NEW YORK STATE COLLEGE OF AGRICULTURE

CLIMATOLOGICAL SUMMARY

RURBAN CLIMATE SERIES NO. 4
SCARSDALE, NEW YORK

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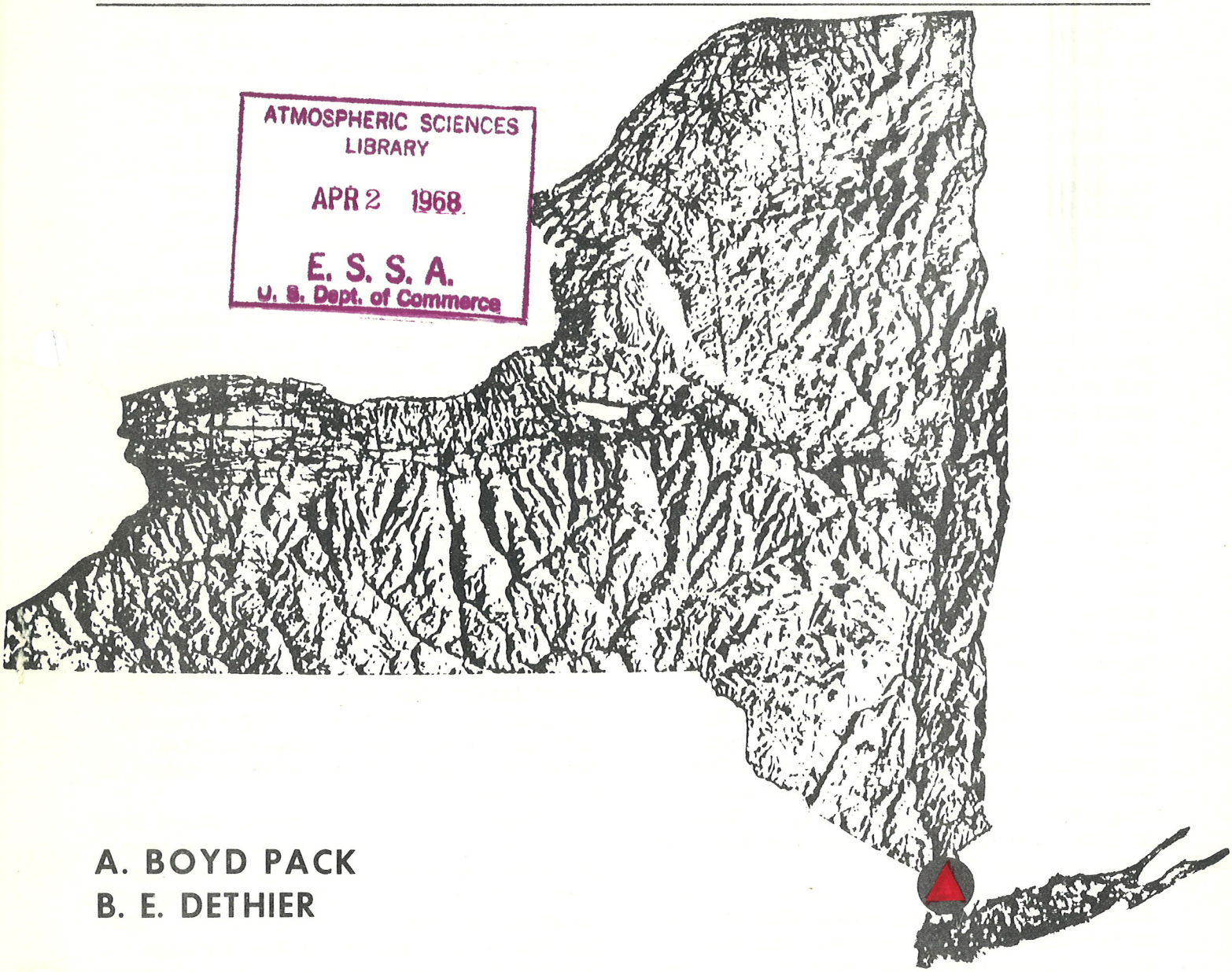

A. BOYD PACK
B. E. DETHIER

THE CLIMATE OF SCARSDALE, NEW YORK

Scarsdale is located in extreme southeastern New York State and in the southern portion of Westchester County. The Hudson River estuary is about five miles west of the city and Long Island Sound about seven miles to the southeast. Being slightly over 15 miles from Times Square it is a popular residential and suburban community of the metropolitan New York City area.

The topography is mostly flat with occasional small ridges and a gradual decrease in elevation toward Long Island Sound. Low lying hills or ridges with elevations of about 500 feet occur within about 10 miles to the north and east of the city, while hills near 1000 feet elevation are found some distance beyond in central Westchester County and southwestern Connecticut. Variations in topography and elevation have little significant effect on the climate, especially in comparison with other influences.

Scarsdale has a climate of the humid continental type. Although near the ocean, the weather and climate is predominantly influenced by air flow and weather systems coming from the continental land mass to the west. However, the maritime influence of Long Island Sound and the Atlantic Ocean is of considerable importance. This influence moderates otherwise cold winter temperatures, lengthens the freeze-free season and results in the occurrence of the sea breeze which moderates summer afternoon temperatures. A fairly uniform distribution of precipitation during the year is another expression of the maritime influence. Scarsdale's climate is significantly affected by man's activities because of the high population density. These activities tend to warm the climate, alter the properties of the atmosphere, at least in lower levels, and affect the hydrolic cycle to some degree.

General climatic features include short, but moderately cold, winters and rather warm summer seasons. The maritime influence produces frequent periods of high humidity.

Maximum precipitation occurs during the spring and summer months, while minimum amounts normally fall in the winter. The weather is subject to variety. The usual tendency is for noticeable changes in temperature, wind, humidity, cloudiness and other weather elements within a day or two and average conditions often vary from one week to the next. However, some weather situations may persist on occasion for several days and up to a week or more. Variations in seasonal weather from year to year is a characteristic of the climate.

Temperatures of 90° or higher may range from 15 days or less in cool summers up to more than 30 days in abnormally warm summers. Temperatures of 100° or higher may be expected on one or two days in an average of one summer out of four. A combination of uncomfortably high temperature and humidity is likely for one or more periods of several days each during the summer and early fall seasons.

Winter temperatures on the average remain above 0° in about one season out of three. On the other hand, temperatures of 0° or colder have been recorded on as many as 12 days per winter. Readings as cold as 10° below zero are very rare. Below zero temperatures may be expected from late December through February. In the great majority of winters the coldest temperature in southern Westchester County will range between plus 5° and minus 5°.

The freeze-free season has an average length of 180 days, lasting from about April 20 to October 20. A temperature of 32° or lower in the spring may occur later than April 30 and earlier in the fall than October 5. Hard freezes (28° or colder) are seldom recorded later than April 20 or before October 10 in the autumn.

Annual precipitation may range from as little as 30 inches up to more than 58 inches at Scarsdale, but in the majority of years the total can be expected to range between 40 and 53 inches. During the warmer months of May through October the total precipitation averages close to 25 inches or somewhat more than 50 percent of the average annual quota.
(Continued on page 4)

UNITED STATES DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
IN COOPERATION WITH DIV. OF METEOROLOGY AT
THE NEW YORK STATE COLLEGE OF AGRICULTURE, CORNELL UNIVERSITY
CLIMATOGRAPHY OF THE UNITED STATES NO. 20-30

LATITUDE 40° 59' N
LONGITUDE 73° 48' W
ELEV. (GROUND) 200 ft.

CLIMATOLOGICAL SUMMARY

SCARSDALE, NEW YORK

MEANS AND EXTREMES FOR PERIOD 1937-1966

Month	Temperature (°F)							Mean degree days**	Precipitation Totals (Inches)								Mean number of days				
	Means			Extremes								Snow, Sleet						Temperatures			
																		Max.		Min.	
	Daily maximum	Daily Minimum	Monthly	Record highest	Year	Record lowest	Year		Mean	Greatest daily	Year	Mean	Maximum monthly	Year	Greatest daily	Year	Precip. .10 inch or more	90° and above	32° and below	32° and below	0° and below
(a)	(29)	(29)	(29)	(29)		(29)		(29)	(29)	(29)		(29)	(29)		(29)		(11)	(29)	(29)	(29)	(29)
Jan.	38.3	21.2	29.8	73	1950	-12	1948	1070	3.39	1.90	1944	9	31	1961	16	1961	7	0	8	27	1
Feb.	40.9	22.7	31.8	74	1949	- 7	1948	946	3.10	2.50	1941	9	22	1962	16	1961	7	0	5	24	1
Mar.	48.8	28.9	38.9	88	1945	0	1948	822	4.25	4.07	1953	7	39	1958	15	1956+	7	0	1	21	0
Apr.	61.3	38.6	50.0	91	1942	14	1944	459	4.11	3.15	1940	2	13	1944	13	1944	9	0	0	7	0
May	72.7	48.2	60.5	99	1939	28	1947	164	4.08	5.76	1946	0					6	1	0	*	0
June	81.6	57.0	69.3	100+	1953	39+	1964	18	3.43	2.65	1952	0					6	5	0	0	0
July	85.9	62.2	74.1	102+	1966	46+	1963	0	4.64	5.30	1942	0					7	8	0	0	0
Aug.	84.0	61.1	72.6	100	1953	39	1965	0	4.69	5.17	1955	0					6	5	0	0	0
Sept.	77.0	53.9	65.5	102	1953	30+	1963	66	4.03	6.55	1938	0					5	2	0	*	0
Oct.	67.0	43.8	55.4	92	1941	24+	1966	310	3.73	4.38	1955	T	5	1962	5	1962	5	*	0	4	0
Nov.	54.2	34.7	44.5	84	1950	8	1938	624	4.35	3.15	1963	2	18	1938	12	1938	7	0	*	14	0
Dec.	41.5	24.6	33.1	70	1946	- 5	1950	989	3.78	3.16	1941	8	32	1947	28	1947	7	0	5	25	*
Year	62.8	41.4	52.1	102	1966+	-12	1948	5468	47.58	6.55	1938	37	39	1958	28	1947	79	21	19	122	2

(a) Average length of record, years

T Trace, an amount too small to measure

** Base 65°F

+ Also on earlier dates, months, or years

* Less than one half

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1937	37.0	32.8	34.3	48.0	61.4	68.8	74.0	75.0	62.4	51.8	43.4	31.8	51.7
1938	28.3	32.6	41.0	51.1	57.6	67.8	73.4	74.4	62.1	56.2	44.8	33.6	51.9
1939	28.6	33.2	36.0	45.4	61.8	70.1	72.9	74.8	64.4	52.7	39.8	33.2	51.1
1940	20.7	29.8	31.4	44.0	58.2	67.0	73.5	69.6	63.3	50.0	42.6	34.6	48.7
1941	26.0	28.2	32.8	55.4	61.7	69.2	73.0	70.5	66.0	56.8	46.8	36.4	51.9
1942	26.0	24.6	38.6	50.8	63.4	68.7	73.2	----	----	----	----	----	----
1943	----	----	----	----	----	74.0	73.6	73.8	65.1	54.4	42.6	30.4	----
1944	32.3	31.4	36.4	47.7	65.7	70.8	76.5	76.8	68.8	55.6	46.1	30.8	53.2
1945	24.6	32.2	49.0	56.4	57.5	69.0	73.8	73.9	70.4	54.0	----	28.5	----
1946	31.6	30.6	47.4	50.0	61.2	68.3	73.5	71.4	68.2	59.9	49.0	35.8	53.9
1947	35.4	----	37.8	51.9	62.2	----	73.8	74.6	67.8	60.8	41.7	30.9	----
1948	22.8	27.0	40.2	49.4	59.0	68.4	74.6	72.9	66.5	53.1	48.7	34.0	51.4
1949	36.1	37.8	41.6	51.1	59.8	71.3	77.1	72.9	64.0	59.6	43.1	36.3	54.2
1950	38.4	30.0	35.6	47.1	----	70.3	----	70.7	63.0	57.4	45.8	32.1	----
1951	33.1	34.0	40.2	50.2	61.0	67.7	74.2	71.6	64.4	55.7	40.4	35.8	52.4
1952	33.4	34.1	38.7	52.7	58.5	71.4	76.6	72.6	65.7	51.7	45.4	36.1	53.1
1953	34.7	37.8	41.5	50.4	62.2	70.2	74.3	72.2	66.5	56.3	44.4	38.0	54.1
1954	28.6	38.7	40.9	51.3	57.1	69.6	72.7	70.8	64.0	58.1	42.3	33.8	52.3
1955	28.5	32.7	40.0	52.5	62.8	66.5	77.7	75.0	64.1	57.0	42.9	27.9	52.3
1956	31.2	35.1	36.5	46.4	57.1	70.3	71.2	71.6	63.2	55.2	44.8	38.7	51.8
1957	26.4	35.0	40.0	52.8	61.5	72.1	74.3	69.6	66.8	53.2	46.6	38.1	53.0
1958	30.4	26.5	39.3	50.7	57.2	65.1	75.4	72.5	64.5	53.7	45.7	27.2	50.7
1959	29.7	30.6	39.3	52.4	63.9	69.6	74.8	75.9	69.5	58.0	44.5	35.2	53.6
1960	31.6	35.5	32.3	53.1	60.4	69.1	71.9	72.3	65.0	54.0	45.6	27.7	51.6
1961	23.9	33.2	39.1	46.9	57.4	69.9	74.2	72.6	71.4	57.7	45.5	32.9	52.0
1962	29.8	28.7	38.9	50.2	61.2	69.7	70.7	70.5	62.1	54.7	40.0	28.7	50.4
1963	27.1	26.2	----	50.3	59.4	69.2	73.8	70.1	61.6	59.1	48.1	28.0	----
1964	31.5	31.1	40.5	48.3	62.9	68.1	74.3	70.1	66.1	52.5	46.0	33.8	52.1
1965	26.7	31.1	37.5	47.5	64.9	68.7	72.3	72.3	66.8	53.0	42.6	35.1	51.5
1966	28.8	31.7	40.3	46.2	56.8	70.6	75.7	72.7	64.1	53.8	45.7	34.1	51.7

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1937	5.99	2.27	3.56	4.96	3.45	4.14	3.85	7.45	4.55	6.73	4.90	2.37	54.22
1938	4.23	1.30	1.95	2.88	4.19	7.45	12.17	3.74	12.01	1.87	3.58	3.45	58.82
1939	3.48	5.17	4.17	4.18	1.19	4.82	2.86	6.00	2.79	4.94	1.80	1.90	43.30
1940	2.03	2.23	5.33	6.35	7.99	4.54	2.06	6.71	3.47	3.34	4.25	2.39	50.69
1941	2.11	2.91	2.32	1.59	4.64	5.08	6.33	7.37	.32	2.45	3.45	5.46	44.03
1942	4.18	2.67	7.83	1.33	3.08	4.17	11.46	----	----	----	----	----	-----
1943	----	----	----	----	----	3.25	4.25	2.76	2.84	9.31	3.02	1.62	-----
1944	3.40	2.40	7.16	5.74	1.48	4.50	.61	1.44	12.84	2.54	6.70	3.45	52.26
1945	2.60	2.89	2.94	4.53	5.64	4.39	7.24	5.48	4.16	2.84	5.66	4.95	53.32
1946	1.52	2.38	2.69	1.44	11.20	4.17	4.93	5.06	5.85	1.24	1.60	2.20	44.28
1947	2.39	2.14	3.17	5.02	6.22	3.67	4.04	2.55	2.52	1.91	6.72	5.05	45.40
1948	3.56	1.73	3.64	4.51	7.72	4.82	4.68	4.25	.89	3.03	3.86	5.20	47.89
1949	6.84	3.19	2.30	5.01	5.08	.21	4.02	3.49	3.95	1.77	2.25	3.22	41.33
1950	2.69	3.92	3.51	2.41	3.94	2.87	5.06	5.10	1.87	2.12	5.68	6.32	45.49
1951	3.71	4.29	9.04	2.43	5.63	3.88	5.22	3.28	1.74	4.73	8.33	5.85	58.13
1952	5.71	2.27	4.89	7.53	6.19	4.72	4.14	7.51	2.91	1.13	4.31	5.20	56.51
1953	5.66	2.22	10.24	7.20	3.94	1.63	5.57	1.99	1.14	4.46	2.67	5.61	52.33
1954	1.92	2.43	3.93	4.22	4.74	1.43	1.40	6.78	7.35	1.87	6.94	4.05	47.06
1955	.61	3.41	4.07	2.80	1.46	2,85	4.43	13.71	2.96	13.91	4.65	.48	55.34
1956	2.44	4.91	5.34	3.29	2.43	3.24	5.44	2.72	3.96	2.64	5.43	4.66	46.50
1957	1.87	2.15	2.70	5.03	2.55	2.22	3.90	3.15	3.81	3.48	4.62	6.32	41.80
1958	5.99	4.01	5.09	7.44	4.57	2.39	2.38	4.37	4.27	6.98	3.72	1.40	52.61
1959	3.00	2.20	4.82	2.69	1.00	5.64	3.16	4.26	2.25	5.81	4.97	5.68	45.48
1960	3.03	5.33	3.33	3.89	3.80	1.12	8.33	6.84	6.97	2.39	2.90	3.34	51.27
1961	3.07	3.09	4.43	6.75	3.82	3.10	4.26	4.48	2.08	2.68	3.55	4.42	45.73
1962	3.60	4.86	4.33	3.73	1.27	5.07	1.37	7.81	3.95	4.52	5.11	2.79	48.41
1963	2.95	2.29	3.69	2.04	3.70	2.25	4.36	2.77	3.93	.09	8.30	2.70	39.07
1964	3.85	2.66	2.52	5.04	1.73	2.83	5.23	.43	1.50	1.81	1.78	4.63	34.01
1965	2.87	4.66	2.17	2.95	1.32	.95	5.10	2.54	2.01	2.92	1.89	1.68	31.06
1966	2.89	3.81	2.18	2.07	4.38	1.56	1.42	1.93	7.88	4.52	3.50	3.23	39.37

Normally growing season precipitation is more than adequate in amount and distribution for lawns, flowers, shrubs and home gardens. However, in some seasons vegetation may temporarily suffer for moisture during one or two periods of deficient rainfall.

Total snowfall may range from less than 20 to more than 70 inches. In most winters the yield may be expected to vary between 25 and 55 inches. Monthly totals of more than 12 inches occur with some frequency from December through March. There is a 40 per cent chance that the first snowfall of one inch or more will occur by or before December 1st and a 70 per cent chance of its occurrence by or before December 20. In the spring there is a 30 per cent chance that the last one-inch snowfall will occur later than March 15 and approximately a 15 percent chance later than April 1st. A snow cover prevails for an average total of about 40 days between late December and early or mid-March, indicating that extended periods of bare ground normally occur during the winter season.

On the average there are about 100 clear days and 150 cloudy days per year. Clear days tend to be most numerous in the early fall, while cloudy days are most frequent in the winter and early spring months. The amount of sunshine increases from 50 percent of the total possible in the winter to 65 percent in the summer. The prevailing wind is northwest from November through April and south to southwest in the remaining months. Average velocity decreases from 15 mph. in the winter and early spring to about 11 mph. in the summer.

Thunderstorms occur on an average of 30 days and dense fog on about 20 days per year. Afternoon relative humidity in the summer averages between 50 and 60 per cent.

Damaging storms of freezing rain or glaze are rare. On occasion intense winter storms are accompanied by damaging winds, while severe summer thunderstorms may be expected at times to result in local property damage from lightning, wind and/or hail. Scarsdale is located in a vulnerable area for hurricanes which seriously affect the northeastern Atlantic seaboard. However, in terms of frequency of occurrence and the number of people affected, the greatest severe weather hazard is heavy snowfall arising from vigorous coastal storms, the "northeasters".

The above summary is applicable to other communities in southern Westchester County.

HISTORY OF WEATHER OBSERVATIONS

Official records of temperature and precipitation were begun at Scarsdale in January 1904, the weather station being located in a residential area 0.5 mile south of the Post Office. Mr. C. H. Wilmarth was the observer for almost forty years, his service terminating in July 1942.

Scarsdale was without an official station from August 1942 through May 1943. The weather instruments were relocated to the Village of Scarsdale Engineers Office, 0.3 mile east of the Post Office, and daily observations resumed in June 1943. The weather station has continued to the present time at this site. Mr. John J. Kappes, Village Engineer, is the present supervisor of the weather observations and records and has served in this capacity for many years.

A recording rain gauge for measuring intensity and duration of precipitation was added to the instrumentation in the late 1940's.

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