

A Short Commentary

by

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ABSTRACT

After some comments upon the controversial matter of snowfall and its measurement, the author briefly summarizes some recent heavy snowfall periods; i.e., 7-11 December 1958, 20 December 1963, 27-31 January 1966 and February 1968. Snowfall in January and February 1972 are particularly summarized with special mention of the "Snowburst" on 26 January and the "Blizzardburst" of 4-5 February. Some Comparisons are made for the 1971/72 snow season between the Oswego Area locations and some nearby places. Also, snowfall figures for years beginning in the 1944/45 snow seasons are included. The recent season was of record proportions.

INTRODUCTION AND BACKGROUND

1. The author's original intent was contained in the title provided to the Program Chairman; namely, to speak on "Some Examples of Snowburst in the Oswego, New York Area and Some General Comments on Lake Effect Snow Situations in the Eastern Lake Ontario Area." The abstract in the Conference Program thus read: "A short summary of snowburst situations in December 1958, December 1963, and February 1971 is presented. Briefly, a general synoptic situation is outlined, followed by some more specific comments in regard to the local areas affected, particularly in respect to the 1963 and 1971 incidents. A few remarks will also be included concerning snowburst at nearby locations. Some citations will be made to another paper with considerable detail on this subject, and copies of which will be available.."

2. Circumstances prevented printing of the cited paper on "Oswego Climate and Snow Climatology," although some extracted parts were reproduced and made available at the Conference. Weather events during the winter, particularly beginning with those on the 25th of January 1972, were so noteworthy that a substitute talk was decided upon in place of that proposed, according to the above abstract. The comments following below are based upon the talk actually given. However, some information on the "Blizzardburst" at the Conference time and the rest of the winter have been added for this paper.

3. The author presented a paper at the 1969 Eastern Snow Conference concerning snowfall and its measurement. A table, based upon the author's experience relating observed visibility, average snowflake size, and snowfall accumulation per hour at the ground was a part of that paper. That table, somewhat expanded, was included at the Conference. Here, it is Table One. Three additional snow seasons of use and experimentation, during the various snowfall circumstances occurring at Oswego, have been encouraging. Previously stated concerns in detail about true snowfall as a precipitation, its measurement, and the references in climatic and weather records and studies, are not the subject of this paper. However, the author retains strong convictions that much of what is referred to as being snowfall (a precipitation to the ground) is in reality ground snowcover (not necessarily a precipitation but rather a residue after compaction, wind action, melting, etc.). Solutions to these problems are especially difficult in areas like Oswego, where so much significant snowfall is accompanied by winds. Only a few feet above the surface, winds may be 10-12 mph and, for long periods of many hours, 25-30 mph or much higher. The 30+ hour Blizzard Period of 4-5 February 1972 is an excellent example of high winds, but, also, of really heavy snowfall.

4. While acknowledging that practical problems inhibit any widescale adoption of this or other "observation and/or estimation and/or measurement" procedures, the stark reality of the existing inconsistencies in what constitutes snowfall records now, must also be acknowledged. Major differences exist in measurement (ruler or the like) frequencies among "recording locations."

TABLE ONE

<u>Average Horizontal Visibility Due to Falling (not blowing and/or drifting) Snow Restriction Only</u>	<u>Average Flake (and/or Crystal/Diameter)*</u>	<u>Reasonable Snowfall Accumulation Per hour (on Ground; disregarding Compaction** due to Subsequent Accumulations)</u>
880 yards	1/8 inch	1/4+ inch
880 yards	1/4 inch	1/2 to 3/4 inch
440 yards	1/4 inch	1 inch
220 yards	1/4 inch	1-3/4 inches
*** (150 yards	1/2 inch	3-5 inches)
150 yards	1/4 inch	2 inches
++*** (75 yards	1/2 inch	4-6 inches)
+ 75 yards	1/4 inch	Nearly 3 inches
+++*** (10 yards	1/2 inch	5-7 inches)
++ 10 yards	1/4 inch	Nearly 4 inches
++ 20 yards	1/2 inch; about 50% mixed otherwise	Nearly 4 inches
+++ 20 feet	1/2 inch; about 50% mixed otherwise	Nearly 6-10 inches

* Excludes single needle-type crystals locally experienced occasionally at temperatures near freezing. Also, excludes ice pellets (sleet), thawed and partially refrozen snow which becomes a mixture of pellets and "balled" snow. Finally, excludes frozen drizzle and small (1/8th inch and less diameter) "balled" snow.

** Compaction of snowfalls depends upon factors including: temperature; sizes of crystals; sizes of flakes; looseness of interlocking for crystals and/or flakes; sunlight; accumulation above; wind actions; etc.

*** Insufficient instances to indicate closer estimates.

+ Several times per winter for periods of up to 15-30 minutes in length; occasionally for an hour or two.

++ Occasionally for 15-30 minutes; rarely (per 1-2 years) for more than an hour or two.

+++ Rarely (per 1-2 years) for up to 10-30 minutes; very rare (2-5 years) for more than a half hour or more.

SPECIAL NOTATION TO TABLE: Lake Effect Snow Situations depend upon many factors relating to the Lake; season; temperature changes with height; direction and speed of flows near the surface and up several thousands of feet; waves; cloud structures; air masses; distribution of water with height; etc. Another factor is believed to be related to the fracturing of surface snow into small ice bits over Canada (e.g. Prince Edward Peninsula) to the northwest. These bits of ice, carried aloft by wind action, are believed to be important to nucleation and other processes involved in some Lake Effect Snow Situations in the Oswego Area.

Such information is melded with "Climate Station" records from which measurements may vary from one to several per day. And then there are circumstances such as at Oswego, where a substantial period of recent "snowfall records" was based upon taking the melted collection in the weighing guage and equating that water residue to snowfall on a ratio of 1 inch of water to 15 inches of snowfall. Many checks during the last 7 years indicate water-to-snowfall ratios during main winter periods of 2-4 months were more appropriately at 1 inch to between 25 and 35 inches. Often, they were even greater. While the water content of the snowfall is certainly an important record aspect (most important some say), it is hardly inescapable that we keep harping back to "snow depth," "snowfall," "snow accumulation" in the sense of a precipitation. And, we do so, as does the public, in the measurement terms of depths in inches. Many different unstandardized approaches continue to constitute the public and official records.

5. Considering snowfall as a precipitation then, the author continues to believe justifiable the attainment of information on what has fallen to the surface by use of an estimation-measurement means. On the other hand, it is essential to acknowledge the practical importance of what might be called the "ground cover" as of any particular time. This cover may be residual from hours of movement, compaction, evaporation, melting and other changing factors. He has been encouraged by repeated observations and reports of sharply reduced visibilities (100 yards and under) in the absence of fog; when snowflake diameters average $1/8 - 1/4$ or more; and, when winds have passed over open water areas. Blowing snow and drifting snow are hardly likely from off expanses of open water **strong** correspondance between this means and actual ruler measurements when such are possible and during lightwind conditions, has continued to be encouraging.

6. Perhaps snowfall measurement as precipitation is but a "cause celebre." Nevertheless, "snow" statistics and records remain based upon varying measurements, means and methods. The term "snowfall" is useless, if its meaning can vary conveniently.

THE WINTER OF 1971 IN THE OSWEGO, NEW YORK AREA

1. Aside from a cold and relatively snowy November, winter did not become a reality, or so it seemed, until late January, 1972. Thereafter, and right on into early April wintry conditions prevailed with but brief periods of respite. However, snowfall was the outstanding characteristic of the period, a period which contained incidents interesting to compare with the noteworthy snowburst of 7-11 December, 1958; the heavy but short snowburst of 20 December, 1963; the 5-day period from 27-31 January, 1966, often called the "Blizzard of '66"--really a composite of 3 snowfall situations; the heavy snowfall/windy period of 9-22 February, 1968; and, several situations in February and March 1971 with blizzard-like and snowburst-like features.

2. Four of the above are singled for brief special mention:

- a. The 1958 incident: Historical references and discussions with then-present area residents indicate upwards of 70 (or more) snowfall inches in about 100 hours time. Within the city, there seems to have been little wind. After an initial 24-hour snowburst of about 40 inches, there were numbers of shorter periods with smaller amounts.
- b. The 1963 incident: This storm was similar to the initial phase of the 1958 incident; i.e., it was a snowburst with little wind effects in the city Area, where the heavy accumulation occurred. In about 13 hours, some 26 to 28 inches or more fell.
- c. The 1966 incident: Over about 100 hours from near 5:30 P.M. of the 27th of January some 100+ inches of snow are believed to have fallen, although the amounts varied considerably due particularly to the "snowburst" middle phase Saturday the 29th which was more productive south and southwest of the city. Bracketing were two high wind/heavy snowfall situations. Of these, the second, a nearly 2 full day period ending at about 11:45 P.M. on the 31st must be accorded the status of one of

the outstanding snowstorm periods of all record time in the Oswego Area. The storm was widespread, however, in contrast to the 1958 and 1963 incidents which were both quite local to the area, including the City.

- d. The 1968 incident: From the 10th through the 22nd of February up to perhaps 113 inches of snow are believed to have fallen at least in parts of the vicinity of the City. A panoply of snow events made up the period including: blizzard-like intervals; major frontal passages-- one arctic front accompanied by a "snow-wall;" a "land breeze frontal" passage with heavy snowfall; several short snowburst; and, snow periods galore with high winds.

3. The 1971/72 winter began with a cold (about 4 degrees average below normal) and snowy November (17-19 inches, considerably above normal). Early December continued the November trend but soon turned to much above normal temperatures here and nearby, although Massena (in a different flow pattern) was slightly below normal. The following December 1971 table compares several locations from Massena southward to Syracuse. The change with latitude is dramatic.

TABLE TWO

	<u>MASSENA</u>	<u>WATERTOWN</u>	<u>OSWEGO, E.</u>	<u>OSWEGO, S.</u>	<u>SYRACUSE</u>
Actual Dec. Aver. Temp.-	20	27	32	32.4	33.2
"Normal" Dec. Aver. Temp.-	21	25	(29)	(29.0)	27.8
Departure From Normal-	-1	+2	+3	+3.4	+5.4

4. With but short periods of "normal" winter weather in late December (cool but generally snowless Christmas) and early January, the December warmth continued until January 25. High winds accompanied the sharp turn to colder with gustiness over 60 mph and general storminess reflected in Lake wave conditions of violence such as not seen since early December 1968. During the morning of the 25th a "cloud street" (west/east orientation) associated with the cold air advection and

related to the local topography, Lake conditions, local convergence and other factors began to take shape to the west of Oswego. A series of showers followed as weak but intensifying cells of activity passed along the street. By mid-afternoon, the snow showers became more like squalls in the City Area, though little snow activity took place, only 6-8 miles to the south. The Squalls took on blizzard-like proportions in the latter part of the afternoon. Winter had finally returned to Oswego!

5. The high winds of the 25th gradually died away. The Cloud Street representing a "Zone of Convergence" became stationary over the City, but still oriented roughly West/East. Snowfall conditions changed during the night from the blizzard-like and windy beginnings to snowburst characteristics. There then followed an especially notable period on the 26th of very heavy snowfall (snowburst-- similar to the 7-11 December 1958 period) with "fall" amounts, ruler-measured during "quiter wind" times, from near 2 inches to at least 4.8 inches per half hour. Table Three indicates the measured snowfall and water content for time intervals from 1245 through 1650 of the 26th.

TABLE THREE

TIME PERIOD	MINUTES DURATION	SNOWFALL (inches)		WATER CONTENT (1/100th inch)
		MEASURED*	ACCUMULATED	
1245-1300	15	1.2		0.030
1300-1315	15	2.4	3.6	0.085
1322-1352	30	3.5+	7.1	0.100
1358-1428	30	4.3+	11.4	0.130
1432-1502	30	4.8+	16.2	0.130
1507-1537	30	4.2+	20.4	0.095
1544-1614	30	4.2+	24.6	0.130
1620-1650	30	1.8	26.4	0.040
	3½ hours	26.4+		0.740

In the 35 minutes not actually measured, it is believed

that at least 3.7 inches of snow fell. However, for the period 1245 to 1614, only 27 inches were indicated. Thus, 2.2 inches out of the 3.7 inches were used. Incidentally, the snowfall for the calendar day, January 26, is believed to have exceeded 53.7 inches. The only recent rival day would have been during 31 January 1966, when 50 inches at least are believed to have fallen during the Blizzard of '66.

*--Caught in a cylindrical container. Top of container was about 8 inches above the snow surface at the start of each measurement period.

6. On a reduced scale, there was something of a repeat performance on the 31st of January. Interestingly enough, with indicated wind speeds of about 1.5-2 miles per hour at a few inches above a nearly flat surface, during some periods when snowfall rates were 2-4 inches per hour, there were actually "negative surface snowcover accumulations" at the surface. Active movement and tumbling of snow crystals and bits could be observed occurring at the surface. This effect had been observed, somewhat casually during the 26th heavy snowfall period.

7. There were yet to be several other climaxes. One of these was the very local situation from about 1430 on 3 February (10 to 12 inches of "wet" snowfall were measured by shortly after 0000 in the morning of the 4th) through until about 1630 of 5 February. The interval from around 0800 of the 4th through about 1630 of the 5th (like the 31st of January, 1966) might be best characterized as a "blizzard-burst." Except for 3 to 4 hours during the late afternoon of the 4th (in the City), heavy snowfall and strong winds prevailed. Even near the shoreline with wind from off the still open Lake, periods with several hours of reduced visibilities near 50-75 feet were common, especially during the 5th. This February period as a whole is likely to be remembered in the Oswego Area as the "BLIZZARD OF '72." Further, this "incident" with its several feet of snowfall and drifting caused many attendees at the twenty-ninth Eastern Snow Conference to

remain in Oswego for one or two extra days. Active discussions abounded about "Oswego snowfalls," snowfall measurement means, and related matters, of course!

8. The weather satellite intercepts show excellent examples of an "over-lake" cloud band (Lake Ontario) extending inland across the eastern and south-eastern shorelines for 26 January and, of a "shoreline" cloud band along the Lake Ontario south shore for 27 January. The band on the 27th was more "productive" south of Oswego, toward and over Fulton. Heavy snowfall characteristically arranges within and under the cloud band (perhaps 20-40 miles wide) with such heavy snowfall band widths (depending upon orographic, flow prevailing, angle of wind attack to the shore, and many other factors) of from 1 to 3 miles to perhaps some 10-15 miles.

9. Mesoscale systems, especially lows, may develop and pass along within the "Zone of Convergence" with dramatic consequences as during the period 1030-1300 of 5 February 1972. The incident on 5 February 1972 is believed to be an outstanding example of the presence of North/South oscillation of a west-to-east oriented band or "Zone of Convergence" accompanied by development and movement through the band of several "mesolows," shown by some characteristic barometric "V" formations. This barometric action occurred when the heaviest snowfall was observed at the site of the Eastern Snow Conference, the Holiday Inn, in the north-central part of the City and situated about $1\frac{1}{4}$ miles to the east of the College barograph location. Cooperative weather observers, living near but to the west of the College, verify that visibilities (with winds from off the Lake) were averaging 50-75 feet during much of the 4+ hour period beginning near 1000 local of the 5th. The satellite photos for the 5th show the major cloud band (with a 10-12 mile wide heavy snow band underneath) over Lake Ontario at 1108.6.

10. Microbarograph traces at Southwest Oswego for 31 January 1972 and for 24 January thru 1 February 1972, respectively, show the often chaotic snowfall and wind conditions at South Oswego. Some obvious pressure variations (wave-like trace) on the 26th and 27th are due to North/South fluctuations of the "Convergence Zone" and associated phenomena.

11. The last calendar month of the-to-be-famous winter "came in" on 1 March, to paraphrase an old expression, as a "Trojan Lamb" with a massive southward slide of Polar (Arctic) Air over Central New York "into the teeth" of forecasts for "record high" temperatures-- one of the more difficult periods for progs and forecasts in recent times. Declining temperature changed rain to freezing rain and sleet, followed then by a further change to snow. Locally, driving conditions became so bad at night that it took someone from the College about 2½ hours to get home, only 3½ miles away.

SUMMARY AND CONCLUSION

1. The believed snowfalls in inches and tenths at the Southwest Oswego location through February 1972 for certain time periods are summarized as follows:

TABLE FOUR

TIME PERIOD	SNOWFALL (MEASURED AND/OR ESTIMATED*)	ACCUMULATED SEASONAL SNOWFALL	(REMARKS)
	PERIOD	MONTH	
OCT 1971	T	T	T
NOV 1971		19.4	19.4
DEC 1971		26.8	46.2
01-17 JAN 1972	20.9	20.9 (JAN ACCUM)	67.1
18(0000)-25(0730)	5.9	26.8	73.0
25(0731)-26(0730)	19.5++	46.3+	92.5+(High winds)
26(0731)-26(1245)	11.0++	57.3++	103.5++(Low winds)
26(1246)-26(1614)	27.0++	84.3++	130.5++(Over 35" snow; 1" H ₂ O)
26(1615)-26(1714)	3.1++	87.4++	133.6++
26(1715)-26(2400)	7.6	95.0++	141.2++
27(0000)-28(2400)	12.5+	107.5++	153.7++
29(0001)-30(1800)	7.9+	115.4++	161.6++
30(1801)-31(0900)	23.6++	139.0++ (JAN TOT.)	185.2++(Neg. ground accum.)
FEB 1972			
01(0000)-03(1430)	3.3	3.3	188.5
03(1430)-04(0200)	10.0+	13.3+	198.5+
04(0200)-05(1630)	44.2++	57.5++	242.7++
05(1630)-11(0730)	15.0++	72.5++	257.7++
18(0740)-19(0745)	3.3	75.8++	261.0++
19(0745)-19(2400)	15.7+	91.5++	276.7++
20(0000)-20(1400)	0.5	92.0++	277.2
20(1400)-22(0730)	0.5	92.5++	277.7
22(0730)-24(0730)	2.0+	94.5++	279.7+
24(0730)-25(0730)	0.5+	95.0++	280.2+
25(0730)-26(1200)	4.8+	99.8++	285.5+
26(1200)-28(1200)	0.3+	100.1++	285.8
28(1200)-29(2400)	T	100.1++	285.8++
	100.1++ (FEB TOT.)		

TIME PERIOD	SNOWFALL (MEASURED AND/OR ESTIMATED*) PERIOD	MONTH	ACCUMULATED SEASONAL SNOWFALL (REMARKS)
MAR 1972		26.3+	311.6++
APR 1972		10.0+	321.6++

* See Text
+ Conservative
++Very Conservative
T Trace (less than 0.1 inch of Snowfall)

NOTE: For Jan. 26th, Calendar Day,
Snowfall was 53.7 inches

2. For Comparison, the 1971-1972 snowfall measurements (and/or estimations) for several locations in the Oswego Area, in inches and tenths, through April are shown in the following table:

TABLE FIVE

PLACE (OBSERVER)	OCT	NOV	DEC	JAN	FEB	MAR	APR	SEASON THRU APR	COMMENTS
a. SW Oswego (Sykes)	T	19.4	26.8	139.0	100.1	26.3	10.0+	321.6+	A <u>record</u> for 8yr. period;
b. Oswego, E. (W. Gregway)	0.2	17.3	22.4	80.7	94.1	28.5	8.3++	251.5+	A <u>record</u> for recording period since 1880s
c. Fulton (P. Cardinali)	-	20.5	27.5	53.0	82.0	30.5	7.5+	221.0+	One yr. record; 0.3=trace
d. Mallory (W. Larrabee)	-	20.2	28.0	76.3	74.1	47.6	11.6	258.0	A <u>record</u> for the 10 yr. life of station
e. Bennetts Bridge (Niagara Mohawk)	T	12.5	15.0	78.5	113.0	33.0	5.0	229.5	Snowboard; read 2x/day; totaled
f. Boonville (L. Lansing)	T	40.0	29.1	71.3	100.5	47.9	17.0	309.9	A <u>record</u> for 24yrs. 303" last yr.; 56" snowcover gave 19.85" H ₂ O
g. Pulaski (J. Carnes)	-	12.0	14.0	42.0	49.0	15.0	4.0	145.0	Once per day
h. Camden (L. Balcom)	-	3.8	9.7	41.5	60.0	28.3	5.0	148.3	Once per day
Rochester (NWS Airport)	-	11.2	13.8	18.1	35.7	19.0	7.2	105.0	Four times daily and midnight
Syracuse (NWS Airport)	-	16.7	18.3	18.2	50.0	22.7	8.0	133.9	Four times daily and midnight
i. Watertown (L. Sacchetti)	T	12.0	8.0	15.0	48.0	16.7	4.3	104.0	Once per day

(Detailed figures for water content with the above snowfalls, are not available. Much of the snowfall at SW Oswego-- based upon numerous spot measurements-- was within the water-to-snow ratio-range of 1:25 to 35. Some ten inches of water were believed involved. The SW Oswego location has a windy regime. On March 28th at Oswego, S. (Mr. Elmer Loveridge) there were still about 6.3 inches of water for some fifteen inches of settled snowcover.)

* - Four years this location; 1 year Ellen St; eleven years at College; different city locations before to early 1880s when continuous precipitation records began.

3. Some historical comparisons for the Oswego Area "snowfall seasons" are provided in Table Six. The following notes (a-i) pertain to observations made at several of those places.

- a. SW Oswego-- Observer: R.B. Sykes, Jr. Estimation rate of snowfall during windy periods (as described in connection with Table One) confirmed by ruler measurements. Averaged ruler measurements are always used whenever quiet conditions permit such, as during the very heavy local snowburst situation of 26 Jan. 1972. Then snowfall rates per half hour ranged to and beyond 1.5 inches. When in residence, during all periods of significant snowfalls detailed visual observations of snowflake sizes, visibilities, etc. cover at least 90% of the periods of such snowfalls. Such observations may be 1-3 minutes apart or until observable changes occur.
- b. Oswego, East-- Observer: W. N. Gregway. Uses 3 snowboards; measurements at 0800, 1200 and 1700; at 0000 if needed-- somewhat aperiodically; ruler to board, cleaned off.
- c. Fulton-- Observer: P.H. Cardinali. Takes observations with ruler at 0630 and 1800, but occasionally aperiodic; and cleans area. Pounds to nearest half inch; under 0.3 inch equals: Trace.
- d. Mallory-- Observer: W.G. Larrabee. Normally takes observations at 1800 but aperiodically during snowfall situations, aided by wife.

- e. Bennett Bridges-- Observer: Niagara Mohawk Power Station Staff. Take readings along a "depth pole" at 0700 and 1700 but record once per day. (Snow settlements are often large between measurements.)
- f. Boonville-- Observer: L. Lansing. Generally at 1700, basically one snowfall per day, but aperiodic depending on sun and/or rain conditions. Sometimes twice or more often daily, especially if windy or melting conditions prevail or are expected. Uses snowboards except for windy periods; then measures in can. Boards are located in woods, can is located in open area near station.
- g. Pulaski-- Observer; J. Carnes. Once per day between 1700-1800 with ruler to snowboard.
- h. Camden-- Observer: Mrs. L. Balcom. Once per day near 1000 with ruler to snowboard.
- i. Watertown-- Observer: L. Sacchetti. Once per day.

4. As in the 1970/71 Winter, April was more like a winter month with the average temperature trending far below normal at about 4.5 F, for Oswego. The April 1972 snowfall approached all-time April snowfall record levels, despite measurement difficulties (especially at Oswego, E.) due to warm surface conditions with rapid melting during several occurrences.

5. The winter of 1971/72 will be remembered for its late start, its wide swings, and its late finish. January, February and April were especially heavy snowfall months. This snowfall season followed the heavy 1969/70 and even heavier 1970/71 seasons. Put together, these seasons seem to represent something of a record. Surprisingly, these past two snow years are also records for the Mt. Rainer Paradise Valley Area in the state of Washington, where in 1970/71 through June 1971, there were recorded 1027 inches and 1971/72 through about the 20th of April, there were already 1029 inches.

6. Table Six, provided at the Eastern Snow Conference, shows the Oswego Area (City and nearby) reported snowfall for snow seasons beginning with 1944/45 through 1970/71.

TABLE SIX

OSWEGO AREA (CITY AND/OR NEARBY) REPORTED SNOWFALL (INCHES)

<u>Year</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>T</u>	<u>Season</u>	<u>Where</u>
1944/45	0	0	7.7	29.3	50.6	26.7	1.5	0.2	T	116.0	City
1945/46	0	T	10.0	12.8	20.9	25.1	0.1	0.7	0	69.6	City
1946/47	0	T	2.6	32.4	32.1	37.8	47.4	2.9	0.2	155.4	City
1947/48	0	0	17.7	20.6	36.1	11.8	15.6	0.3	T	102.1	City
1948/49	0	T	T	20.1	22.6	13.9	7.2	0.2	0	64.0	City
1949/50	0	T	4.8	25.3	14.8	34.1	24.6	2.4	0	106.0	City
1950/51	0	T	3.8	24.1	25.5	10.8	9.6	T	0	73.8	City
1951/52	0	T	6.3	32.4	18.6	29.0	8.0	T	0	94.3	City
1952/53	0	0.1	5.7	8.6	16.3	10.3	6.7	T	0.3	48.0	City
1953/54	0	0	2.0	9.7	15.6	11.5	26.0	0	0	64.8	City
1954/55	0	0	*6.0	26.0	18.0	19.0	16.0	T	0	*85.0	City
	-	-	-	-	25.3	23.0	18.9	0.2	0	-	Ellen St.
1955/56	0	0	4.0	18.0	15.5	31.5	21.0	3.0	0	93.0	College
	0	T	3.2	36.0	26.9	31.6	35.3	8.2	T	141.2	Ellen St.
1956/57	0	0	13.6	13.5	35.5	2.5	6.5	5.0	T	76.0	College
	0	0	21.4	17.6	46.2	7.3	10.0	5.0	T	107.5	Ellen St.
1957/58	0	0	2.0	7.0	25.0	35.0	7.0	1.0	0	77.0	College
	0	0.1	5.3	12.4	36.5	47.6	10.0	1.8	T	113.7	Ellen St.
1958/59	0	0	11.3	85.8	34.2	26.8	11.5	0	0	169.6	College
	0	0	12.6	101.0	34.4	26.2	20.1	T	0	194.3	Ellen St.
1959/60	0	0	18.0	8.2	18.4	35.2	19.2	0	0	99.0	College
	0	0	24.9	8.9	20.4	43.1	17.0	0.2	0	114.5	Ellen St.
1960/61	0	0	T	22.5	35.3	6.0	10.5	0.2	0	74.5	College
	0	T	1.2	28.3	51.9	7.5	12.7	1.1	T	102.7	Ellen St.
1961/62	0	0	10.0	7.0	22.5	25.0	T	4.0	0	59.5	College
	0	0	0.7	9.9	32.1	27.5	1.1	5.6	0	76.9	Ellen St.
1962/63	0	T	3.5	30.5	16.0	26.2	4.5	T	0	80.7	College
	0	T	5.8	37.3	20.8	25.5	6.8	T	T	96.2	Ellen St.
1963/64	0	0	2.0	75.0	25.0	16.5	12.0	3.5	0	134.0	College
	0	0	4.5	89.2	26.4	19.2	13.5	1.8	0	154.6	Ellen St.
1964/65	0	T	6.0	15.5	48.0	33.3	20.6	5.0	0	128.4	College
	0	0.1	6.2	12.6	48.8	56.9	28.5	3.5	0	136.6	Ellen St.
1965/66	0	T	5.0	14.5	67.0	54.0	7.5	T	T	148.0	College
	0	T	6.2	17.0	103.1	28.2	7.9	1.6	T	164.0	Ellen St.
	-	-	-	-	**140.0+	-	-	-	-	**240.0+	SW Oswego
1966/67	0	0	0.2	26.0	24.9	33.9	9.7	0.8	0.1	95.6	Ellen St.
	0	0	T	26.5	13.8	46.0	15.9	0.8	0.5	103.5	SW Oswego
1967/68	0	T	24.6	19.7	20.6	58.3	13.7	T	0	136.9	Ellen St.
	0	0	25.8	14.6	43.6	119.3+	15.2	T	0	218.5+	SW Oswego
1968/69	0	0	19.3	33.3	62.5	34.6	13.0	T	T	162.7	Mohawk St. E.
	0	0	20.2	23.5	41.7	25.8	10.2	T	0	121.4	Ellen St.
	0	T	24.7	40.7	74.0	23.7	3.9	0	0	167.0	SW Oswego
1969/70	0	0.7	4.5	46.6	59.2	60.1	13.6	0.9	T	185.6	Mohawk St. E.
	0	0.2	4.4	42.0	-	-	-	-	-	-	Ellen St.
	0	0	5.0	40.0	55.5	76.5	12.9	1.2	T	191.1	SW Oswego
1970/71	0	0.2	5.2	46.0	40.9	56.1	53.6	4.6	T	206.6	Mohawk St. E.
	0	0	5.1	45.0	47.4	58.8	55.0+	6.5	-	217.8	SW Oswego

*Estimate

**Estimate- Includes 5-day Blizzard Period 27-31 January 1966.

Note: Some difference between places are believed real, reflecting wide variations during Lake Effect Situations. College site is windiest. College measurements largely based upon 15:1 conversion from melt water. Some differences result from methods of measurements and/or variations in local conditions.

APPENDED NOTE

At the time of the presentation at the Eastern Snow Conference, Colored slides of the snow conditions during late January; slides showing synoptic conditions on the 26th and 31st of January; slides showing satellite cloud representations from which severe lake effects developed on the 26th and 27th; and some additional relevant slides were shown. Difficulties in arranging for reproduction and cost prevented inclusion of such material as figures to this paper. Regretfully, all references had to be cut out. It is expected that a detailed paper on the Oswego Area blizzard period of 3-5 February, 1972 will be given at the next Eastern Snow Conference. It is hoped to include the above cited figures and others and to submit the same for publication in those proceedings. As only a partial substitute, a color transparency, showing typical conditions near the end of the blizzard on February 5, 1972, is provided by the author with each copy of the Conference Proceedings.

REFERENCES

References appropriate to discussion of Lake Snow Situations in the Oswego Area would include the following:

- Sykes, R.B., Jr. 1969: Snowfall and visibility observations Eastern Snow Conference of 1969, Annual Meeting, Pages 30-42.
- Sykes, R.B., Jr. 1966: "The Blizzard of 1966 in Central New York State-Legend in Its Time." Weatherwise, Vol. 19, No. 6.
- Peace, R.L., Jr. and Sykes, R.B., Jr. 1966: "Mesoscale study of A Lake Effect Snow Storm." Monthly Weather Review, Vol. 94, No. 8 (1966).
- Falconer, R., Lansing, L. and Sykes, R. 1964: "Studies of Weather Phenomena to the Lee of the Eastern Great Lakes." Weatherwise, Vol. 17, No. 6, Dec. 1964, pp. 256.261.