.196	.201	.174	.145	.142
0.5 - 1	.121	.120	.122	.126	.140	.151	.165	.164	.166	.150	.121	.121
1 - 1.5	.099	.095	.094	.099	.106	.111	.123	.107	.130	.116	.096	.098
1.5 - 2	.080	.076	.073	.074	.084	.083	.094	.078	.098	.091	.075	.078
2 - 2.5	.061	.061	.059	.057	.065	.064	.073	.064	.074	.070	.059	.063
2.5 - 3	.048	.046	.044	.044	.051	.048	.056	.051	.057	.054	.045	.050
3 - 4	.067	.065	.064	.061	.073	.066	.081	.075	.084	.074	.065	.069
4 - 5	.041	.038	.040	.038	.053	.041	.053	.050	.054	.045	.040	.042
5 - 6	.024	.022	.022	.022	.036	.027	.033	.033	.032	.029	.025	.024
6 - 7	.013	.012	.012	.013	.017	.016	.019	.018	.019	.018	.015	.014
7 - 8	.007	.006	.006	.006	.009	.009	.010	.010	.010	.009	.008	.007
Sfc - 8	.700	.684	.686	.698	.802	.796	.907	.846	.925	.830	.694	.708

NORTH ATLANTIC TROPICAL CYCLONES
(Weather Bureau Technical Paper No. 36)

This paper, published in 1959, consolidates the records of seasonal and chronological occurrences of tropical cyclones in the North Atlantic Ocean. Tropical cyclone tracks are shown in three series of charts, and information on storm frequencies is given in tables and figures. The charts show:

a. Tracks of all known tropical cyclones of tropical storm and hurricane intensity (sustained winds of 39 m.p.h. or over) occurring in each year 1886 through 1958, inclusive.

b. Tracks of tropical cyclones beginning in each 10-day period during the six months of maximum frequency, June through November, for the years 1886 through 1958.

c. Tracks of tropical cyclones beginning in each decade of years, 1891-1950, during the months of June, July, and November, and during each 10-day period in August, September, and October.

Charts covering the off-season (December through May) are included with the series mentioned in subparagraphs b. and c. above, and partial decadal charts covering 1886-1890 and 1951-1958 are also included in c. above.

This publication is now out of print.

Other publications containing related data are:

CLIMATOLOGICAL AND OCEANOGRAPHIC ATLAS FOR MARINERS, Volume I (1959) and Volume II (1961), Washington, D. C.

PRINCIPAL TRACKS AND MEAN FREQUENCIES OF CYCLONES AND ANTICYCLONES IN THE NORTHERN HEMISPHERE (Weather Bureau Research Paper No. 40), Washington, D. C., 1957.

PRINCIPAL TRACKS AND MEAN FREQUENCIES OF CYCLONES AND ANTICYCLONES IN
THE NORTHERN HEMISPHERE (Weather Bureau Research Paper No. 40)

This paper, published in 1957, portrays and discusses the principal tracks of both cyclones and anticyclones at sea level during each month of the year for the entire Northern Hemisphere. These tracks supplement the set of normal (mean) maps published in 1952 as Weather Bureau Technical Paper No. 21, NORMAL WEATHER CHARTS FOR THE NORTHERN HEMISPHERE.

The charts included in this publication are:

- Cyclone frequency for each month showing the number of lows and the number of days with lows.
- Anticyclone frequency for each month showing the number of highs and the number of days with highs.
- Frequency of cyclogenesis for each month.
- Frequency of anticyclogenesis for each month.
- Principal tracks of lows for each month.
- Principal tracks of highs for each month.

This publication is now out of print.

Additional related publications include:

NORTH ATLANTIC TROPICAL CYCLONES (Weather Bureau Technical Paper No. 36),
Washington, D. C., 1959.

CLIMATOLOGICAL AND OCEANOGRAPHIC ATLAS FOR MARINERS, Volume I (1959) and Volume II
(1961), Washington, D. C.

DAILY SYNOPTIC SERIES, HISTORICAL WEATHER MAPS, NORTHERN HEMISPHERE SEA LEVEL,
1899-1939, Washington, D. C., 1944.

TORNADO OCCURRENCES IN THE UNITED STATES
(Weather Bureau Technical Paper No. 20 - Revised 1960)

This publication presents statistics on tornadoes, funnel clouds aloft, and waterspouts recorded generally during the period 1916-1958. It contains narrative summaries on their characteristics, statistics, forecasting, oddities, etc., together with numerous graphs and charts on tornado activity.

Statistical tables are also shown as follows:

1. Some outstanding tornadoes, 1876-1958.
2. Number of tornadoes, days, deaths, and damage for States and United States by years, 1916-1958.
3. Number of tornadoes, days, deaths, and damage for States and United States by months and years, 1916-1958.
4. Total number of tornadoes and tornado days by States and United States, totals and means, 1916-1958.
5. Total number of tornadoes beginning during specified hours, 1916-1958.
6. Tornadoes associated with passage of tropical storms, 1916-1958.
7. Tornado occurrences in major cities and selected communities (from beginning of record to February 1959).
8. Selected families of tornadoes, 1916-1958.
9. List of more damaging tornadoes in each state, 1916-1958.
10. Number of waterspouts and days for States and United States, 1948-1958.
11. Number of funnels aloft and days by months and years in United States, 1953-1958.
12. Number of funnels aloft for States and United States by months, 1953-1958.

For sale by Superintendent of Documents, Government Printing Office, Washington 25, D. C. - Price 45 cents per copy.

A publication entitled TORNADO DEATHS IN THE UNITED STATES (Weather Bureau Technical Paper No. 30) was issued in 1957. It contains numerous tables and charts, based on records for the period 1916-1953, on that one statistic. This paper is for sale also by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. - Price 50 cents per copy.

UPPER WIND DISTRIBUTION STATISTICAL PARAMETER ESTIMATES
(Weather Bureau Technical Paper No. 34)

The purpose of this paper is to furnish derived estimates of some statistical parameters of wind distribution over the Northern Hemisphere. The tables presented therein do not exhaust all of the possible relationships among the parameters, but they do present many of the wind data on a Northern Hemisphere basis that are urgently needed by the meteorologist, the forecaster, the climatologist, and the research worker in many fields of endeavor. These tables cover generally the United States; North Atlantic Ocean; North Pacific Ocean; Canadian, Arctic, and Caribbean Areas; Eurasian Area; and adjoining areas. The period of data used is generally for the 5 years 1948 to 1953. The estimated values are given for each of the four seasons - Winter, Spring, Summer, Fall - and for the 850-, 700-, 500-, 300-, and 200-millibar levels, except that for the Canadian, Arctic, and Caribbean Areas the 850-millibar values were excluded.

This publication is now out of print.

Other related publications are:

MERIDIONAL CROSS SECTIONS, UPPER WINDS OVER THE NORTHERN HEMISPHERE, Washington, D. C., 1961 (Weather Bureau Technical Paper No. 41).

AIRWAY METEOROLOGICAL ATLAS FOR THE UNITED STATES, New Orleans, La., 1941.

NORMAL FLYING WEATHER FOR THE UNITED STATES, New Orleans, La., 1945.

U. S. Navy, UPPER WINDS STATISTICS CHARTS OF THE NORTHERN HEMISPHERE, NAVAER 50-1C-535, in 3 volumes. Volume I (August 1959) is for the 850-, 700-, and 500-millibar surfaces; Volume II (August 1959) is for the 300-, 200-, and 100-millibar surfaces; and Volume III (March 1962) is for the 50-millibar surface.

DAILY AEROLOGICAL CROSS SECTIONS, Pole to Pole, along Meridian 75°W, for the IGY Period, Washington, D. C., 1962-1963.

MONTHLY MEAN AEROLOGICAL CROSS SECTIONS, Pole to Pole, along Meridian 75°W, for the IGY Period, Washington, D. C., 1961.

WEEKLY MEAN VALUES OF DAILY TOTAL SOLAR AND SKY RADIATION
(Weather Bureau Technical Paper No. 11)

This paper, published in 1949, presents in graphical form weekly mean values of daily total solar and sky radiation received on a horizontal surface at 35 Weather Bureau and cooperating stations for up to 35 years of record. In these graphs, curves have been drawn through the plotted data to permit instant visualization of the annual march of radiation. In addition, there is a graph showing a composite curve for 30 stations.

Supplement No. 1 to this paper, containing additional similar graphs for 5 more stations was published in 1955.

This publication, and its Supplement, are out of print. Photocopies of its 17 pages may be obtained at cost of preparation by request to the National Weather Records Center, U. S. Weather Bureau, Federal Building, Asheville, N. C.

ADDRESSES OF WEATHER BUREAU STATE CLIMATOLOGISTS

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NEVADA - (See Utah)
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NEW HAMPSHIRE - (See Massachusetts)
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NEW YORK - Roberts Hall, Cornell University, Box 13, Ithaca, N. Y.
NORTH CAROLINA - Weather Bureau Airport Station, Raleigh-Durham Airport, Box 627, Raleigh, N. C.
NORTH DAKOTA - Weather Bureau Airport Station, Box 569, Bismarck, N. D.
OHIO - Box 357, New Post Office Building, Columbus 16, Ohio
OKLAHOMA - Weather Bureau Office, 813 Federal Office Building, Oklahoma City, Okla. 73102
OREGON - 310 Post Office Building, 521 North West Broadway, Portland, Oregon 97209
PENNSYLVANIA - Weather Bureau Airport Station, Harrisburg State Airport, New Cumberland, Pa.
PUERTO RICO AND VIRGIN ISLANDS - U. S. Weather Bureau, Box 5417, Puerto de Tierra Station, San Juan, P. R. 09006
RHODE ISLAND - (See Connecticut)
SOUTH CAROLINA - Weather Bureau Airport Station, Columbia Airport, West Columbia, S. C.
SOUTH DAKOTA - Agricultural Engineering Building, South Dakota State College, Brookings, S. D.
TENNESSEE - Weather Bureau Airport Station, Nashville 10, Tenn.
TEXAS - Weather Bureau Airport Station, Airport Administration Building, 3600 Manor Road, Austin 2, Texas
UTAH - Weather Bureau Airport Station, FAA-Weather Bureau Building, Room 118, 175 North 23rd Street, Salt Lake City 16, Utah
VERMONT - (See Massachusetts)
VIRGINIA - Weather Bureau Airport Station, Byrd Field, Sandston, Va.
WASHINGTON - Weather Bureau Office, 703 Federal Building, Seattle 4, Wash.
WEST VIRGINIA - College of Agriculture, West Virginia University, Morgantown, W. Va.
WISCONSIN - 443 Science Hall, University of Wisconsin, Madison 6, Wis.
WYOMING - Weather Bureau Airport Station, Box 2238, Cheyenne, Wyo.

