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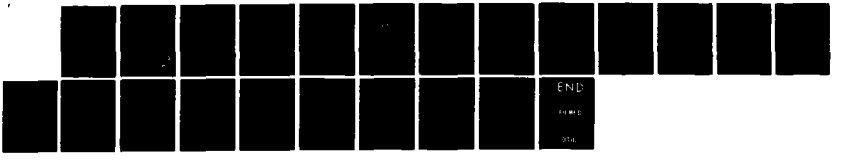

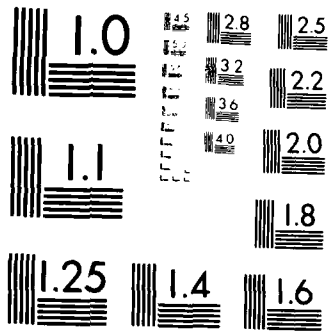

Internal Report 618

January 1980

A REVIEW OF SNOW CONDITIONS AND WINTER CLIMATE NEAR BURLINGTON AND UNDERHILL, VT

Michael A. Bilello

UNITED STATES ARMY
CORPS OF ENGINEERS
COLD REGIONS RESEARCH AND ENGINEERING LABORATORY
HANOVER, NEW HAMPSHIRE, U.S.A.

CRREL

A REVIEW OF SNOW CONDITIONS AND WINTER CLIMATE NEAR BURLINGTON AND UNDERHILL, VT*

Michael A. Bilello
Meteorologist
USA CRREL
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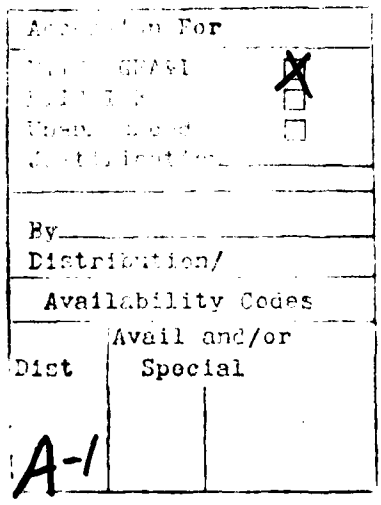


* The material included in this review was presented at a "Snow I" briefing held at USA CRREL on 10 October 1979.

SUMMARY

This review provides information on the winter environment near Camp Ethan Allen in northwestern Vermont. In particular, monthly summaries of the frequency, intensity, and water content of snowfall events are presented. Additional information on air-temperature, wind and snow depth for the region is also provided.

The data for this summary were obtained from: a) daily snow cover and weather observations made at the Proctor Maple Research Farm at Underhill, Vermont, and b) hourly meteorological measurements made at Burlington Airport, Vermont.

The Underhill site is a field research station operated by the Botany Department of the University of Vermont under the direction of Professors M. F. Morselli and F. M. Laing. Twelve years (1967-1979) of snowfall and snow depth data were provided by Lynn Whalen of the Botany Department. The climate summaries for Burlington Airport are published by the U.S. National Weather Service, National Oceanic and Atmospheric Administration, Asheville, North Carolina.

This review includes:

Figure 1: A map showing the three main locations under discussion: Burlington Airport, Proctor Maple Research Farm (PMRF), and Camp Ethan Allen Training site (CEAT), the proposed field area for Snow I.

Figures 2-4: Snowfall frequencies and snow cover conditions observed at PMRF.

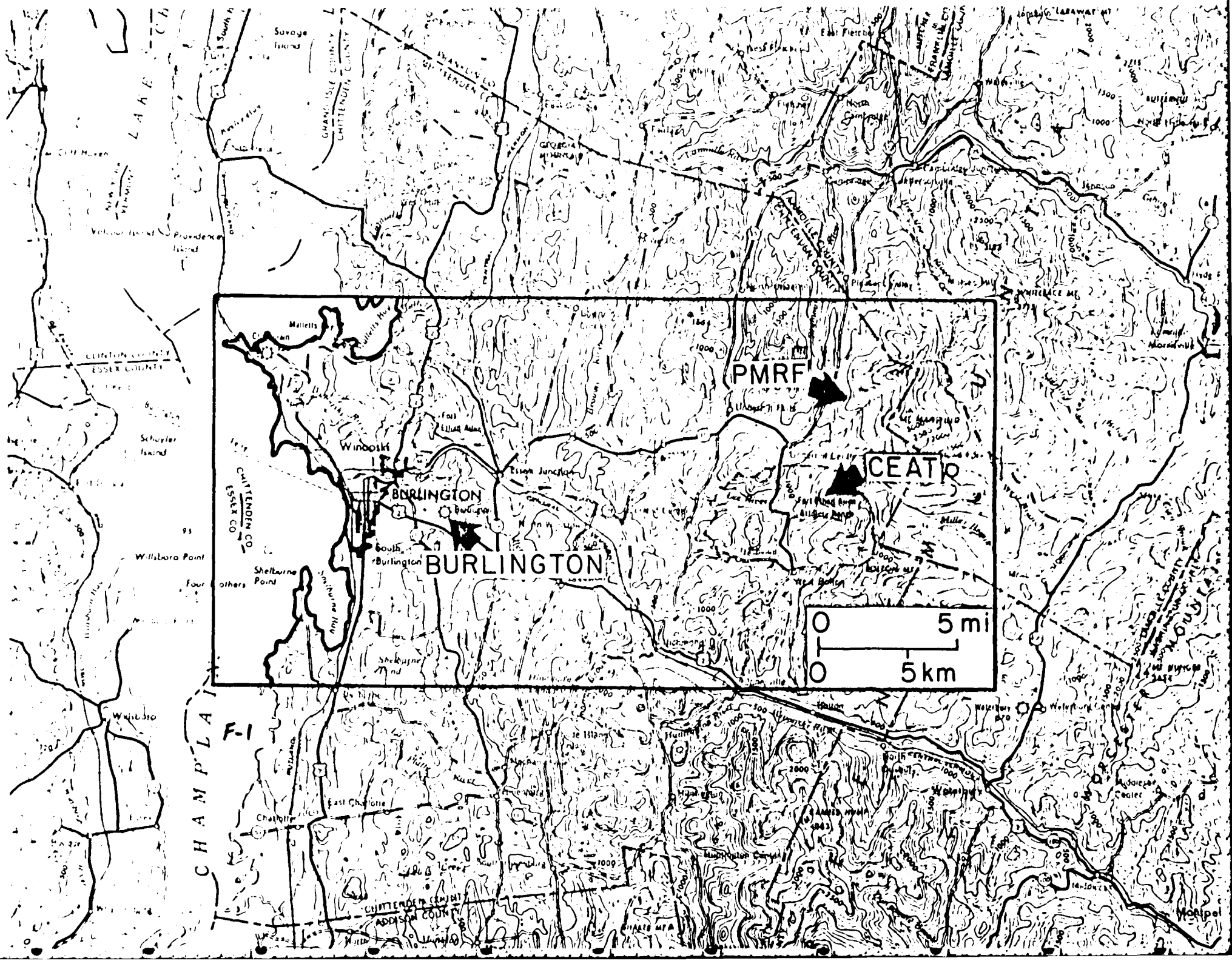
Figures 5-7: Comparisons of weather and snow conditions observed at Burlington Airport and PMRF during January 1979.

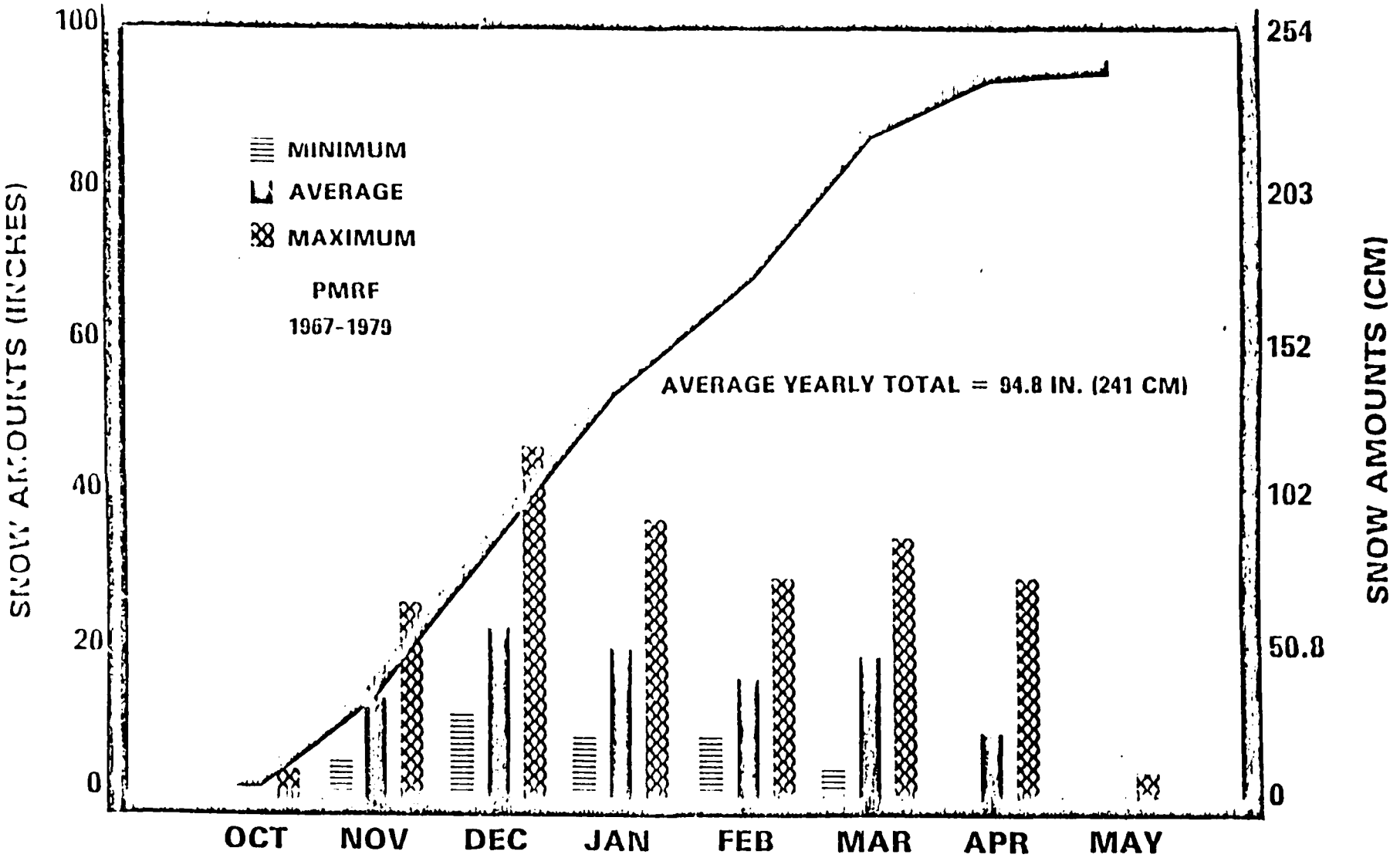
Figure 8 and 9: A summary of snowfall amounts and winter temperatures at Burlington Airport.

Figures 10-13: An analysis of snowfall amounts, corresponding water equivalents and concurrent air-temperatures for snowstorms at Burlington Airport during January 1979.

Figures 14a-d: Published Local Climatological Data for Burlington Airport. Some of this information is in the preceding diagrams; these figures provide considerably more detail.

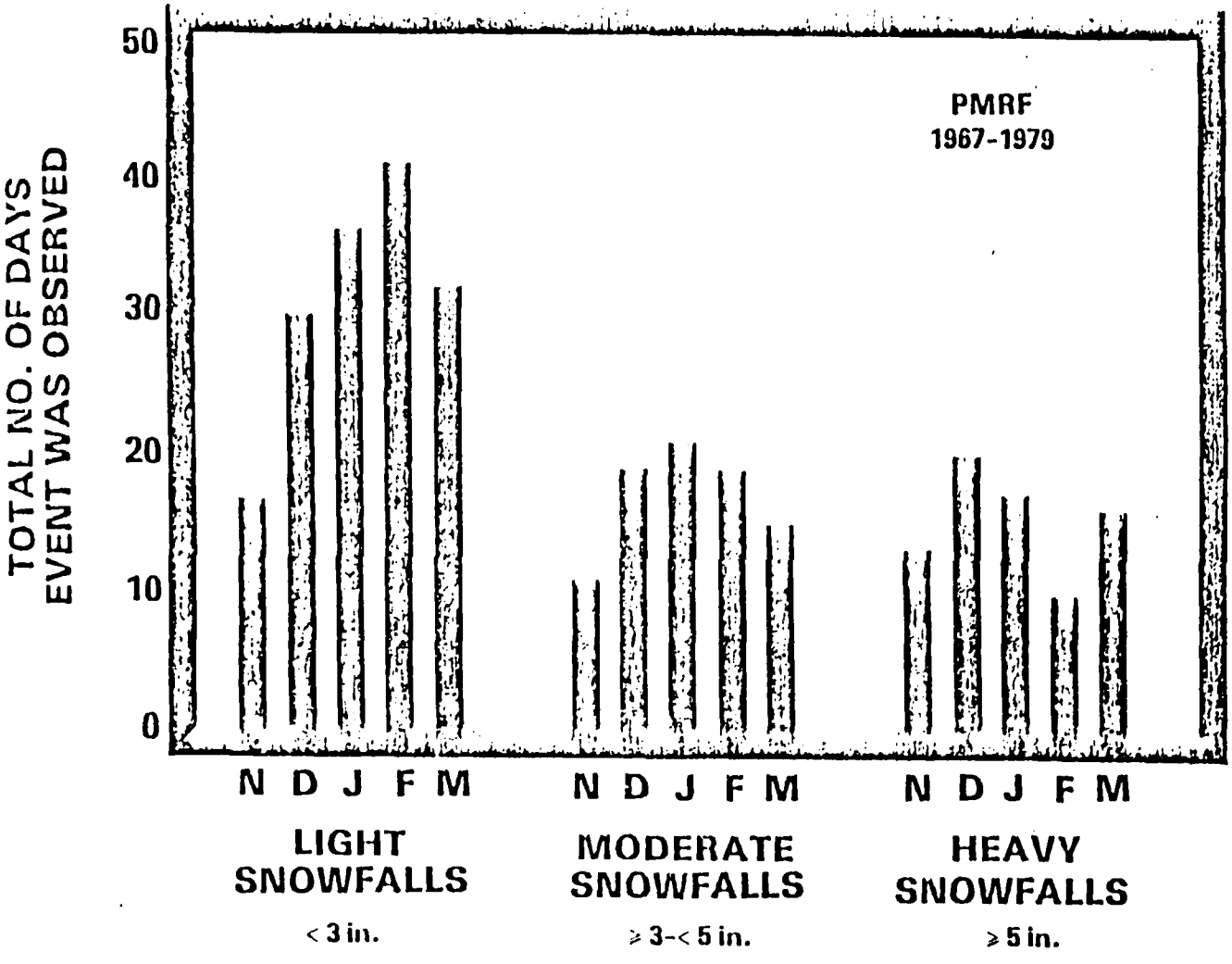
Since the diagrams are mostly self-explanatory, no attempt will be made to discuss them in detail.


PMRF
CEATR
BURLINGTON
BURLINGTON
Windooski
South Burlington
Shelburne Point
Willsboro Point
Four Others
Schuyler Island
Savage Island
Mallets Creek
Essex Junction
East Charlotte
Charlotte
Wadsboro
Monipel
F-1
CHAMPLAIN
LAKE
ESSEX COUNTY
CHITTENDEN CO.
ESSEX CO.
CHITTENDEN COUNTY
ADDISON COUNTY
0 5 mi
0 5km

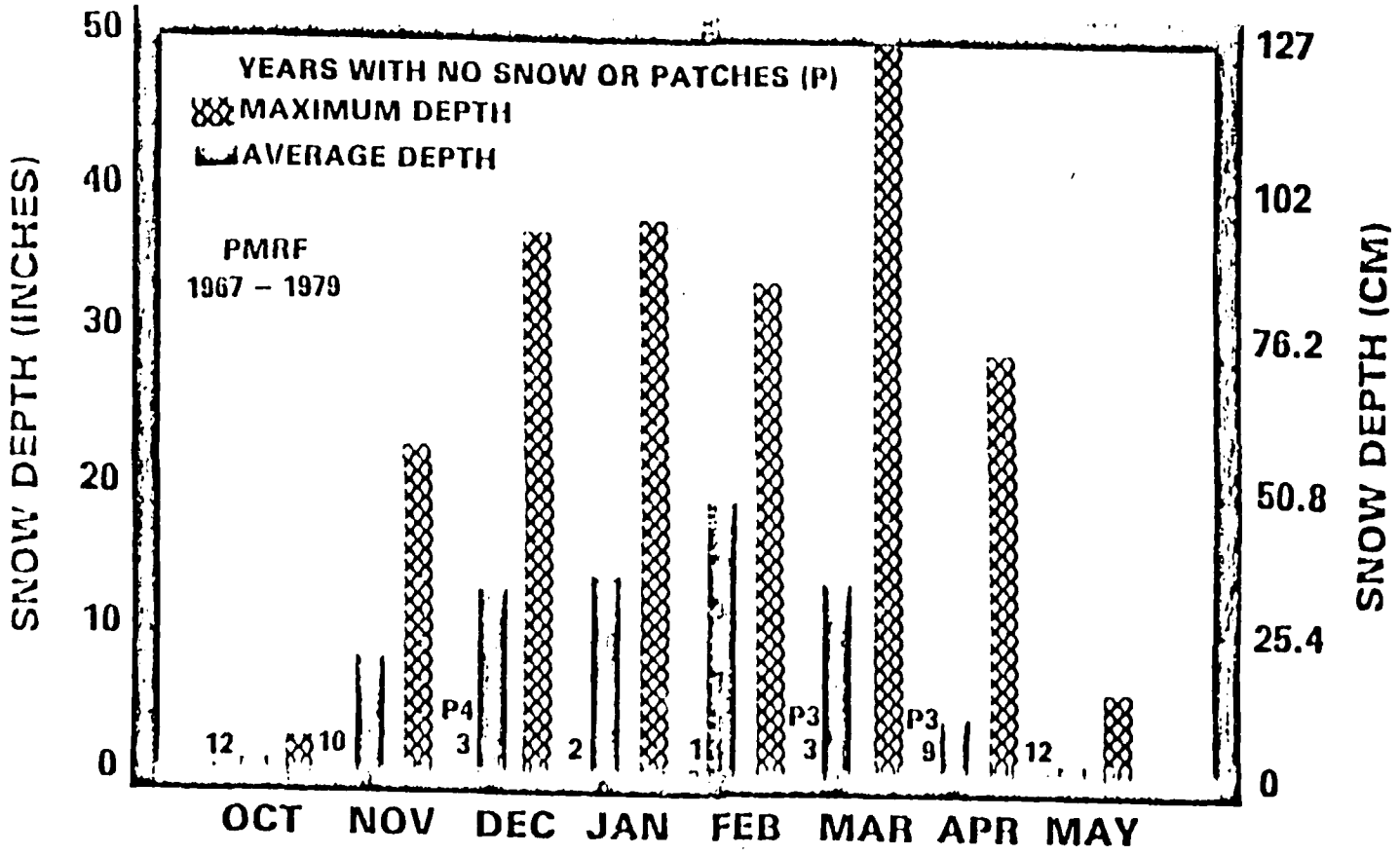


Observed Increases in Monthly Snowfall Amounts
Proctor Maple Research Farm; Underhill, Vt.
October 1967 through May 1979

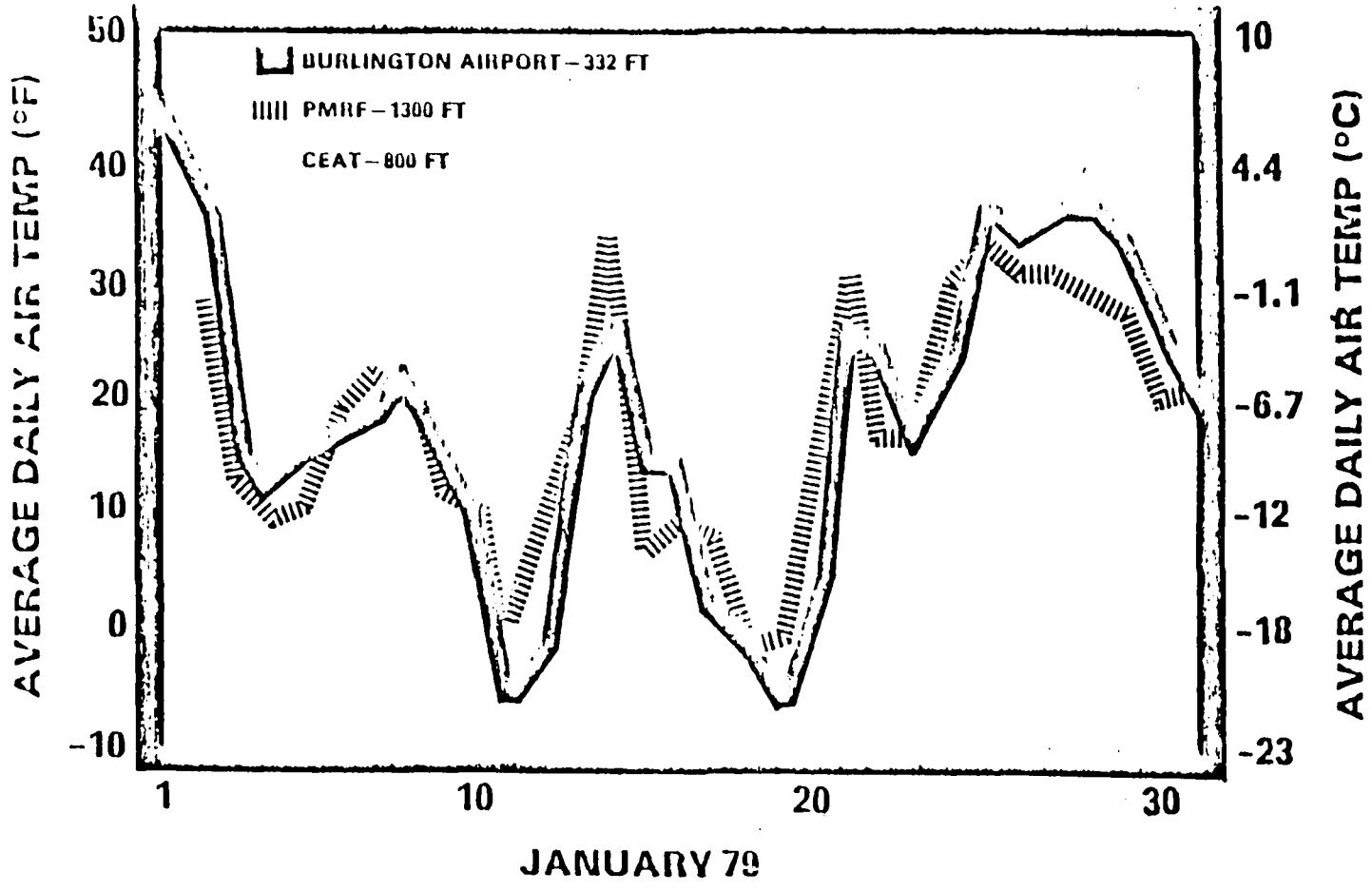
F-2



Total Number of Days over a 12 Year Record that Light, Moderate and Heavy Snowfalls were Observed. PMRF; Wunderkill, Ut. Nov 1967 - March 1979



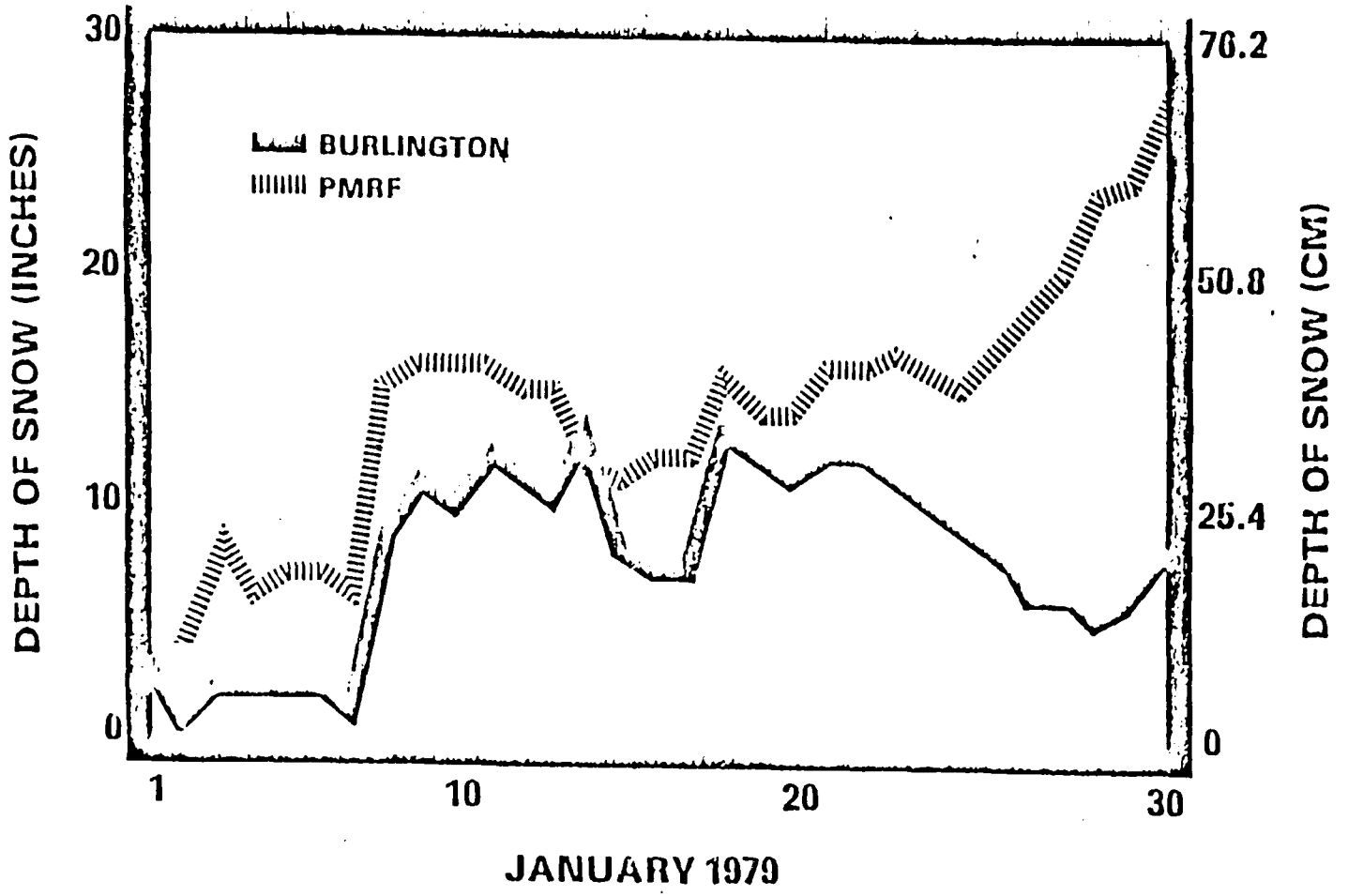
Observed Depth of Snow on the Ground
PMRF ; Underhill, Vt. Oct. 1967 - May 1979



Present Weather	R	R	S	F		S	S	F	S			S	S		S	S	S		IP	S		S	S			R	S	S	→ Burlington
	–	R	S			S	S					S	R		S	S	S		Z	S		S	S	F	F	S	S	S	→ PMRF
Date →	1		3		5		7		9		11		13		15		17		19		21		23		25		27		29		31

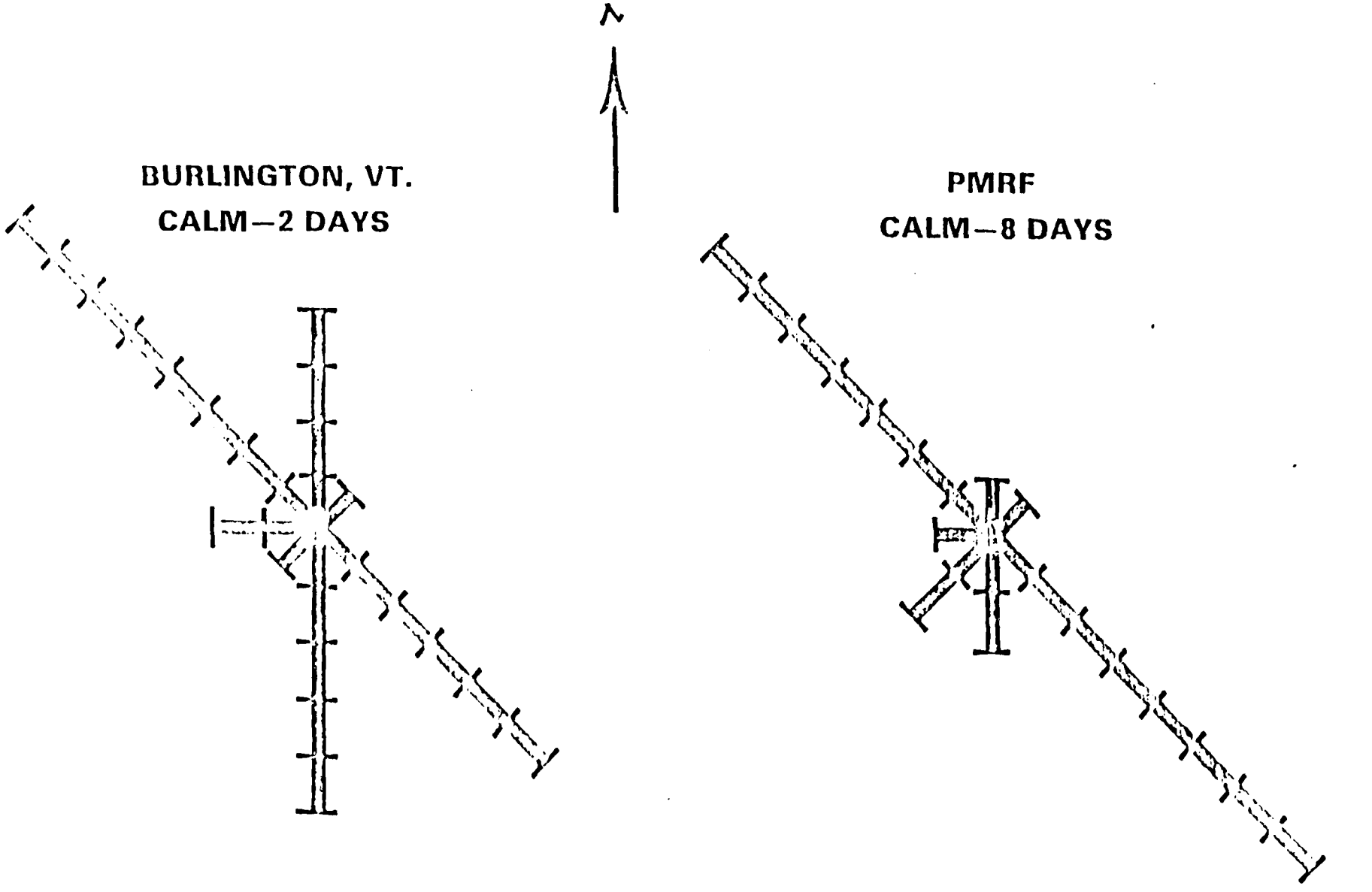
R = Rain, F = Fog
S = Snow
Z = Freezing Drizzle
IP = Ice Pellets

Comparison of Observed Air Temperatures and Weather Conditions between Burlington and PMRF during Jan. 1979

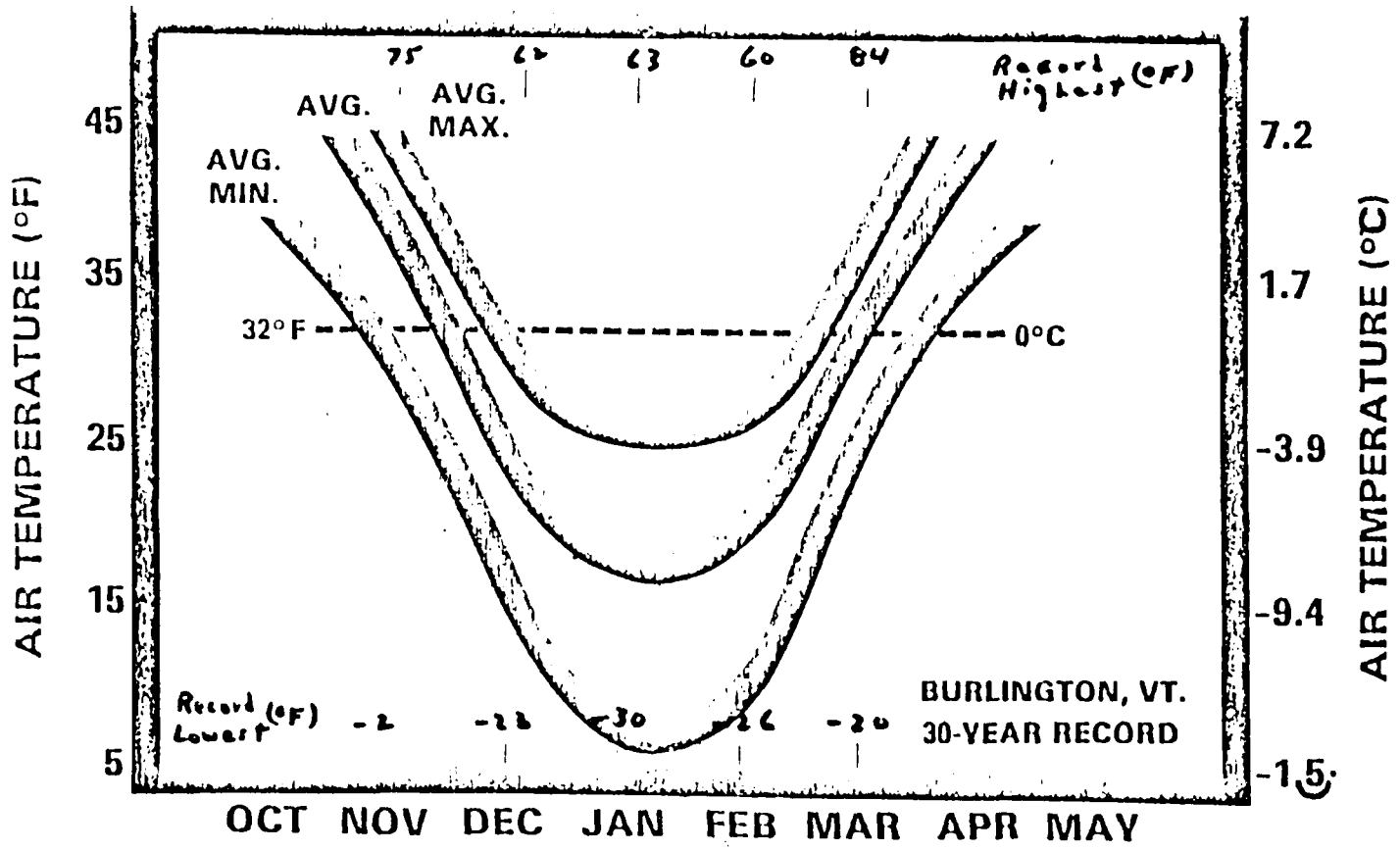


Comparison of Daily Variations in Snow Depths between Burlington and PMRF, Jan. 1979

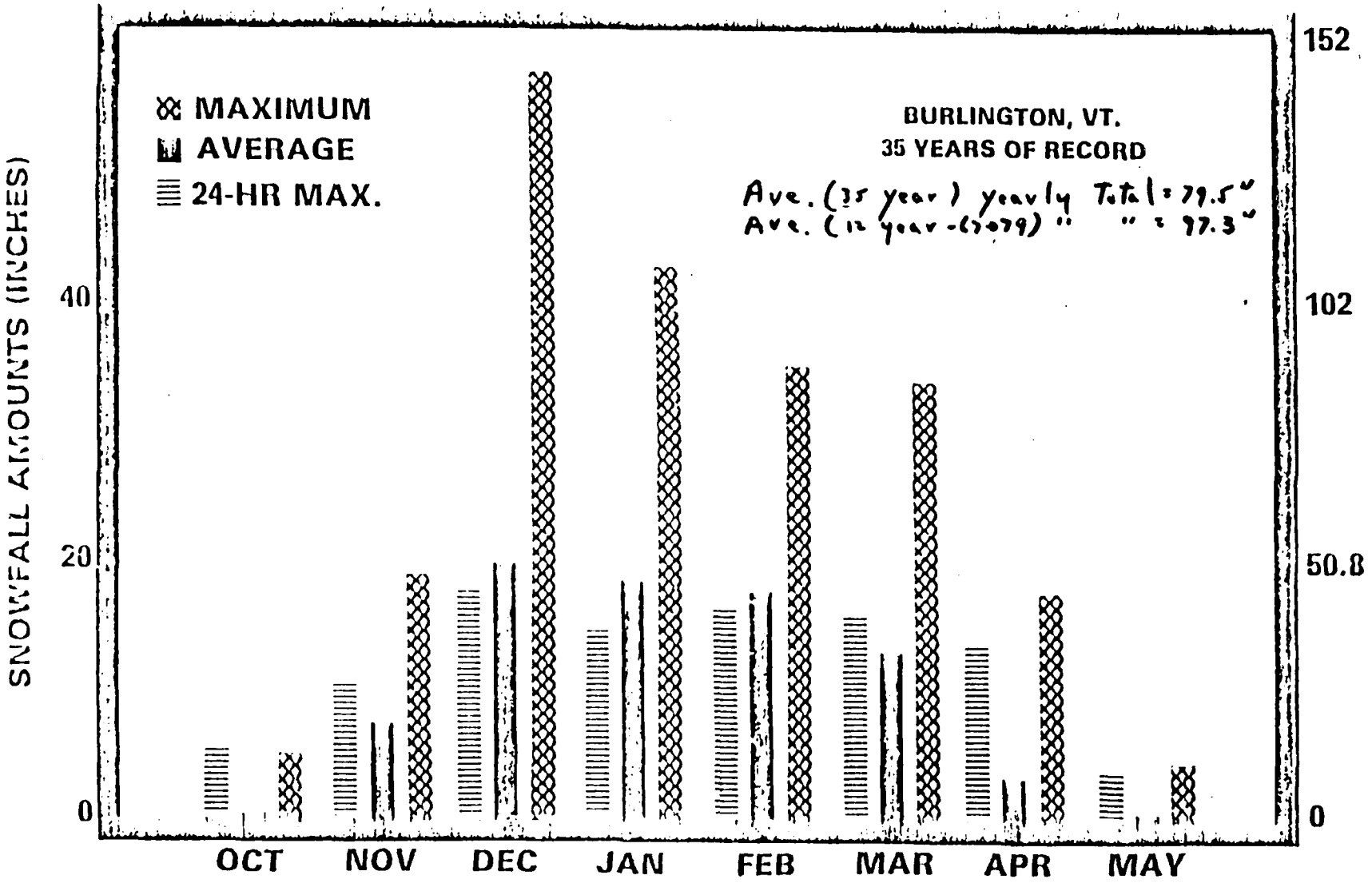
F. C



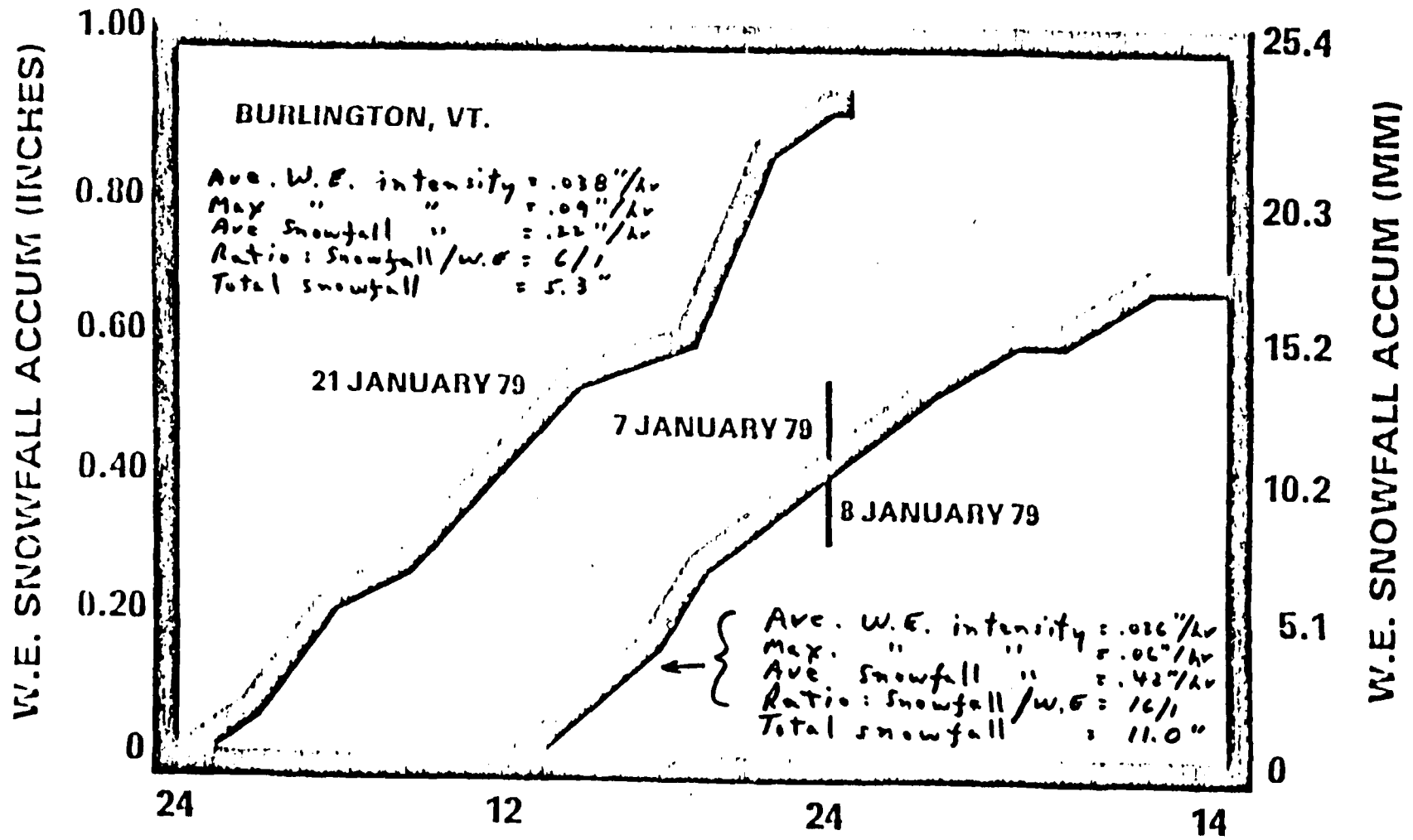
AVG. DAILY WIND DIRECTIONS
JANUARY 1979



Average Winter Air Temperatures
Burlington, Vt.

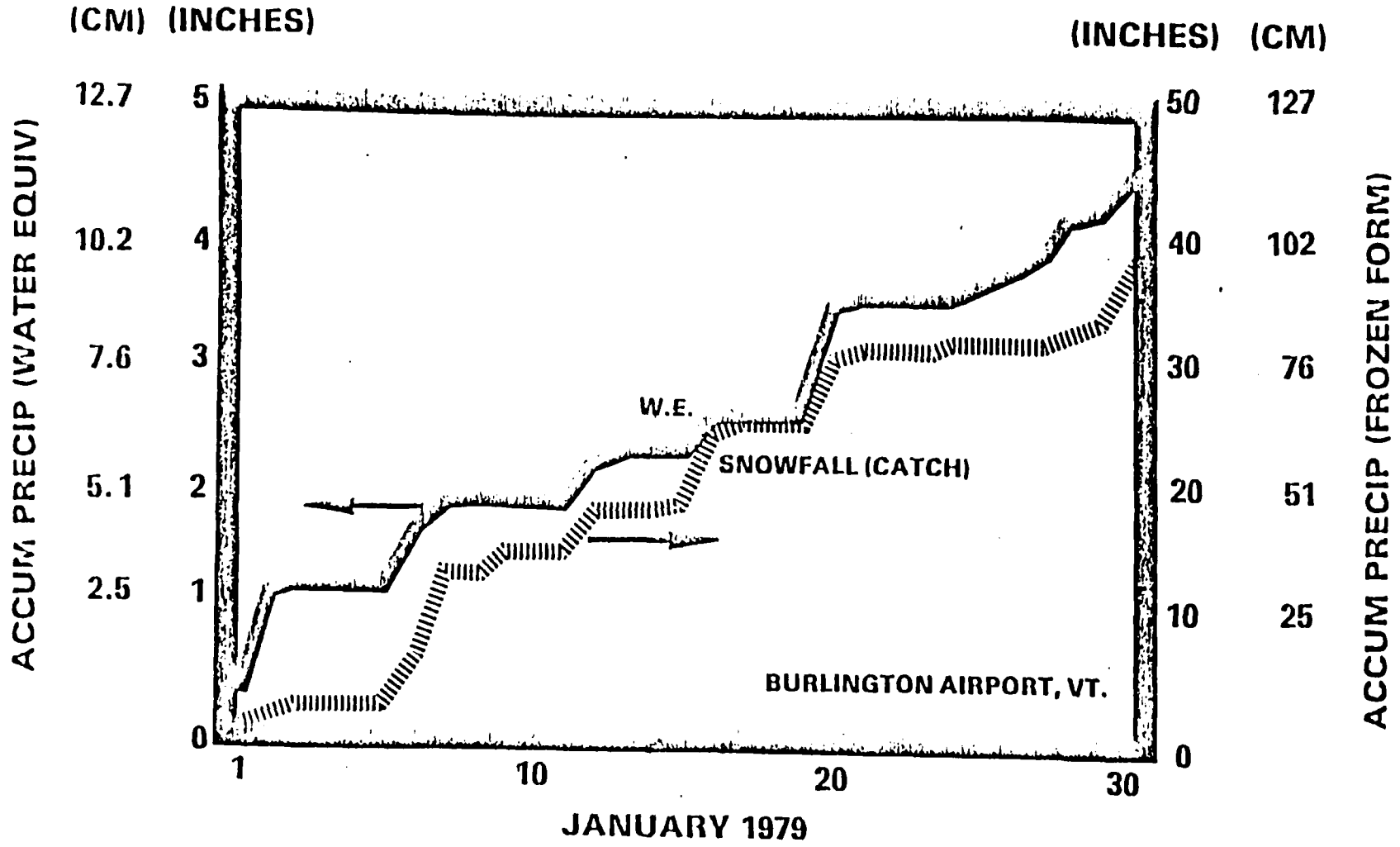


Observed Snowfall Amounts, Burlington, VT.

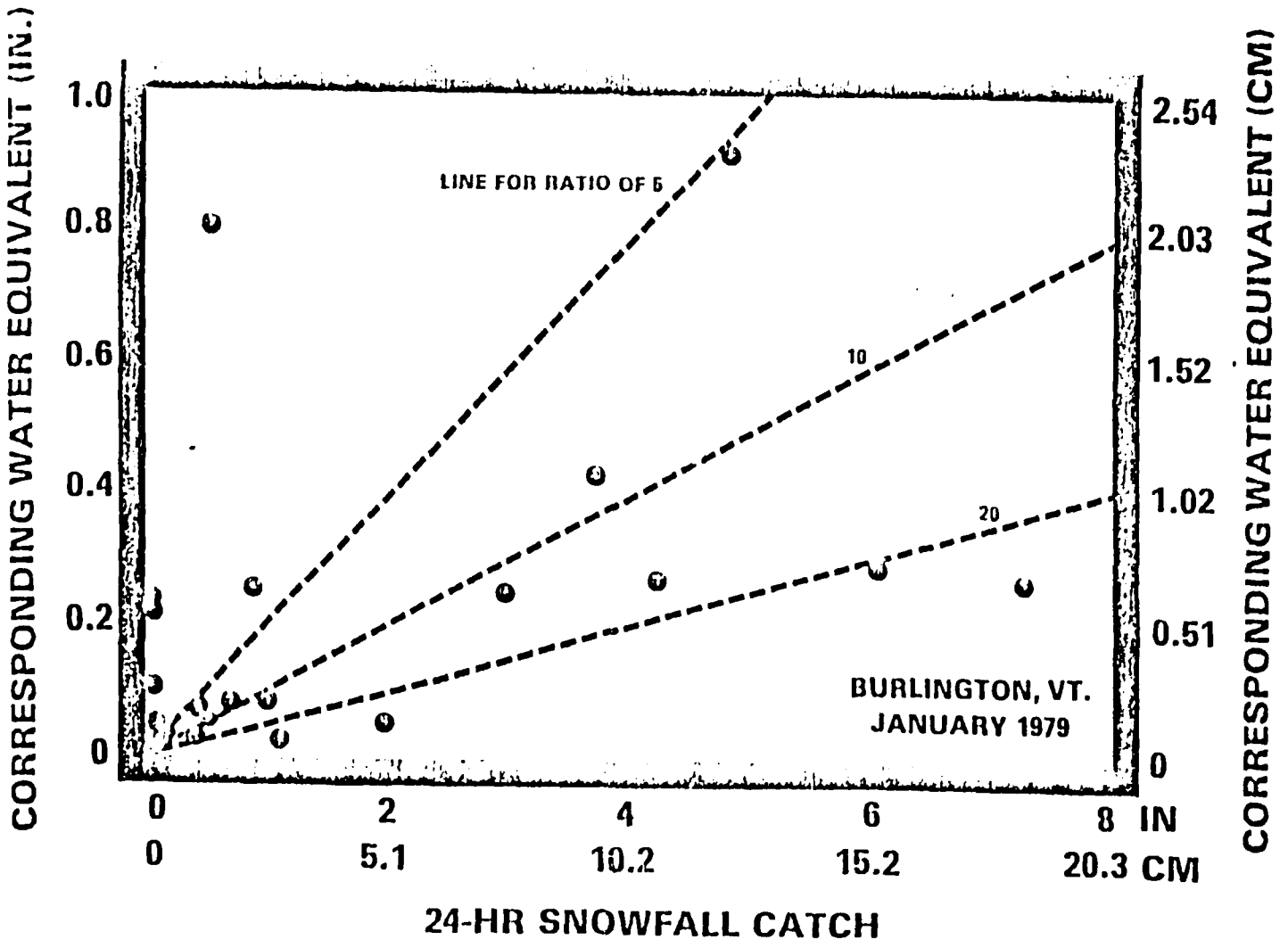


Analysis of Two Snowstorms at Burlington
January 1979

F-10

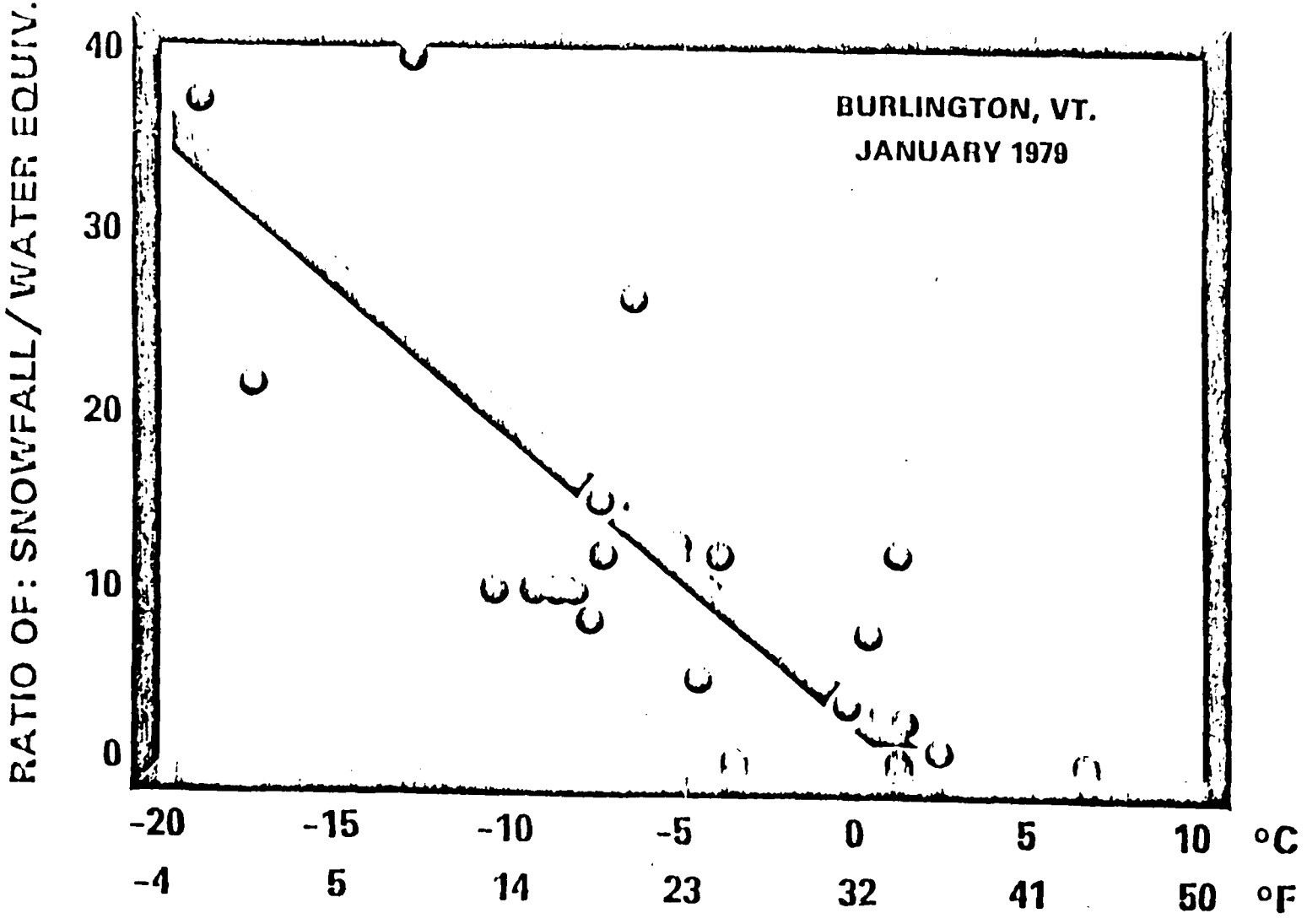


Accumulation Curves for Snowfall (catch) and Corresponding Water Equivalents Burlington, Vt. Jan. 1979



F-12

Comparison of observed 24 hour Snowfall Amounts Vs Corresponding Water Equivalents



Relationship Between: a) 24 hour Ratio of Snowfall to Water Equivalent and b) concurrent Average Daily Air Temperature (°C) Burlington - Jan. 1979

Local Climatological Data

Annual Summary With Comparative Data

1978

BURLINGTON, VERMONT

Narrative Climatological Summary

Burlington is located on the eastern shore of Lake Champlain at the widest part of the lake. About 35 miles to the west lie the highest peaks of the Adirondacks, while the foothills of the Green Mountains begin 10 miles to the east and southeast.

Its northerly latitude assures the variety and vigor of a true New England climate, while thanks to the modifying influence of the Lake, the many rapid and marked weather changes are tempered in severity. Due to its location in the path of the St. Lawrence Valley storm track and the Lake effects, the city is one of the cloudiest in the United States.

Lake Champlain exercises a tempering influence on the local temperature, during the winter months temperatures along the lake shore often run from 5 to 10 degrees warmer than at the airport 3 1/2 miles inland. At the airport the average date of the last freeze in spring is May 10 and that of the first in fall is October 3, giving a mean growing season from freeze to freeze of 145 days. This section is justly proud of its delightful summer weather. On an average there are only four days a year with axima of 90° or higher. This moderate summer heat gives way to a cooler but none che less pleasant fall period, usually extending well into October. High pressure systems moving down rapidly from Central Canada or Hudson Bay produce the coldest temperatures during the winter months, but extended periods of very cold weather are rare.

Precipitation, although generally plentiful and well distributed throughout the year, is less in the Champlain Valley than in other areas of Vermont due to the shielding effect of the mountain barriers to the east and west. The heaviest rainfall usually occurs during summer thunderstorms but excessively heavy rainfall is quite uncommon. The rainfall during the historic flood of November 1927 was the heaviest on record. Droughts are of infrequent occurrence.

Because of the trend of the Champlain Valley between the Adirondack and Green Mountain ranges, most winds have a northerly or southerly component. The prevailing direction most of the year is from the south. Winds of damaging force are very uncommon, the most destructive occurring during the hurricane of October 1954 and the whole gales of November 1950.

Smoke pollution is nearly non-existent since there is no concentration of heavy industry here; however, haze has been on the increase during the last decade due to the large increase in industry to the north and south. During the spring and fall months, fog occasionally forms along the Winooski River to the north and east and may drift over the airport with favorable winds. In spite of the high percentage of cloudiness, periods of low aircraft ceilings and visibilities are usually of short duration, llowing this area to have one of the highest percentages of flying weather in New agland.

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE / NATIONAL CLIMATIC CENTER ASHEVILLE, N.C.

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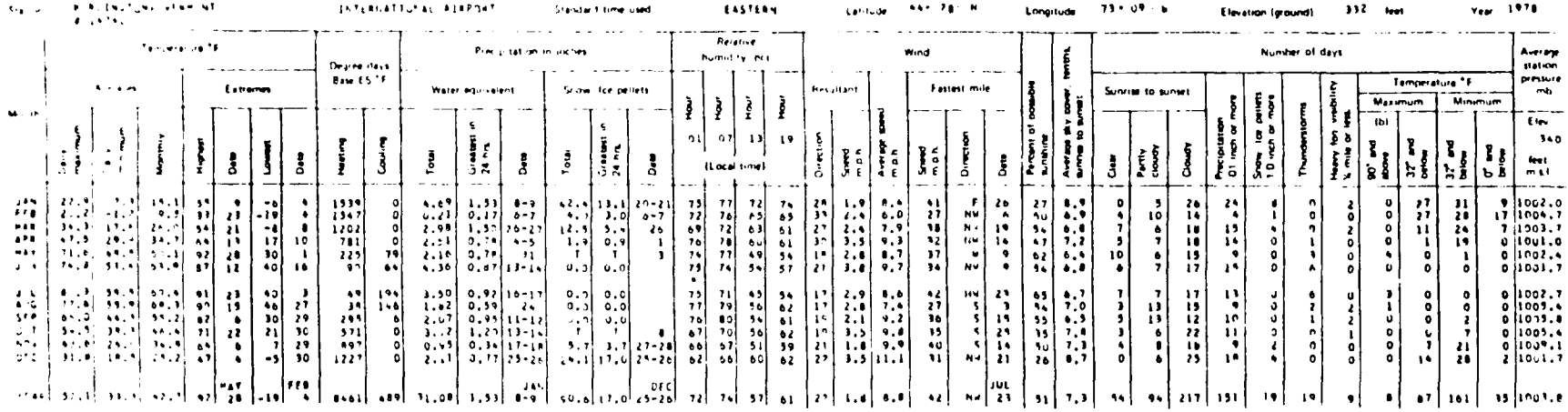
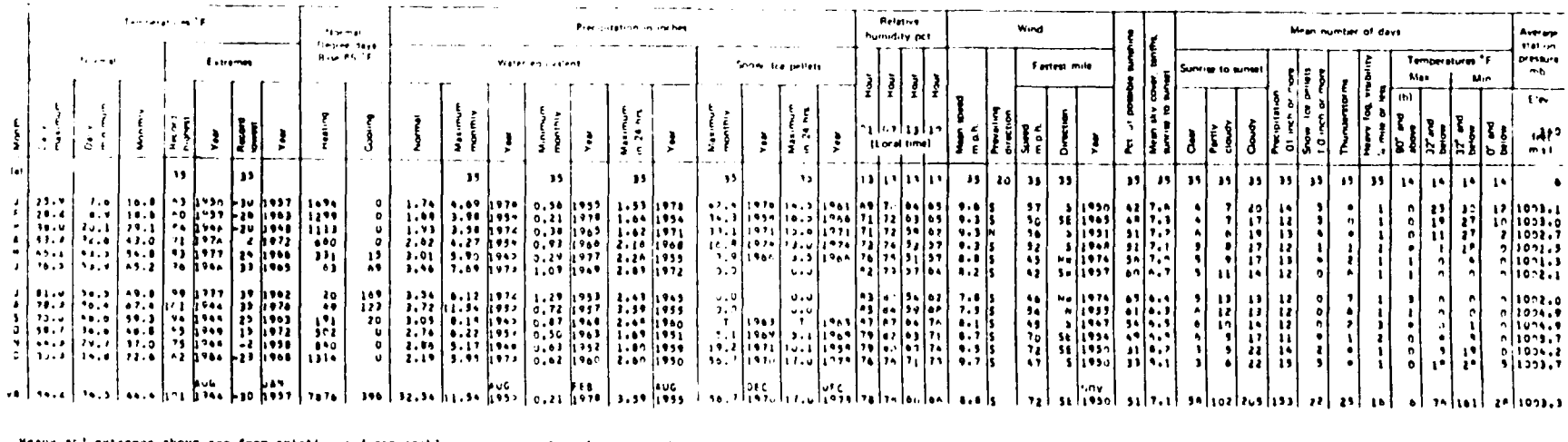
Meteorological Data For The Current Year



Normals, Means, And Extremes



Means and extremes above are from existing and comparable exposures. Annual extremes have been exceeded at other sites in the locality as follows: Minimum monthly precipitation 0.15 in October 1924; maximum precipitation in 24 hours 4.49 in November 1927; maximum snowfall in 24 hours 26.2 in January 1936.

(a) Length of record, years, through the current year unless otherwise noted, based on January data.
(b) 70° and above at Alaskan stations.
* Less than one half
T Trace

NORMALS - Based on record for the 1941-1970 period.
DATE OF AN EXTREME - The most recent in cases of multiple occurrence.
PREVAILING WIND DIRECTION - Record through 1963.
WIND DIRECTION - Numerals indicate tens of degrees clockwise from true north. 00 indicates calm.
FASTEST MILE WIND - Speed is fastest observed 1-minute value when the direction is in tens of degrees

F-146

Average Temperature

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
1939	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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1942	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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1949	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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RECORD MEAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MAX	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MIN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Heating Degree Days

Season	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
1958-59	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1959-60	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1960-61	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1961-62	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1962-63	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1963-64	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1964-65	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1965-66	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1966-67	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1967-68	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1968-69	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1969-70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1970-71	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1971-72	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1972-73	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1973-74	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1974-75	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1975-76	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1976-77	20	[illegible]	[illegible]	[illegible]	[illegible]	1905	[illegible]	[illegible]	[illegible]	990	223	[illegible]	[illegible]
1977-78	[illegible]	53	[illegible]	[illegible]	940	[illegible]	1539	1947	1202	781	225	90	[illegible]
1978-79	[illegible]	[illegible]	293	571	[illegible]	[illegible]							

Cooling Degree Days

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1969	0	0	0	0	2	86	134	160	38	0	0	0	420
1970	0	0	0	0	11	75	189	150	36	1	0	0	462
1971	0	0	0	0	17	87	138	110	90	4	0	0	456
1972	0	0	0	0	14	64	169	81	30	0	0	0	358
1973	0	0	0	5	0	149	187	263	68	0	0	0	650
1974	0	0	0	5	9	69	171	140	87	1	0	0	442
1975	0	0	0	0	75	131	306	181	5	1	0	0	699
1976	0	0	0	26	19	185	139	97	23	0	0	0	489
1977	0	0	0	7	75	86	176	138	27	0	0	0	509
1978	0	0	0	0	79	64	196	140	6	0	0	0	489

Precipitation

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
1939	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1940	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1941	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1942	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1943	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1944	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1945	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1946	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1947	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1948	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1949	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1950	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1951	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1952	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1953	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1954	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1955	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1956	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1957	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1958	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1959	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1960	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1961	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1962	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1963	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1964	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1965	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1966	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1967	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1968	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1969	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1970	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1971	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1972	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1973	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1974	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1975	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1976	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1977	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1978	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RECORD MEAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Snowfall

Season	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
1939-40	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1940-41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1941-42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1942-43	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1943-44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1944-45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1945-46	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1946-47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1947-48	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1948-49	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1949-50	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1950-51	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1951-52	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1952-53	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1953-54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1954-55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1955-56	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1956-57	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1957-58	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1958-59	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1959-60	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1960-61	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1961-62	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1962-63	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1963-64	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1964-65	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1965-66	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1966-67	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1967-68	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1968-69	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1969-70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1970-71	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1971-72	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1972-73	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1973-74	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1974-75	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1975-76	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1976-77	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1977-78	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1978-79	[illegible]	[illegible]	[illegible]	T	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RECORD MEAN	0.0	0.0	T	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.0	[illegible]

# Indicates a station move or relocation of instruments. See Station Location table.

Record mean values above are means through ... [illegible]

F-14c

JANUARY 1979
BURLINGTON, VERMONT
NATIONAL WEATHER SERVICE OFC
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

JANUARY 1979 BURLINGTON, VERMONT

LATITUDE 44° 28' N LONGITUDE 73° 09' W ELEVATION (GROUND) 332 FT. STANDARD TIME USED: EASTERN WBAN #14742

Date	Temperature °F Maximum	Minimum	Average	Departure from normal	Average dew point	Degree days base 65° Heating (season begins with July)	Cooling (season begins with Jan.)	Weather types on dates of occurrence	Snow, ice pellets or ice on ground at 07AM In.	Precipitation Water equivalent In.	Snow, ice pellets In.	Avg. station pressure In. Elev. 340 feet m.s.l.	Wind Resultant dir.	Resultant speed M.P.H.	Average speed M.P.H.	Fastest mile Speed M.P.H.	Fastest mile Direction	Sunshine Minutes	Percent of possible	Sky cover tenths Sunrise to sunset	Midnight to midnight	Date
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	50	37	44*	26	40	21	0	1	3	.22	0	29.93	17	17.4	17.5	28	S	0	0	10	10	1
2	51*	22	37	19	34	28	0	2 4 6	0	.80	.8	29.35	02	4.8	10.6	22	S	0	0	10	10	2
3	22	8	15	-2	8	49	0	6	2	.07	.7	29.67	28	8.9	12.8	29	NW	142	27	7	8	3
4	15	7	11	-7	-1	54	0		2	T	.3	29.88	18	15.2	18.0	24	S	183	36	8	7	4
5	18	11	14	-4	-2	51	0		2	T	T	30.13	18	10.3	10.9	18	S	282	48	4	6	5
6	22	12	17	-1	6	48	0		2	.01	.1	30.00	17	9.5	10.1	17	S	378	70	8	7	6
7	25	11	18	0	14	47	0	1 8	1	.43	3.7	29.78	14	3.8	7.1	12	S	44	8	9	8	7
8	24	17	21	4	16	44	0	1	0	.20	7.3	29.51	35	6.9	7.8	11	NW	80	11	10	10	8
9	19	10	15	-2	7	50	0		11	.01	.1	29.71	17	7.5	8.5	17	S	440	81	4	7	9
10	15	3	9	-8	2	56	0		10	.05	2.0	29.86	18	4.8	10.1	14	S	325	60	7	8	10
11	3	-15	-6	-23	-15	71	0		12	0	0	30.15	06	4.1	5.9	8	NE	478	88	0	3	11
12	12	-18*	-2	-19	-13	67	0		11	T	T	30.16	18	5.4	6.2	8	SE	412	79	8	8	12
13	26	12	19	2	13	46	0		10	.25	3.0	29.85	14	4.6	5.8	10	E	0	0	10	10	13
14	38	18	26	9	23	39	0	1 6	13	.10	T	29.08	20	9.7	15.1	28	W	9	2	10	10	14
15	17	8	13	-4	-2	52	0		8	T	T	29.72	29	12.4	14.5	24	NW	380	71	5	6	15
16	18	8	13	-4	3	52	0		7	.02	.2	29.85	17	6.3	11.8	19	S	207	37	10	9	16
17	10	-8	1	-16	-3	64	0		7	.29	6.1	29.84	12	1.5	4.0	9	NE	10	2	8	8	17
18	4	-7	-2	-19	-7	67	0	9	13	.03	1.1	29.73	35	10.5	10.9	24	NW	110	20	8	7	18
19	3	-15	-6*	-22	-18	71	0		12	0	0	30.03	03	3.6	5.2	11	N	518	92	4	4	19
20	18	-10	4	-12	-8	61	0		11	T	T	29.67	13	5.2	6.5	16	SE	127	23	10	10	20
21	32	18	24	8	21	41	0	1 4 6	12	.92	4.8	29.89	03	1.6	8.2	15	E	0	0	10	10	21
22	25	21	23	7	17	42	0	1 6	12	.03	.4	29.00	30	10.0	11.5	20	W	124	22	10	9	22
23	26	7	17	1	12	48	0		11	0	0	29.69	03	.9	5.8	22	NW	438	77	4	4	23
24	37	9	23	7	16	42	0		10	T	T	29.54	11	5.1	6.5	20	SE	0	0	10	9	24
25	38	32	35	19	23	30	0	1	9	.05	.6	29.07	01	8.8	12.8	23	SE	0	0	10	10	25
26	35	31	33	17	28	32	0	1	8	.06	.5	29.11	34	11.6	11.8	15	N	0	0	10	9	26
27	37	33	35	19	29	30	0	1	8	.04	.1	29.18	35	6.4	6.8	11	NW	0	0	10	10	27
28	36	34	35	18	31	30	0	2	6	.22	T	29.87	33	5.5	5.8	12	N	0	0	10	10	28
29	36	28	32	16	26	33	0	1	5	.26	.9	29.87	33	9.7	9.9	16	N	0	0	10	10	29
30	28	21	25	9	15	40	0		8	.08	1.0	29.24	35	7.3	8.5	13	NW	0	0	10	10	30
31	21	16	19	3	12	46	0		8	.28	4.3	29.20	35	8.1	8.5	11	NW	0	0	10	10	31

SUM 757	SUM 360				TOTAL 1452	TOTAL 0	NUMBER OF DAYS
AVG. 24.4	AVG. 11.6	AVG. 18.0	DEP. 1.2	AVG. 11	DEP. -42	DEP. 0	PRECIPITATION ≥ .01 INCH 22
					SEASON TO DATE		SNOW, ICE PELLETS ≥ 1.0 INCH 8
NUMBER OF DAYS					TOTAL 4526	TOTAL 0	THUNDERSTORMS 0
MAX. TEMP. ≥ 90°	≤ 32°	MIN. TEMP. ≤ 32°	≤ 0°		DEP.	DEP.	HEAVY FOG 2
0	22	29	6		119	0	CLEAR 1 PARTLY CLOUDY 7 CLOUDY 23

Precipitation Water equivalent	Snow, ice pellets	Avg. station pressure	Resultant dir.	Resultant speed	Average speed	Fastest mile speed	Direction	Sunshine	%	Sky cover SR-SS	MN-MN
TOTAL 4.50	TOTAL 37.8	29.56	26	.7	9.5	29	NW	TOTAL 4668	FOR MONTH 27	SUM 256	SUM 253
DEP. 2.76						DATE: 03+		POSSIBLE 17256		AVG. 8.3	AVG. 8.2

GREATEST IN 24 HOURS AND DATES Precipitation		Snow, ice pellets		GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE	
.92	21	10.4	7-8	13	10+

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES
HEAVY FOG: VISIBILITY 1/4 MILE OR LESS
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM
DATA IN COLS 6 AND 12-15 ARE BASED ON 8 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE + WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY.

SUMMARY BY HOURS

Hour (local time)	Averages Sky cover (tenths)	Station pressure In.	Temperature Air °F	Wet bulb °F	Dew pt °F	Relative humidity %	Wind speed M.P.H.	Resultant wind Direction	Speed M.P.H.
01	8	29.57	18	16	10	71	9.3	13	.5
04	8	29.57	17	16	10	73	8.5	26	1.7
07	8	29.58	16	15	9	72	9.1	12	.0
10	8	29.59	18	17	10	71	9.5	03	.4
13	9	29.53	21	19	12	67	10.9	23	2.1
16	9	29.53	22	20	13	68	10.5	30	1.6
19	8	29.55	20	18	11	70	9.2	30	.8
22	8	29.55	19	17	10	70	8.9	21	.9

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

Date	A.M. Hour ending at 1	2	3	4	5	6	7	8	9	10	11	12	P.M. Hour ending at 1	2	3	4	5	6	7	8	9	10	11	12	Date
1	[illegible]	.01	T	T	.01	T										.02	.03	.06	.03	.02	.02	T	T	T	1
2	T			.01	.07	.10	.06	.04	.09	.04	.03	.08	.11	T	.03	.03	.01	.01	.01	.01	.03	.02	.01	.01	2
3	.01	.01	.02	.02	.01																				3
4															T	T	T	T	T	T	T				4
5	T	T																							5
6			T	T	T	T	T	T	T	T	.01	T													6
7													T	.03	.03	.04	.04	.04	.06	.04	.05	.04	.03	.03	7
8	.03	.02	.02	.02	.03	.03	[illegible]	T	.02	.02	.01	.02	.01	T	T	T	T	T	.01	.01	T	.01	T	T	8
9	T		T	.01														T	T	T	T	T			9
10														T	T	T	.04	.01	T	T					10
11																									11
12																						T	T	T	12
13	T	.01	.01	T	.01	.01	T	T	T	T	T	T	.03	.02	.04	.03	.01	.02	.02	.02	.01	.01	T		13
14							.01			T	.02	.06	.01	T	T					T	T	T	T	T	14
15	T	T	T	T																					15
16			T	T	T	T	T	T	.01	T	T	T	T	T	T	.01	T	T	T	T	T				16
17													.02	.04	.04	.04	.03	.01	.04	.02	.01	.03	.01	T	17
18	T	.01	T	T	.01	T	T	T	T	.01	T	T	T	T	T	T	T	T	T						18
19																									19
20	[illegible]																								20
21	.02	.02	.04	.05	.03	.06	.02	.02	.08	.04	.04	.04	.03	.03	.04	.02	.01	.02	.05	.05	.08	.08	.02	.03	21
22	T	T	T	.01	.01	T	.01		T	T	T	T	T	T	T	T	T								22
23																									23
24																						T		T	24
25	T	T	T				T	T	T	T	[illegible]	T	T	T	.01	T	.01	T	T	T	T				25
26	[illegible]																								26
27	[illegible]																					.02	.01	.01	27
28	[illegible]															.02	.02	.01	.02	.03	.01	.01	.02	.04	28
29	[illegible]																								29
30	[illegible]																								30
31	[illegible]																								31

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

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