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# CHARACTERIZATION OF COLD-WET CONDITIONS (U)

by

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ABSTRACT

A study was done to determine if cold-wet could be characterized for 12 Canadian centres and Baden-Soellingen, Germany. It was found that, in general, the weather at about 0°C is cloudier and more humid. There is no correlation between temperature and wind or temperature and barometric pressure.

RÉSUMÉ

Une étude a été effectuée dans le but de déterminer si froid-mouillé pouvait être utilisé pour caractériser 12 centres canadiens et Baden-Soellingen en Allemagne. On a trouvé, qu'en général, pour des températures autour de 0°C, l'ennuage et le taux d'humidité sont généralement plus élevés. Il n'y a pas de corrélation entre la température et le vent ou entre la température et la pression barométrique.



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## INTRODUCTION

A recent literature search (1) found no formal definition of cold-wet climatic conditions, but rather attempts to explain why cold-wet conditions make one feel so cold. None of these were entirely satisfactory or proven experimentally. Further, no standard definition of cold-wet or cold-damp was found. An ABCA standardization agreement (2) describes the principle climatic environments in the world. The one closest to cold-wet is "CO - mild cold" which represents Western European weather conditions. The temperature range is from -6°C for a daytime high to -19°C for a nighttime low. The humidity is at saturation and there is no solar radiation. This is considered to be somewhat cold in Canada and any precipitation would be frozen, and not "wet".

West  
In order to determine whether or not cold-wet can be characterized, weather data for 12 Canadian centres as well as for Baden-Soellingen, Germany were analysed. It was hypothesized that at about 0°C, it will be cloudier and foggier, there will be more precipitation, the humidity will be higher, it will be windier and the barometric pressure will be lower. This paper gives the results of this study. (A.G.)

## METHOD

To test the hypotheses, we obtained from the Canadian Climatic Centre of Environment Canada data correlating frequency of dry bulb temperature between +14.5 and -14.5°C at 1° intervals with various weather conditions. All the observations were made at hourly intervals between 0800 and 1700 Local Standard Time and, for most of the locations, covered the period from 1953 to 1985. The correlations were given for cloud cover, fog, precipitation (liquid, freezing and frozen), relative humidity, wind speed and atmospheric pressure corrected to sea level. This was carried out for 12 Canadian weather stations:- Vancouver, Prince Rupert, Calgary, Winnipeg, Toronto, Ottawa, Quebec City, Saint John, Summerside, St. John's, Iqaluit and Cambridge Bay in Canada and for Baden-Soellingen in West Germany.

Since the number of observations at each temperature were not the same, the number of observations of each condition at a particular temperature was expressed as a percent of the total number of observations at that particular temperature.

It is appreciated that to accurately define cold-wet, all conditions should be recorded simultaneously at a given temperature. This information is not available. Thus, the definition of a cold-wet environment will be proposed to be those conditions which have a high frequency of occurrence between  $\pm 14.5^{\circ}\text{C}$ , although they may not all occur simultaneously.

## RESULTS AND DISCUSSION

The weather data were reduced and the results are given graphically in Annex A. The percentage of time when a particular condition prevails is plotted against temperature. The graphs take several shapes as illustrated in Figure 1. Figure 1a shows no correlation between the condition and temperature. Figures 1b and 1c show correlations between the condition and temperature with a maximum percentage at one temperature and/or a minimum at another. Table 1 gives the temperature(s) at which there is a maximum or minimum percentage. A dash denotes no correlation at all between a condition and temperature.

Calgary has no significant weather conditions around  $0^{\circ}\text{C}$  and so is not included in any further discussions.

It can be seen that at most of the locations, there is no correlation between temperature and wind speed or between temperature and barometric pressures below 102.5 kPa.

All locations have 100% cloud cover 50 to 60% of the time and this cloud cover occurs more frequently at about  $0^{\circ}\text{C}$  at all places except Prince Rupert and Winnipeg.

There is fog about 40% of the time at about  $0^{\circ}\text{C}$  for the inland locations, 60% of the time at St. John's and Baden-Soellingen and 30% of the time at Cambridge Bay. In Vancouver, it is foggy about 50% of the time, but at no particular temperature. Fog occurs more often at or about  $0^{\circ}\text{C}$  at all places except Prince Rupert, Toronto, Iqualuit and, as mentioned, Vancouver.

All the precipitation graphs show a correlation with temperature, with the maximum occurring between 30 and 35%. Precipitation is at a maximum at or about 0°C at Vancouver, Ottawa, Saint John, Summerside, St. John's, Iqualuit and Germany, but not at Prince Rupert, Winnipeg, Toronto, Québec or Cambridge Bay.

There are high humidities 80% of the time at Prince Rupert, Cambridge Bay, Summerside and Baden-Soellingen, 70% at Vancouver and 50 to 60% at the other locations. The maximum for the 81-100% humidity range is at or about 0°C at all places except Vancouver and Germany. The minimum for the 0-60% humidity range occurs about 0°C at all places except Vancouver and Cambridge Bay.

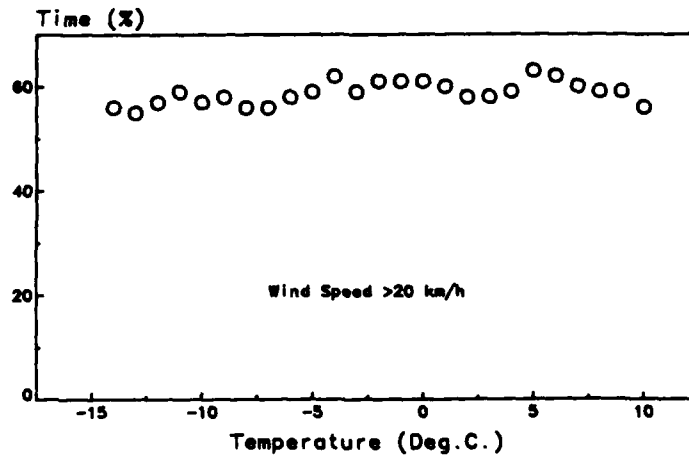
#### CONCLUSIONS

The conditions which occur frequently at about 0°C at eleven of the thirteen locations are 100% cloud and high humidity. Since these conditions prevail over 50% of the time, it can be fairly conclusively stated that they are concurrent. Fog and precipitation occur at about 0°C at nine and eight of the locations respectively. These conditions occur less than 50% of the time and so it is not as likely that they would be concurrent with other weather conditions. At most of the locations, wind and barometric pressure below 102.5 kPa are not related to temperature, especially at about 0°C. Thus the hypotheses that at about 0°C, it would be cloudier and more humid proved to be true. The hypotheses that it would be windier and that the barometric pressure would be lower proved not to be true. The hypotheses that fog and precipitation would occur at about 0°C is true for only some of the locations.

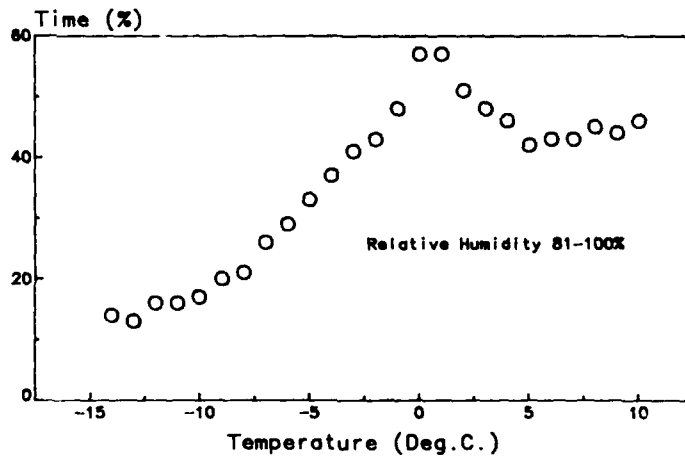
It can then be concluded that the cold-wet sensation felt at about 0°C is associated with cloudy and humid conditions, but not with windy conditions or with low barometric pressure.

REFERENCES

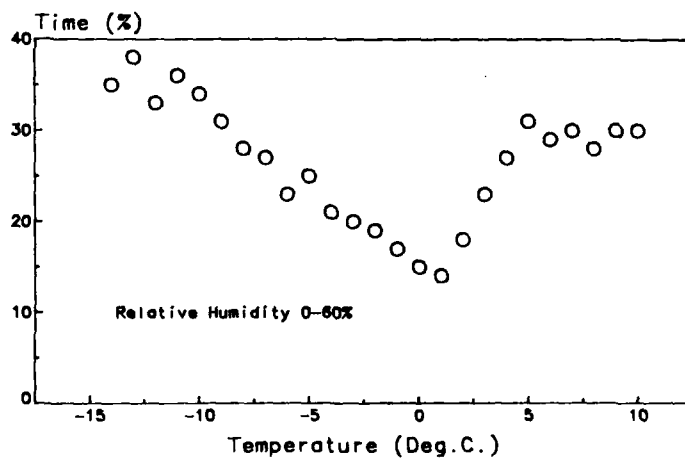
1. Rita M. Crow, Why Cold-Wet Makes One Feel Chilled: A Literature Review, DREO Technical Note, In Publication, 1988.
2. American-British-Canadian Australian Armies Standardization Program, Climatic Environmental Conditions Affecting the Design of Military Materiel. Quadripartite Standardization Agreement - 360. December 1979.



(a) No correlation.



(b) Maximum percentage.



(c) Minimum percentage.

Figure 1: Illustrations of the various types of correlations between percentage of times at which each event occurred (Time (%)) and temperature (Temperature (Deg.C.)) for weather conditions.

TABLE 1

Summary of Weather Conditions at which there is a Maximum or Minimum Frequency of Occurrence

Temperature at which maximum or minimum occur (°C)

	Vancouver		Prince Rupert		Calgary		Winnipeg		Toronto	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
Cloud Cover										
0%	-10	>0	-15	>0	-15	-	>-10	-	-15	0
10-50%	-15	>0	-15	5	-	-	-	0	-15	0
60-90%	-	-	2	-15	-	-	-	-	-	-
100%	0	-15	5	-15	-	-	-5	-	0	-15
Fog	-	-	-	-	-5	>3	0	-	-	-5
Precipitation	0	-11	5	-	-15	>3	-10	>2	-5	-
Humidity										
0-60%	-10	5	-10	0	>5	<-5	10	<0	10	<0
61-80%	-15	0	8	0	-15	<5	-	-	-15	10
81-100%	<-10	0	0	-8	-7	>3	<0	10	0	-
Wind Speed										
0-10 km/h	0	-	-	7	<-5	>5	-	-	-	-
10-20 km/h	-	0	-12	-	-	-	-	-	-	-
>20 km/h	8	-3	7	0	10	<-5	-	-	-	-
Pressure										
<99.5 kPa	-	-	-	-	-	-	-	-	3	-
99.5-100.5 kPa	-	-	-	-	>2	-15	<-10	-	0	-15
100.5-101.5 kPa	-	-	-	-	10	-15	10	-15	>3	-15
101.5-102.5 kPa	-	-	10	-	-	-	-	-	-	-
>102.5 kPa	-15	10	-	10	-15	10	-15	10	-15	>0

TABLE 1 (CONT'D)

	Ottawa		Québec		Saint John		Summerside		St. John's	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
Cloud Cover										
0%	-15	2	-15	>-5	-15	>0	-15	>-5	-15	0
10-50%	-15	0	-15	0	-15	>0	-15	0	-15	0
60-90%	-	-	-	-	-	-	-	0	-15	0
100%	0	-	0	-15	0	-15	0	-15	0	-15
Fog	0	-12	0	<-12	0	<-10	0	-	0	<-5
Precipitation	0	-	-7	-	0	-	0	-15	0	-
Humidity										
0-60%	10	0	10	0	-13	0	10	<0	-15	0
61-80%	<-8	10	-15	10	<-7	>0	-15	>0	<-10	0
81-100%	0	-15	0	-15	0	-13	0	-15	0	-15
Wind Speed										
0-10 km/h	-	-	-	-	-12	-	-15	-	-	-
10-20 km/h	-	-	-	-	-	-	-	-	10	-15
>20 km/h	-	-	-	-	-	-	-	-	-	-
Pressure										
<99.5 kPa	-	-	-	-	0	-	0	-	0	-
99.5-100.5 kPa	0	-15	0	-	-	-	0	-	-	-
100.5-101.5 kPa	3	-15	-	-	-	-	-	-	-	-
101.5-102.5 kPa	-	-	-	-	-	-	-	-	-	10
>102.5 kPa	-15	>0	-15	>-3	<-8	>0	-15	-	-10	-

TABLE 1 (CONT'D)

	Cambridge Bay		Iqualuit		Baden-Soellingen	
	Max	Min	Max	Min	Max	Min
Cloud Cover						
0%	-15	>-5	-12	-	-15	>0
10-50%	10	0	10	0	-13	>0
60-90%	10	-	10	-	-	-
100%	-3	-	0	10	0	-15
Fog	0	10	-	10	<0	10
Precipitation	-10	10	<2	10	0	-15
Humidity						
0-60%	10	5	10	<0	10	<0
61-80%	10	<0	-	0	-	0
81-100%	<2	10	0	10	-	10
Wind Speed						
0-10 km/h	-	-	-	-2	<0	8
10-20 km/h	-	-	+10	-15	>2	-
>20 km/h	-	-	<-3	10	8	-2
Pressure						
<99.5 kPa	-	-	-	10	-	-
99.5-100.5 kPa	-	-	-	-	>5	-10
100.5-101.5 kPa	>5	-	-	-	10	-
101.5-102.5 kPa	-	-	-	-	-	-
>102.5 kPa	-15	>3	-15	10	<-5	10

ANNEX APERCENTAGE OF TIMES AT WHICH EACH EVENT OCCURRED VERSUS  
TEMPERATURE FOR WEATHER CONDITIONS AT 13 LOCATIONS

- Figure A-1 (a) Cloud Cover for Vancouver  
(b) Fog and Precipitation for Vancouver  
(c) Relative Humidity for Vancouver  
(d) Wind Speed for Vancouver  
(e) Atmospheric Pressure for Vancouver
- Figure A-2 (a) Cloud Cover for Prince Rupert  
(b) Fog and Precipitation for Prince Rupert  
(c) Relative Humidity for Prince Rupert  
(d) Wind Speed for Prince Rupert  
(e) Atmospheric Pressure for Prince Rupert
- Figure A-3 (a) Cloud Cover for Calgary  
(b) Fog and Precipitation for Calgary  
(c) Relative Humidity for Calgary  
(d) Wind Speed for Calgary  
(e) Atmospheric Pressure for Calgary
- Figure A-4 (a) Cloud Cover for Winnipeg  
(b) Fog and Precipitation for Winnipeg  
(c) Relative Humidity for Winnipeg  
(d) Wind Speed for Winnipeg  
(e) Atmospheric Pressure for Winnipeg
- Figure A-5 (a) Cloud Cover for Toronto  
(b) Fog and Precipitation for Toronto  
(c) Relative Humidity for Toronto  
(d) Wind Speed for Toronto  
(e) Atmospheric Pressure for Toronto
- Figure A-6 (a) Cloud Cover for Ottawa  
(b) Fog and Precipitation for Ottawa  
(c) Relative Humidity for Ottawa  
(d) Wind Speed for Ottawa  
(e) Atmospheric Pressure for Ottawa

ANNEX A (CONT'D)

- Figure A-7 (a) Cloud Cover for Québec  
(b) Fog and Precipitation for Québec  
(c) Relative Humidity for Québec  
(d) Wind Speed for Québec  
(e) Atmospheric Pressure for Québec
- Figure A-8 (a) Cloud Cover for Saint John  
(b) Fog and Precipitation for Saint John  
(c) Relative Humidity for Saint John  
(d) Wind Speed for Saint John  
(e) Atmospheric Pressure for Saint John
- Figure A-9 (a) Cloud Cover for Summerside  
(b) Fog and Precipitation for Summerside  
(c) Relative Humidity for Summerside  
(d) Wind Speed for Summerside  
(e) Atmospheric Pressure for Summerside
- Figure A-10(a) Cloud Cover for St. John's  
(b) Fog and Precipitation St. John's  
(c) Relative Humidity for St. John's  
(d) Wind Speed for St. John's  
(e) Atmospheric Pressure for St. John's
- Figure A-11(a) Cloud Cover for Cambridge Bay  
(b) Fog and Precipitation for Cambridge Bay  
(c) Relative Humidity for Cambridge Bay  
(d) Wind Speed for Cambridge Bay  
(e) Atmospheric Pressure for Cambridge Bay
- Figure A-12(a) Cloud Cover for Iqualuit  
(b) Fog and Precipitation for Iqualuit  
(c) Relative Humidity for Iqualuit  
(d) Wind Speed for Iqualuit  
(e) Atmospheric Pressure for Iqualuit
- Figure A-13(a) Cloud Cover for Baden-Soellingen  
(b) Fog and Precipitation for Baden-Soellingen  
(c) Relative Humidity for Baden-Soellingen  
(d) Wind Speed for Baden-Soellingen  
(e) Atmospheric Pressure for Baden-Soellingen

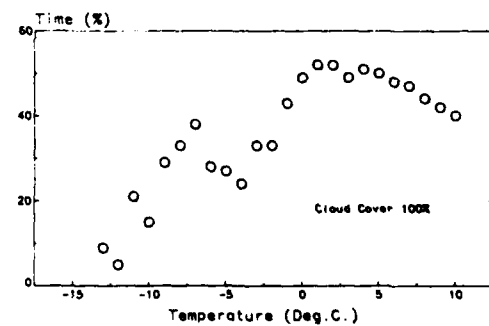
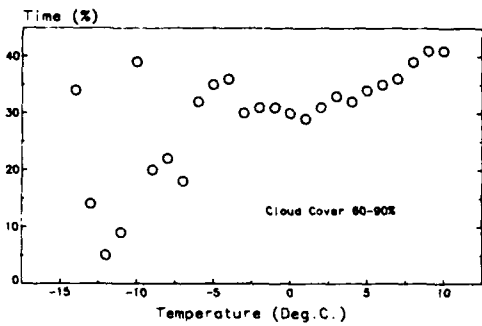
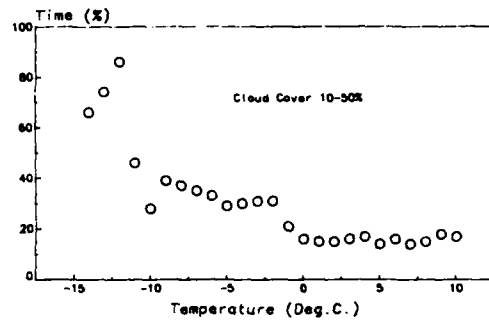
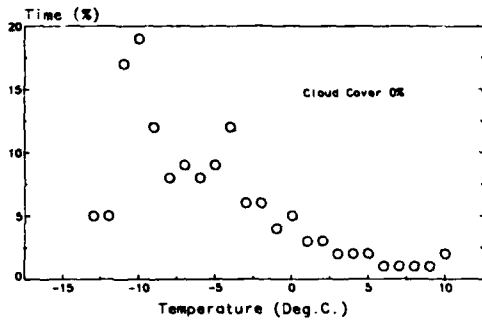


Figure A-1 (a) Cloud Cover for Vancouver

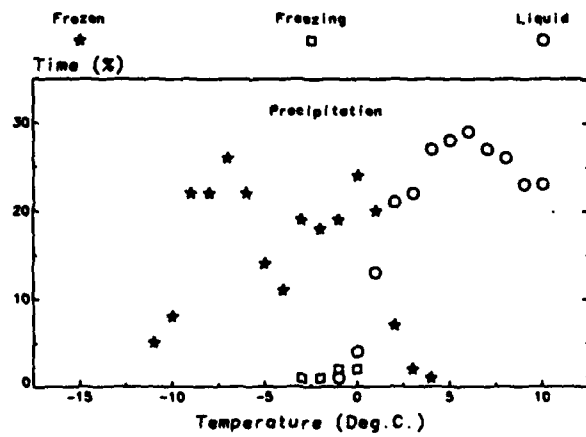
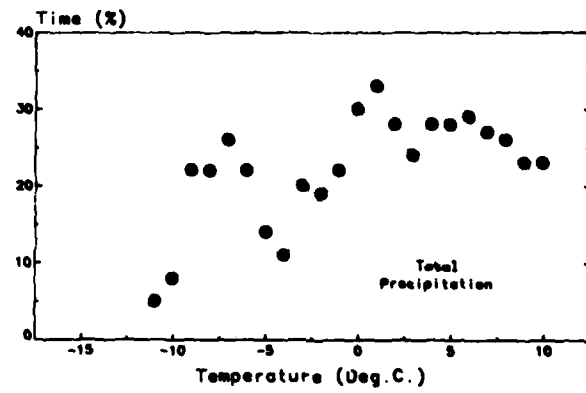
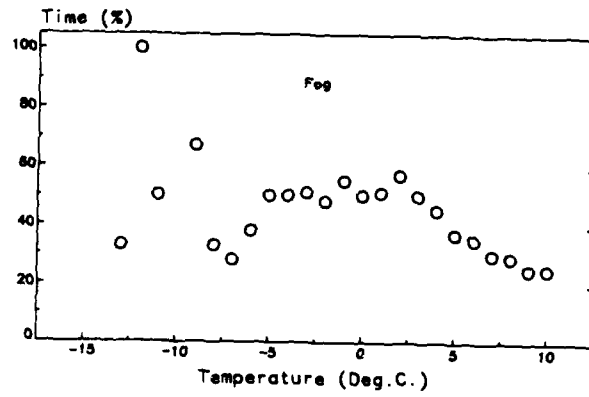


Figure A-1 (b) Fog and Precipitation for Vancouver

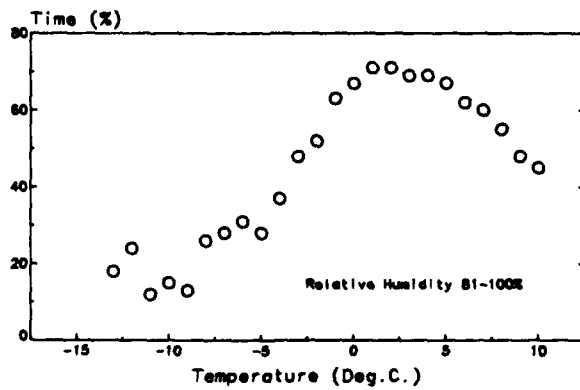
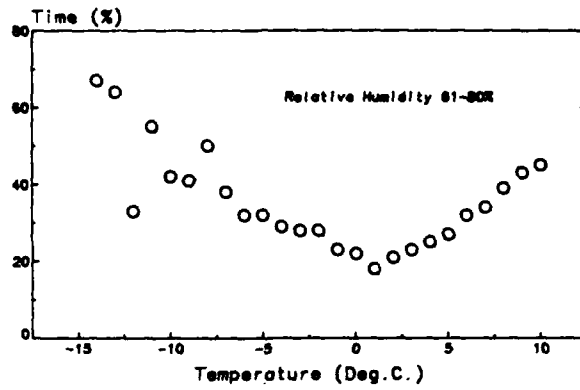
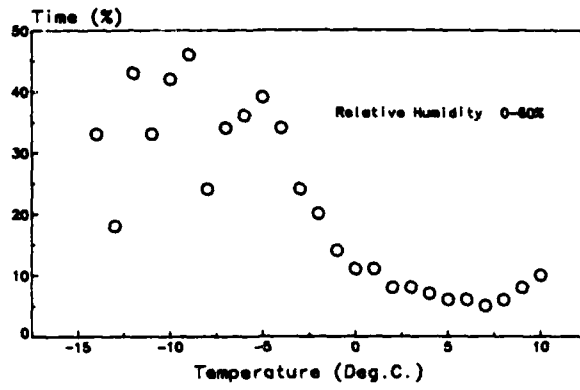


Figure A-1 (c) Relative Humidity for Vancouver

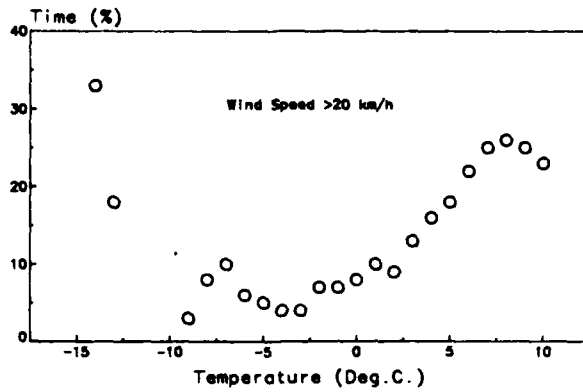
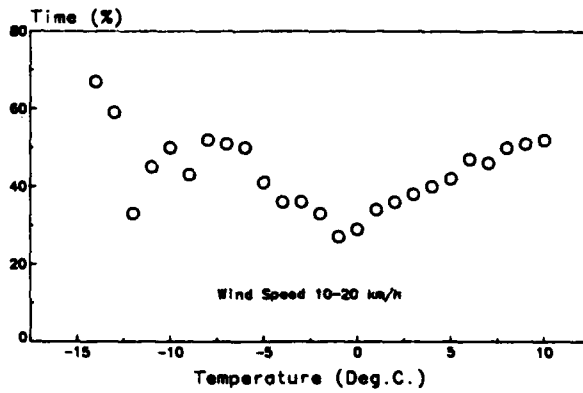
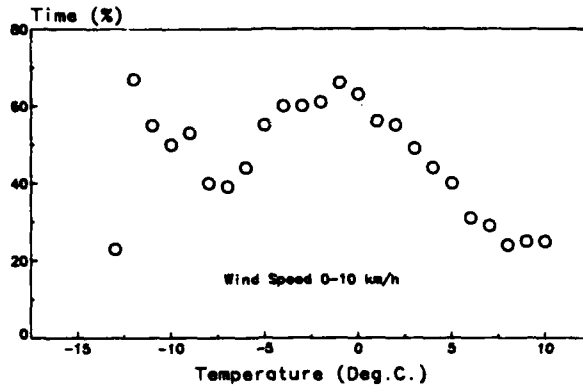


Figure A-1 (d) Wind Speed for Vancouver

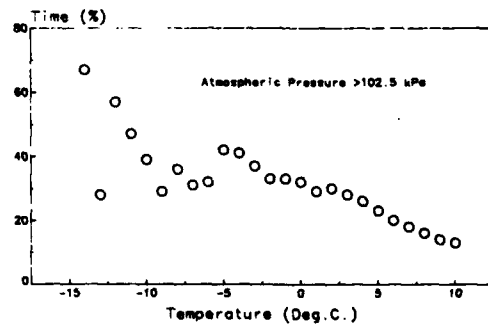
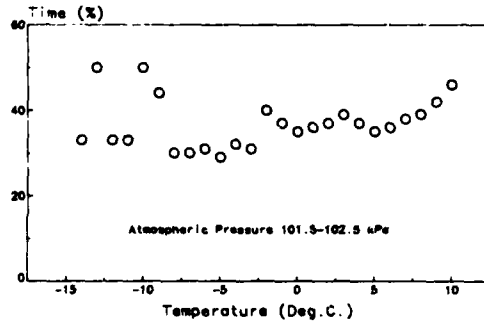
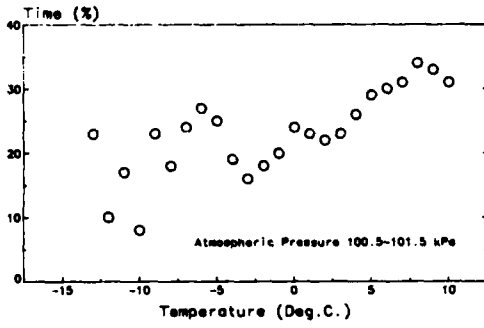
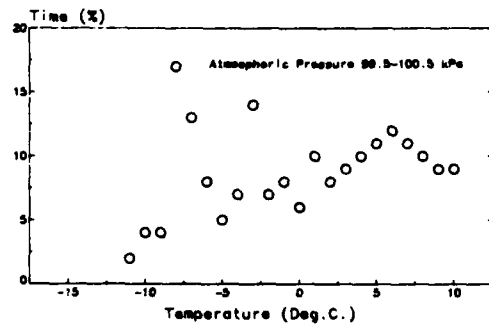
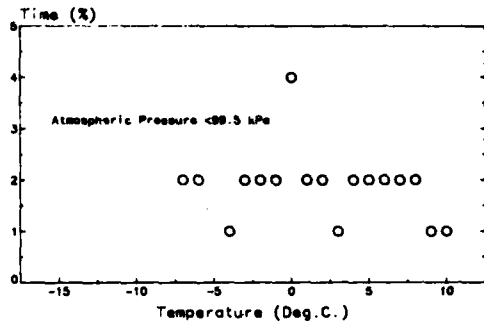


Figure A-1 (e) Atmospheric Pressure for Vancouver

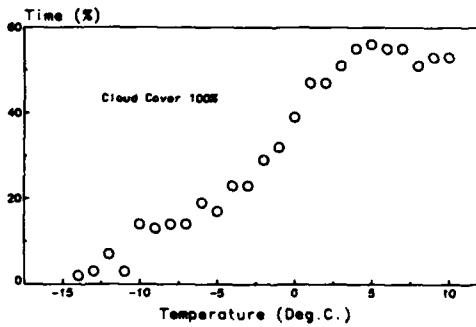
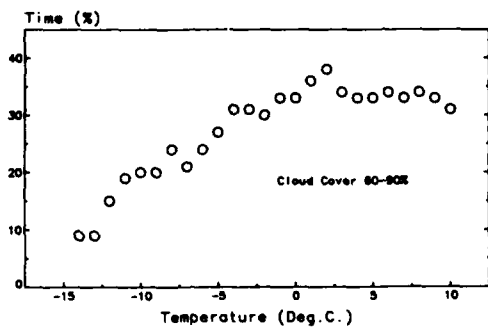
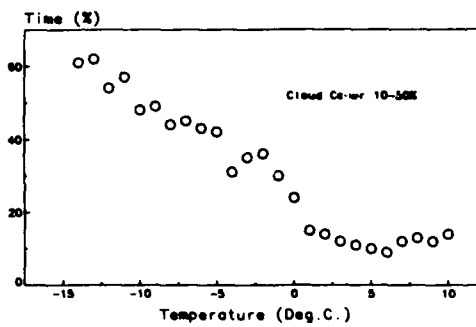
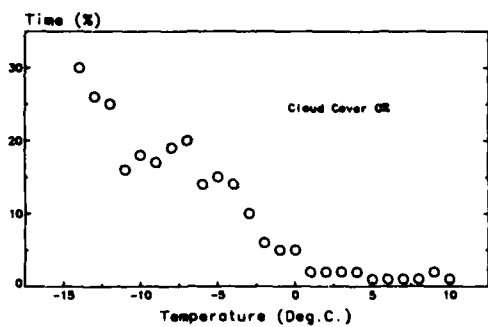


Figure A-2 (a) Cloud Cover for Prince Rupert

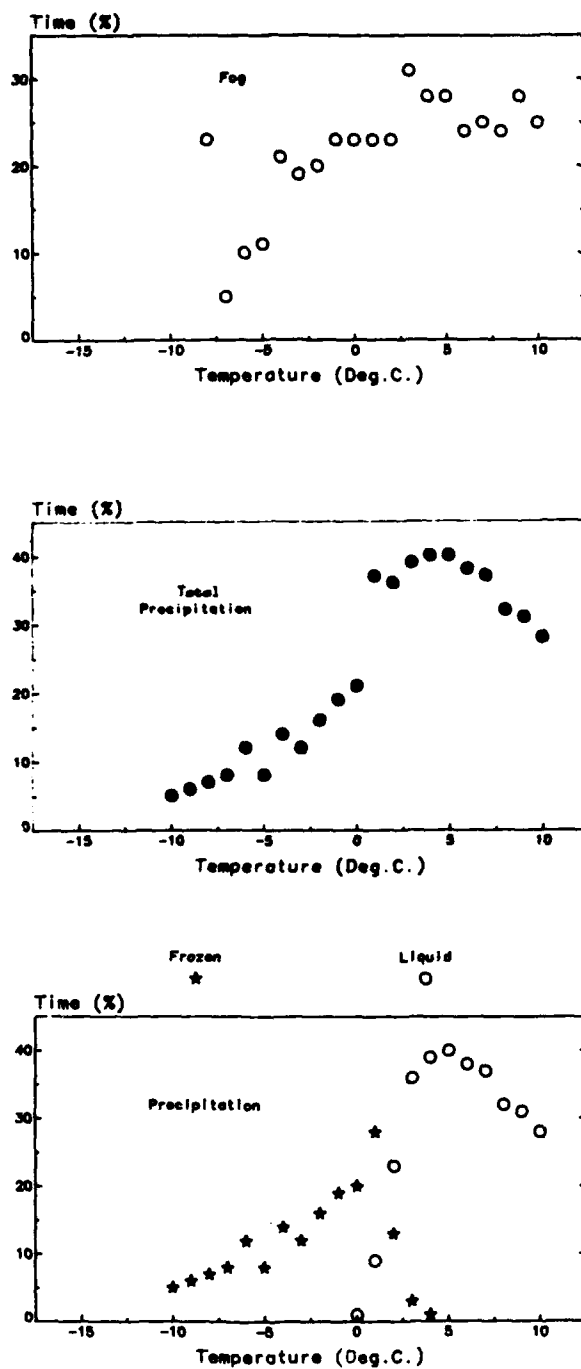


Figure A-2 (b) Fog and Precipitation for Prince Rupert

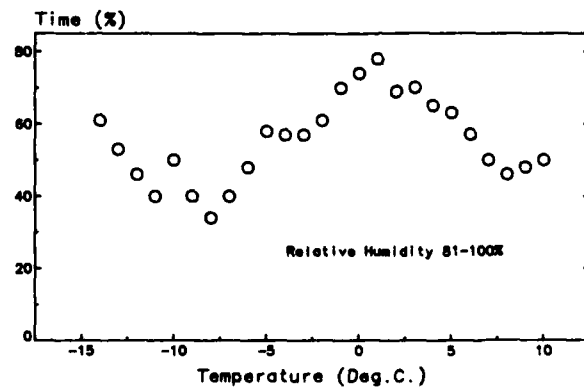
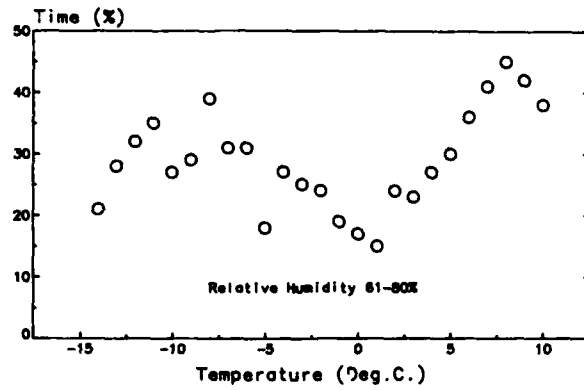
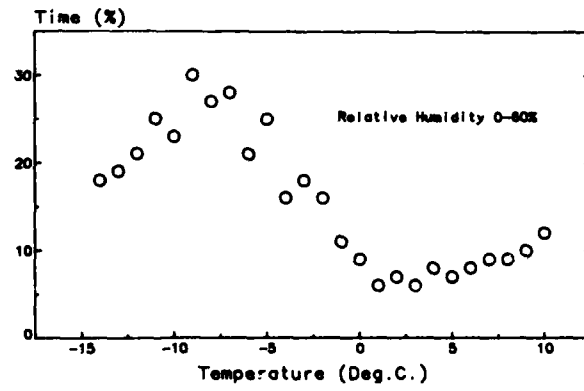


Figure A-2 (c) Relative Humidity for Prince Rupert

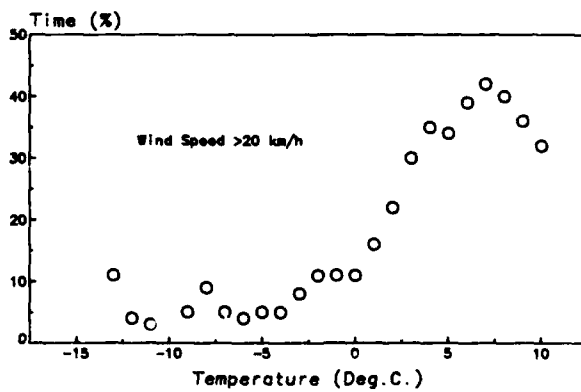
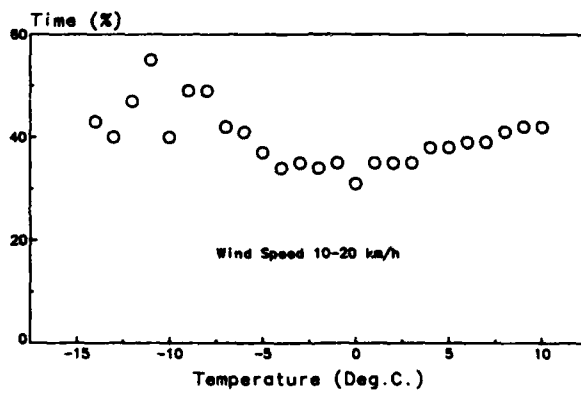
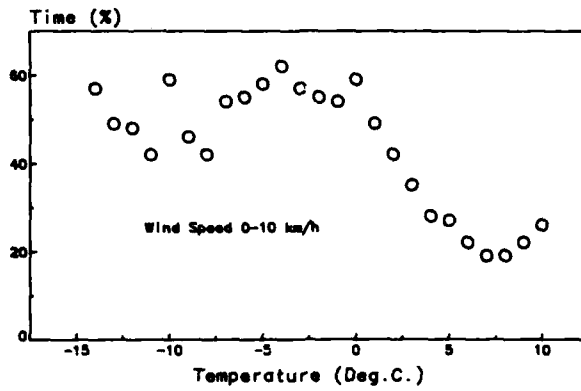


Figure A-2 (d) Wind Speed for Prince Rupert

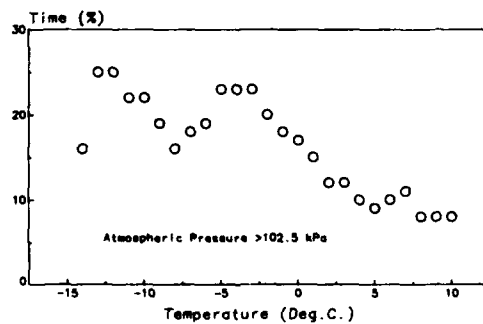
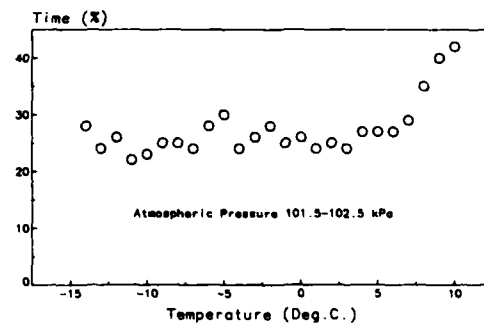
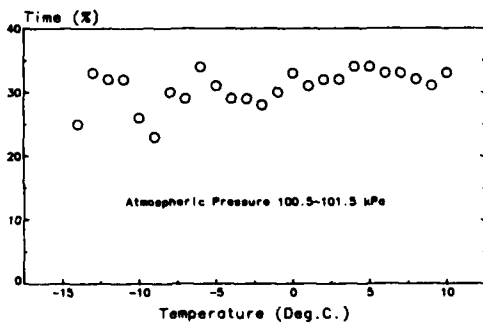
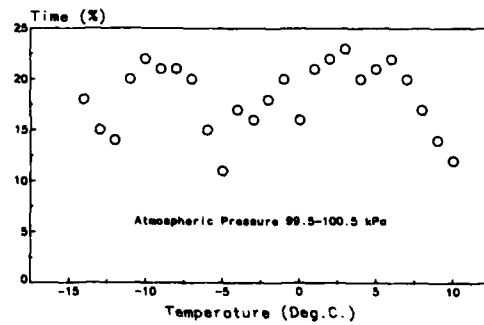
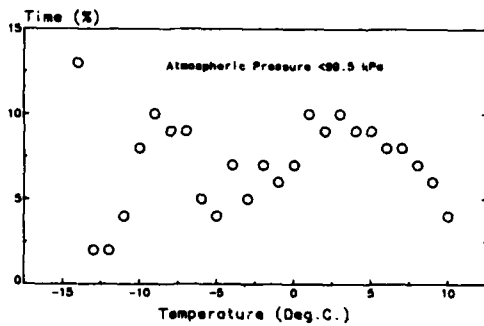


Figure A-2 (e) Atmospheric Pressure for Prince Rupert

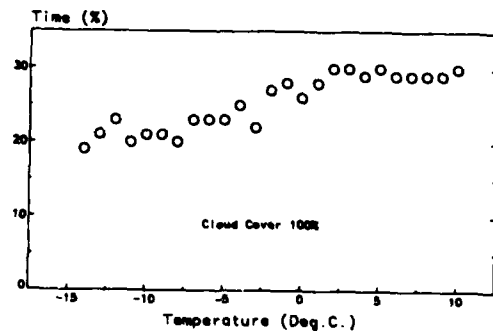
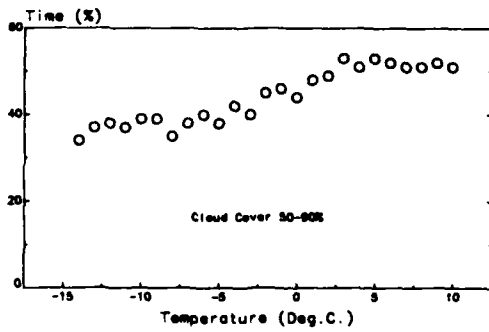
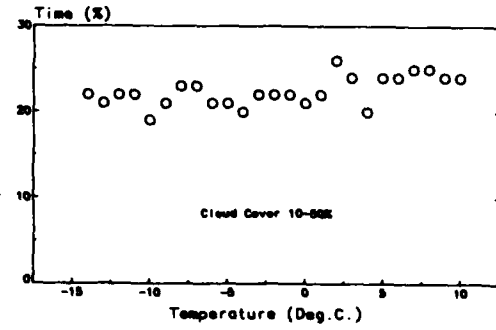
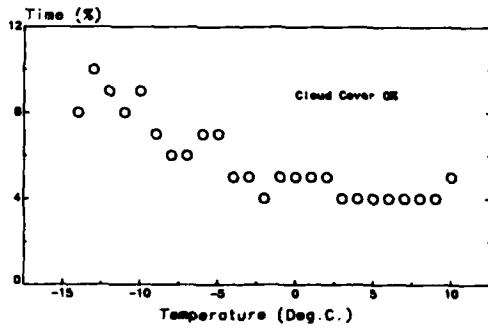


Figure A-3 (a) Cloud Cover for Calgary

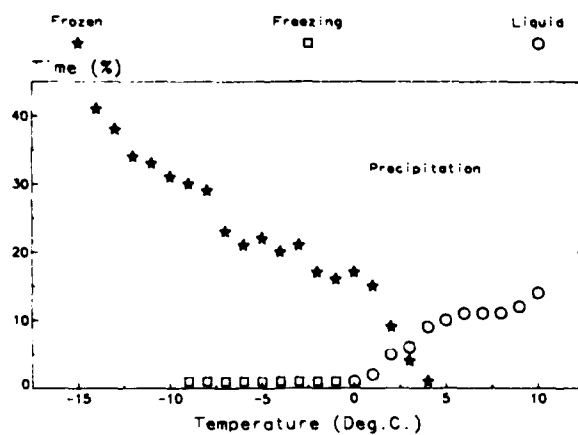
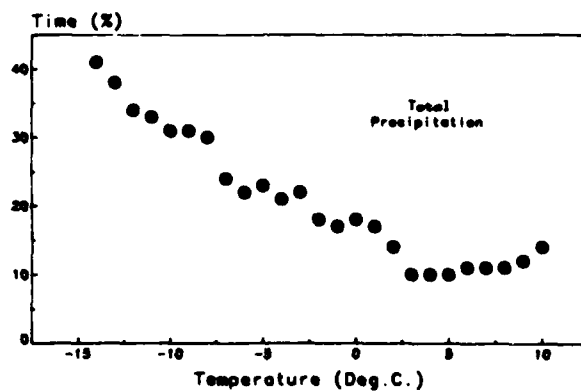
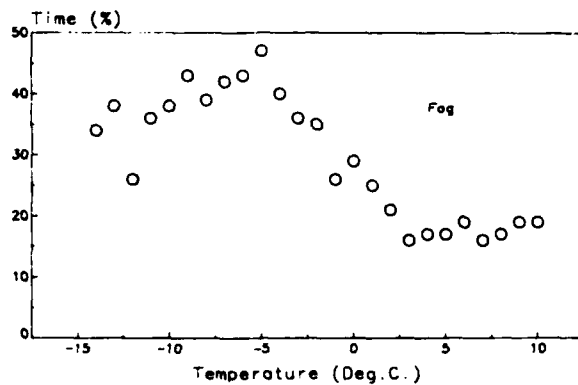


Figure A-3 (b) Fog and Precipitation for Calgary

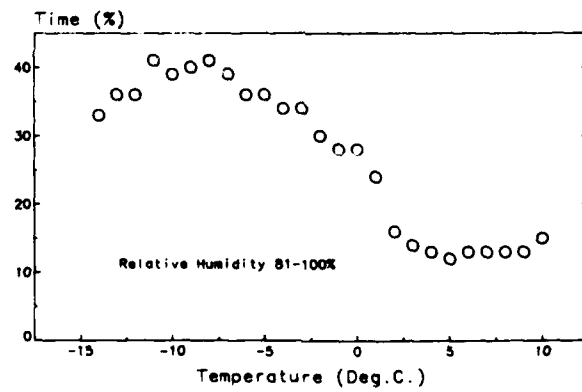
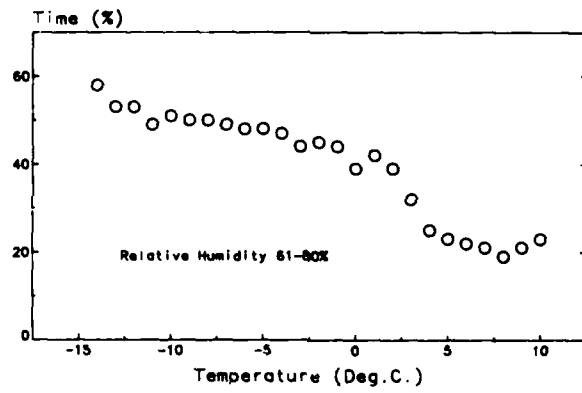
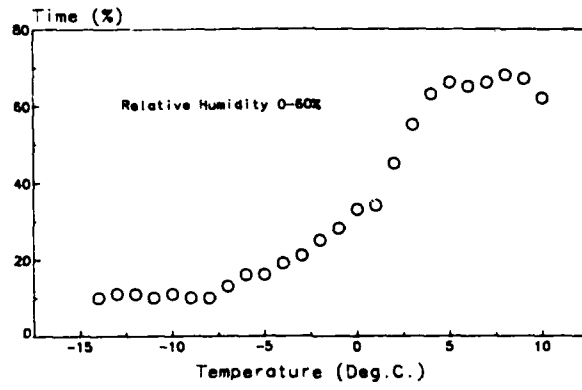


Figure A-3 (c) Relative Humidity for Calgary

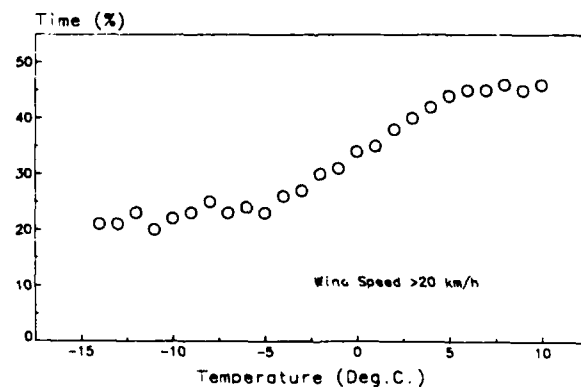
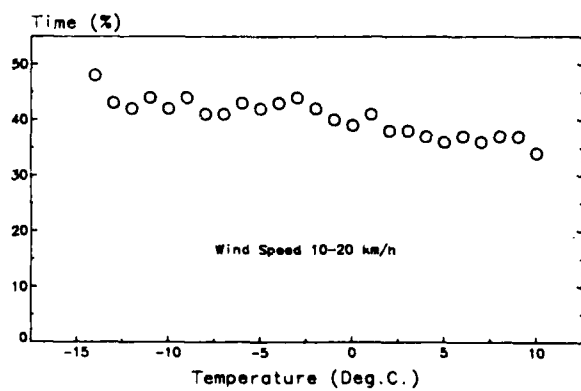
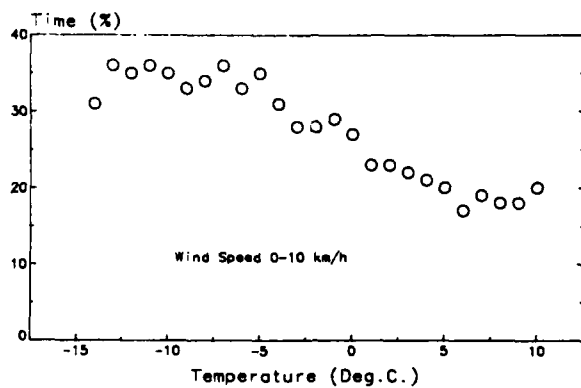


Figure A-3 (d) Wind Speed for Calgary

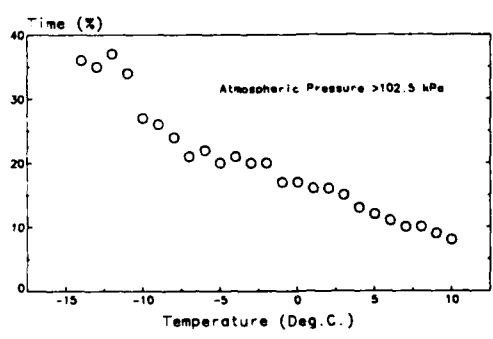
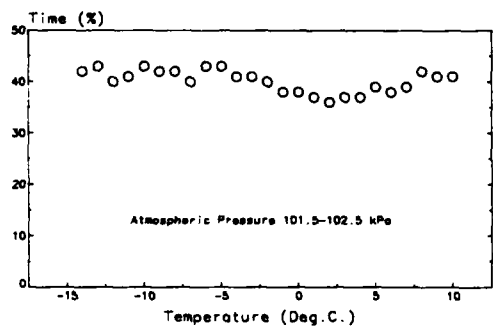
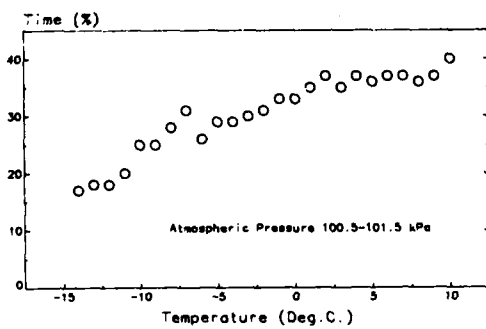
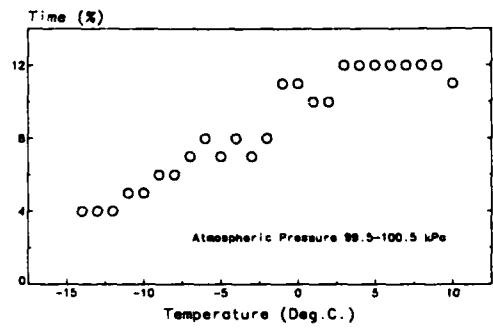
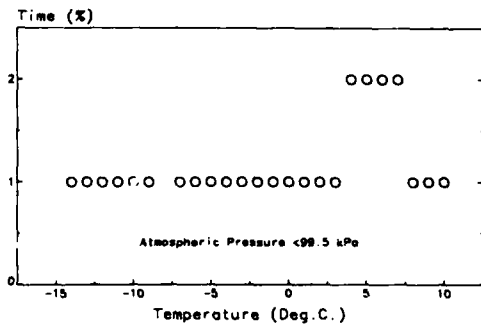


Figure A-3 (e) Atmospheric Pressure for Calgary

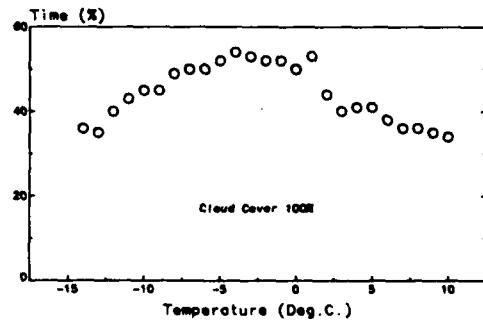
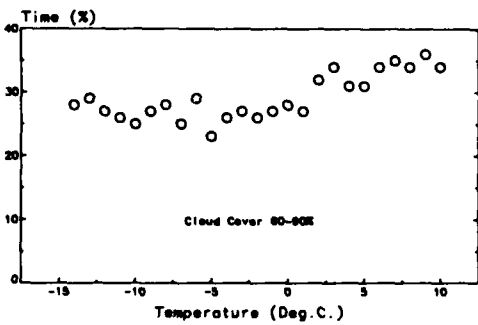
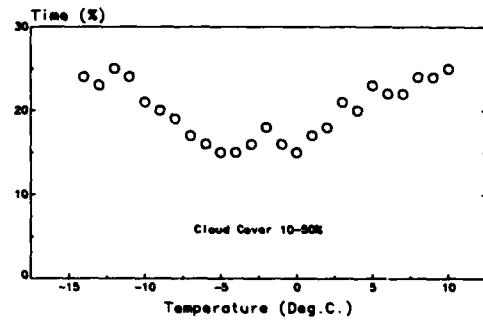
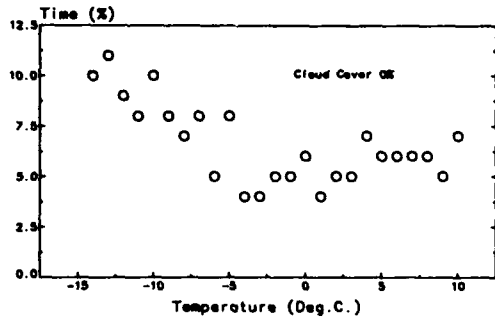


Figure A-4 (a) Cloud Cover for Winnipeg

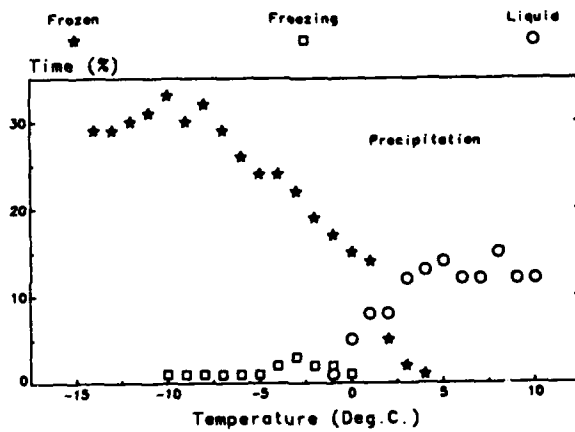
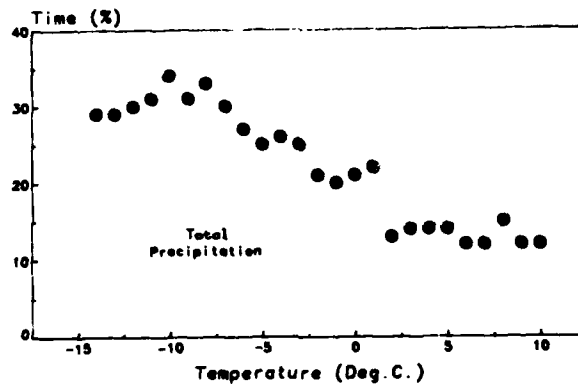
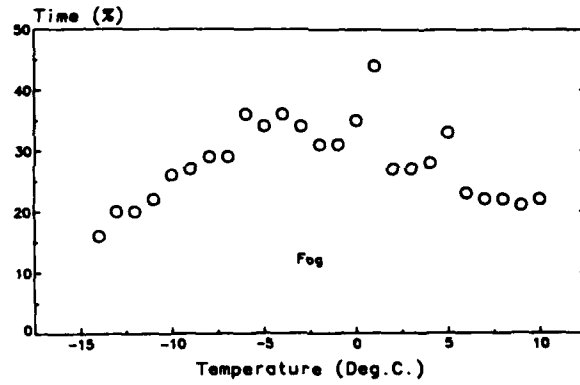


Figure A-4 (b) Fog and Precipitation for Winnipeg

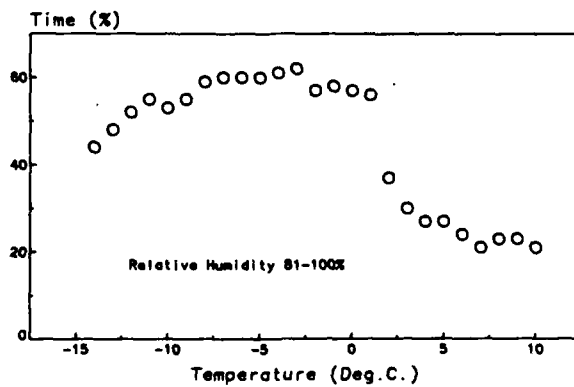
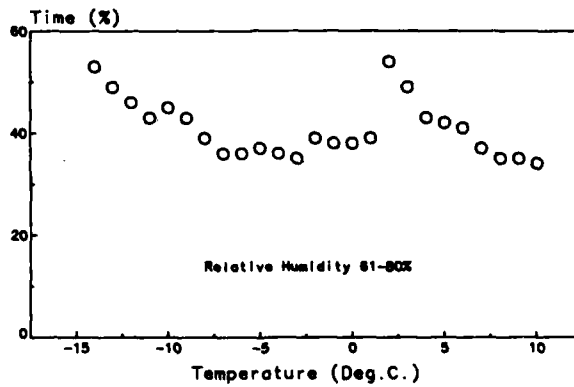
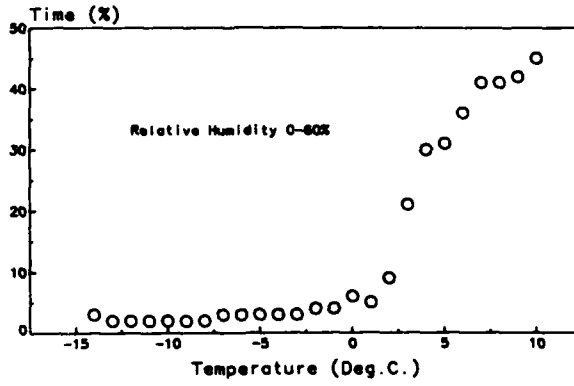


Figure A-4 (c) Relative Humidity for Winnipeg

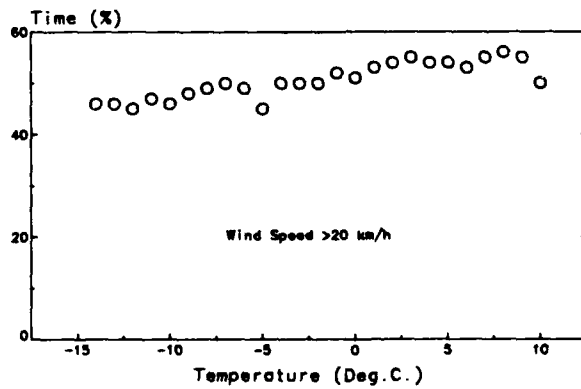
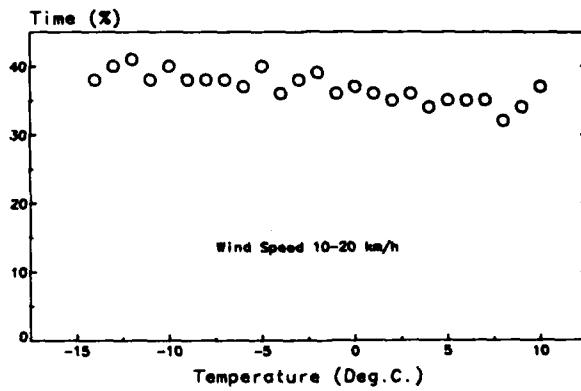
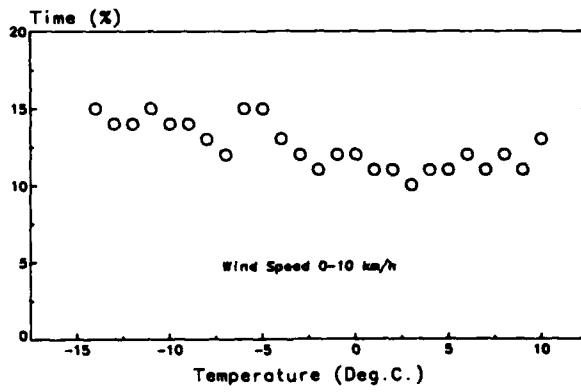


Figure A-4 (d) Wind Speed for Winnipeg

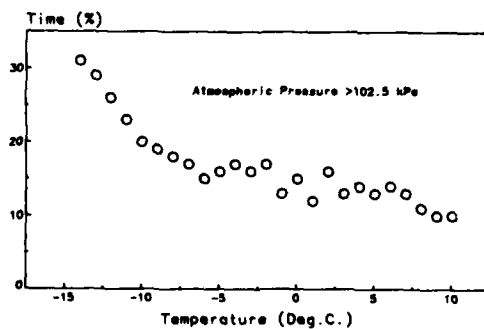
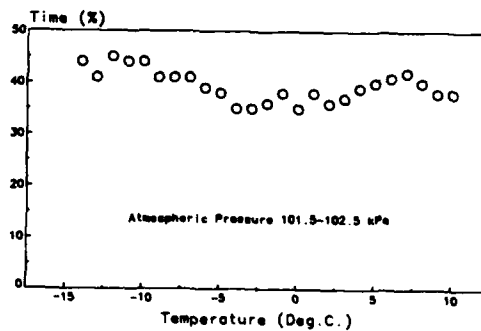
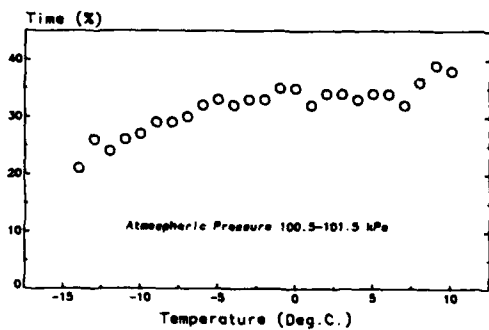
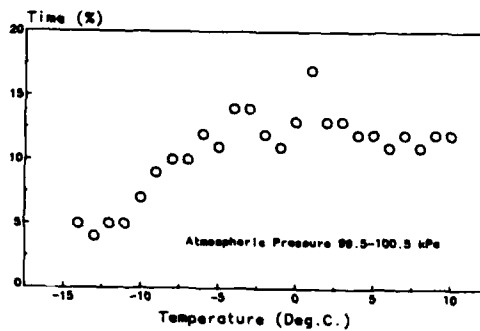
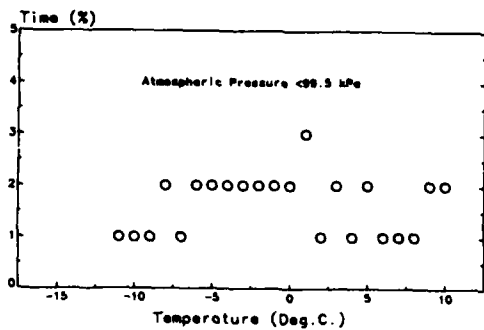


Figure A-4 (e) Atmospheric Pressure for Winnipeg

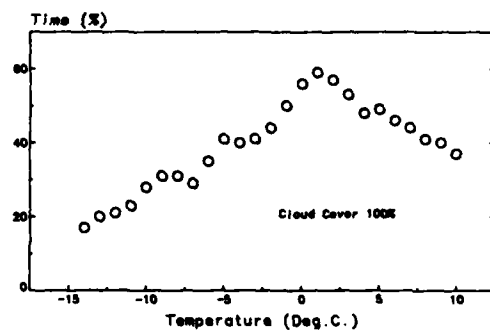
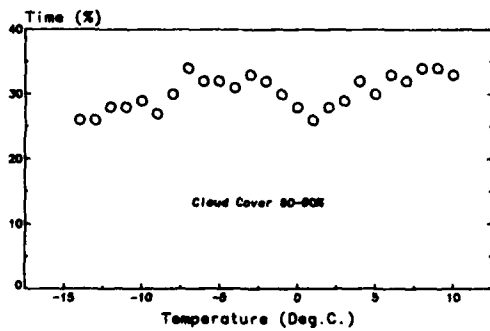
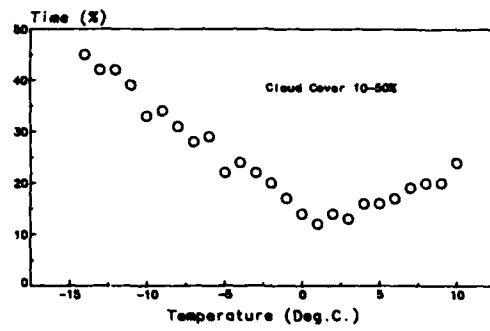
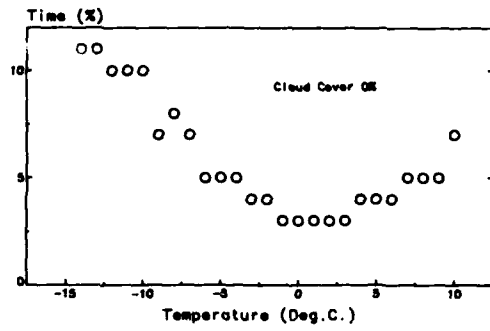


Figure A-5 (a) Cloud Cover for Toronto

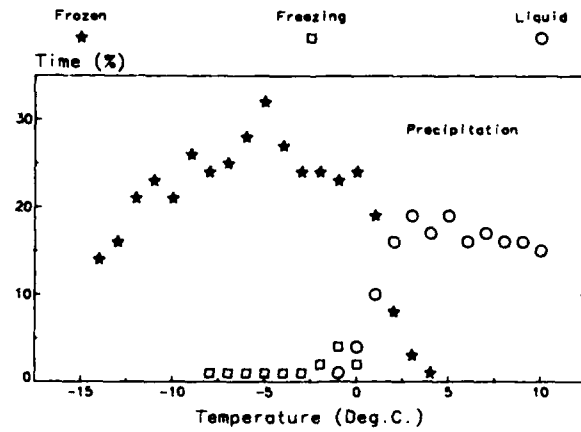
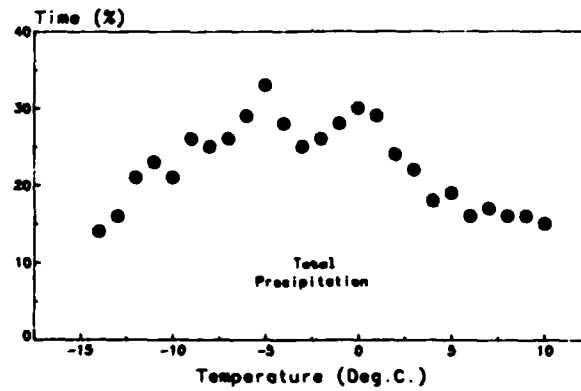
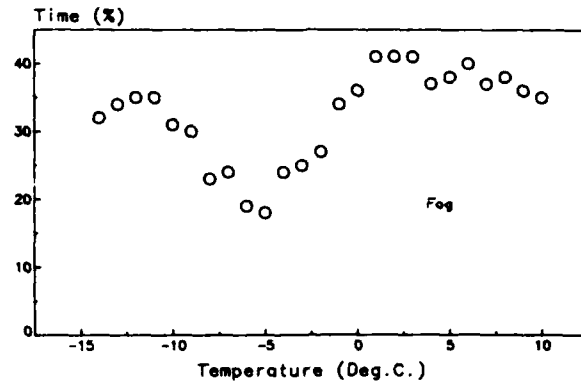


Figure A-5 (b) Fog and Precipitation for Toronto

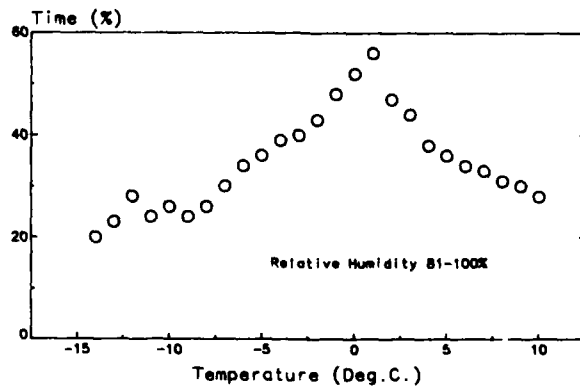
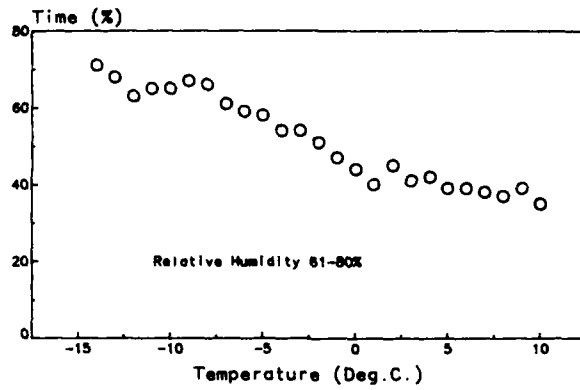
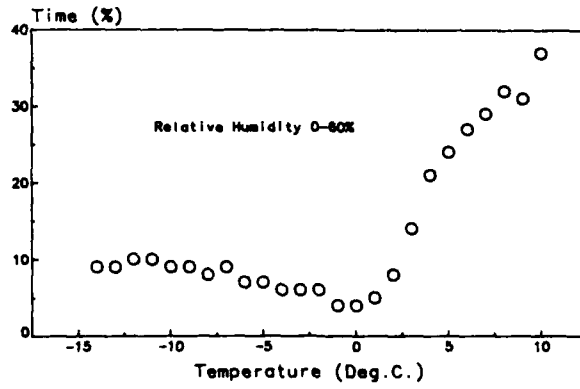


Figure A-5 (c) Relative Humidity for Toronto

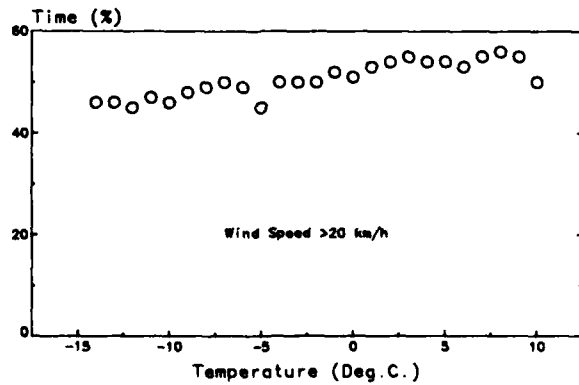
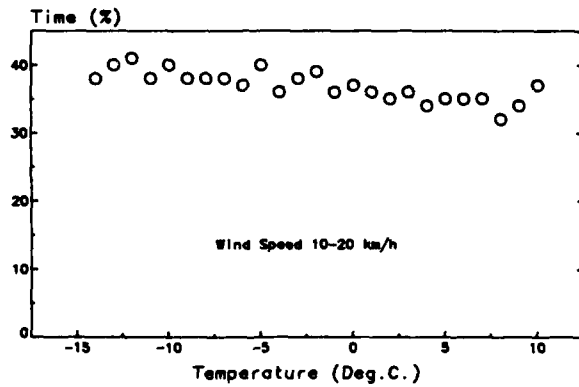
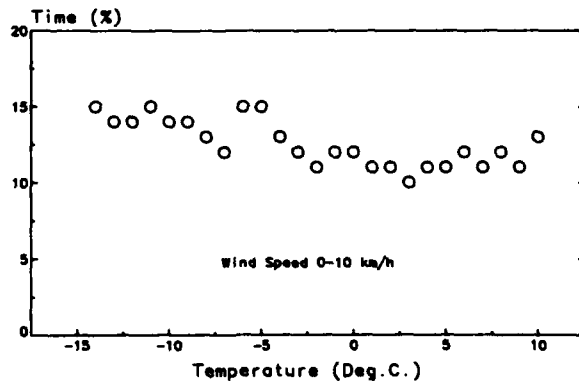


Figure A-5 (d) Wind Speed for Toronto

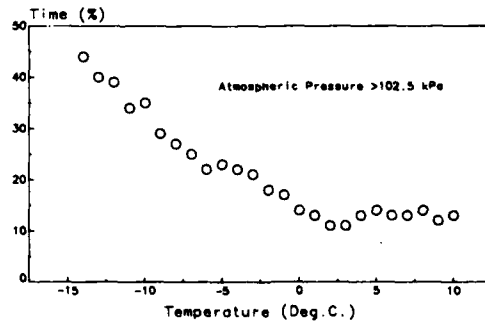
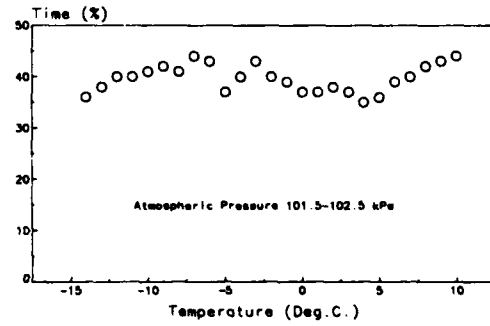
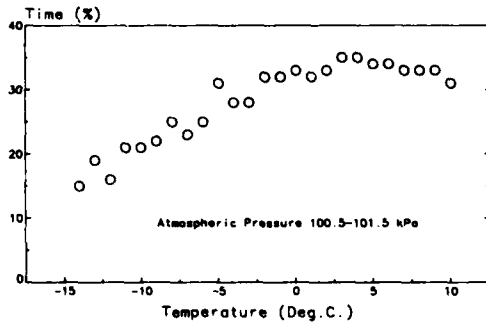
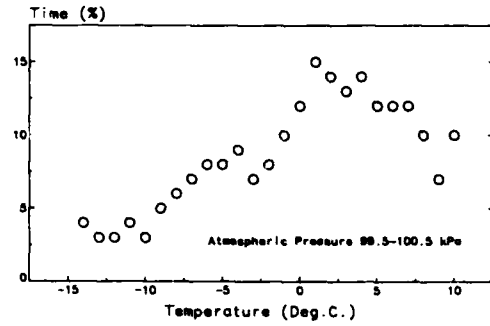
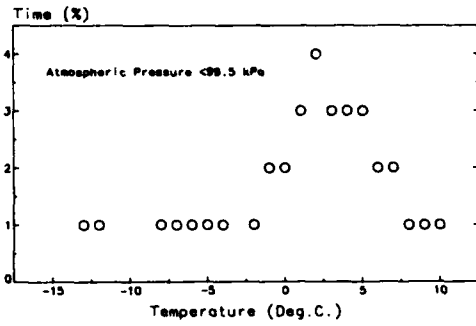


Figure A-5 (e) Atmospheric Pressure for Toronto

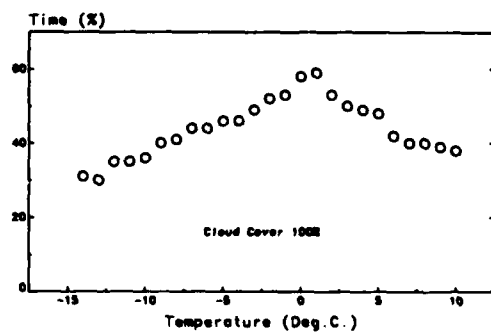
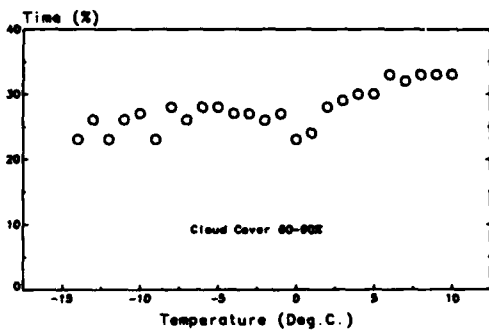
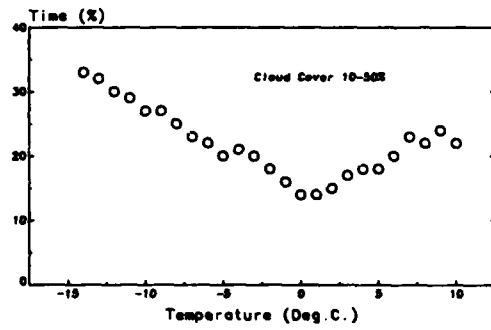
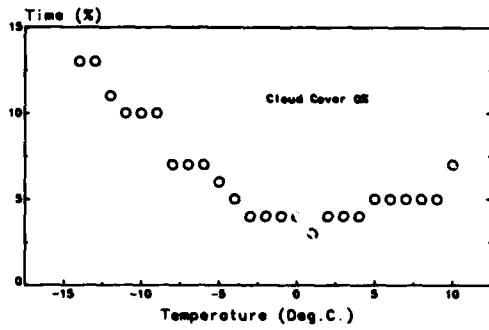


Figure A-6 (a) Cloud Cover for Ottawa

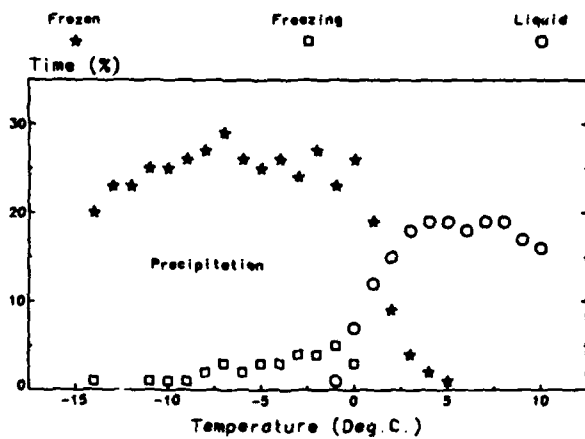
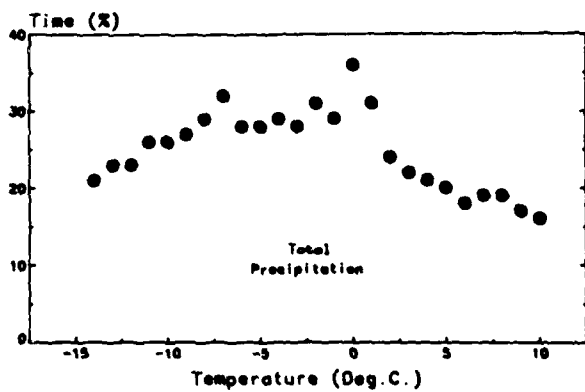
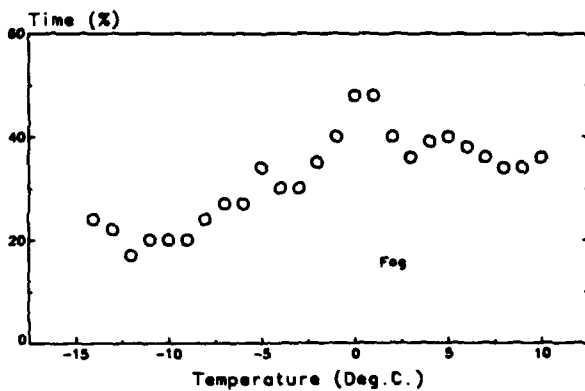


Figure A-6 (b) Fog and Precipitation for Ottawa

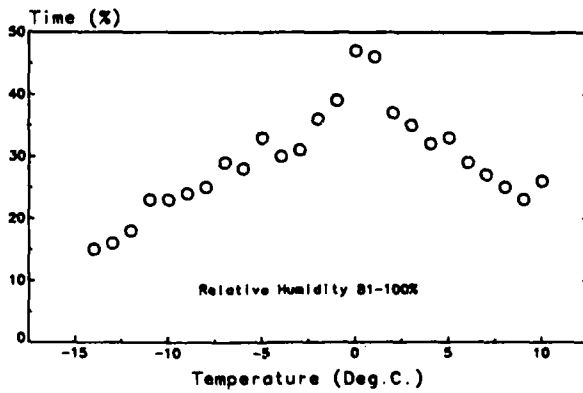
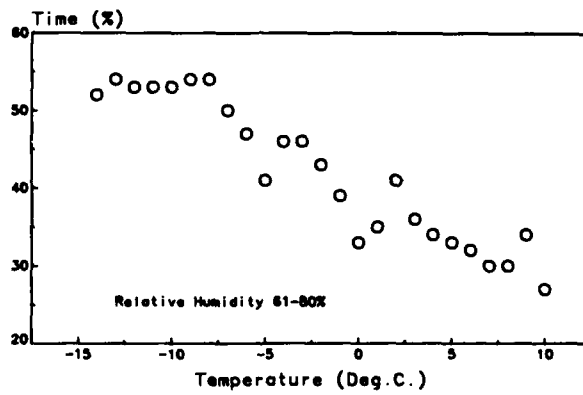
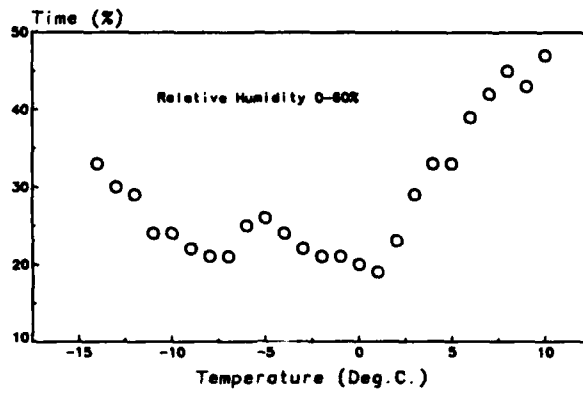


Figure A-6 (c) Relative Humidity for Ottawa

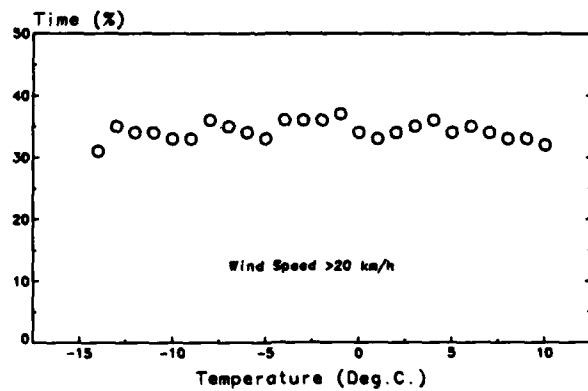
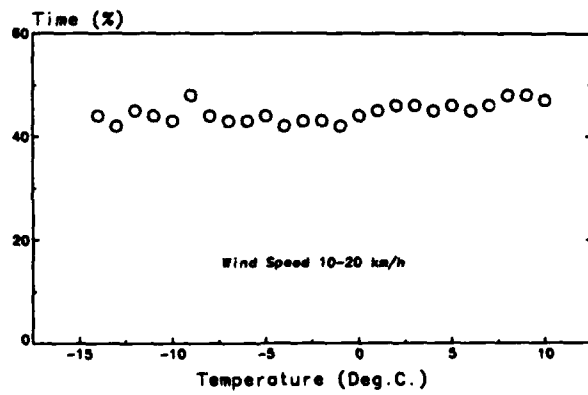
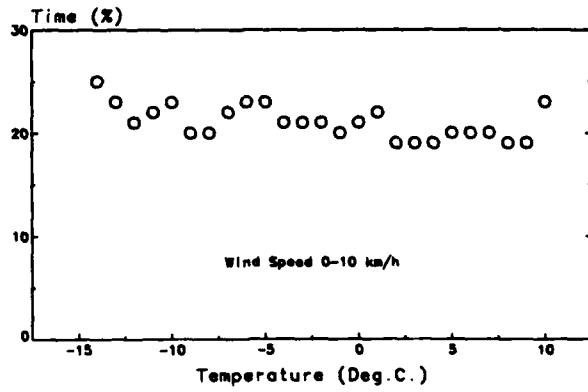


Figure A-6 (d) Wind Speed for Ottawa

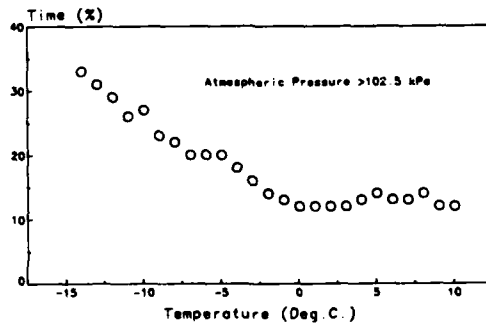
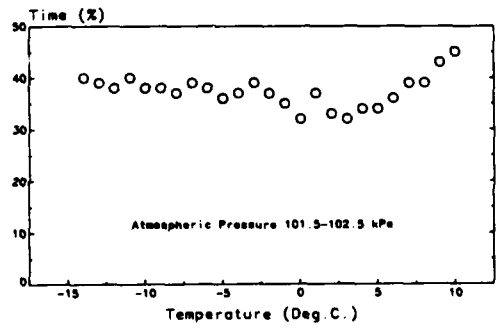
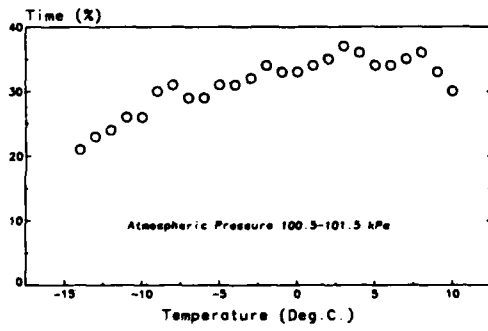
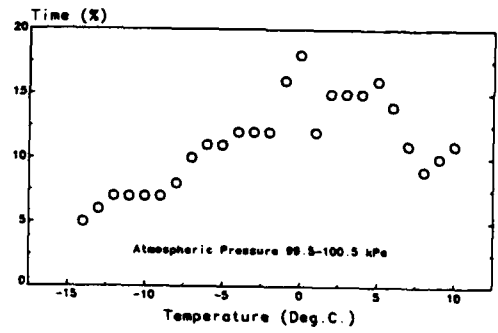
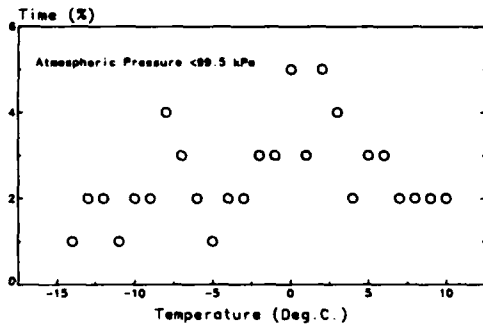


Figure A-6 (e) Atmospheric Pressure for Ottawa

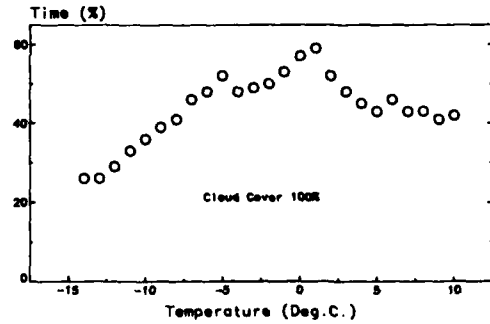
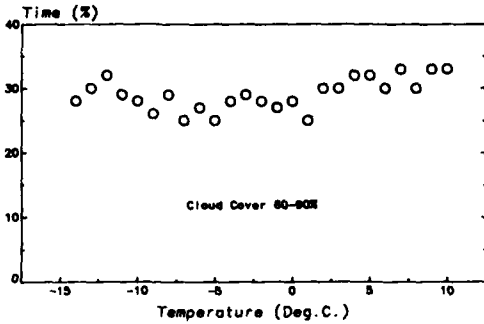
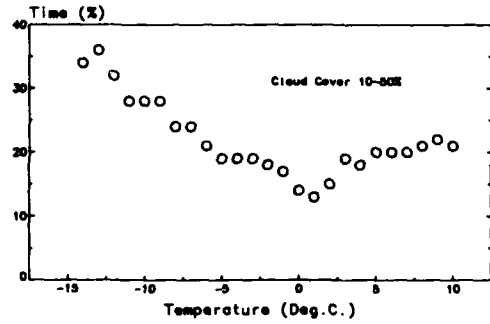
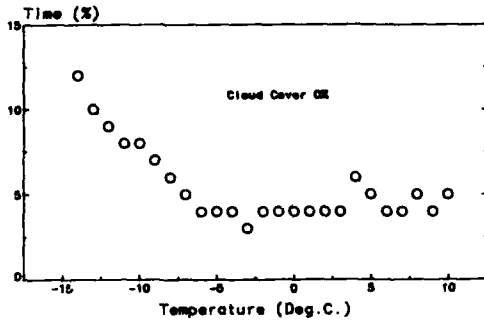


Figure A-7 (a) Cloud Cover for Québec

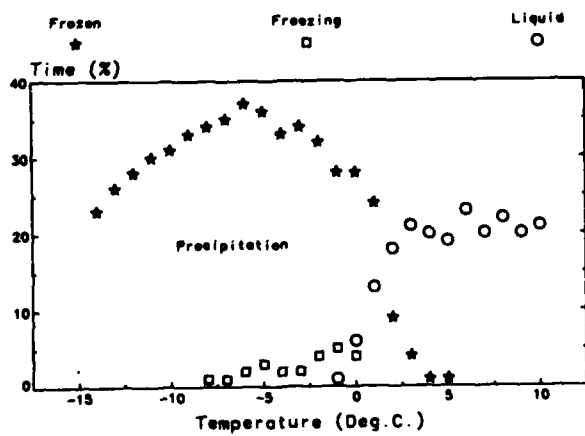
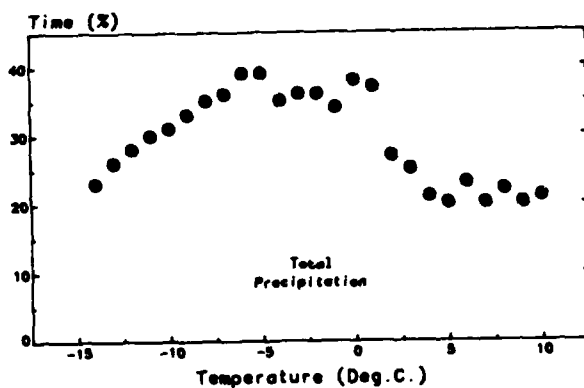
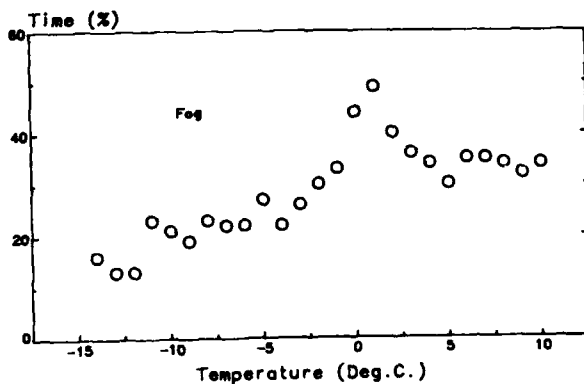


Figure A-7 (b) Fog and Precipitation for Québec

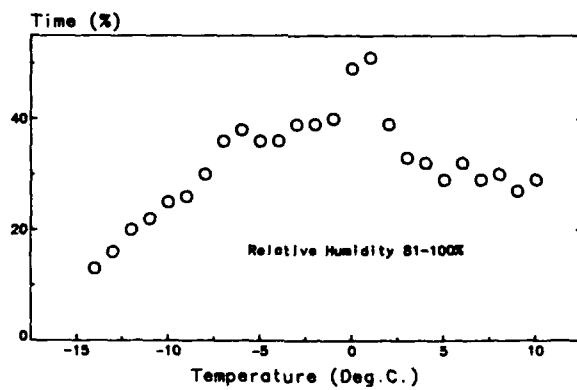
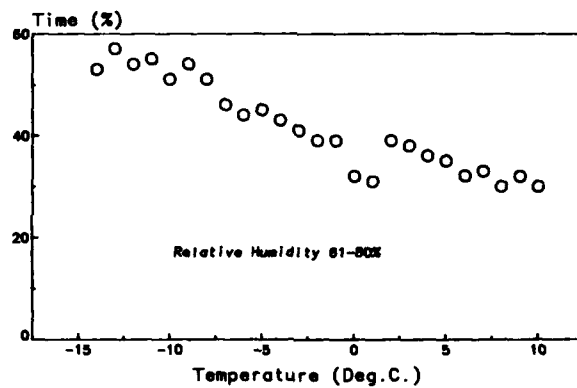
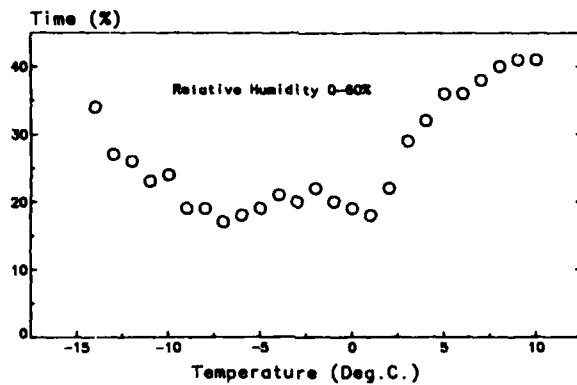


Figure A-7 (c) Relative Humidity for Québec

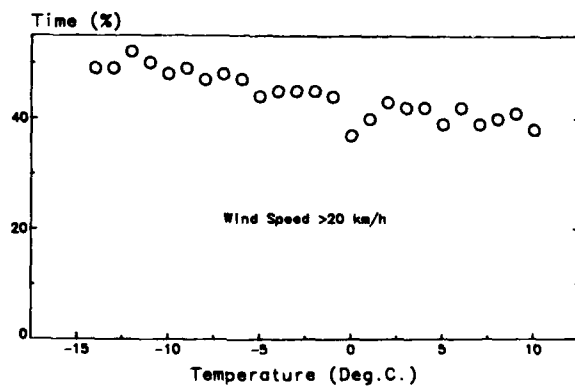
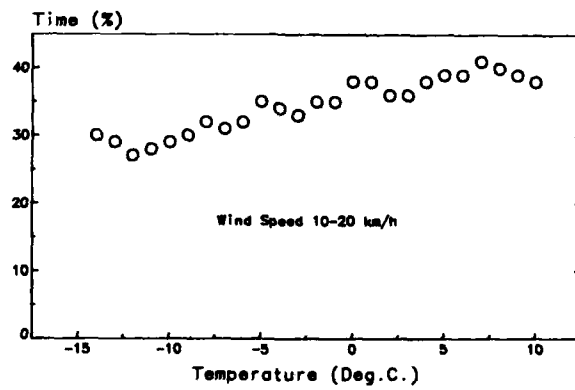
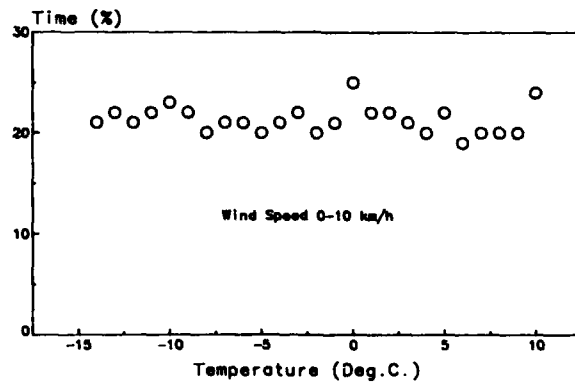


Figure A-7 (d) Wind Speed for Québec

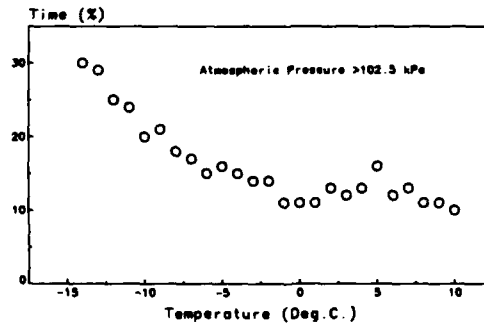
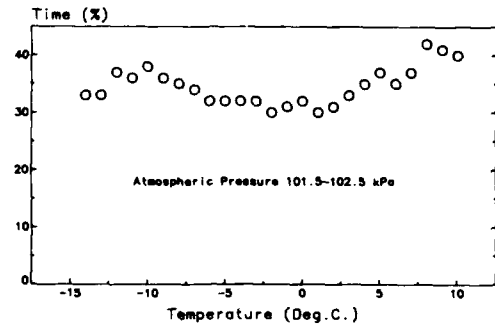
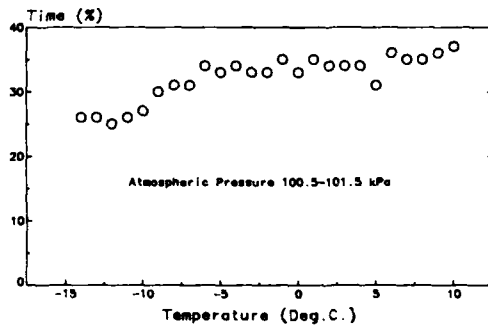
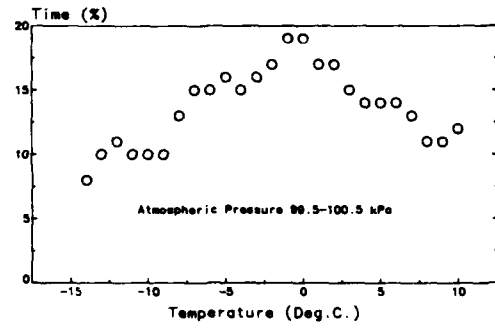
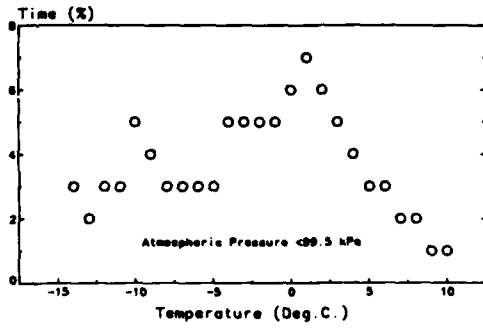


Figure A-7 (e) Atmospheric Pressure for Québec

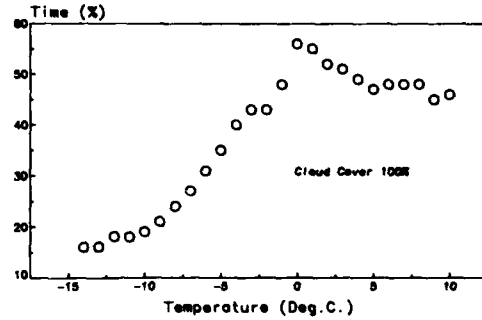
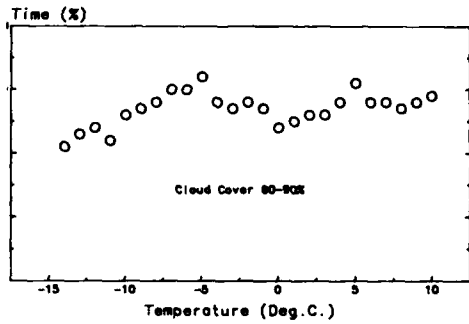
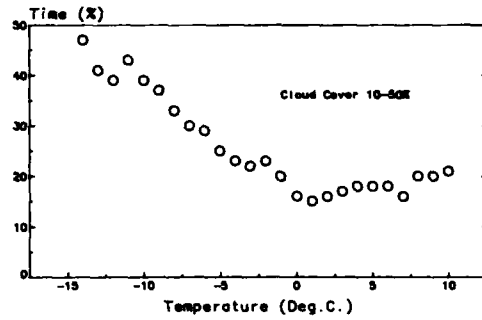
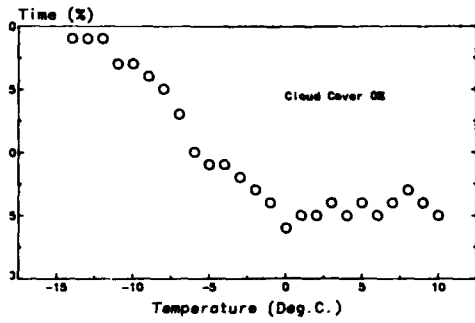


Figure A-8 (a) Cloud Cover for Saint John

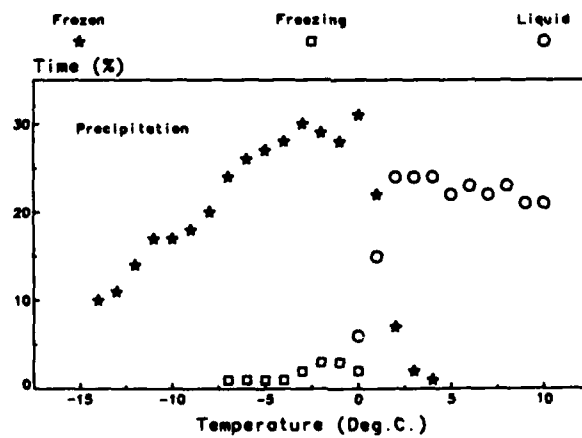
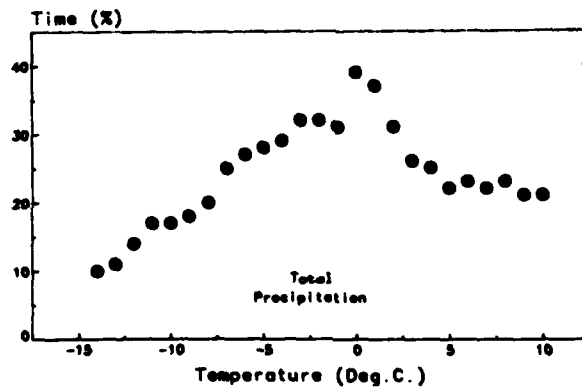
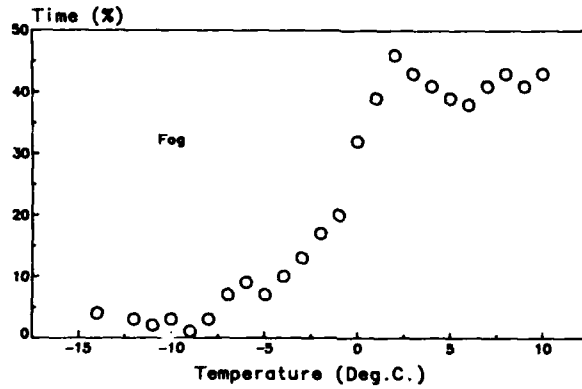


Figure A-8 (b) Fog and Precipitation for Saint John

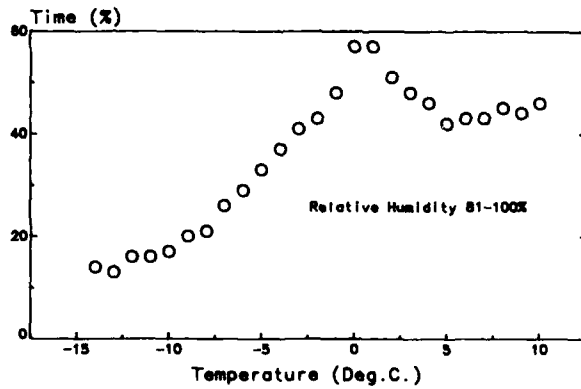
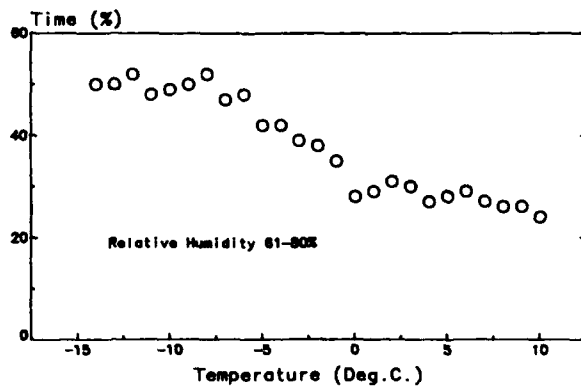
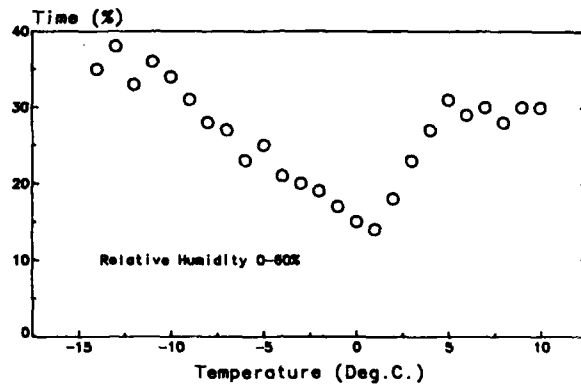


Figure A-8 (c) Relative Humidity for Saint John

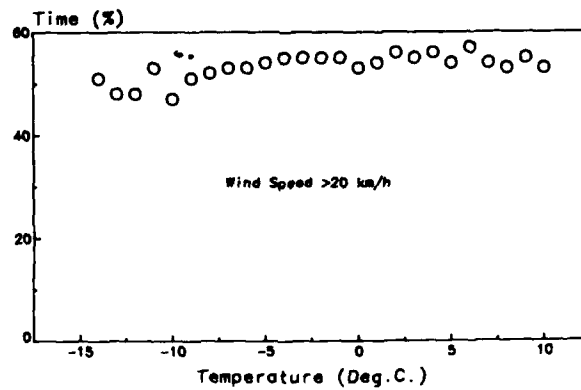
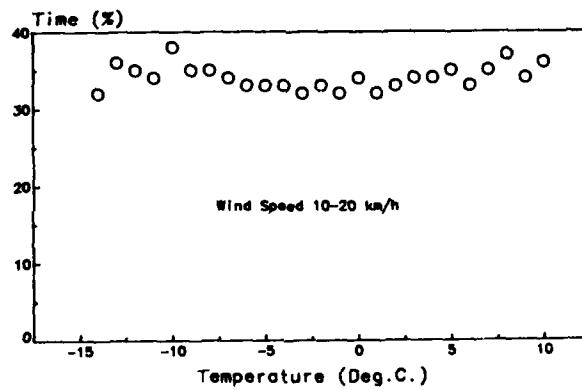
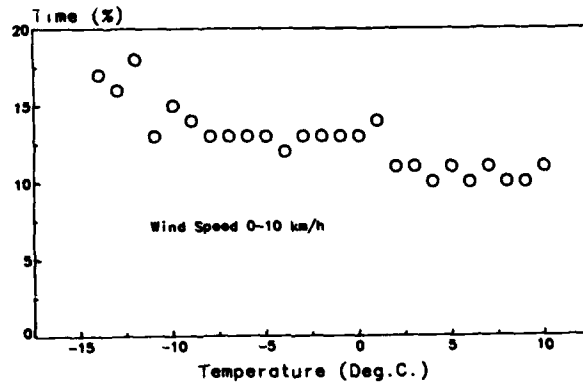


Figure A-8 (d) Wind Speed for Saint John

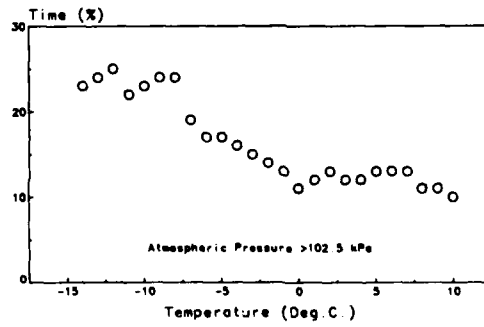
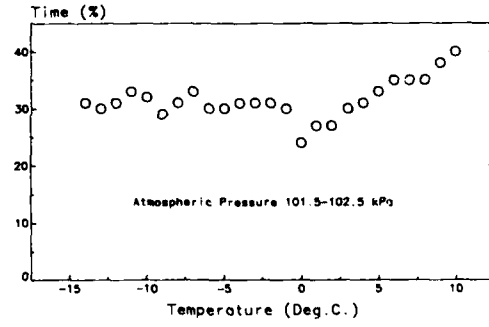
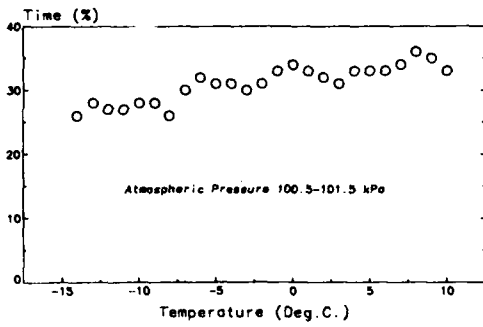
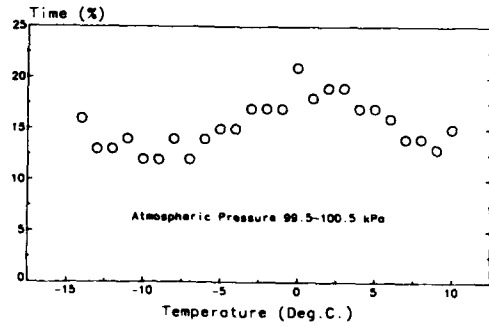
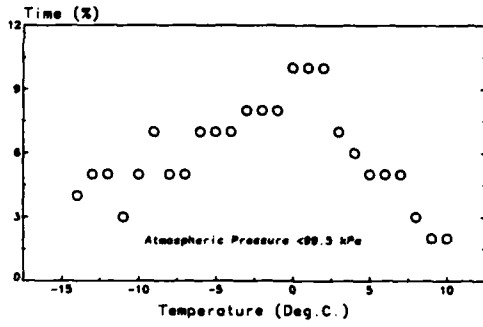


Figure A-8 (e) Atmospheric Pressure for Saint John

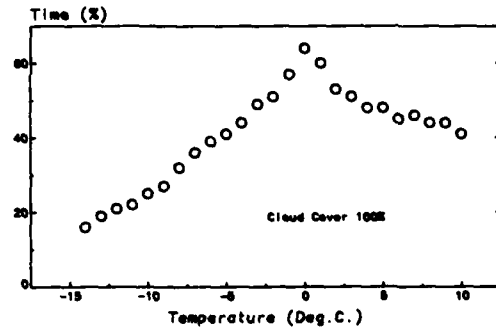
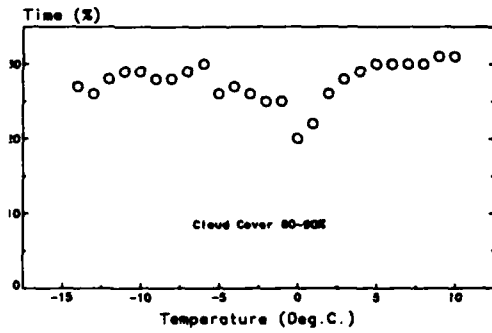
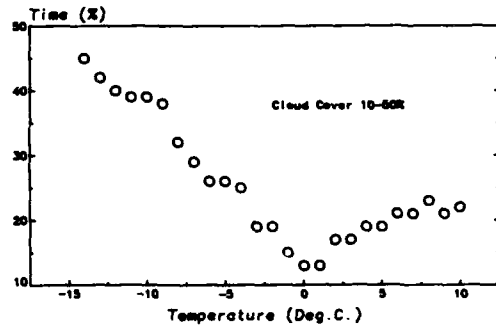
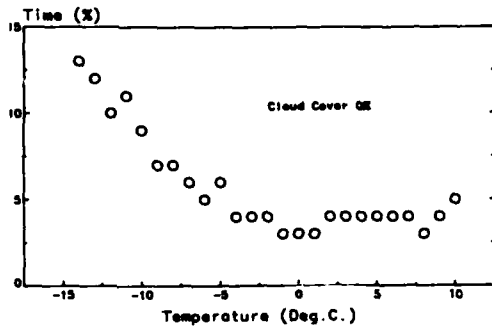


Figure A-9 (a) Cloud Cover for Summerside

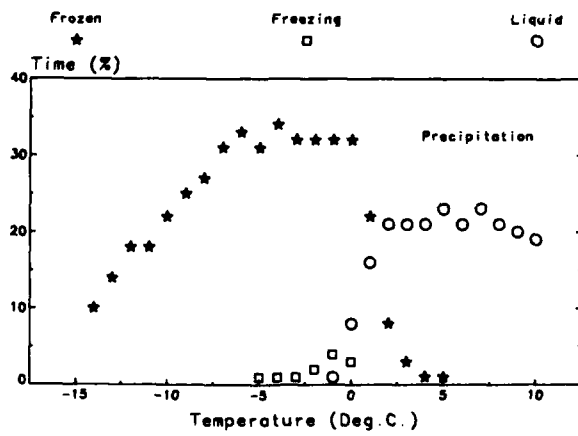
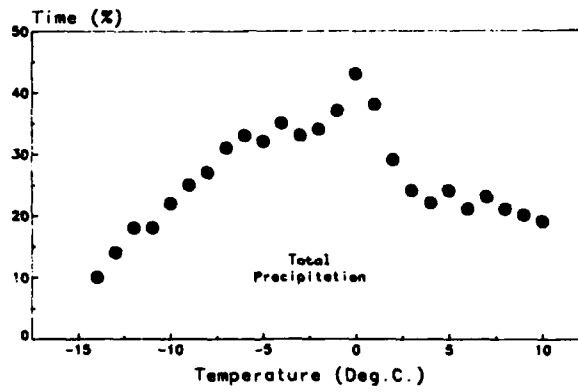
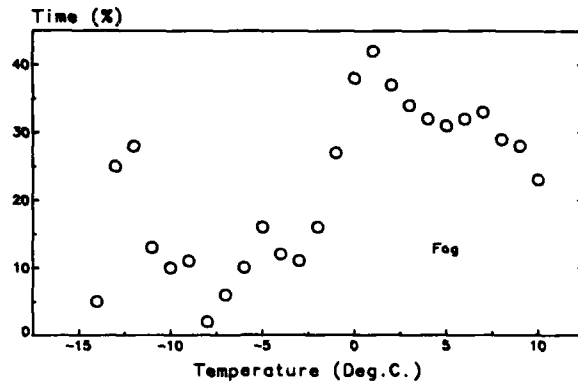


Figure A-9 (b) Fog and Precipitation for Summerside

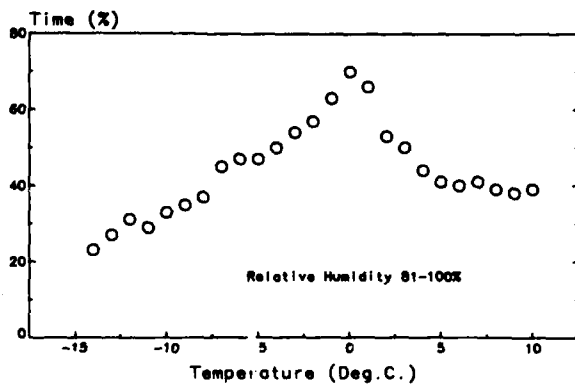
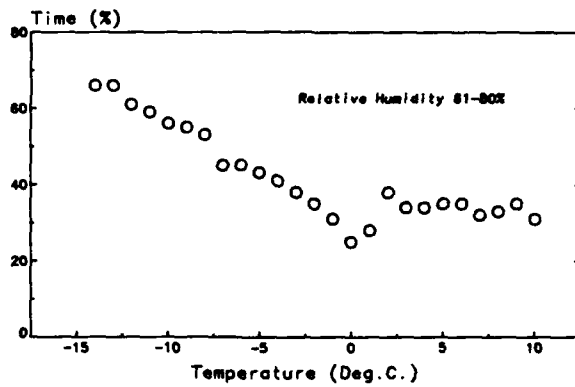
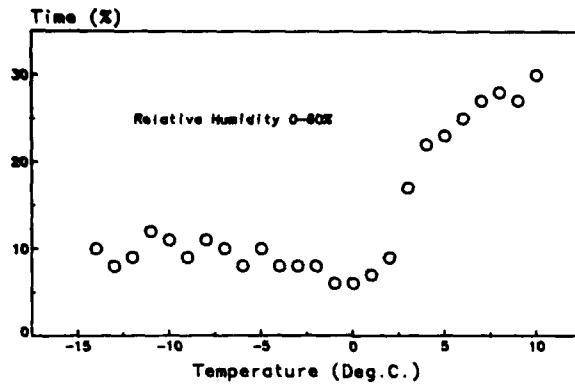


Figure A-9 (c) Relative Humidity for Summerside

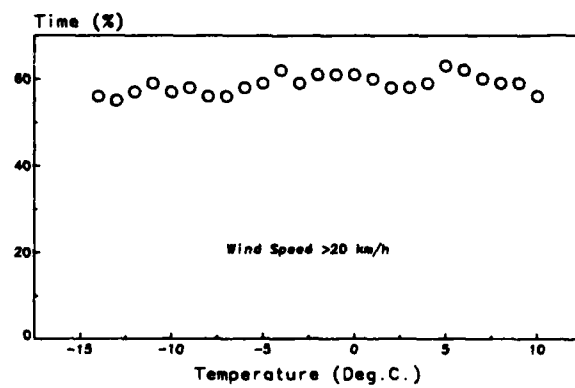
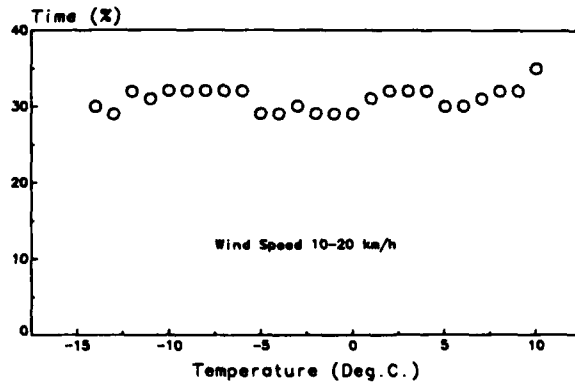
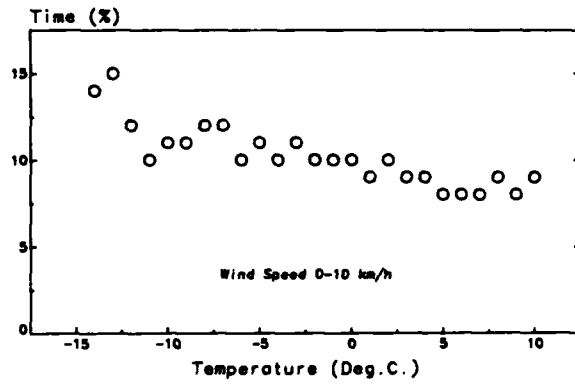


Figure A-9 (d) Wind Speed for Summerside

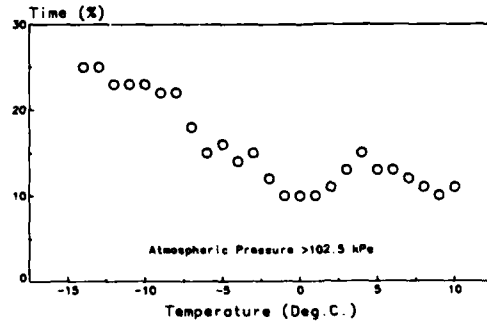
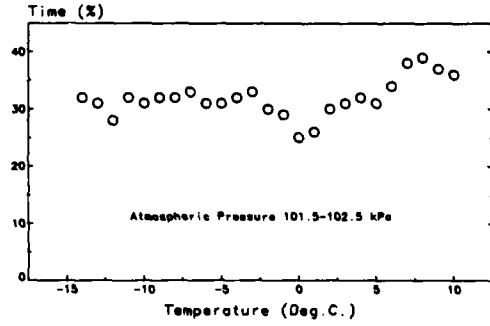
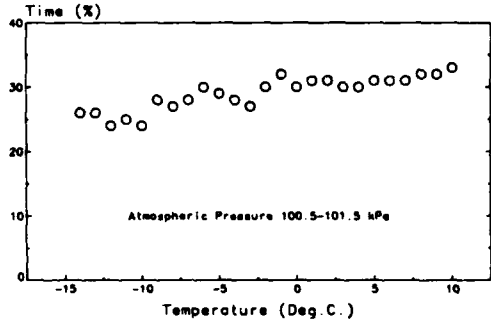
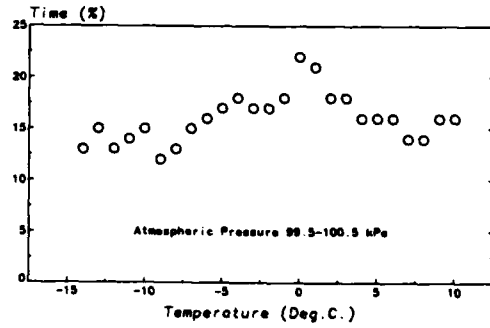
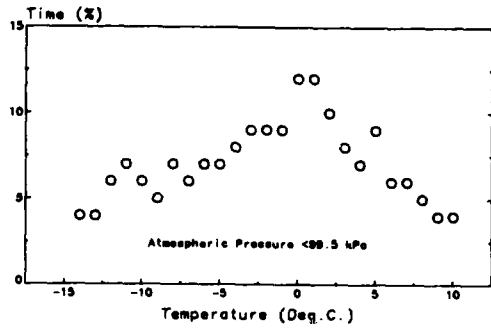


Figure A-9 (e) Atmospheric Pressure for Summerside

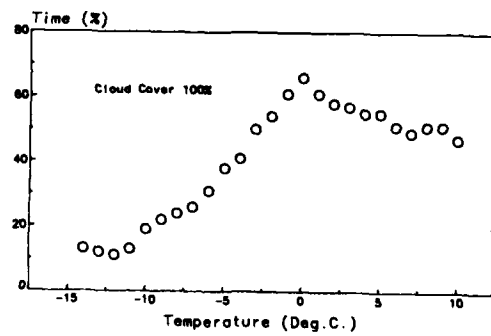
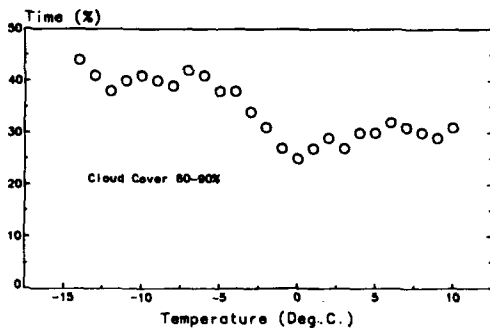
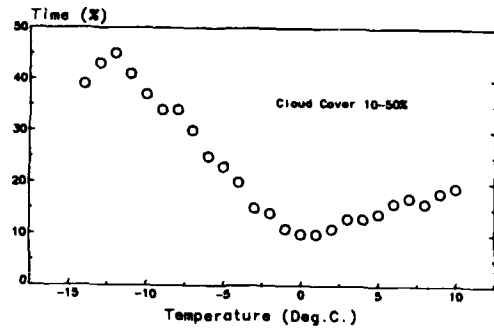
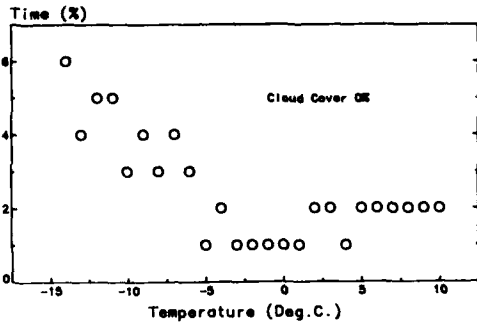


Figure A-10 (a) Cloud Cover for St. John's

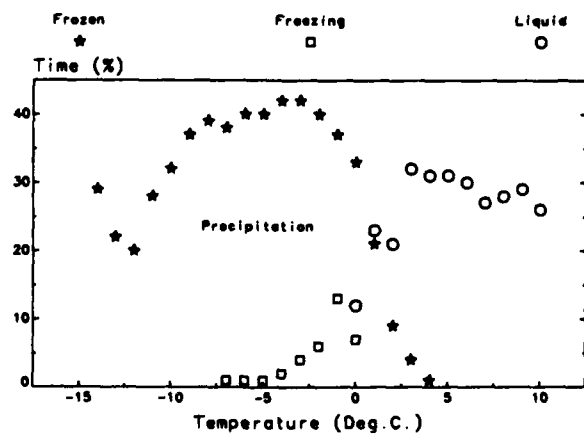
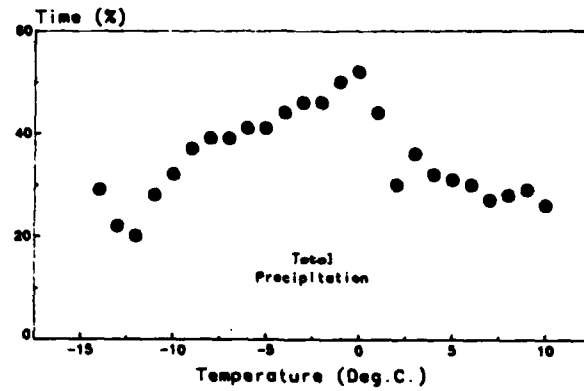
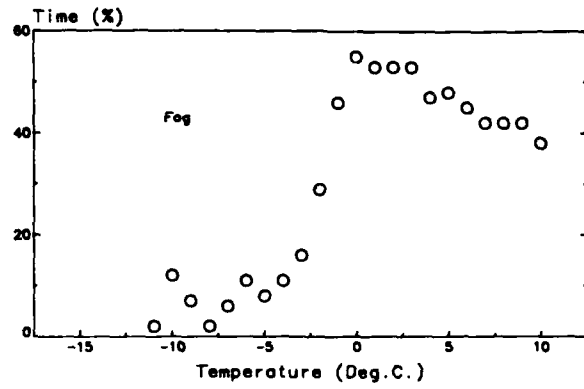


Figure A-10 (b) Fog and Precipitation St. John's

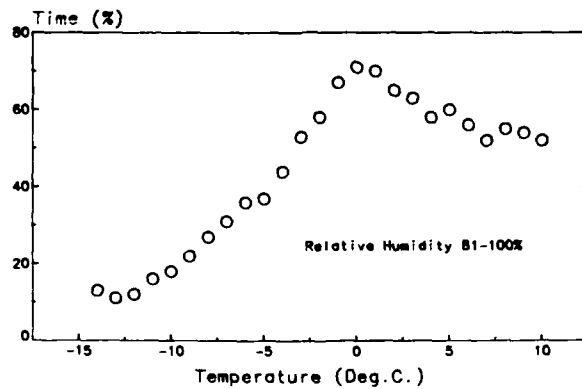
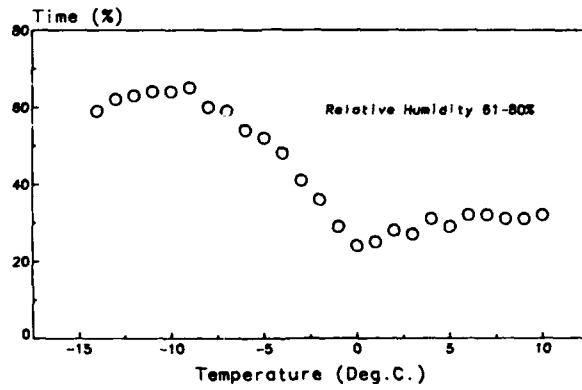
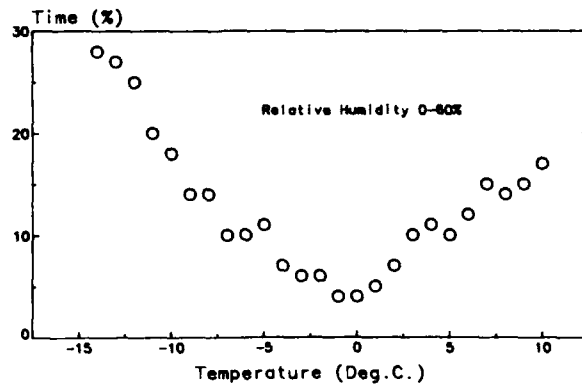


Figure A-10 (c) Relative Humidity for St. John's

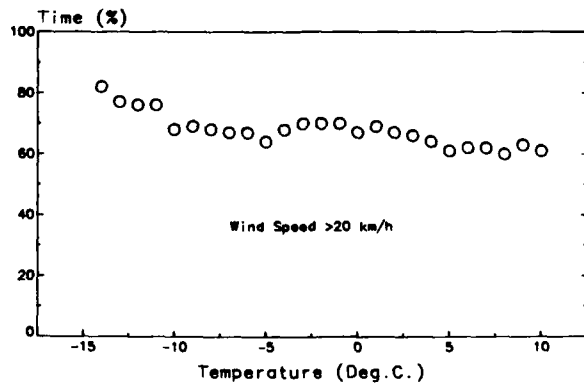
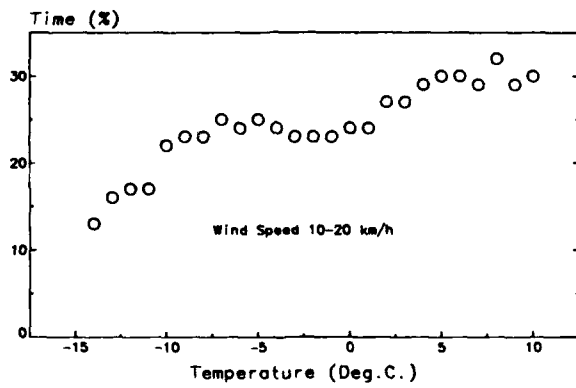
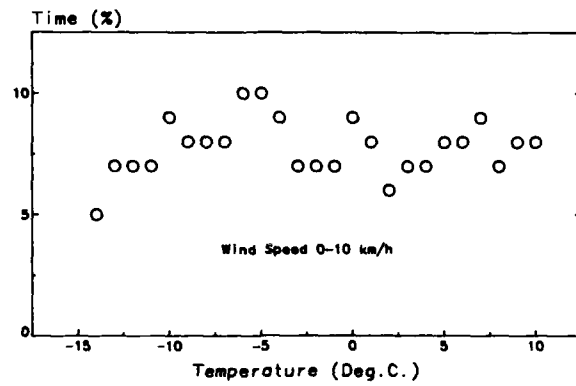


Figure A-10 (d) Wind Speed for St. John's

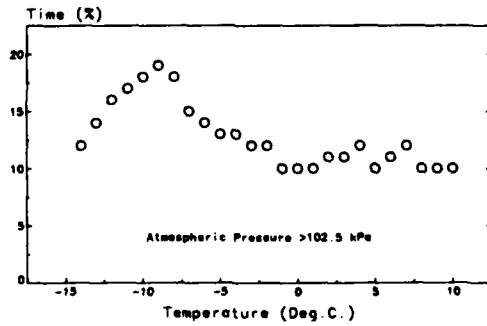
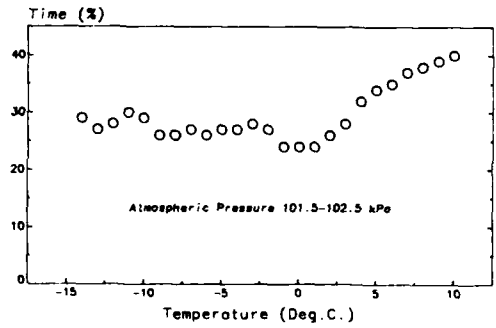
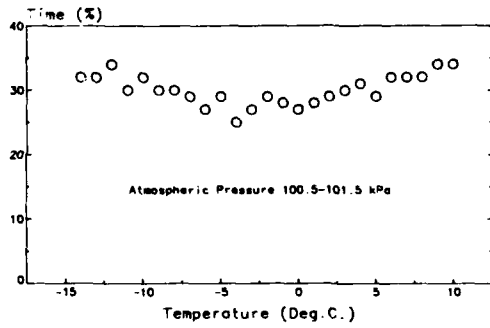
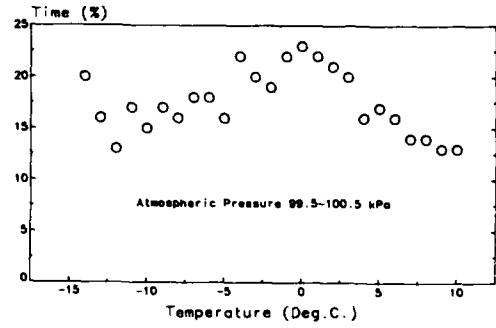
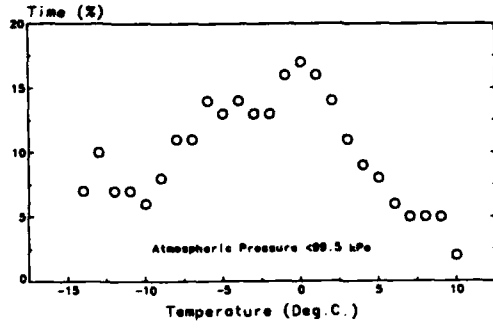


Figure A-10 (e) Atmospheric Pressure for St. John's

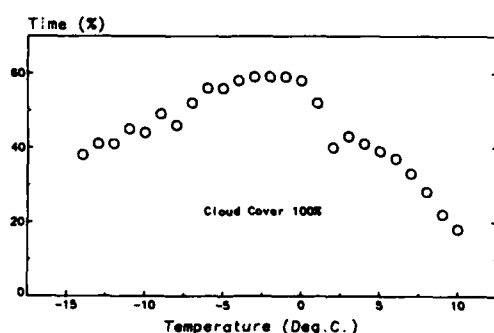
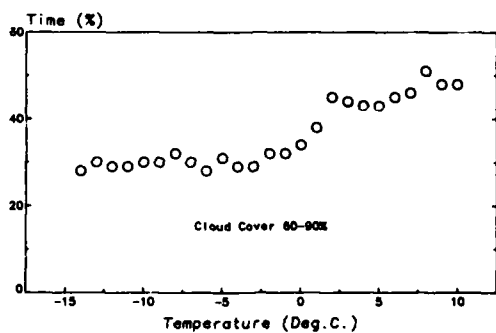
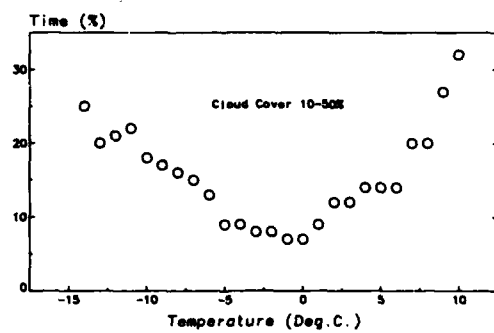
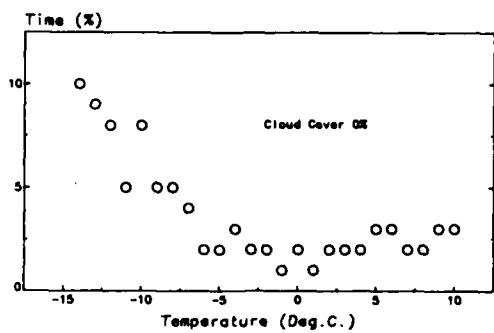


Figure A-11 (a) Cloud Cover for Cambridge Bay

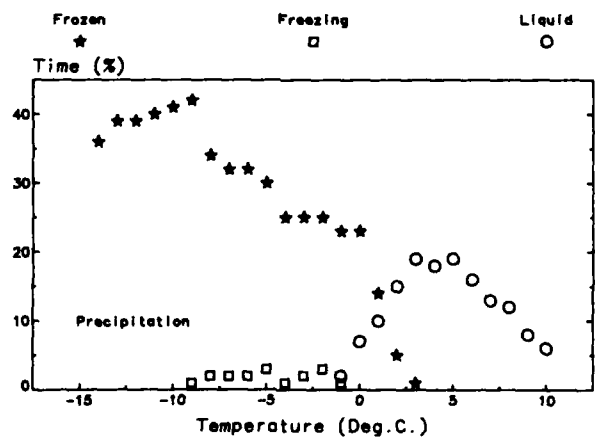
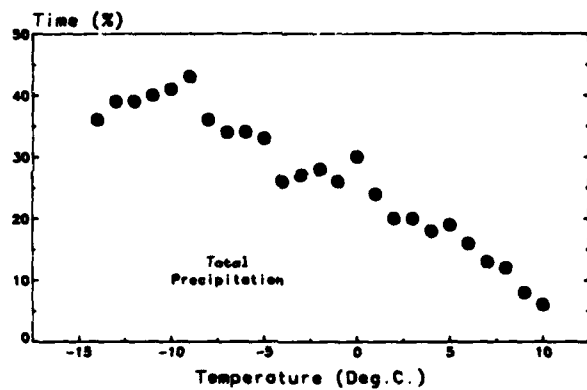
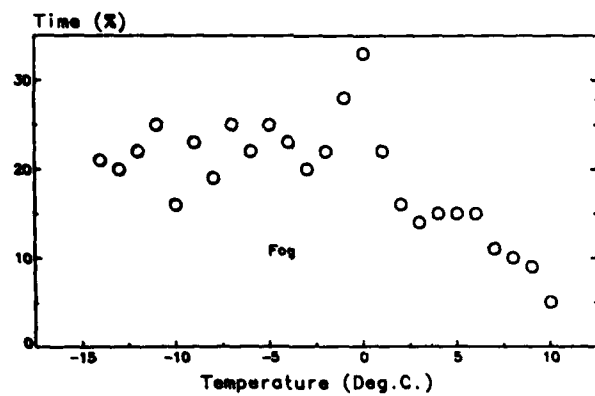


Figure A-11 (b) Fog and Precipitation for Cambridge Bay

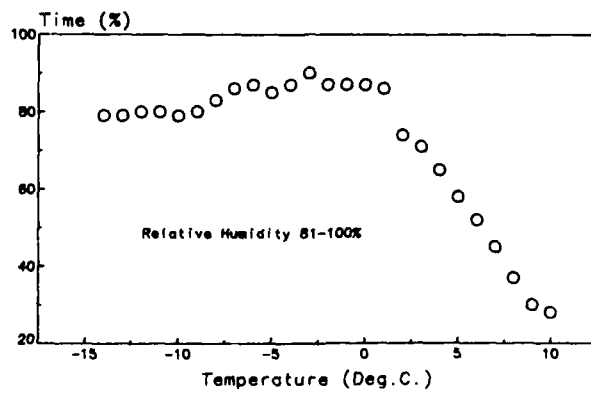
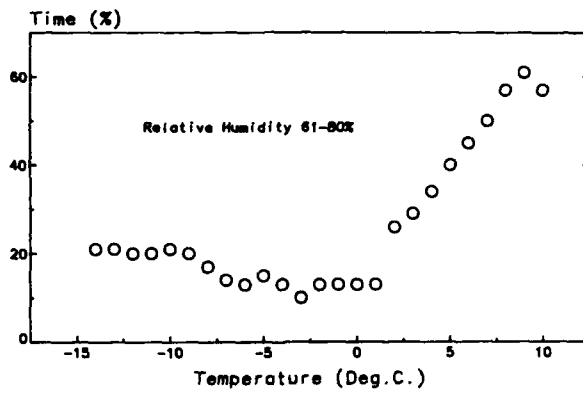
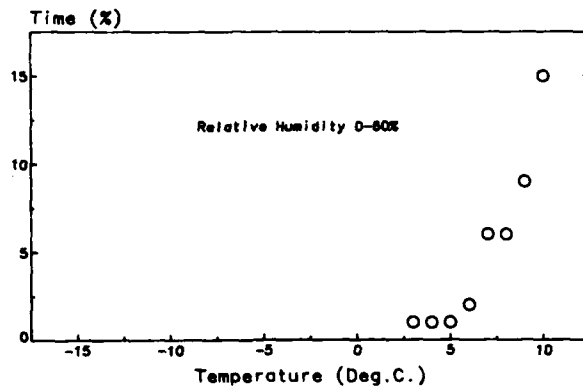


Figure A-11 (c) Relative Humidity for Cambridge Bay

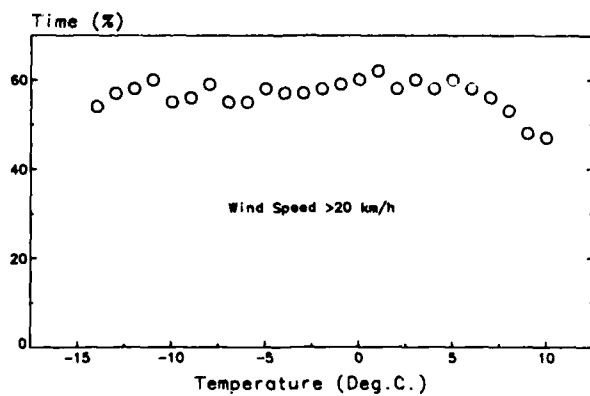
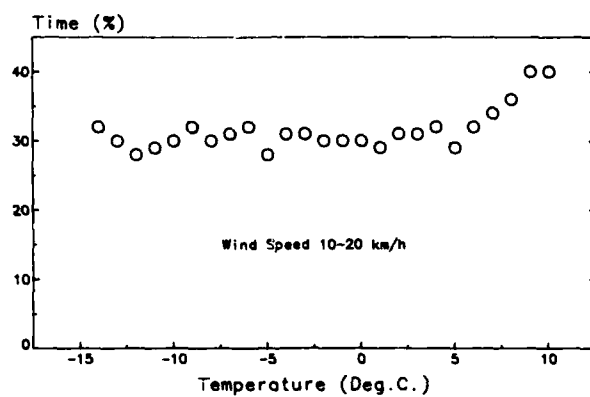
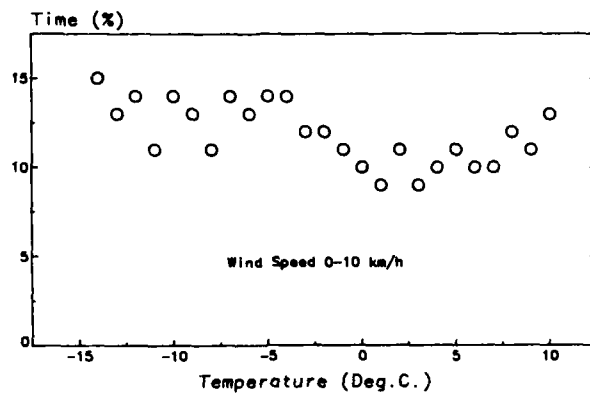


Figure A-11 (d) Wind Speed for Cambridge Bay

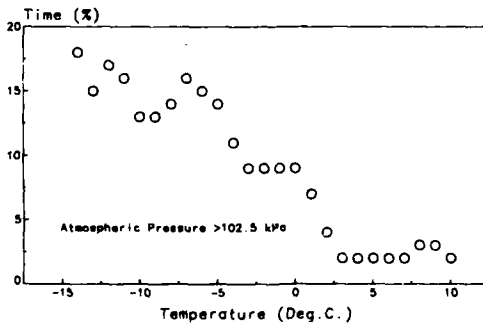
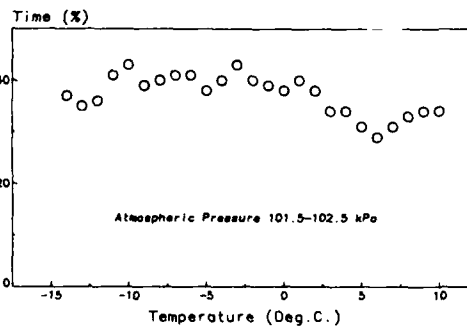
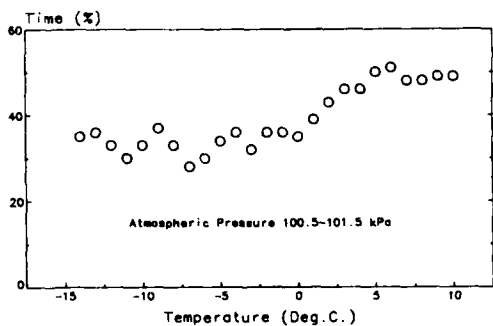
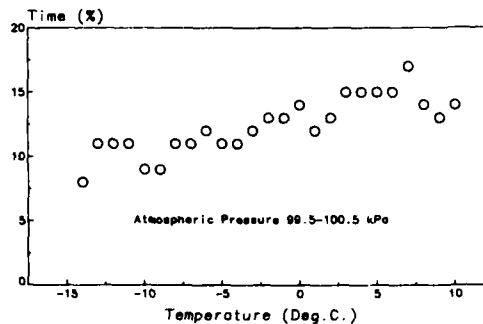
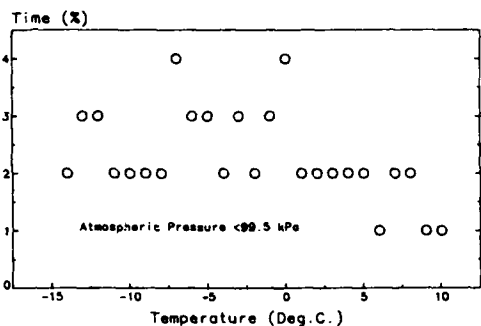


Figure A-11 (e) Atmospheric Pressure for Cambridge Bay

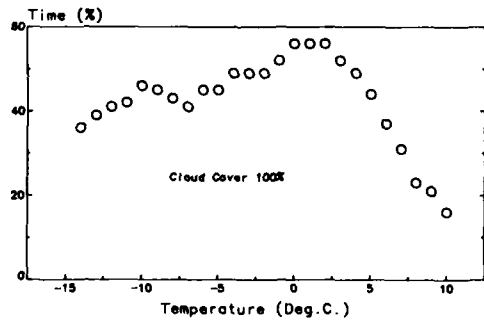
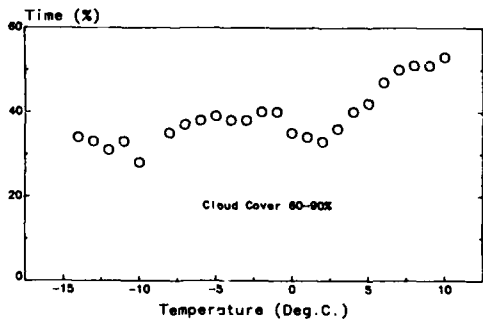
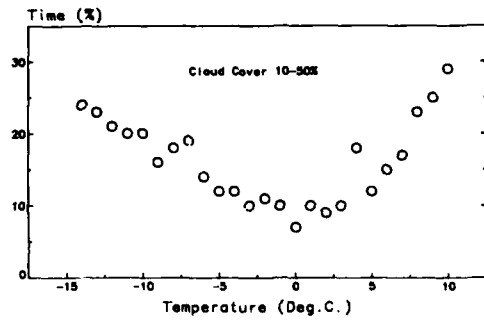
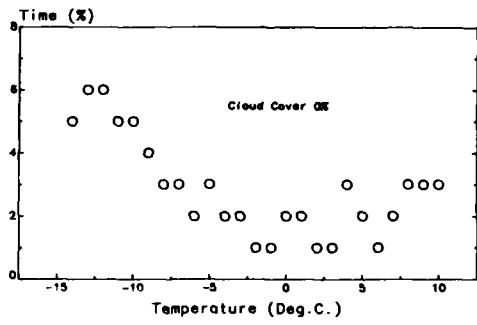


Figure A-12 (a) Cloud Cover for Iqualuit

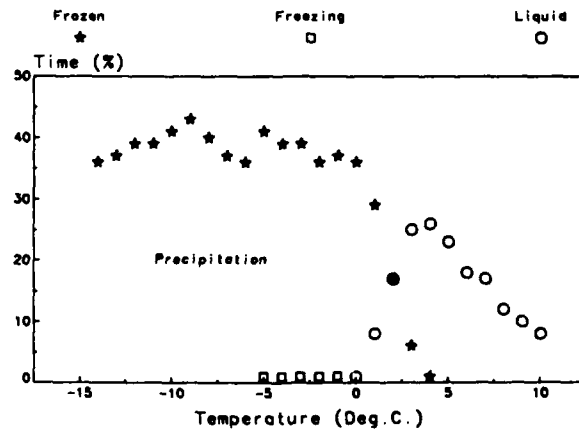
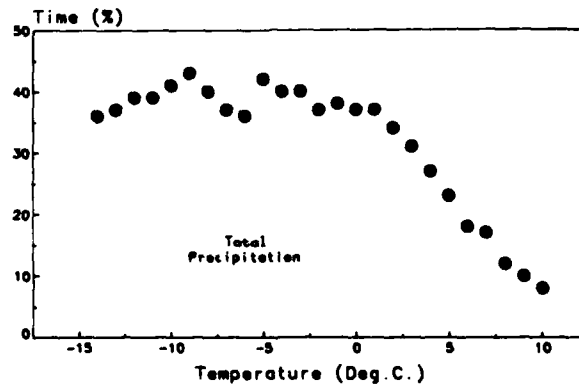
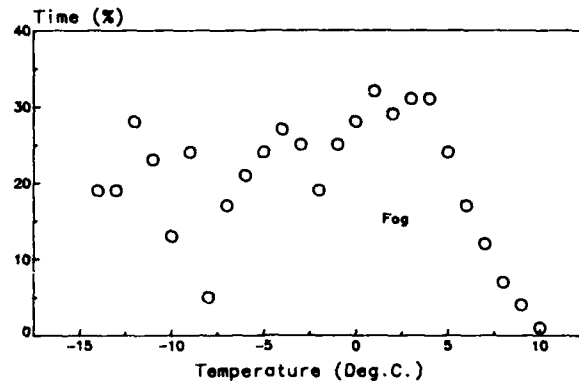


Figure A-12 (b) Fog and Precipitation for Iqualuit

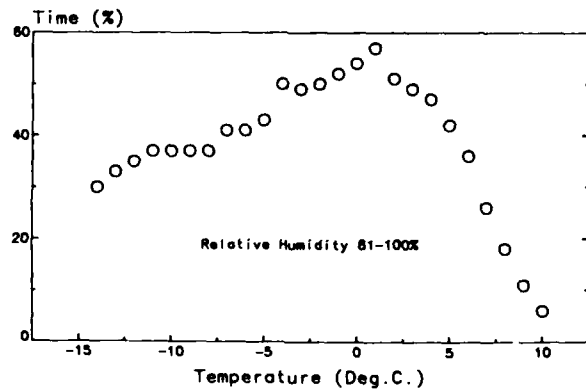
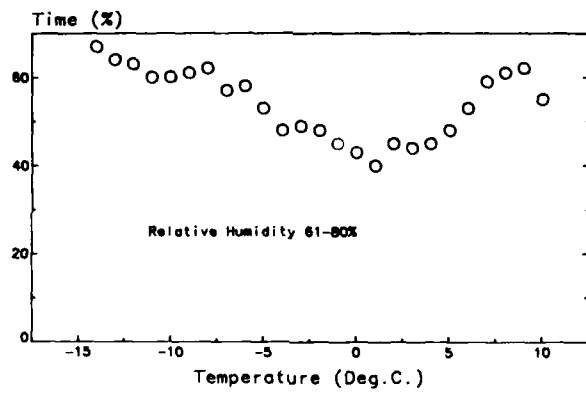
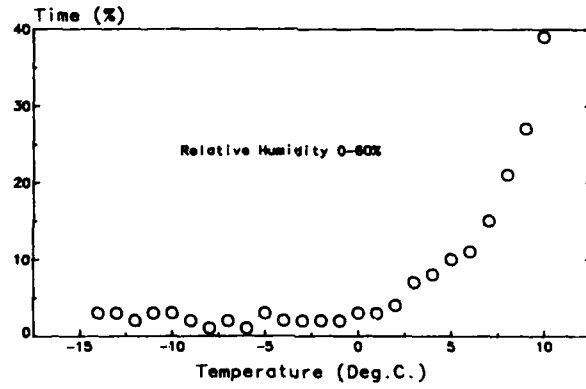


Figure A-12 (c) Relative Humidity for Iqualuit

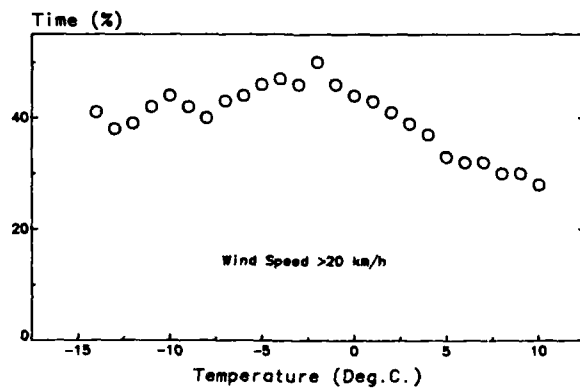
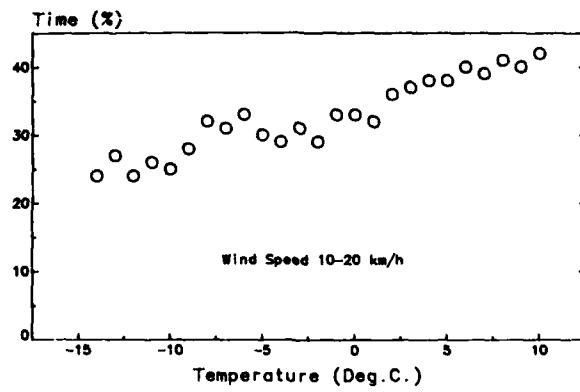
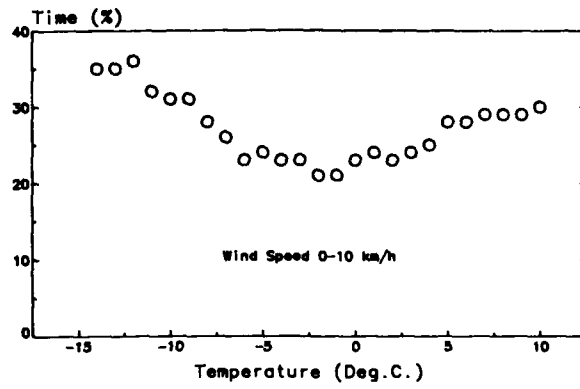


Figure A-12 (d) Wind Speed for Iqualuit

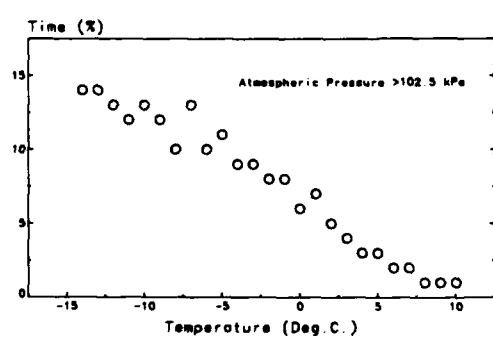
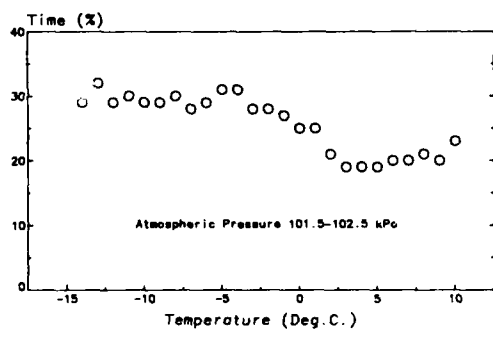
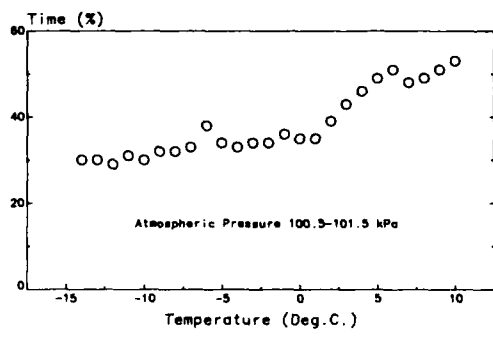
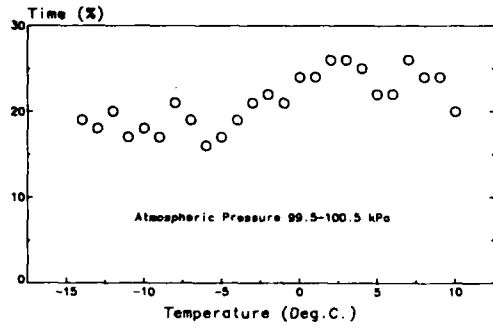
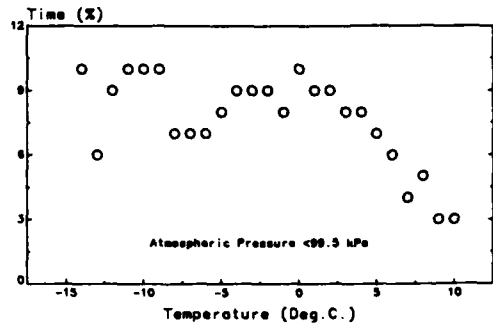


Figure A-12 (e) Atmospheric Pressure for Iqualuit

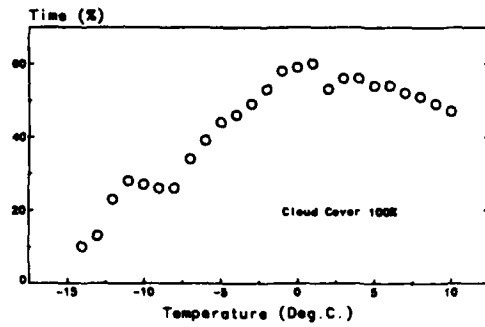
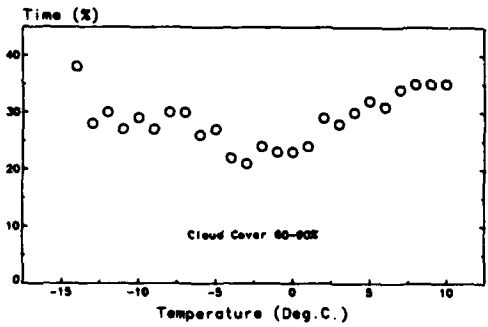
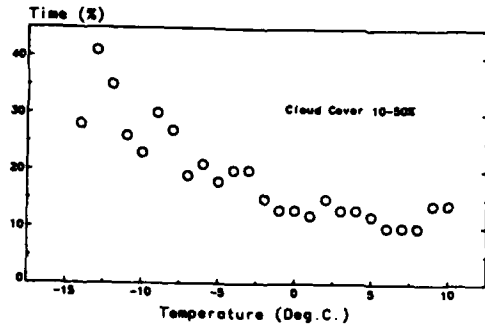
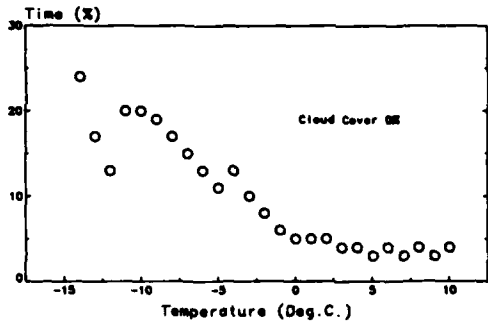


Figure A-13 (a) Cloud Cover for Baden-Soellingen

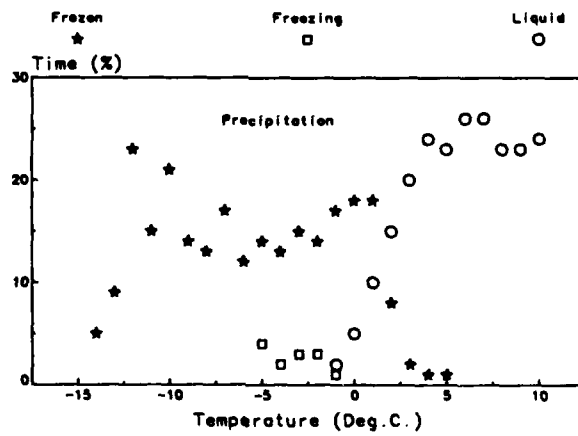
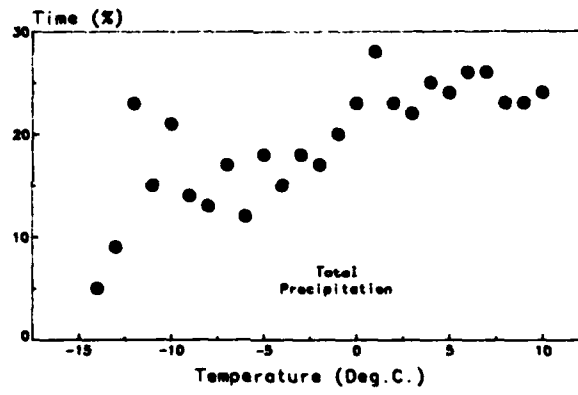
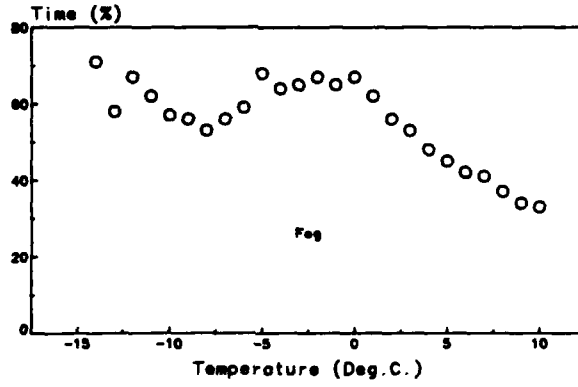


Figure A-13 (b) Fog and Precipitation for Baden-Soellingen

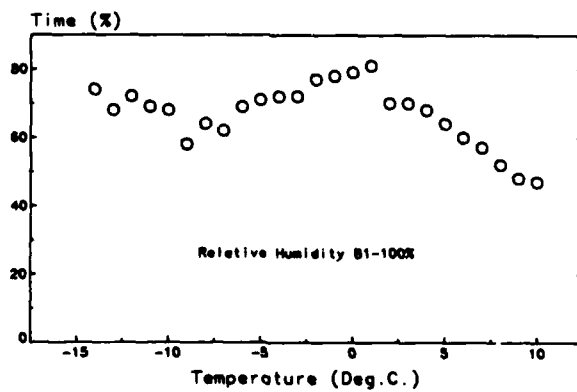
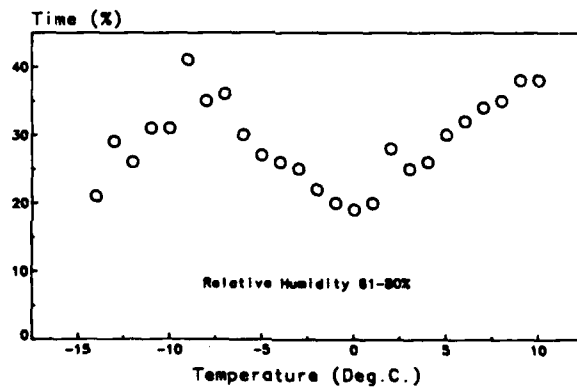
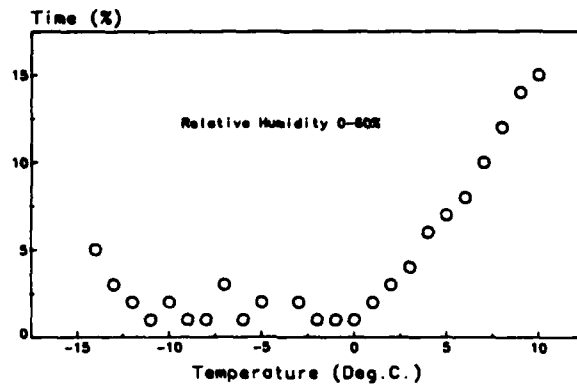


Figure A-13 (c) Relative Humidity for Baden-Soellingen

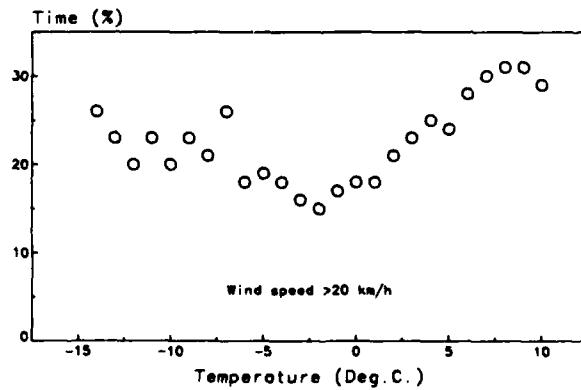
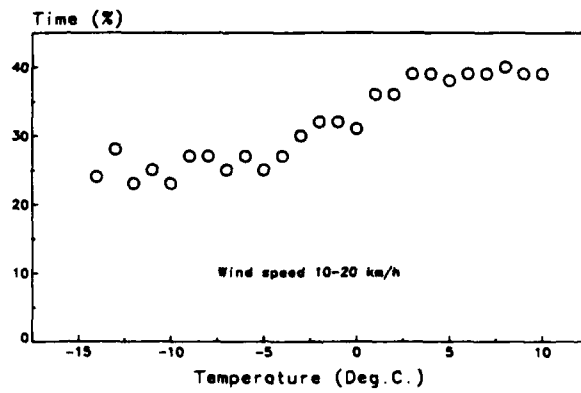
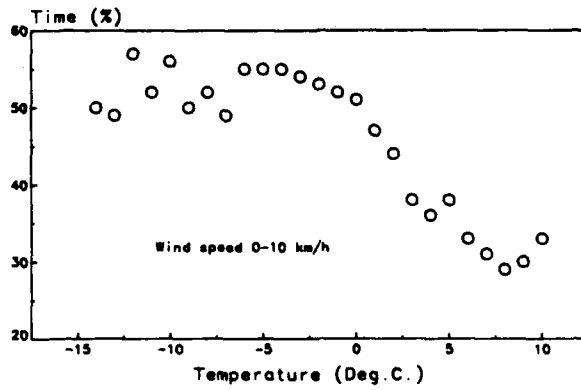


Figure A-13 (d) Wind Speed for Baden-Soellingen

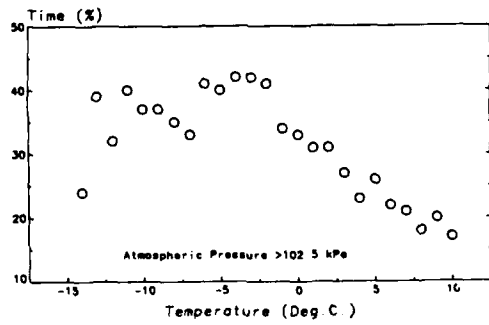
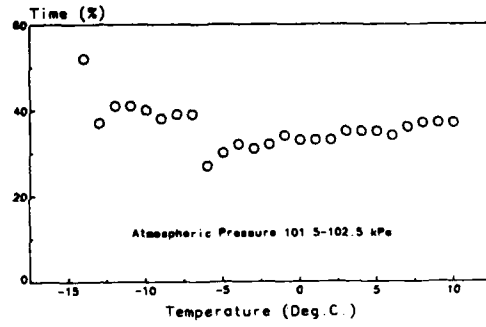
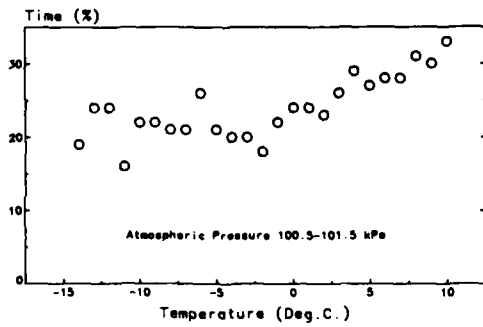
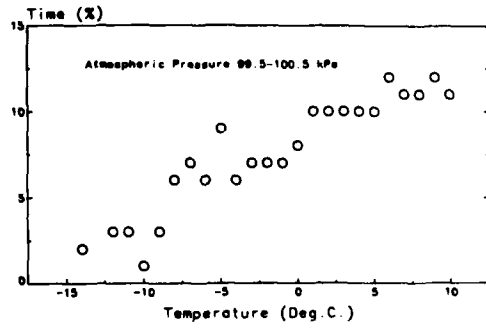
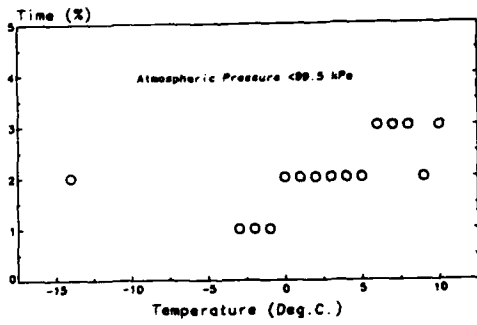


Figure A-13 (e) Atmospheric Pressure for Baden-Soellingen

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A study was done to determine if cold-wet could be characterized for 12 Canadian centres and Baden-Soellingen, Germany. It was found that, in general, the weather at about 0°C is cloudier and more humid. There is no correlation between temperature and wind or temperature and barometric pressure.

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