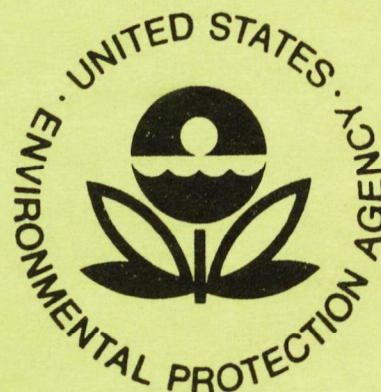


MARCH 1976

**THE ENVIRONMENTAL PROTECTION AGENCY
NORTHERN GREAT PLAINS
WIND MEASUREMENT PROGRAM**

FINAL REPORT

**ENVIRONMENTAL PROTECTION AGENCY
ROCKY MOUNTAIN - PRAIRIE REGION
REGION VIII**



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**NORTHERN GREAT PLAINS
WIND MEASUREMENT PROGRAM**

FINAL REPORT

March 1976

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**U.S. Environmental Protection Agency
Region VIII
Report No. TS-3**

Disclaimer Statement

This report has been reviewed by Region VIII, EPA, and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use by the Environmental Protection Agency.

ABSTRACT

This report describes the Northern Great Plains Wind Measurement Program as conducted by Aeronutronic Ford's Aero-Comm Engineering Services Division for the Environmental Protection Agency. The operation of the government furnished data collection system, which utilized Bendix-Friez Aerovane systems at Glendive, Montana; Gillette, Wyoming; and Bowman, North Dakota, is discussed with conclusions and recommendations provided. Data reduction techniques used to process the strip chart recordings into wind speed and direction information are described. One-hour averages of wind speed and direction, and monthly and annual wind rose data summaries are also included in the report.

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NORTHERN GREAT PLAINS WIND MEASUREMENT PROGRAM

I. INTRODUCTION

A. Background

The Environmental Protection Agency (EPA) has need for detailed upper air data, viz., wind speed (ws) and direction (wd), in the rural areas of the Northern Great Plains. The area of eastern Montana, western North Dakota, and northeastern Wyoming is developing their coal resources in response to the nation's increased energy demands. EPA needs the upper air data for use in their mathematical atmospheric pollutant diffusion models to predict air quality impacts of potential large mine-mouth power plants and gasification plants located in these rural areas.

At the present time the National Weather Service Stations do not provide detailed, quality meteorological information of the wind speed and direction within about 50 or more miles from these areas of interest. This wind measurement program by Aeronutronic Ford was designed to meet this EPA need and provide upper air data for a period of twelve months at these three rural sites: Glendive, Montana; Gillette, Wyoming; and Bowman, North Dakota.

B. Work Objectives

Aeronutronic Ford's objective for this program was to install and operate a three site wind data acquisition network for continuously collecting wind speed and direction data at an altitude of thirty meters. The wind data, collected in analog form on strip chart recordings, required data reduction and conversion into a computer compatible format. The provision of a high quality of wind data ready for further computer processing by EPA was the prime object of Aeronutronic Ford's efforts. The methods employed to provide data quality are described in "Quality Control of the Three-Site Northern Great Plains Wind Measurement Program, report number 6732-75-03. This report has been included in the appendices (section V.A)

II. SUMMARY

A. Conclusions

1. Operation of a wind data acquisition network using aged instrumentation will not allow a 90% data collection rate unless the operator is available for daily inspection of the recorder and is capable of implementing minor maintenance on the recorder.
2. The particular Aerovane recorders used during this program were in a worn condition. The

operation of one Aerovane Transmitter (Serial Number 3385) should be monitored closely during the initial period of its reuse.

3. The data reduction techniques including the computer processing programs developed for use on this project worked very well and should be considered for further use.

B. Recommendations

Should this type of wind-measurement program be required again for similar type locations we recommend the following comments be considered.

1. The choice of the Aerovane Recorder Operator is more important than is apparent. The attention to monitoring of the Aerovane system operation, the response to malfunctioning of the equipment, and the proper handling of the Aerovane chart recordings are necessary for successful data collection and recovery. The individual chosen must be aware and responsive to these tasks and must be given training in the operation of the system.
2. The choice of tower locations is, of course, limited to those inside the area of interest whose access is available to the government. However, unless absolutely essential, an unmanned location should not be selected. The reliability of these Aerovane systems is such that extended periods without operator attention can often result in loss of considerable data. Further, the contractor must have access to the towers. For example, the low data collection rate achieved at Bowman was in a large part due to the use of an unmanned site location and Aeronutronic Ford not having access to the tower. The Bowman tower and its equipment could only be serviced by a particular contractor of the North Dakota Highway Department.

III. WIND MEASUREMENT PROGRAM

A. Schedule of Events

The activity associated with the performance of the Northern Great Plains Wind Measurement Program is shown in the schedule of events which follows:

Contract Signed, 14 NOV 74
Equipment Received, 13 DEC 74
Data Collection started at Glendive, 26 DEC 74

Data Collection started at Gillette, 30 DEC 74
 First Monthly Report (no data) submitted, 3 JAN 75
 Second Monthly Report (inc. data) submitted, 7 FEB 75
 Data Collection started at Bowman, 12 FEB 75
 Third Monthly Report (inc. data) submitted, 7 MAR 75
 Quality Control Report submitted, 10 MAR 75
 Fourth Monthly Report (inc. data) submitted, 14 APR 75
 Fifth Monthly Report (inc. data) submitted, 9 MAY 75
 Sixth Monthly Report (inc. data) submitted, 10 JUN 75
 Seventh Monthly Report (inc. data) submitted, 10 JUL 75
 Eighth Monthly Report (inc. data) submitted, 10 AUG 75
 Ninth Monthly Report (inc. data) submitted, 15 SEP 75
 Tenth Monthly Report (inc. data) submitted, 10 OCT 75
 Eleventh Monthly Report (inc. data) submitted, 11 NOV 75
 Twelvth Monthly Report (inc. data) submitted, 9 DEC 75
 Thirteenth Monthly Report (inc. data) submitted, 9 JAN 76
 Fourteenth Monthly Report (inc. data) submitted, 9 FEB 76
 Data collection ceased at all sites, 29 FEB 76
 Fifteenth Monthly Report (inc. data) submitted, 10 MAR 76
 Equipment removed from all sites, 10 MAR 76
 Draft Final Report submitted, 29 MAR 76
 Draft Final Report returned, 23 APR 76
 Equipment returned to EPA, 23 MAR 76
 Final Report distributed, 9 JUL 76

B. Data Collection System

The Government Furnished Equipment (GFE) supplied for this program consisted of four Wind Direction and Speed Recording Systems, each with approximately 100 feet of cable. Each of these systems, manufactured by Bendix-Friez, is composed of a Model 120 Aerovane Transmitter and a Model 141 Recorder.

The tower locations, selected and secured by EPA, for use as data collection points were at: Glendive, Montana; Gillette, Wyoming; and Bowman, North Dakota. For Glendive the KXGN-TV tower located in the Makoshika State Park at a former USAF gap-filler radar site a short distance south of town was selected. The tower has a height of 32 meters (105 ft) and is square with a taper such that at the 30-meter altitude of the Aerovane sensor the tower is about 0.90 meters (3 ft) square. The terrain around the tower can be described as "rough". The tower is situated at one of the highest levels in the area. The location drops off in the west into a large canyon and towards the north-northwest into a smaller canyon. Overall the area appears as "bad lands". A small building near the tower was used to house the recorder.

The Collins Communications, Inc. tower located about three miles south of Gillette and about a quarter mile off State Highway 59 was EPA's second site selection. Here a 0.61 meter (2 ft) triangular shaped tower with a height of 134 meters (440 ft) sets atop a hill about 60 meters higher than the neighboring hills; the closest to the north and another more distant to the south. The Aerovane was installed at 30 meters (100 ft). A heated and

air-conditioned building, approximately 2.4m x 3.7m (8 ft x 12 ft), near the tower was available for housing the recorder

For the third site the North Dakota State Highway Department tower about five miles north of Bowman and about one and one-half miles NE off US Highway 85 was chosen. This triangular shaped tower, 0.61 meters or 2 ft on a side, is 100 meters (330 ft) high and sets on top a 60-meter (200 ft) hill. The terrain may be described as "gentle" with the nearest hill about 0.8 Km ($\frac{1}{2}$ mile). The Aerovane sensor was installed at 30 meters.

The well crated wind measurement systems were received at our maintenance shop in Miles City, Montana, on December 13, 1974. An inspection showed the equipment to be in good physical condition upon arrival. Pre-installation testing and calibration were performed on all units in a system configuration. Figure 1 identifies the pre-installation tests performed on each system. The tests made during the installation are indicated on another check sheet as shown in Figure 2. These tests indicated the systems were all functioning properly.

Installation methods and techniques were developed based on previous experience with similar type towers. A diagram of the installation of the Aerovane Transmitter and boom at Gillette is shown in Figure 3 to indicate a typical tower installation. The alignment to the prevailing wind direction was limited by the square-shaped tower at Glendive to one of four directions, viz., N, E, W, or S; west was selected. At both Gillette and Bowman the triangular-shaped tower orientation permitted six possibilities, E, W, SSW, SSE, NNW, and NNE. Since NW was the assumed prevailing wind direction at both sites, NNW or 330° was chosen for the boom mounting direction. The Aerovane Transmitters were positioned 1.2 meters (4 ft) from the tower. The boom mounting allowed the transmitter to be brought near to the technician for azimuth alignment then extended from the tower for operation outside the direct interference from the tower body.

Installation at the three towers was completed on the following dates: Glendive, December 26, 1974; Gillette, December 30, 1974 and, Bowman, February 12, 1975. The installations at Glendive and Gillette were made within approximately two weeks of the receipt of the GFE. The considerable delay, 40 days, in the installation at Bowman resulted from the requirements of the North Dakota Highway Department that only the Johnson Tower Company of Minot, N.D., do all the on-tower work. The date of February 12 was the first time the Johnson Tower Company was available for the job.

C. Network Operation

The three-site network was in full operation starting from 1900 MST, 12 FEB 75 and ending 2400 MST, 29 FEB 76. The data collection statistics are shown in Table I which shows the data collection rate for the network as 87.9 percent.

Philco-Ford Corporation

CSD

AEROVANE WIND DATA TRANSMITTER/RECORDER CHECK SHEET

Pre-installation Tests

Transmitter Serial No. 3057 Recorder Serial No. 693

	Date Completed	Remarks
Data Transmitter Incoming Visual Inspection	<u>24 Dec 74</u>	<u>good</u>
Recorder Visual Incoming Inspection	<u>24 Dec 74</u>	<u>good</u>
Direction Synchro 0-degree & direction test	<u>24 Dec 74</u>	<u>good</u>
Speed Positive for CCW Rotation Test	<u>24 Dec 74</u>	<u>good</u>
Aerovane Turning Friction Test	<u>24 Dec 74</u>	<u>good</u>
Speed Accuracy/Recorder Load Check	<u>24 Dec 74</u>	<u>good</u>
Recorder Gear Speed Check	<u>24 Dec 74</u>	<u>good</u>
Recorder Paper Movement Check	<u>24 Dec 74</u>	<u>good</u>
Recorder Pen Inking Check	<u>24 Dec 74</u>	<u>good</u>

Discrepancies corrected: _____

Technician(s) John R. Scott

Figure 1

Philco-Ford Corporation

CSD

AEROVANE WIND DATA TRANSMITTER/RECORDER CHECK SHEET

Installation and Calibration Tests

Transmitter Serial No. 3057 Recorder Serial No. 693

Tower location: Gladine

	Date Completed	Remarks
Installation hardware complete	<u>26 Dec 74</u>	_____
Recorder Shelter arranged/prepared	<u>26 Dec 74</u>	_____
Tower/Aerovane positioned to true north	<u>26 Dec 74</u>	_____
Vane and rotor rotate freely	<u>26 Dec 74</u>	_____
Recorder operating properly	<u>26 Dec 74</u>	_____
360° vane rotation check	<u>26 Dec 74</u>	_____
Vane at North direction test	<u>26 Dec 74</u>	_____
Rotor stationary zero speed test	<u>26 Dec 74</u>	_____
Wind direction & wind speed operational check	<u>26 Dec 74</u>	_____

John R. Scott

Figure 2

TABLE I
Data Collection Statistics

	<u>Glendive</u>	<u>Gillette</u>	<u>Bowman</u>	<u>Network</u>
Start date	26 DEC 74	30 DEC 74	12 FEB 75	12 FEB 75
End date	29 FEB 76	29 FEB 76	29 FEB 76	29 FEB 76
Period covered, hours	10,330	10,233	9,172	29,735
# wind speed measurements	9,567	9,207	7,501	26,275
# wind direction measurements	9,467	8,923	7,206	25,596
Total measurements collected (1)	19,034	18,130	14,707	51,871
# data loss Exceptions (2)	359	62	0	421
Total measurements for collection rate	19,393	18,192	14,707	52,292
Collection rate (%)	93.87	88.89	80.17	87.93
# WS-WD pairs	9,465	8,555	7,161	25,181
Pair collection rate (%)	91.63	83.60	78.07	84.68

Notes (1) Two measurement, WS and WD, are possible each hour.

(2) Data loss exceptions allowed for circumstances beyond the control of this contractor. See narrative in this section for explanation.

Operators were selected for each of the three stations out of those individuals who had employment at the tower site or in some relation to it. A KXGN-TV station operator who worked at the tower site was selected at Glendive and a Collins Communications Corp. employee who had daily duties at the Gillette tower was used at that location. No daily routine site visits by radio technicians were made at the North Dakota Highway Dept. tower but a North Dakota Highway employee working out of Bowman was contracted to handle the Bowman wind station operation.

Consequently, the Bowman tower system operated in a strictly unmanned situation. The Aerovane Recorder was housed in an old refrigerator modified especially for this project. This housing was placed in the open near to the radio building. Operator servicing of the recorder was scheduled weekly.

Each operator was given verbal instruction on the operation of the Aerovane System. A copy of the guidelines for the operators is shown in Figure 4. A supply of strip charts, ink, a pen cleaning and filling kit, and pre-addressed, postage paid mailers were provided to each operator.

A review of the operation of each station follows:

1. Glendive. Since December 26, 1974, the Glendive Station collected 9465 or 91.6% of the maximum number of one-hour wind speed and direction measurement pairs available. For one-hour wind speed averages, 9567 or 92.6% were measured while 9467 or 91.6% of one-hour wind direction averages were recorded. This site had the best data collection rate of the three locations.

The reasons for data loss included improper paper loading by the operator, a recorder paper take-up malfunction, and a damaged Aerovane caused by contact with a weather balloon. The damaged Aerovane resulted in the longest single outage viz., 359 data pairs from August 28 to September 12, 1975. During a weather balloon launching, one pilot balloon became entangled with the Aerovane. First the balloon string prevented the Aerovane from moving in azimuth, then (after breaking) the string wound behind the propeller and impeded its rotation with wind speed. Apparently the balloon launch operator (also a TV station operator) intended to free the Aerovane himself because we were not notified until September 12, the same day our maintenance crew made the repair.

A total of four visits were made to the Glendive site: one to coordinate the installation and select an operator, one to install the system,

GUIDELINES FOR WIND RECORDER OPERATOR

1. The chart paper should be changed each week, preferably on Friday. At the start of each roll please write your initials, the date, and time.
2. Occassionally observe that the recorder is operating properly, that is, the ink is writing and the time is correct. At these times, as well as at the end of the chart, please note your initials, the date and the time. (As you know you cannot mark at the exact point in time where the pen is tracing, so select the nearest printed hour where marking is possible and mark that time. This verifies the time for data reduction. If the time is off from the printed time, then adjust the mechanism for the proper time).
3. Good operation is effected by a properly operating recorder. We appreciate your attention in the changing of paper, filling the ink tanks, filling and cleaning the pens, setting the time, oiling the recorder, and monitoring the recording.
4. Use the mailing envelopes to send the recorded charts and other notes or comments you may have. Please advise us when your ink bottle is only $\frac{1}{2}$ -full.
5. In the event of recorder malfunction, please phone our Miles City office at (406)232-4350 collect for maintenance attention.

Figure 4 Guidelines for Wind Recorder Operator

one to repair the damaged Aerovane and one to remove the equipment.

2. Gillette: During the operation of Gillette Station 8555 or 83.6% of the maximum number of one-hour wind speed and direction measurement pairs available were collected. The wind speed data collection percentage exceeded that of wind direction at all three stations. At Gillette 9207 or 90.0% of the one-hour wind speed averages were measured while only 8923 or 87.2% of the one-hour wind direction averages were recovered.

The reasons for data loss included both equipment troubles and operator inattention. Problems occurred with recorders which included the paper take-up motor switch, the ink supply, and the ink flow through the pen. The most significant failure resulted from a lightning strike to the tower on May 31. This strike knocked out the power and caused an open rotor winding in the Aerovane Transmitter. Since the Aerovane wind direction synchro system can operate in this condition except that no reference is available to insure that the transmitter and receiver synchros are in phase and not locked-in 180 degrees out of phase, the failure was not detected until some time later. Careful analysis of the data between May 31 and August 28, 1975, resulted in the loss of only 62 data pairs during this period due to the failure. In the event of low wind speeds an Aerovane with an open rotor winding can drift somewhat and lock-in 180 degrees out of phase when the wind speed resumes. The 180° out of phase wind direction indications can occur when low wind speeds or calm periods precede a definite change in wind direction. During extended calm periods the wind direction indicator may drift somewhat so that when the wind speed "picks up" from a new azimuth the direction synchros may be physically positioned nearer to the 180° out of phase null than the proper one. With the reference provided by the rotor this condition could not occur. Identification of the incorrect wind directions which occurred during this period was difficult. The 180° reversals were detected by noting periods of calm proceeding dramatic changes in wind direction.

Eight visits were made to the Gillette tower, five for maintenance and repair of the wind measurement system.

3. Bowman. At the Bowman Station 7161 one-hour measurement pairs or 78.1% of the maximum possible during the operational period between February 12, 1975, and February 29, 1976. Wind speed only data averages totalled 7501 (81.8%) and direction only 7206 (78.6%). The Bowman tower system experienced several difficulties. Aerovane propellers were broken both during the installation and the removal of the system by the Johnson Tower Company, the only on-tower climbers authorized by the North Dakota Highway Department. Shortly after the installation the recorder housing blew over during a high wind condition and had to be relocated. Paper loading and jamming were the major sources of data loss but inking problems also resulted in more losses than expected.

Six trips were required to the Bowman tower. Four of these were necessary for maintenance purposes.

D. Data Reduction

The raw wind data from an Aerovane Recorder comes in strip chart form as shown by the sample in Figure 5. Each month 13.2 meters (43.4 ft) of these chart records from each site were reduced to a two-page report of hourly averages and formatted as shown in Figures 6A and 6B. Each hour average was determined manually by the data reduction technician from 8.62 cm (3 in) of trace length using a special reading table described below. This measurement is based on the technician's ability to accurately read, integrate, and average the short length of trace amplitude. The quality control check discussed on page 7 in Appendix A proved the validity of this manual technique. Figure 6A provides the wind direction averages from one tower site for one month and Figure 6B gives the wind speed averages in meters/second (m/s) for the same location and period.

Scale conversion of the analog wind speed trace was necessary. The government furnished recorder mechanisms produced a knots (nautical mile per hour) output, which as requested by EPA, had to be reported in meters/second. A special scale and chart reading device was constructed to accomodate the units conversion and facilitate accurate chart reading. The scale was based on this conversion relationship,

$$1 \text{ meter/second} = 0.514777 \text{ knots}$$

The wind direction measurement as made by the Aerovane System is a continuous trace on a chart scale of ten degrees per line. Reading of the hourly average over a three-inch trace length was made to the nearest ten-degree direction, i.e., to one

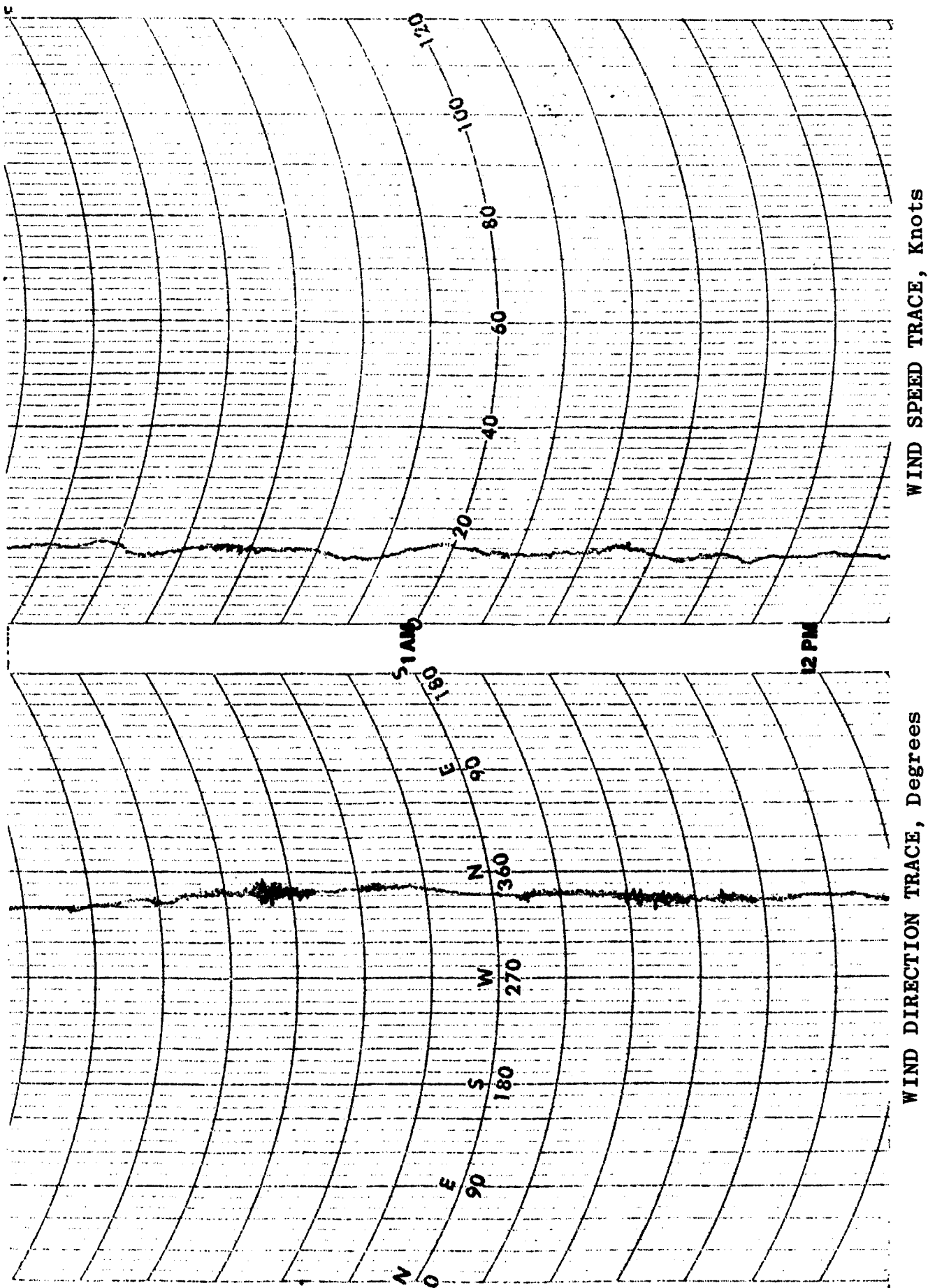


Figure 5 Sample Aerovane Strip Chart Data Recording

Figure 6
A Sample Electronic Data Processing Listing to
Illustrate Format Developed for EPA Wind
Data Reports

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR JUL 75

Figure 6A

		DAY																														
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
15 H O U R	01	SE	ENE	ESE	SE	N	E	S	NE	NNW	NNW	N	E	SSE	S	SE	S	NNW	SW	WSW	NW	ENE	SSE	NE	ENE	SSE	NNW	SE	S	N	W	NNE
	02	ESE	ENE	ESE	SE	N	NNE	SSW	NE	N	NW	NNW	E	SSE	S	SSE	S	NNW	SSW	SSW	SSW	ENE	SSE	NNE	ENE	S	NNE	SE	S	NE	WNW	N
	03	ESE	NE	E	ESE	NNE	E	S	NE	N	WNW	WNW	SSE	SSE	S	S	W	NE	SSW	SSW	SSW	E	S	N	E	S	NE	SE	S	ENE	NW	NNE
	04	ESE	NE	E	E	N	S	SSW	NNE	WNW	NW	W	SE	S	S	S	N	ENE	SSW	SW	SSW	ENE	W	N	SE	S	NE	SSE	S	ENE	WNW	NNE
	05	ENE	ENE	E	E	NNE	N	SSW	NE	W	WNW	NW	S	S	S	SSW	E	ENE	SSW	SSW	S	NE	NW	NNE	SSE	S	NE	S	SSW	E	SW	NNE
	06	NNE	NE	E	SSE	NNW	NNE	SSW	NNE	WSW	NW	NW	SSW	SSE	S	SW	ENE	NNW	SW	SSW	S	NNE	NNW	NNW	S	S	NE	S	S	SSW	WSW	NE
	07	ENE	E	E	NE	WNW	E	SSW	NW	WNW	NNW	NNW	SSE	S	S	WNW	E	NNW	SW	SW	S	E	NNW	NNE	S	S	ENE	S	S	S	WSW	NE
	08	ENE	E	E	ENE	W	E	NNW	NW	W	NNE	NW	SSE	SSE	SW	W	SE	W	WSW	W	S	ENE	SE	NNE	S	S	ENE	S	S	SW	WNW	NNE
	09	NE	E	E	ENE	WNW	WNW	NNE	WNW	W	N	NNW	S	SSE	SW	WNW	SW	WSW	W	W	S	ESE	SSW	N	S	S	ENE	S	SSW	WSW	NW	N
	10	ENE	ENE	ESE	N	SW	WNW	ENE	SW	WNW	N	NNW	S	SSE	SW	NNE	WSW	SW	W	WNW	S	SE	S	N	S	SSW	ENE	S	SW	SSW	WNW	N
	11	ENE	NE	ESE	N	W	NW	NE	SW	NNW	N	N	SSW	S	W	E	SSW	SSW	WNW	WNW	S	SE	S	N	SSW	SW	NE	SSW	SW	SSW	W	N
	12	E	NE	ESE	N	W	NNE	E	SW	NNW	N	N	SSE	S	W	S	SW	ESE	WNW	WNW	S	S	S	N	S	SW	ENE	S	W	S	W	N
	13	E	ENE	SE	N	N	NE	ENE	W	NNW	N	N	S	S	W	SSW	SW	W	W	WNW	SSW	S	S	N	S	SW	E	S	NNE	SSW	NW	NNW
	14	ENE	ENE	ESE	NNW	N	NE	N	WNW	NNW	N	N	S	S	WNW	SSW	S	W	W	WNW	SW	S	SW	N	SSE	WSW	NE	S	N	SSW	NNW	NNW
	15	ENE	ENE	ESE	NNW	WNW	NNE	N	NW	NNW	N	N	SSW	SE	W	SW	SW	SW	W	WNW	WSW	S	W	N	SSE	W	NE	SSW	NW	SSE	NW	NNW
	16	NE	ENE	ESE	NNW	WSW	NE	N	NW	NNW	N	NNE	SSW	SSE	W	SW	W	WSW	W	NW	W	S	WNW	N	S	WNW	NE	SSW	WNW	SSE	WNW	WNW
	17	NE	ENE	SE	W	ENE	E	NNE	NNW	N	N	N	SSW	S	W	SW	SW	SW	W	NW	WNW	SW	WNW	NNW	SSW	WNW	NE	S	WNW	SSE	NNW	WNW
	18	NNE	ENE	SE	W	NE	ESE	NE	NNW	N	N	N	S	SSE	W	SSW	NW	SSW	W	NW	WNW	WSW	WNW	NNW	SSW	NW	NE	S	SSW	SE	NNW	WNW
	19	NNE	E	ESE	NNW	E	ESE	NNE	NNW	N	N	N	SSE	SSE	NW	SSE	NNW	S	WNW	NW	NW	WSW	NNW	N	NNW	NW	NE	S	ESE	ESE	N	WNW
	20	NE	E	ESE	WNW	SSE	ESE	NNE	N	N	N	N	S	SE	N	E	N	NW	WNW	NNW	NW	SW	NNW	N	NE	NNW	NE	S	SE	ESE	N	WNW
	21	NE	E	E	NW	SW	ESE	NNE	NNW	N	NNE	N	SSE	ESE	NNE	ESE	NNE	NNW	WNW	NW	NW	WNW	NW	N	E	NNW	ENE	SSE	SE	ESE	N	WNW
	22	ENE	E	ENE	NNW	N	SSE	N	NNW	N	NNE	NNE	SE	ESE	E	SE	NNE	W	W	NW	N	SSE	NW	ENE	SE	NNW	ENE	SSE	SE	SE	NNE	WNW
	23	ENE	E	ESE	NNW	SE	SSE	N	NW	N	NNE	ENE	SE	SE	E	ESE	N	SSE	W	NW	NNE	SSE	NNW	ENE	SSE	NNW	E	S	SSE	SSE	NNE	WNW
	24	ENE	E	SE	N	SSE	SSE	NNE	NNW	N	NNE	E	SSE	SE	ESE	S	N	SE	WSW	NW	E	SSE	N	ENE	SSE	NW	E	S	NNW	S	NE	WNW

15
H
O
U
R

NORTHERN GREAT PLAINS ONE HOUR AVER. OF WIND SPEED WS(MS)

Figure 6B

H O U R	STATION - GLENDIVE															MONTH/YEAR JUL 75															Figure 08						
																DAY																					
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
01	05	01	03	02	03	02	03	05	02	01	02	01	03	04	04	07	06	03	02	01	00	04	04	01	05	02	03	04	04	05	01						
02	06	01	03	02	03	02	02	04	01	01	01	00	04	04	03	05	07	04	02	01	00	03	03	01	05	01	03	04	02	05	03						
03	06	01	01	01	01	02	03	02	01	02	01	00	04	04	03	03	03	04	03	01	00	03	03	03	05	01	02	05	02	04	02						
04	07	02	03	02	01	02	03	02	01	03	02	00	03	03	03	03	02	05	03	02	00	02	04	03	04	02	02	05	02	02	03						
05	07	01	03	02	01	04	03	02	01	02	02	01	04	03	03	03	01	04	02	02	01	02	04	02	04	03	03	02	04	03	03						
06	05	01	03	01	01	03	02	01	01	03	02	00	03	04	04	02	03	04	02	03	02	02	04	02	05	02	04	03	02	03	01						
07	02	02	04	01	01	04	01	01	02	02	02	01	03	02	03	03	01	04	02	03	03	02	03	03	05	02	05	04	02	03	01						
08	03	02	04	01	01	03	01	00	01	02	02	01	03	02	02	02	01	03	02	03	02	03	03	03	04	02	05	04	02	02	01						
09	03	02	03	01	00	01	02	00	01	03	02	01	02	01	02	01	01	02	02	02	03	01	04	01	03	01	04	03	02	02	01						
10	02	01	03	02	00	01	01	01	01	03	02	01	01	01	02	01	02	03	03	03	01	01	06	02	03	02	03	02	02	02	01						
11	02	02	03	03	00	01	01	02	01	03	02	01	02	02	01	02	03	03	04	04	02	02	05	02	04	02	02	03	01	02	02						
12	02	02	03	04	01	00	01	02	02	04	03	01	03	02	01	03	03	05	05	04	02	02	04	02	04	02	02	02	01	03	02						
13	02	03	02	03	01	01	01	02	02	03	03	02	02	02	01	02	02	04	05	04	03	02	05	02	04	02	02	02	01	04	03						
14	01	02	02	02	01	01	07	02	03	04	03	02	03	03	02	02	02	05	05	04	03	02	05	02	03	03	02	02	01	04	02						
15	01	02	03	02	01	01	05	02	03	04	03	02	03	03	03	03	02	05	05	04	03	03	05	02	04	02	02	02	01	03	03						
16	01	02	03	02	02	01	05	02	03	05	03	02	03	03	03	03	01	05	05	04	03	02	04	03	04	02	02	01	02	02	04						
17	01	03	03	01	04	01	04	02	04	04	03	02	03	03	03	02	01	05	04	04	03	02	04	02	04	02	03	01	02	02	05						
18	02	03	03	02	05	01	03	02	04	04	04	02	03	03	02	02	01	04	04	04	03	03	03	02	04	02	02	02	03	03	05						
19	03	03	03	02	03	01	03	02	03	04	04	02	03	02	01	02	01	05	04	03	02	03	03	02	03	02	03	02	04	04	05						
20	02	03	04	02	01	02	05	02	02	05	04	01	03	02	02	02	06	04	03	02	02	03	03	01	03	02	03	03	04	04	04						
21	02	03	03	02	00	02	05	01	02	04	03	01	03	01	03	02	03	03	03	01	01	03	02	02	03	02	03	03	05	03	03						
22	02	04	03	02	00	02	05	01	02	03	02	03	04	03	04	03	02	02	03	01	01	03	01	04	03	04	03	03	06	03	03						
23	02	04	04	02	02	03	05	01	02	03	01	04	04	03	05	06	03	03	02	01	02	03	01	04	03	04	04	03	07	03	03						
24	03	04	03	02	03	03	05	01	01	03	02	04	04	04	06	07	02	02	02	00	03	04	01	05	03	03	04	05	06	01	02						

of 36 possible wind directions. The EPA Project Officer requested that these readings be reported using the notation of the 16 compass point directions referenced to true north. Figure 7 indicates the wind direction intervals in degrees covered by each of the 16 compass points.

After the manual reading of the analog wind measurement traces whereby the technician determines hourly average values for both wind speed and direction within each scale range over a three-inch chart length, the data are recorded on a computer coding form. The readings were then punched onto data cards for computer processing using a program called Wind Speed-Wind Direction. This program produced the data in the format ready for distribution to EPA. As shown in Figure 6A the wind speed data cards from one site and for one month were listed onto one sheet. The wind direction data cards containing the measurement values to the nearest 10-degree increment were computer processed for the compass point conversion and then listed in a format similar to the wind speed data as shown in Figure 6B.

The computer data cards were then rearranged into measurement pair order for processing by Program Wind-Rose. The Wind-Rose program sorted the wind speed data according to selected speed classes into the proper compass point direction. The six speed classes used were: 0-2, 3-4, 5-6, 7-8, 9-10, and above 10 meters/sec. After determining the number in each category, the program calculated the percentage of the total which each number represented. Figure 8 is a sample of the Wind Rose Program printout. The percentage figures make the preparation of an actual wind-rose diagram much easier.

The computer data cards, the Wind-Speed and Wind-Direction data sheets, and the Wind Rose printouts were all distributed to the EPA Project Officer each month.

In review, the data reduction process followed this sequence:

- 1) receive the chart roll by mail from the site operator;
- 2) review the complete strip chart to ascertain if any obvious problems with the recorder existed;
- 3) manually read the data using specially constructed, chart-reading aid to determine the hourly average of wind speed and direction;
- 4) record data on computer coding form;
- 5) punch data card;
- 6) process by computer using Program Wind Speed-Wind Direction;

- 7) proof read;
- 8) rearrange cards for wind rose data processing;
- 9) process by computer using Program Wind-Rose;
- 10) proof read;
- 11) duplicate computer cards.

E. Termination

The systems were removed from all of the tower sites and returned to the contractors maintenance shop by March 10, 1976. Each system was inspected and checked for operational condition. All systems, though worn, are operational. Aerovane transmitter, serial number 3385, was subjected to improper handling by non-contractor tower climbers during its removal; consequently, its operation should be monitored closely during the initial period of reuse.

The government furnished systems were repackaged in the original shipping containers and returned to the Denver EPA Regional office.

IV. DATA PROVIDED

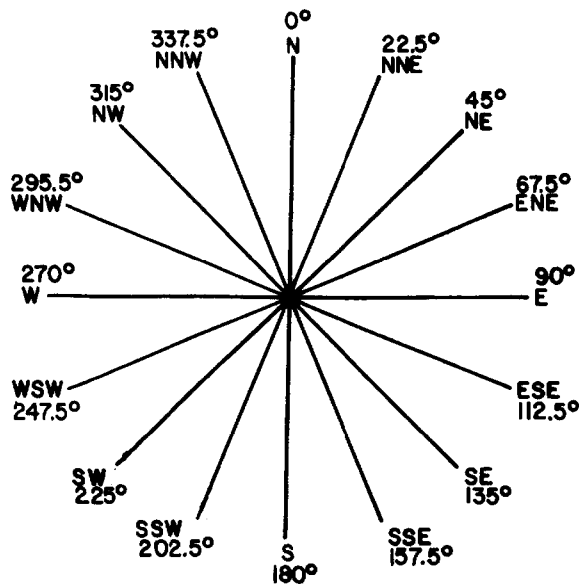
A. Reports

The monthly wind speed and direction data for each of the three stations was provided in the format shown in Figure 6 as attachments to the monthly reports. These data are listed in Section V.C. Punched cards with the data is a form for further computer processing were also provided to the Project Officer on a monthly basis:

B. Wind Roses

The monthly wind rose data sheets (see Fig. 8) covering each station have been combined to produce summary wind roses diagrams. Each of these diagrams show the wind speed and direction at 30 meters for the period March 1, 1975 to February 29, 1976. The wind roses for Glendive, Gillette, and Bowman are shown in Figures 9, 10 and 11 respectively. The number of measurements within the six speed classes and 16 compass directions are provided in Tables II, III and IV for the same order of stations. The first line shows the actual number of measurements within the 0-2 meter/second speed class and the second line indicates the percentage of the total the number represents. This sequence is repeated for the remaining five speed classes. Monthly wind rose data tabulations for each station appear in Section V.B.

The annual wind roses show the highest wind speeds at Bowman and the lowest at Glendive. At Bowman 25% of the wind



Wind Directions

<u>Coverage Intervals in degrees</u>				<u>Coverage Intervals in 10-deg increments</u>			
348.75°	≥	N	< 11.25	35	≥	N	< 01
11.25°	≥	NNE	< 33.75	01	≥	NNE	< 03
33.75°	≥	NE	< 56.25	03	≥	NE	< 06
56.25°	≥	ENE	< 78.75	06	≥	ENE	< 08
78.75°	≥	E	< 101.25	08	≥	E	< 10
101.25°	≥	ESE	< 123.75	10	≥	ESE	< 12
123.75°	≥	SE	< 146.25	12	≥	SE	< 15
146.25°	≥	SSE	< 168.75	15	≥	SSE	< 17
168.75°	≥	S	< 191.25	17	≥	S	< 19
191.25°	≥	SSW	< 213.75	19	≥	SSW	< 21
213.75°	≥	SW	< 236.25	21	≥	SW	< 24
236.25°	≥	WSW	< 258.75	24	≥	WSW	< 26
258.75°	≥	W	< 281.25	26	≥	W	< 28
281.25°	≥	WNW	< 303.75	28	≥	WNW	< 30
303.75°	≥	NW	< 326.25	30	≥	NW	< 33
326.25°	≥	NNW	< 348.75	33	≥	NNW	< 35

Figure 7 Intervals in Degrees of Wind Direction Reports

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, US(MS)

	STATION - GLENDIVE								MONTH/YEAR MAY 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	3.495	1.075	1.882	1.747	.941	1.210	.538	1.075	1.478	1.882	2.554	2.285	3.763	2.554	2.151	3.360
3-4	3.495	1.075	.672	1.613	3.629	2.285	1.613	2.957	3.763	3.360	5.511	2.151	2.285	2.554	2.554	3.495
5-6	1.613	.269	.403	1.075	5.645	.672	.806	.806	.672	.134	1.075	.538	2.419	.806	.269	1.478
7-8	.269	.000	.000	.403	3.495	.538	.000	.000	.000	.000	.000	.000	.134	.269	.000	.538
9-10	.000	.000	.000	.000	.672	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
11-)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	8.871	2.419	2.957	4.839	14.382	4.704	2.957	4.839	5.914	5.376	9.140	4.973	8.602	6.183	4.973	8.871
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	26	8	14	13	7	9	4	8	11	14	19	17	28	19	16	25
3-4	26	8	5	12	27	17	12	22	28	25	41	16	17	19	19	26
5-6	12	2	3	8	42	5	6	6	5	1	8	4	18	6	2	11
7-8	2	0	0	3	26	4	0	0	0	0	0	0	1	2	0	4
9-10	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
11-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	66	18	22	36	107	35	22	36	44	40	68	37	64	46	37	66

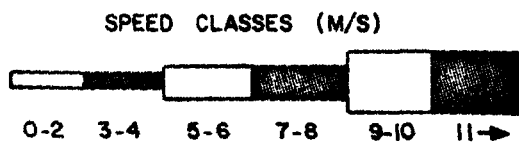
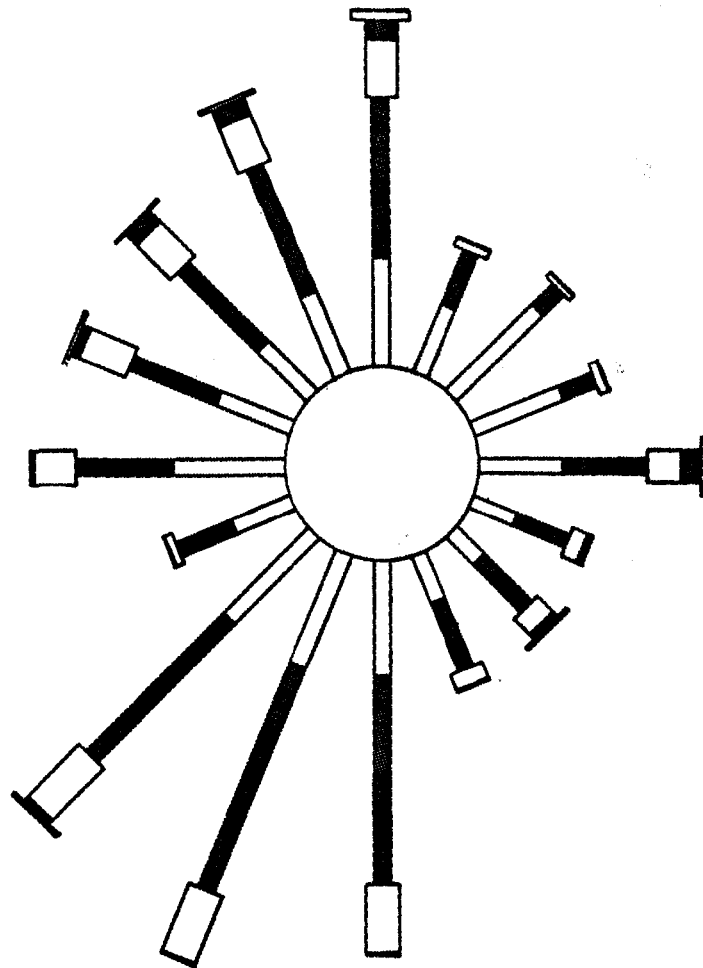
TOTAL SAMPLE UNITS 744

Figure 8 Sample Wind Rose Data Sheet

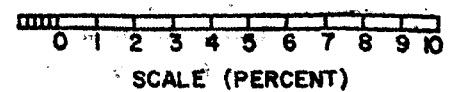
NORTHERN GREAT PLAINS WIND ROSE

GLENDIVE, MONTANA

FROM MARCH, 1975 through FEBRUARY, 1976



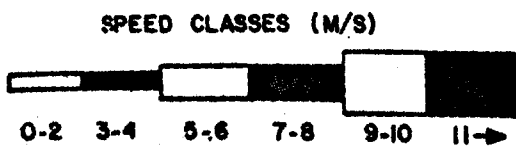
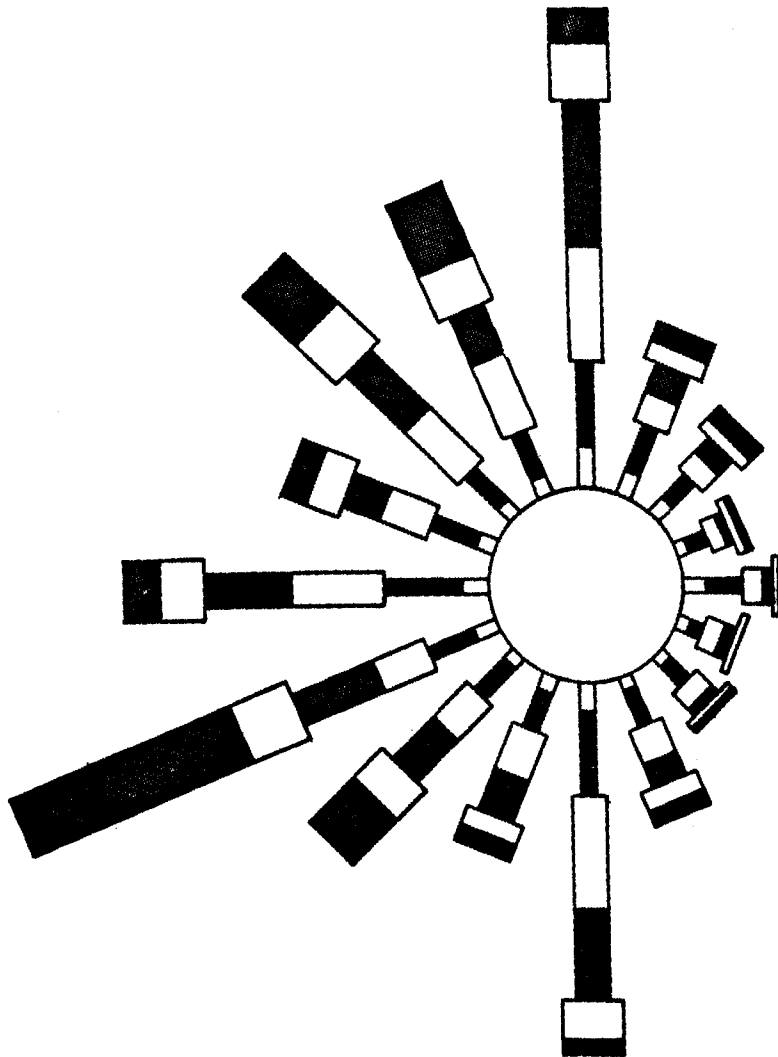
N
↑
Figure 9
21



NORTHERN GREAT PLAINS WIND ROSE

GILLETTE, WYOMING

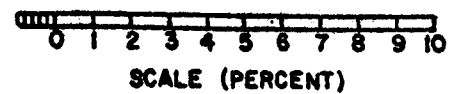
FROM MARCH 1975 through FEBRUARY 1976



N
↑

Figure 10

22



NORTHERN GREAT PLAINS WIND ROSE
BOWMAN, NORTH DAKOTA
FROM MARCH 1975 through FEBRUARY 1976

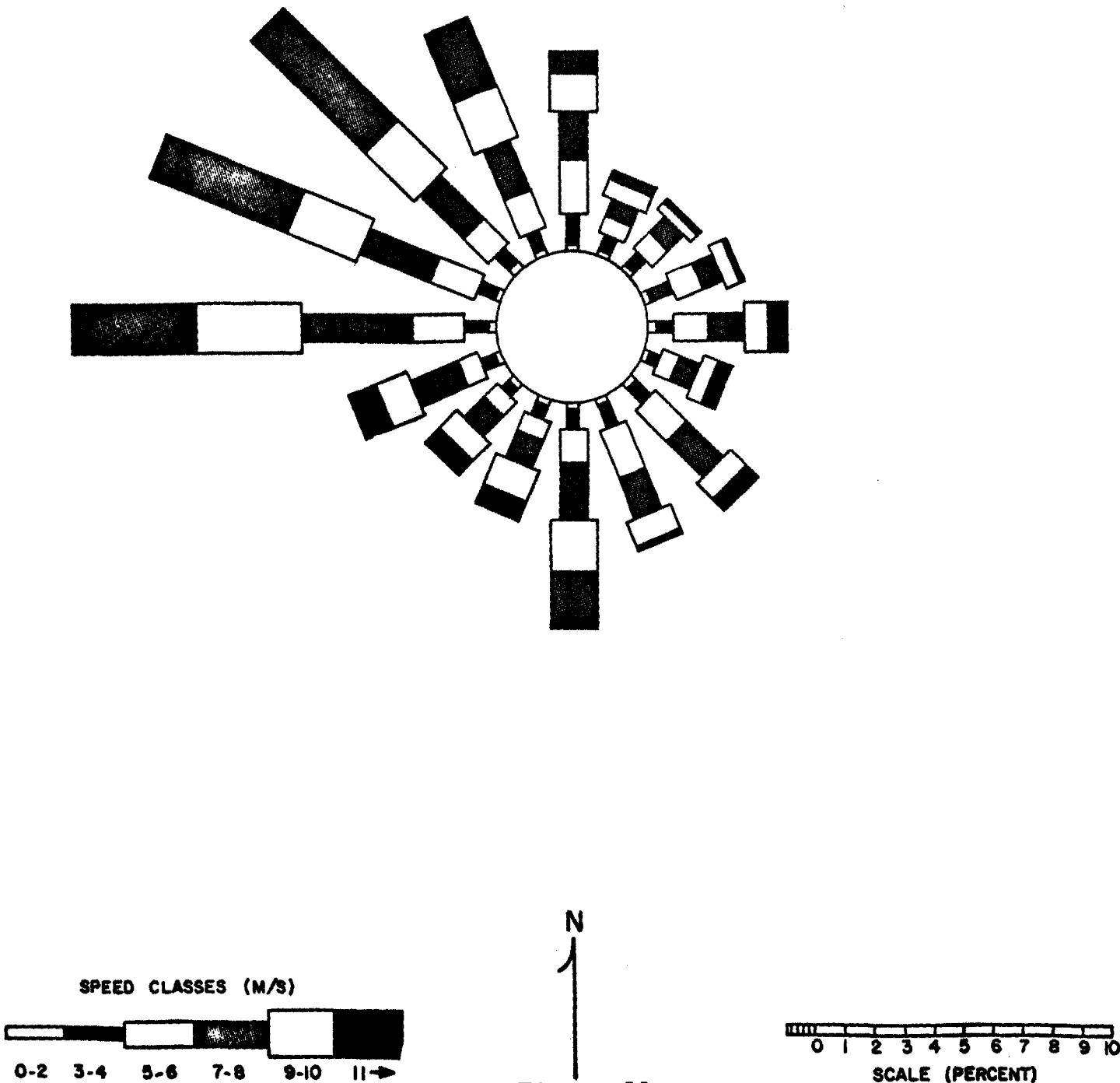


TABLE II

WIND ROSE DATA SUMMARY FOR GLENDIVE STATION

March 1, 1975 through February 29, 1976

Total Measurements 8287

Speed M/S	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	246	165	269	207	173	95	83	111	244	264	255	137	237	169	152	192
-	2.97	1.99	3.25	2.50	2.09	1.15	1.00	1.34	2.94	3.19	3.08	1.65	2.86	2.04	1.83	2.32
3-4	349	128	64	81	173	126	145	163	464	532	428	130	218	208	238	307
-	4.22	1.55	0.77	0.98	2.09	1.52	1.75	1.97	5.60	6.42	5.16	1.57	2.63	2.51	2.87	3.70
5-6	133	22	9	15	79	35	51	36	150	154	154	18	82	108	102	103
-	1.61	0.27	0.11	0.18	0.95	0.42	0.62	0.43	1.81	1.86	1.86	0.22	0.99	1.30	1.23	1.24
7-8	46	4	2	4	40	16	12	5	1	2	7	2	20	22	30	43
-	0.56	0.05	0.02	0.05	0.48	0.19	0.14	0.06	0.01	0.02	0.08	0.02	0.24	0.27	0.36	0.52
9-10	8	0	0	0	6	0	1	0	0	0	1	0	0	3	2	4
-	0.10	0.00	0.00	0.00	0.07	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.04	0.02	0.05
>10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	784	319	344	307	471	272	292	315	859	952	845	287	557	510	524	649
	9.48	3.86	4.15	3.71	5.68	3.28	3.52	3.80	10.36	11.49	10.19	3.46	6.73	6.16	6.31	7.83

The data in the above table is arranged as follows: the first row associated with each wind speed class shows the number of measurements at each of the sixteen compass points and the second row gives the percentage of the total measurements which the number represents

TABLE III

WIND ROSE DATA SUMMARY FOR GILLETTE STATION

March 1, 1975 through February 29, 1976

Total Measurements 7449

Speed M/S	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	82	53	34	25	47	22	24	24	56	33	25	47	54	33	29	34
-	1.10	0.71	0.46	0.34	0.63	0.30	0.32	0.32	0.75	0.44	0.34	0.63	0.72	0.44	0.39	0.46
3-4	165	99	71	43	72	31	54	73	172	78	78	93	153	101	86	92
-	2.22	1.33	0.95	0.58	0.97	0.42	0.72	0.98	2.31	1.05	1.05	1.25	2.05	1.36	1.15	1.24
5-6	224	60	46	28	33	39	44	70	223	94	94	108	182	95	138	148
-	3.01	0.81	0.62	0.38	0.44	0.52	0.59	0.94	2.99	1.26	1.26	1.45	2.44	1.28	1.85	1.99
7-8	286	61	43	16	20	24	17	56	178	81	114	167	169	74	153	102
-	3.84	0.82	0.58	0.21	0.27	0.32	0.23	0.75	2.39	1.09	1.53	2.24	2.27	0.99	2.05	1.37
9-10	112	38	21	10	11	8	5	35	81	42	80	119	85	65	114	91
-	1.50	0.51	0.28	0.13	0.15	0.11	0.07	0.47	1.09	0.56	1.07	1.60	1.14	0.87	1.53	1.22
>10	74	35	35	11	2	1	5	28	29	39	128	469	68	52	140	146
-	0.99	0.47	0.47	0.15	0.03	0.01	0.07	0.38	0.39	0.52	1.72	6.30	0.91	0.70	1.88	1.96
Total	943	346	250	133	185	125	149	286	739	367	519	1003	711	420	660	613
	12.66	4.65	3.35	1.79	2.49	1.68	2.00	3.84	9.92	4.92	6.97	13.47	9.53	5.64	8.85	8.24

The data in the above table is arranged as follows: the first row associated with each wind speed class shows the number of measurements at each of the sixteen compass points and the second row gives the percentage of the total measurements which the number represents

TABLE IV

WIND ROSE DATA SUMMARY FOR BOWMAN STATION

March 1, 1975 through February 29, 1976

Total Measurements 6927

Speed M/S	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	11	7	6	8	14	7	15	6	6	12	9	10	9	9	10	7
-	0.16	0.10	0.09	0.12	0.20	0.10	0.22	0.09	0.09	0.17	0.13	0.14	0.13	0.13	0.14	0.10
3-4	69	38	43	54	40	29	47	58	51	33	26	39	61	46	50	45
-	1.00	0.55	0.62	0.78	0.58	0.42	0.68	0.84	0.74	0.48	0.38	0.56	0.88	0.66	0.72	0.65
5-6	124	43	48	65	79	41	102	114	77	44	44	44	119	111	76	90
-	1.79	0.62	0.69	0.94	1.14	0.59	1.47	1.65	1.11	0.64	0.64	0.64	1.72	1.60	1.10	1.30
7-8	115	33	53	51	83	55	125	106	129	72	69	118	260	173	144	122
-	1.66	0.48	0.77	0.74	1.20	0.79	1.80	1.53	1.86	1.04	1.00	1.70	3.75	2.50	2.08	1.76
9-10	88	39	22	33	53	33	54	63	116	75	45	75	242	170	159	127
-	1.27	0.56	0.32	0.48	0.77	0.48	0.78	0.91	1.67	1.08	0.78	1.08	3.49	2.45	2.30	1.83
>10	52	20	9	10	46	38	42	12	137	51	49	70	290	344	379	171
-	0.75	0.29	0.13	0.14	0.66	0.55	0.61	0.17	1.98	0.74	0.71	1.01	4.19	4.97	5.47	2.47
Total	459	180	181	221	315	203	385	359	516	287	251	356	981	853	818	562
	6.63	2.60	2.62	3.20	4.55	2.93	5.56	5.19	7.45	4.15	3.64	5.13	14.16	12.31	11.81	8.11

The data in the above table is arranged as follows: the first row associated with each wind speed class shows the number of measurements at each of the sixteen compass points and the second row gives the percentage of the total measurements which the number represents

speed measurements were in the highest speed class of over 10 meters/second. At Gillette 17% of the wind speed readings were over 10 meters/second; the largest number of WS measurements was in the 5 to 6 meter/second class. The wind speed exceeded 10 meters/second only 0.02% of the time at Glendive and most frequently was in the 3 to 4 meter/second class.

Further, the annual wind roses show the prevailing wind directions for the three locations. These indications are: Glendive, SSW; Gillette, WSW; and Bowman, W.

APPENDIX A

**QUALITY CONTROL OF THE THREE-SITE
NORTHERN GREAT PLAINS WIND MEASUREMENT PROGRAM**

**QUALITY CONTROL OF THE THREE-SITE
NORTHERN GREAT PLAINS WIND MEASUREMENT PROGRAM**

Report No. 6732-75-03

Project Title:	Northern Great Plains Wind Measurement at Selected Sites
EPA Project Code:	NGPRP #13
Contract No.:	68-01-2992
Effective Date of Contract:	14 NOV 1974
Amount of Contract:	\$25,054.00
Contract Expiration Date:	13 FEB 1976
Program Manager:	B. G. Herrin (406)245-6334
Team Leader:	R. E. Matkins (406)245-6332

**Aeronutronic Ford Corporation
Aero-Comm Engineering Division
214 North 30th Street
Billings, Montana**

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QUALITY CONTROL OF THE THREE-SITE
NORTHERN GREAT PLAINS WIND MEASUREMENT PROGRAM

I. INTRODUCTION

Philco-Ford submits this document outlining the quality control practices to be employed during the performance of the Northern Great Plains Wind Measurement Program for the Environmental Protection Agency (EPA). The practices described in this report are intended to indicate the attention of Philco-Ford to the procedures necessary to provide the highest quality of data feasible from the wind measurement equipment provided by the government. However, the quality control and other measures to be used throughout the program will not be limited only to those discussed here. Philco-Ford Communication Systems Division (CSD) is committed to providing high quality in the performance of all of its programs.

This document first identifies the responsibility for the implementation of the program quality control (QC), then outlines the procedures to be used during (1) the system installation (including pre-installation testing), (2) the system operation, (3) the wind data reduction and handling, and (4) the program termination.

II. RESPONSIBILITY

The responsibility for the quality control exercised on this program is indicated below:

project overall - Robert Matkins

pre-installation checks - Andrew Christensen

installation & calibration tests - Andrew Christensen

data reduction - Daryl Gress

III. SYSTEM INSTALLATION

A. Pre-installation Checks

After the GFE is received at our Miles City maintenance center, each instrument and recorder will be inspected and checked for proper operation. Tests on the equipment operation help ensure dependable and continuous service from each of the systems.

The transmitter will be carefully unpacked as it is a precision instrument and must be treated accordingly. Care will be taken so that the transmitter is not damaged in handling. the

rotor and vane will not be used to lift the transmitter. The stationary center section will be used for lifting.

Each transmitter and recorder will be bench checked for proper operation and alignment as a system before field installation.

Normally, when the transmitter is shipped, the direction synchro is set (zeroed) so that when wired correctly, the vane will be parallel to the flat side of the connector housing (side opposite nameplate), and the tail will be on the same side as the threaded hole in the connector housing. Thus, when the transmitter is installed, it is only necessary to align the flat side of the connector housing with the "true" (not magnetic) north-south direction and with the threaded hole in the connector housing on the south side.

With the vane thus positioned, the recorder should register 0 degrees. Turn the vane through 360° and check to see if the recorder follows in the correct direction.

Turn the rotor in a counter-clockwise (when facing the rotor) direction and the recorder should indicate wind speed in a positive direction. When the rotor is stationary, the recorder should indicate zero.

Check the transmitter for excessive friction. To ascertain if the rotor turns freely, attach a one-cent coin to the flat side of the rotor blade at the tip, using "Scotch" tape. Place the transmitter in a vertical position. Turn the blade so that the coin is approximately 45 degrees from the vertical. When the rotor is released, the weight of the coin should be sufficient to carry the blade to the bottom.

To ascertain if the vane turns freely, attach a fifty-cent coin to the flat side of the vane at the trailing edge. Lay the vane on a bench or table so that the vane and rotor project over the edge. Position the vane so its centerline is horizontal. When the vane is released, the weight of the coin should be sufficient to carry the trailing edge of the vane downward.

Check the wind speed accuracy of the magneto. Connect the transmitter to the recorder. The load must be 1150 ± 6 ohms. When only one recorder is used, it is necessary to simulate a second recorder by connecting a 2300 ± 12 ohm resistor across terminals V1 and V2 of the recorder to obtain the 1050-ohm load.

Check the operation of the recorder ensuring that the correct speed gear is installed, the drive speed is correct, the chart paper moves properly, and the pens write smoothly on the paper.

Complete the Pre-installation Test Check Sheet and correct any discrepancies found in the system before repacking for

Philco-Ford Corporation

CSD

AEROVANE WIND DATA TRANSMITTER/RECORDER CHECK SHEET

Pre-installation Tests

Transmitter Serial No. _____ Recorder Serial No. _____

	Date Completed	Remarks
Data Transmitter Incoming Visual Inspection	_____	_____
Recorder Visual Incoming Inspection	_____	_____
Direction Synchro 0-degree & direction test	_____	_____
Speed Positive for CCW Rotation Test	_____	_____
Aerovane Turning Friction Test	_____	_____
Speed Accuracy/Recorder Load Check	_____	_____
Recorder Gear Speed Check	_____	_____
Recorder Paper Movement Check	_____	_____
Recorder Pen Inking Check	_____	_____

Discrepancies corrected: _____

Technician(s) _____

Figure 1

transporting to the installation site. Figure 1 shows a copy of this checksheet.

B. System Installation

The Aerovane transmitter will be installed on an eight-foot boom placed upwind of the prevailing wind at a height of 30 meters on each of the specified towers.

The boom material will be galvanized iron pipe which will provide stable support with minimum vibration under strong wind conditions. It will be positioned and mounted with suitable hardware to permit easy accessibility for inspection, maintenance and recalibration. An Aerovane Mast Adapter #515331 will be mounted on the end of the boom to adapt the transmitter for mounting and to allow rotation of the transmitter for orientation purposes.

Philco-Ford will provide all necessary signal, power and ground cables to complete the interconnection of the transmitter, recorder and power source in accordance with the National Electric Code.

A shelter properly ventilated and weather-proofed will be installed at the base of the tower to house the strip chart recorder and power disconnect switch at locations where permanent structures are not available.

C. System Calibration

After a bench-tested Aerovane system has been installed, the transmitter orientation and the system operation must be checked for proper calibration.

If a tower has a north mark, it must be transferred to the transmitter mount. If not, true north must be established. One method that has been used for Aerovane systems in the past utilizes a transmit mounted on a Jacob staff and a jig with scope site, as follows:

The connector housing must be positioned in the support adapter so that when the transmitter base is mounted on the connector housing, the null point is pointing at true north. Locate the K&E pocket transit and Jacob staff approximately 100 yards away from the tower area in a northerly direction. Take a sighting on the weather station pole and obtain the magnetic heading from the weather station pole to the Jacob staff.

At the tower, mount the Aerovane unit on the connector housing and transfer the scribe mark on the bottom flange of the transmitter base to the top flange of the connector housing. Remove the Aerovane unit and loosen the lockscrews that hold the connector housing to the support adapter. Mount the azimuth alignment jig on the connector housing. Locate the scribe mark on the connector housing in relation to the protractor scale on the jig. Obtain the

declination for the particular location. Magnetic north is east of true north at all of the sites. Add the declination to the magnetic heading previously obtained for a true heading figure. Using the protractor scale, rotate the scope away from the scribe mark, in the proper direction, the number of degrees in the true heading figure and lock the scope. Using a pipe wrench, rotate the connector housing until the scope crosshairs are lined up with the Jacob staff. Tighten the lock screws in the support adapter, remove the jig, and then install the Aerovane unit. The synchro should now be at the zero position when the Aerovane is pointing at true north.

Example: If the magnetic heading from the weather station pole to the Jacob staff is 10° magnetic and the declination is 16° east, then the true heading figure is 26° true. Lock the scope 26° clockwise from the scribe mark. Turn the connector housing until the crosshairs line up with the Jacob staff. The scribe mark will now be pointing at true north.

Another convenient method of aligning the transmitter to the north mark is by clamping a straight-edge to the flat side of the connector housing and orienting the transmitter until the straight-edge is in alignment with the north-south direction. After the transmitter has been properly positioned, it should be secured to the support.

After the transmitter has been properly installed and wired to the recorder, the vane and the rotor should be manually rotated to see that they are free.

Load the recorder with chart paper and ink. Start recorder and check for proper chart paper drive and inking of record. Adjust as necessary.

Turn the vane through 360° and check to see if recorder follows in the correct direction. With the rotor of the vane pointing with the north-south direction, check to see if the recorder indicates that direction. When the rotor is stationary, the recorder should indicate zero wind speed. When the rotor is turned by the wind, check to see that the recorder indicates a positive wind speed. Complete the Installation and Calibration Test Check Sheet shown in Figure 2.

IV. SYSTEM OPERATION

During the initial system alignment and calibration at the tower site, the local operator will be trained in the operation of the wind measurement system and in his responsibilities. These responsibilities will be: (1) to inspect the system and verify proper recorder operation periodically; (2) to remove the inked data record at least once each week, annotate the date and time, and mail the record to Billings for data reduction; (3) to place new paper in recorder periodically as required; and (4) to contact the system maintenance technician in the event of a recorder or

Philco-Ford Corporation

CSD

AEROVANE WIND DATA TRANSMITTER/RECORDER CHECK SHEET

Installation and Calibration Tests

Transmitter Serial No. _____ Recorder Serial No. _____

Tower location: _____

	Date Completed	Remarks
Installation hardware complete	_____	_____
Recorder Shelter arranged/prepared	_____	_____
Tower/Aerovane positioned to true north	_____	_____
Vane and rotor rotate freely	_____	_____
Recorder operating properly	_____	_____
360° vane rotation check	_____	_____
Vane at North direction test	_____	_____
Rotor stationary zero speed test	_____	_____
Wind direction & wind speed operational check	_____	_____

Figure 2

other system malfunction; and (5) to respond to the instructions of the system maintenance technician in the event a trouble is detected remotely from the data recordings.

Few problems are anticipated with the transmitter except possible physical damage. Chart recorder drive and inking problems are not uncommon. Proper and careful handling of chart paper loading and ink supply will eliminate most problems. This will be stressed when training an operator.

When a failure occurs, communication with the operator to determine the problem is very important. If possible, replacement parts will be on hand before a maintenance trip is scheduled. All efforts will be made to repair the systems on site.

If it is not possible to repair the system on site, both transmitter and recorder will be removed and returned for shop repair and a complete bench test before reinstallation. Timely repairs for a minimum out-of-service time will be stressed.

V. DATA REDUCTION AND HANDLING

The strip chart recordings containing the raw wind data will be carefully handled and read by the data reduction technicians. Upon receipt of the recordings, they will be logged and briefly scanned to detect any unusual recorded events which require further attention by the equipment technician or operator.

The strip charts will be carefully read to convert the two analog traces into hourly averages of wind direction and speed. An appropriate scale will be used in converting the knots per hour wind speed traces into the requested units of meters per second. The data will be collected using the form shown in Figure 3. Wind speeds will be read and recorded to the nearest one meter per second and wind directions readings will be to the nearest ten degrees. After the data has been read and given the quality control check, each strip chart recording will be labeled and stored.

The quality control check involves re-reading a sample of the hourly averages by another technician. From the 168 total readings each week a random sample of 50 are read again. The 50 readings are compared with the original and if any readings differ the week's chart recording is read again completely. The probability of finding at least one from the X erroneous original readings using a sample size of 50 is given by

$$P_x = 1 - \frac{\binom{168-x}{50} \binom{x}{0}}{\binom{168}{50}} = 1 - \frac{(168-x)!}{168!} \frac{(118)!}{(118-x)!}$$

Table I shows the probabilities P_x for several values of X.

TABLE

X	P _x	X	P _x	X	P _x
0	0.0000	7	0.9212	14	0.9946
1	0.2976	8	0.9458	15	0.9964
2	2.5079	9	0.9629	16	0.9976
3	0.6570	10	0.9746	17	0.9984
4	0.7616	11	0.9827	18	0.9989
5	0.8347	12	0.9882	19	0.9993
6	0.8857	13	0.9920	20	0.9995

Then the data on the forms is punched on computer cards in preparation for electronic data processing (edp). the edp will convert the wind direction data into the proper 1/16th of the compass, viz., N, NNE, NE, etc., and printout the data in the format shown in Figure 4. Each measurement on the printout is verified with the handwritten value on the data collection form.

VI. PROGRAM TERMINATION

Following the completion of the 12-month recording period and with the confirmation of the Project Officer that sufficient data has been collected, the GFE will be removed from the tower sites. The towers will be inspected for damage and our tower contact's release will be obtained. The equipment will be returned to the Miles City maintenance shop and inspected before repacking into the original shipping cases. All GFE will then be shipped to a government designated locations(s) according to the instructions of the Project Officer.

FIGURE 3

**Form for Recording Hourly Averages
of Wind Speed and Directions
from the Strip Chart Recordings**

NORTHERN GREAT PLAINS ONE-HOUR AVERAGES OF WIND SPEED AND DIRECTION, WS(M/S) AND WD (DEG)

STATION: _____

MONTH _____ YEAR _____

		DAY																														
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01-WS																																
01-WD																																
02-WS																																
02-WD																																
03-WS																																
03-WD																																
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10-WD																																
11-WS																																
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12-WS																																
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NORTHERN GREAT PLAINS ONE-HOUR AVERAGES OF WIND SPEED AND DIRECTION, WS(M/S) AND WD (DEG)

STATION: _____

MONTH _____ YEAR _____

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
13-WS																															
13-WD																															
14-WS																															
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FIGURE 4

**Format for Reporting Wind Speed and Direction
Data to EPA**

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GILLETTE

MONTH/YEAR JAN 75

DAY

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	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	09	06	09	07	06	11	04	10	--	--	--	--	--	05	06	10	--	05	00	11	13	10	09	13	08	02	07	00	00	06	08
02	08	07	09	08	07	11	03	14	--	--	--	--	--	03	05	11	--	04	07	11	11	08	07	14	07	03	06	03	06	06	10
03	06	08	10	07	08	07	04	14	--	--	--	--	--	03	04	12	--	03	06	11	11	08	05	13	06	05	--	06	05	06	12
04	05	09	08	08	08	09	03	--	--	--	--	--	--	01	04	--	--	02	04	12	10	07	06	10	05	06	--	06	06	05	11
05	04	09	10	09	09	08	02	--	--	--	--	--	--	03	03	--	--	02	04	12	10	06	05	07	06	06	--	06	07	04	11
06	05	11	11	07	07	08	03	--	--	--	--	--	--	04	05	--	--	04	04	12	10	08	04	08	06	06	--	06	07	05	08
07	06	09	11	11	06	09	03	--	--	--	--	--	--	07	07	--	--	05	07	13	10	07	02	09	08	07	--	06	06	07	
08	08	13	12	10	05	10	03	--	--	--	--	--	--	06	06	--	--	09	08	12	09	06	02	10	08	09	--	03	05	07	09
09	08	14	11	08	05	10	03	--	--	--	--	--	--	05	05	--	--	12	09	10	09	07	03	09	08	09	--	02	06	06	09
10	08	13	11	11	05	09	03	--	--	--	--	--	--	05	07	--	--	13	09	08	09	00	03	10	08	09	--	04	07	06	07
11	09	12	09	13	06	07	05	--	--	--	--	--	--	08	08	--	--	10	10	06	09	08	05	10	08	07	--	05	05	05	07
12	09	12	07	13	06	09	06	--	--	--	--	--	--	11	07	--	--	12	09	06	08	08	05	12	08	06	--	07	05	04	07
13	06	11	06	13	06	08	05	--	--	--	--	--	--	08	06	--	--	13	09	06	07	08	05	12	09	05	--	08	06	04	06
14	05	11	07	14	03	09	05	--	--	--	--	--	--	04	05	--	--	13	08	07	06	08	06	12	08	06	--	08	04	03	06
15	04	10	10	13	04	07	05	--	--	--	--	--	--	02	04	--	--	10	07	10	06	11	06	11	07	05	--	08	09	02	04
16	04	09	09	12	04	05	05	--	--	--	--	--	--	01	04	--	--	10	07	13	05	12	08	11	07	06	04	08	07	01	
17	06	08	07	08	05	04	06	--	--	--	--	--	05	01	03	--	--	10	08	11	03	12	09	09	05	06	04	09	10	02	03
18	10	07	07	06	06	03	06	--	--	--	--	--	05	02	01	--	--	10	09	12	05	12	10	07	05	07	05	09	10	03	05
19	12	07	09	05	08	03	06	--	--	--	--	--	06	03	02	--	--	10	09	11	08	11	11	07	03	08	05	07	07	04	07
20	13	07	09	04	09	03	05	--	--	--	--	--	06	05	03	--	--	10	10	11	10	11	12	07	03	09	07	07	05	04	07
21	10	07	09	04	10	02	06	--	--	--	--	--	06	05	05	--	04	10	11	10	12	12	12	09	04	10	05	07	04	04	07
22	09	07	08	04	10	03	08	--	--	--	--	--	08	05	07	--	04	07	11	10	10	12	10	08	02	09	05	07	05	04	12
23	08	07	07	06	10	02	08	--	--	--	--	--	06	05	08	--	04	07	12	11	12	11	10	07	01	09	05	09	05	07	11
24	09	09	07	06	10	04	09	--	--	--	--	--	05	06	09	--	05	08	12	12	11	10	12	08	01	08	07	08	06	07	13

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR JAN 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	WSW	W	WSW	W	W	WSW	ESE	SW	NNW	NW	NNW	NW	NNW	---	SE	SSW	W	W	NW	WSW	NW	WSW	WSW	NW	WNW	ESE	NNW	S	NW	NW	SSE
02	SW	NW	WSW	WSW	WNW	WSW	SSE	SW	N	NW	NNW	NW	NNW	---	SE	SSW	WSW	W	NW	WSW	NNW	WSW	W	NW	NW	E	NNW	S	WNW	NW	SE
03	SW	NNW	SW	SW	WNW	W	ENE	SW	NNW	WNW	NNW	NW	NNW	---	E	SSW	WSW	WNW	NW	WSW	NW	WSW	W	NW	WNW	E	NNW	S	W	NW	SSE
04	SW	NNW	SW	SW	NW	WSW	NE	WSW	N	W	NNW	NW	NW	---	ENE	S	WSW	WSW	WNW	WSW	NW	W	W	NNW	WNW	E	NNW	S	W	NW	SSE
05	SW	NNW	WSW	SW	NW	WSW	E	WSW	NNW	W	NNW	W	WNW	---	NNE	S	SW	S	W	WSW	NW	W	W	NNW	WNW	E	NW	S	W	NW	SSE
06	SW	NNW	WSW	S	NNW	WSW	ENE	WSW	NNW	W	NW	W	WNW	---	NNW	S	SW	S	WSW	WSW	NW	W	W	NNW	WNW	ESE	WNW	S	W	NW	S
07	SSW	NNW	WSW	SSW	NW	WSW	N	WSW	NNW	WNW	NNW	WSW	WNW	---	NNW	S	SW	S	WSW	WSW	NW	W	W	WNW	WNW	ESE	WNW	S	W	NW	SE
08	SW	NNW	WSW	SSW	NW	WNW	NNW	WSW	NNW	WNW	NNW	WSW	W	---	N	S	WSW	SSW	WSW	WSW	NNW	WSW	WSW	NW	WNW	SE	W	SSW	WSW	NW	S
09	SW	NNW	WSW	SSW	NW	NNW	NW	WSW	NNW	NW	NNW	WSW	W	---	N	S	WSW	WSW	WSW	W	NW	SW	WSW	NW	WNW	SE	WNW	SW	SSW	WNW	S
10	SW	NNW	WSW	SW	WNW	NW	WNW	WSW	NNW	WNW	NW	SW	W	---	N	SSW	WSW	WSW	WSW	WSW	NW	SW	SW	NNW	WNW	SE	W	NW	SSW	WNW	S
11	SSW	NNW	W	WSW	WNW	WNW	W	WSW	N	W	NNW	SW	SW	---	N	SW	WSW	W	WSW	W	NW	SW	SSW	NW	WNW	SSE	W	N	S	NW	S
12	SW	NNW	W	WSW	WNW	WNW	WNW	WSW	NNW	W	NW	SW	SW	---	N	SW	WSW	NW	WSW	WSW	WNW	SW	SSW	NW	WNW	SE	WSW	NNW	S	NW	SW
13	SSW	NNW	W	WSW	W	NW	WNW	WSW	N	WNW	NW	SW	SW	---	NNE	W	W	N	WSW	WNW	WNW	SW	SSW	NW	WNW	SE	W	NNW	S	NW	W
14	S	NNW	NW	WSW	WSW	NW	W	WSW	N	WNW	NW	SW	SW	---	N	W	WNW	N	WSW	NW	WNW	WSW	SW	NW	WNW	ESE	WSW	N	S	NW	WNW
15	S	NW	NNW	WSW	S	WNW	W	WSW	N	NNW	NW	SW	SW	---	N	NNW	NW	N	WSW	NW	W	WSW	SW	NNW	WNW	E	SW	NNW	S	N	WNW
16	S	NW	NNW	WSW	S	WNW	W	SW	NNE	N	NW	WSW	SW	---	NNE	NW	NNW	NNW	WSW	NNW	WNW	WSW	SW	NW	WNW	NNE	SSW	NW	S	ENE	
17	S	NW	NNW	WNW	S	W	WSW	WSW	NE	N	NW	WSW	---	ESE	NNE	WNW	NW	NW	WSW	NNW	WSW	WSW	SW	NW	NW	NNE	S	NW	S	ESE	ENE
18	S	WNW	NW	NW	S	NNW	WSW	WSW	NNE	N	NW	WSW	---	SE	NW	WNW	NNW	NW	WSW	NNW	SW	WSW	SW	NW	WNW	N	S	NW	S	ESE	S
19	S	WNW	WNW	***	SW	E	WSW	WNW	NNE	N	NW	WSW	---	SE	W	W	NW	NNW	SW	NNW	SW	WSW	WSW	NW	NW	N	S	NW	SSW	SE	S
20	S	WNW	WNW	***	WSW	NE	WSW	NNW	NNE	NNE	NW	WSW	---	SSE	SW	W	N	NW	WSW	NNW	SW	WSW	WSW	WNW	WNW	N	S	NW	W	SSE	S
21	S	W	WNW	NNW	WSW	NNE	WSW	NNW	N	NNE	NW	WSW	---	SSE	SW	WNW	NW	NW	WSW	NNW	SSW	WSW	WSW	WNW	W	N	S	WNW	W	S	
22	SSW	W	WNW	WNW	WSW	NNE	WSW	NNW	NNW	NNE	NNW	W	---	SSE	SSW	WNW	W	NW	WSW	NNW	SW	WSW	WSW	WNW	W	N	S	WNW	WNW	S	S
23	SSW	W	W	W	WSW	E	SW	NNW	N	NNW	NNW	W	---	SSE	SSW	WNW	WNW	NW	WSW	NNW	WSW	WSW	WNW	WNW	W	N	SSE	WNW	NW	SE	S
24	SW	WSW	W	W	WSW	SSE	SW	NNW	NNW	WNW	NW	WNW	---	SE	SSW	W	WNW	NW	WSW	NNW	WSW	WSW	NNW	NW	ENE	N	S	WNW	NW	SSE	

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APPENDIX B

MONTHLY WIND ROSE DATA SUMMARIES

Glendive, MT

Gillette, WY

Bowman, ND

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GLENDIVE								MONTH/YEAR JAN 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.382	.382	2.672	.382	.191	.191	.763	.954	1.527	2.481	2.672	1.718	5.725	3.244	1.527	1.527
3-4	1.718	1.718	.000	.000	.763	1.145	2.481	.382	6.870	11.832	5.534	3.244	5.344	3.053	3.626	2.481
5-6	.763	.191	.000	.000	.000	.191	.573	.000	3.053	2.863	2.481	.382	1.527	1.145	3.053	1.145
7-8	.382	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.336	2.863	1.145
9-10	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.191	.191	.000
11-)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	3.244	2.290	2.672	.382	.954	1.527	3.817	1.336	11.450	17.176	10.687	5.344	12.595	8.969	11.260	6.298

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	2	2	14	2	1	1	4	5	8	13	14	9	30	17	8	8
3-4	9	9	0	0	4	6	13	2	36	62	29	17	20	16	19	13
5-6	4	1	0	0	0	1	3	0	16	15	13	2	8	6	16	6
7-8	2	0	0	0	0	0	0	0	0	0	0	0	0	7	15	6
9-10	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
11-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	17	12	14	2	5	8	20	7	60	90	56	28	66	47	59	33

TOTAL SAMPLE UNITS 524

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

M/S	STATION - GLENDIVE								MONTH/YEAR FEB 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	1.440	1.760	1.600	.800	.640	.640	1.120	.320	1.760	1.600	.800	1.440	2.080	2.400	1.440	.960
3-4	3.200	2.240	.160	.000	1.120	2.400	1.440	1.120	5.600	4.320	4.160	1.760	3.840	6.560	5.760	6.800
5-6	1.120	.000	.000	.000	.000	.320	.320	.160	3.680	4.160	2.080	.480	.800	3.040	3.840	3.520
7-8	.000	.000	.000	.000	.000	.000	.000	.000	.160	.000	.000	.000	.000	.800	.960	2.720
9-10	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.480
11-)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	5.760	4.000	1.760	.800	1.760	3.360	2.880	1.600	11.200	10.080	7.040	3.680	6.720	12.800	12.000	14.560

NUMBER OF OBSERVATIONS

M/S	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	9	11	10	5	4	4	7	2	11	10	5	9	13	15	9	6
3-4	20	14	1	0	7	15	9	7	35	27	26	11	24	41	36	43
5-6	7	0	0	0	0	2	2	1	23	26	13	3	5	19	24	22
7-8	0	0	0	0	0	0	0	0	1	0	0	0	0	5	6	17
9-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
11-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	36	25	11	5	11	21	18	10	70	63	44	23	42	80	75	91

TOTAL SAMPLE UNITS 625

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GLENDIVE								MONTH/YEAR MAR 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	3.438	2.305	5.620	3.170	2.017	1.441	1.009	1.441	2.017	1.873	2.305	.720	2.450	.576	.576	1.585
3-4	5.043	3.602	.432	.576	2.305	1.729	3.314	2.450	5.620	3.170	2.594	1.585	3.602	2.882	3.170	3.890
5-6	.720	.000	.000	.000	.432	1.585	1.441	.288	1.297	1.009	.720	.288	2.882	1.729	1.009	2.450
7-8	1.729	.000	.000	.000	.000	.576	.144	.000	.000	.000	.000	.000	.144	.144	.000	2.882
9-10	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
11-)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	10.951	5.908	6.052	3.746	4.755	5.331	5.908	4.179	8.934	6.052	5.620	2.594	9.078	5.331	4.755	10.807

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	24	16	39	22	14	10	7	10	14	13	16	5	17	4	4	11
3-4	35	25	3	4	16	12	23	17	39	22	18	11	25	20	22	27
5-6	5	0	0	0	3	11	10	2	9	7	5	2	20	12	7	17
7-8	12	0	0	0	0	4	1	0	0	0	0	0	1	1	0	20
9-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	76	41	42	26	33	37	41	29	62	47	39	18	63	37	33	75

TOTAL SAMPLE UNITS 694

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GLENDIVE								MONTH/YEAR APR 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	4.598	2.730	4.023	3.448	3.017	1.149	.862	1.724	1.868	.575	.862	.287	1.724	3.017	1.293	2.586
3-4	5.747	2.730	.718	2.730	5.891	2.299	3.161	3.448	4.167	.575	.862	.431	.718	1.437	2.299	4.310
5-6	3.592	.000	.000	.718	2.586	.575	1.868	1.149	2.586	.144	.575	.000	.144	.000	.718	2.730
7-8	1.580	.431	.000	.000	2.011	1.006	.862	.000	.000	.000	.000	.000	.000	.000	.000	.287
9-10	.431	.000	.000	.000	.144	.000	.144	.000	.000	.000	.000	.000	.000	.000	.000	.287
11->	.144	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	16.092	5.891	4.741	6.897	13.649	5.029	6.897	6.322	8.621	1.293	2.299	.718	2.586	4.454	4.310	10.201

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	32	19	28	24	21	8	6	12	13	4	6	2	12	21	9	18
3-4	40	19	5	19	41	16	22	24	29	4	6	3	5	10	16	30
5-6	25	0	0	5	18	4	13	8	18	1	4	0	1	0	5	19
7-8	11	3	0	0	14	7	6	0	0	0	0	0	0	0	0	2
9-10	3	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2
11->	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	112	41	33	48	95	35	48	44	60	9	16	5	18	31	30	71

TOTAL SAMPLE UNITS 696

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GLENDIVE									MONTH/YEAR MAY 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0-2	3.493	1.073	1.882	1.747	.941	1.210	.538	1.073	1.478	1.882	2.554	2.285	3.763	2.554	2.151	3.360	
3-4	3.493	1.073	.672	1.613	3.629	2.285	1.613	2.957	3.763	3.360	5.511	2.151	2.285	2.554	2.554	3.493	
5-6	1.613	.269	.403	1.073	5.645	.672	.806	.806	.672	.134	1.073	.538	2.419	.806	.269	1.478	
7-8	.269	.000	.000	.403	3.493	.538	.000	.000	.000	.000	.000	.000	.134	.269	.000	.538	
9-10	.000	.000	.000	.000	.672	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	
11-)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

8.871 2.419 2.957 4.839 14.382 4.704 2.957 4.839 5.914 5.376 9.140 4.973 8.602 6.183 4.973 8.871

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	26	8	14	13	7	9	4	8	11	14	19	17	28	19	16	25
3-4	26	8	5	12	27	17	12	22	28	25	41	16	17	19	19	26
5-6	12	2	3	8	42	5	6	6	5	1	8	4	18	6	2	11
7-8	2	0	0	3	26	4	0	0	0	0	0	0	1	2	0	4
9-10	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
11-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	66	18	22	36	107	35	22	36	44	40	68	37	64	46	37	66

TOTAL SAMPLE UNITS 744

FREQUENCY OF OBSERVATIONS OF PERCENTAGE

m/s	STATION - GLENDIVE								MONTH/YEAR JUN. 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	1.538	1.678	1.399	1.818	1.119	1.239	1.259	1.538	3.916	6.014	4.895	3.217	4.336	2.098	2.797	2.238
3-4	3.077	1.399	.839	1.399	2.238	1.818	.929	2.238	5.035	4.336	2.378	.420	2.797	2.937	2.517	3.776
5-6	2.517	1.259	.000	.140	1.259	.839	.280	1.399	1.259	.699	1.818	.420	.839	1.678	.280	1.119
7-8	1.119	.000	.000	.000	.000	.000	.280	.559	.000	.000	.000	.140	.979	.420	.280	.280
9-10	.559	.000	.000	.000	.000	.000	.000	.000	.000	.000	.140	.000	.000	.000	.000	.000
11-)	.140	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	8.951	4.336	2.238	3.357	4.615	3.916	2.797	5.734	10.210	11.049	9.231	4.196	8.951	7.133	5.874	7.413

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	11	12	10	13	8	9	9	11	28	43	35	23	31	15	20	16
3-4	22	10	6	10	16	13	7	16	36	31	17	3	20	21	18	27
5-6	18	9	0	1	9	6	2	10	9	5	13	3	6	12	2	8
7-8	8	0	0	0	0	0	2	4	0	0	0	1	7	3	2	2
9-10	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
11-)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	64	31	16	24	33	28	20	41	73	79	66	30	64	51	42	53

TOTAL SAMPLE UNITS 715

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GLENDIVE								MONTH/YEAR JUL 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	3.360	2.823	4.301	5.242	2.823	.941	1.344	2.823	4.301	4.435	2.554	1.210	3.360	3.360	2.823	4.301
3-4	5.645	2.554	.941	1.075	3.360	2.419	2.688	2.823	6.452	1.478	2.285	.000	1.882	2.285	2.151	2.554
5-6	1.613	.538	.269	.000	.000	.538	.269	.269	1.478	.134	.000	.000	.672	1.344	.269	.269
7-8	.269	.000	.000	.134	.000	.134	.000	.134	.134	.000	.000	.000	.000	.000	.000	.134
9-10	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
11-)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	10.867	5.914	5.511	6.452	6.183	4.032	4.301	6.048	12.366	6.048	4.839	2.016	5.914	6.989	5.242	7.258

NUMBER OF OBSERVATIONS																
m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	25	21	32	39	21	7	10	21	32	33	19	9	25	25	21	32
3-4	42	19	7	8	25	18	20	21	48	11	17	6	14	17	16	19
5-6	12	4	2	0	0	4	2	2	11	1	0	0	5	10	2	2
7-8	2	0	0	1	0	1	0	1	1	0	0	0	0	0	0	1
9-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	81	44	41	48	46	30	32	45	92	45	36	15	44	52	39	54

TOTAL SAMPLE UNITS 744

FREQUENCY OF OBSERVATIONS OF PERCENTAGE

m/s	STATION - GLENDIVE								MONTH/YEAR AUG 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	2.308	1.385	6.769	3.846	4.154	1.538	1.846	1.692	2.462	3.385	3.077	3.077	2.154	1.385	1.538	1.077
3-4	2.923	1.846	2.154	1.231	3.231	5.231	4.154	2.615	2.615	3.231	3.077	1.538	4.308	1.538	1.846	3.077
5-6	1.385	.154	.000	.000	.000	.769	2.308	.615	.462	.000	.000	.308	1.846	2.154	.308	.462
7-8	.308	.000	.000	.000	.000	.000	.308	.000	.000	.000	.000	.154	1.538	.615	.000	.000
9-10	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
11-)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

6.923 3.385 8.923 5.077 7.385 7.538 8.615 4.923 5.538 6.615 6.154 5.077 9.846 5.692 3.692 4.615

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	15	9	44	25	27	10	12	11	16	22	20	20	14	9	10	7
3-4	19	12	14	8	21	34	27	17	17	21	20	10	20	10	12	20
5-6	9	1	0	0	0	5	15	4	3	0	0	2	12	14	2	3
7-8	2	0	0	0	0	0	2	0	0	0	0	1	10	4	0	0
9-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	45	22	58	33	48	49	56	32	36	43	40	33	64	37	24	30

TOTAL SAMPLE UNITS 650

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

M/S	STATION - GLENDIVE								MONTH/YEAR SEP 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	3.226	.922	.461	1.613	1.843	1.382	1.613	2.765	8.065	4.147	1.382	1.613	3.456	2.765	1.843	3.917
3-4	5.452	1.613	.230	.000	.461	.922	1.843	2.304	6.452	1.843	3.917	.000	.691	2.995	3.917	8.756
5-6	1.843	.000	.000	.000	.000	.000	.000	.461	3.917	.000	.000	.000	.000	.691	3.917	2.304
7-8	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	2.304	1.152
9-10	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
11-)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	11.521	2.535	.691	1.613	2.304	2.304	3.456	5.530	18.433	5.991	5.300	1.613	4.147	6.452	11.982	16.129

NUMBER OF OBSERVATIONS

M/S	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	14	4	2	7	8	6	7	12	35	18	6	7	15	12	8	17
3-4	28	7	1	0	2	4	8	10	28	8	17	0	3	13	17	38
5-6	8	0	0	0	0	0	0	2	17	0	0	0	0	3	17	10
7-8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	5
9-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50	11	3	7	10	10	15	24	80	26	23	7	18	28	52	70

TOTAL SAMPLE UNITS 434

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GLENDIVE															
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	3.905	2.510	3.487	2.650	2.650	.976	.558	.976	2.789	2.650	2.789	1.534	2.929	1.674	1.674	1.813
3-4	3.905	1.395	1.255	1.255	.837	.279	.926	1.534	6.974	9.205	10.460	2.771	2.650	3.626	2.650	2.650
5-6	1.255	.418	.558	.139	.000	.000	.139	.000	4.184	.558	.697	.000	.139	.418	1.813	.837
7-8	.279	.139	.279	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.418	.139
9-10	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
11-)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	9.344	4.463	5.579	4.045	3.487	1.255	1.674	2.510	13.947	12.413	13.947	3.905	5.718	5.718	6.555	5.439

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	28	18	25	19	19	7	4	7	20	19	20	11	21	12	12	13
3-4	28	10	9	9	6	2	7	11	50	66	75	17	19	26	19	19
5-6	9	3	4	1	0	0	1	0	30	4	5	0	1	3	13	6
7-8	2	1	2	0	0	0	0	0	0	0	0	0	0	0	3	1
9-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	67	32	40	29	25	9	12	18	100	89	100	28	41	41	47	39

TOTAL SAMPLE UNITS 717

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GLENDIVE								MONTH - YEAR NOV 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	4.028	3.194	2.500	2.917	1.944	1.528	1.389	1.111	1.250	3.194	4.583	1.667	2.361	1.806	1.667	1.667
3-4	6.250	.833	.417	.694	.694	.139	1.389	1.250	7.222	12.003	6.528	1.667	2.361	1.111	2.500	4.028
5-6	.972	.000	.000	.000	.972	.000	.000	.278	1.806	3.750	4.306	.000	.278	.556	.417	.556
7-8	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.139	.000	.000
9-10	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
11-)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

11.250 4.028 2.917 3.611 3.611 1.667 2.778 2.639 10.278 19.028 15.417 3.333 5.000 3.611 4.583 6.250

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	29	23	18	21	14	11	10	8	9	23	33	12	17	13	12	12
3-4	45	6	3	5	5	1	10	9	52	87	47	12	17	8	18	29
5-6	7	0	0	0	7	0	0	2	13	27	31	0	2	4	3	4
7-8	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
9-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	81	29	21	26	26	12	20	19	74	137	111	24	36	26	33	45

TOTAL SAMPLE UNITS 720

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GLENDALE								MONTH YEAR DEC 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	2.151	2.151	3.629	2.151	2.419	1.210	.538	.403	2.419	3.898	5.108	1.210	1.882	1.075	1.613	2.151
3-4	2.957	.806	1.344	.000	.941	.403	.134	.538	9.003	15.860	5.376	.672	2.285	2.151	3.898	3.091
5-6	.403	.403	.000	.000	.000	.000	.269	.000	1.747	3.495	5.914	.000	.134	1.344	1.344	.672
7-8	.403	.000	.000	.000	.000	.000	.134	.000	.000	.000	.000	.000	.000	.269	.000	.000
9-10	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
11-)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	5.914	3.360	4.973	2.151	3.360	1.613	1.075	.941	13.172	23.253	16.398	1.882	4.301	4.839	6.855	5.914

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	16	16	27	16	18	9	4	3	18	29	38	9	14	8	12	16
3-4	22	6	10	0	7	3	1	4	67	118	40	5	17	16	29	23
5-6	3	3	0	0	0	0	2	0	13	26	44	0	1	10	10	5
7-8	3	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0
9-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	44	25	37	16	25	12	8	7	98	173	122	14	32	36	51	44

TOTAL SAMPLE UNITS 744

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GLENDIVE								MONTH/YEAR JAN 76							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	1.764	.950	.950	.136	.136	.000	.271	.136	4.071	3.528	3.664	1.628	3.121	2.442	2.714	2.171
3-4	2.714	.407	.136	.000	.000	.000	.136	1.085	5.563	10.719	6.784	3.392	3.121	2.985	4.342	5.156
5-6	1.357	.000	.000	.000	.000	.000	.000	.000	2.442	8.005	1.085	.271	1.493	1.900	2.985	1.764
7-8	.000	.000	.000	.000	.000	.000	.000	.000	.000	.271	.136	.000	.136	.814	1.493	.950
9-10	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.407	.271	.000
11-)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	5.834	1.357	1.085	.136	.136	.000	.407	1.221	12.076	22.524	11.669	5.292	7.870	8.548	11.805	10.041

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	13	7	7	1	1	0	2	1	30	26	27	12	23	18	20	16
3-4	20	3	1	0	0	0	1	0	41	79	50	25	23	22	32	38
5-6	10	0	0	0	0	0	0	0	18	59	8	2	11	14	22	13
7-8	0	0	0	0	0	0	0	0	0	2	1	0	1	6	11	7
9-10	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0
11-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	43	10	8	1	1	0	3	9	89	166	86	39	58	63	87	74

TOTAL SAMPLE UNITS 737

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GLENDIVE								MONTH/YEAR FEB 76							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	1.879	1.734	3.324	1.012	2.168	1.301	1.156	1.012	2.601	2.890	2.312	1.445	2.890	1.879	1.156	1.301
3-4	3.179	.434	.000	.867	1.012	.867	1.012	.578	4.191	8.671	11.561	3.179	4.335	3.757	2.890	1.590
5-6	2.168	.000	.000	.000	.000	.000	.000	.000	.578	3.324	5.202	.723	.723	2.890	2.457	.723
7-8	.578	.000	.000	.000	.000	.000	.000	.000	.000	.000	.867	.000	.000	.434	.578	.145
9-10	.145	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.289
11-)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	7.948	2.168	3.324	1.879	3.179	2.168	2.168	1.590	7.370	14.884	19.942	5.347	7.948	8.960	7.081	4.046

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	13	12	23	7	15	9	8	7	18	20	16	10	20	13	8	9
3-4	22	3	0	6	7	6	7	4	29	60	80	22	30	26	20	11
5-6	15	0	0	0	0	0	0	0	4	23	36	5	5	20	17	5
7-8	4	0	0	0	0	0	0	0	0	0	6	0	0	3	4	1
9-10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	55	15	23	13	22	15	15	11	51	103	138	37	55	62	49	28

TOTAL SAMPLE UNITS 692

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GILLETTE								MONTH/YEAR JAN 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.188	.188	.000	.375	.375	.563	.188	.000	.188	.000	.188	.375	.750	.000	.188	.000
3-4	.750	.750	.375	.750	.563	.375	.375	.563	1.689	.375	.563	.750	1.313	1.313	1.501	.563
5-6	.938	.563	.000	.000	.750	.375	.938	.938	3.377	1.126	1.313	1.501	4.128	3.752	2.627	.375
7-8	1.313	.000	.000	.000	.000	.188	.188	.750	2.251	1.126	3.377	2.627	2.627	5.253	4.315	1.876
9-10	.938	.000	.000	.000	.000	.000	.750	.000	1.313	1.126	1.876	4.315	.563	1.689	4.128	2.439
11-)	.375	.000	.000	.000	.000	.000	.000	.563	.938	.750	.563	7.692	.000	.000	1.876	3.377
	4.503	1.501	.375	1.126	1.689	1.501	2.439	2.814	9.756	4.503	7.880	17.261	9.381	12.008	14.634	8.630

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	1	1	0	2	2	3	1	0	1	0	1	2	4	0	1	0
3-4	4	4	2	4	3	2	2	3	9	2	3	4	7	7	8	3
5-6	5	3	0	0	4	2	5	5	18	6	7	8	22	20	14	2
7-8	7	0	0	0	0	1	1	4	12	6	18	14	14	28	23	10
9-10	5	0	0	0	0	0	4	0	7	6	10	23	3	9	22	13
11-)	2	0	0	0	0	0	0	3	5	4	3	41	0	0	10	18
	24	8	2	6	9	8	13	15	52	24	42	92	50	64	78	46

TOTAL SAMPLE UNITS 533

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GILLETTE								MONTH/YEAR FEB 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.313	.156	.469	.156	.000	.313	.000	.000	.313	.469	.000	.156	.156	.469	.313	.000
3-4	1.408	.782	.626	.469	.000	.000	.000	.313	1.721	.626	.469	1.095	.939	2.191	.939	.469
5-6	2.504	1.721	.313	.000	.000	.000	.000	.156	2.191	1.252	.313	2.504	5.947	2.817	3.599	2.660
7-8	1.878	1.408	.000	.000	.000	.000	.000	.000	2.034	2.034	.782	1.878	3.130	4.538	3.443	1.878
9-10	.313	.000	.000	.000	.000	.000	.000	.000	.469	.313	.626	2.660	.469	.000	.626	.313
11-)	3.912	3.756	.469	.000	.000	.000	.000	.000	1.721	1.408	3.286	5.008	1.408	.939	6.103	1.878
	10.329	7.825	1.878	.626	.000	.313	.000	.469	8.451	6.103	5.477	13.302	12.050	10.955	15.023	7.199

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	2	1	3	1	0	2	0	0	2	3	0	1	1	3	2	0
3-4	9	5	4	3	0	0	0	2	11	4	3	7	6	14	6	3
5-6	16	11	2	0	0	0	0	1	14	8	2	16	38	18	23	17
7-8	12	9	0	0	0	0	0	0	13	13	5	12	20	29	22	12
9-10	2	0	0	0	0	0	0	0	3	2	4	17	3	0	4	2
11-)	25	24	3	0	0	0	0	0	11	9	21	32	9	6	39	12
	66	50	12	4	0	2	0	3	54	39	35	85	77	70	96	46

TOTAL SAMPLE UNITS 639

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GILLETTE								MONTH/YEAR MAR 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.862	.690	.862	.517	1.207	.517	.172	.517	2.069	.862	.000	.517	.345	.000	.000	.690
3-4	2.241	2.241	1.034	.690	1.552	.172	1.379	2.931	4.655	1.034	.345	1.552	1.724	2.241	2.069	2.069
5-6	6.897	.690	.862	.000	.000	.690	.517	2.414	6.897	1.207	.172	1.897	6.034	1.552	2.241	3.448
7-8	3.103	.172	.000	.000	.000	.000	.000	.517	2.241	.690	.517	2.586	.345	.000	1.034	2.931
9-10	.690	.000	.000	.000	.000	.000	.000	.690	.000	.000	.000	.690	.000	.000	2.069	3.276
11-)	.000	.000	.000	.000	.000	.000	.000	2.241	.000	.000	.000	.517	.000	.000	.172	2.241
	13.793	3.793	2.759	1.207	2.759	1.379	2.069	9.310	15.862	3.793	1.034	7.759	8.448	3.793	7.586	14.655

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	5	4	5	3	7	3	1	3	12	5	0	3	2	0	0	4
3-4	13	13	6	4	9	1	8	17	27	6	2	9	10	13	12	12
5-6	40	4	5	0	0	4	3	14	40	7	1	11	35	9	13	20
7-8	18	1	0	0	0	0	0	3	13	4	3	15	2	0	6	17
9-10	4	0	0	0	0	0	0	4	0	0	0	4	0	0	12	19
11-)	0	0	0	0	0	0	0	13	0	0	0	3	0	0	1	13
	80	22	16	7	16	8	12	54	92	22	6	45	49	22	44	85

TOTAL SAMPLE UNITS 580

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GILLETTE									MONTH/YEAR APR 75						
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	6.250	3.198	1.599	.872	1.453	1.163	1.308	1.308	1.890	.872	.581	.872	1.308	1.599	1.163	1.599
3-4	5.523	3.488	2.180	.291	.145	.436	.872	.872	6.395	1.163	1.453	1.599	3.052	2.471	1.744	1.453
5-6	3.052	.291	.000	.000	.000	.000	.436	.727	5.087	1.308	1.744	2.762	.581	1.890	5.814	4.360
7-8	1.017	.000	.000	.000	.000	.000	.145	.291	.000	.581	.727	1.599	.145	.145	3.198	2.180
9-10	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.599	.145
11-)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	15.843	6.977	3.779	1.163	1.599	1.599	2.762	3.198	13.372	3.924	4.506	6.831	5.087	6.105	13.517	9.738

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	43	22	11	6	10	8	9	9	13	6	4	6	9	11	8	11
3-4	38	24	15	2	1	3	6	6	44	8	10	11	21	17	12	10
5-6	21	2	0	0	0	0	3	5	35	9	12	19	4	13	40	30
7-8	7	0	0	0	0	0	1	2	0	4	5	11	1	1	22	15
9-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	1
11-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	109	48	26	8	11	11	19	22	92	27	31	47	35	42	93	67

TOTAL SAMPLE UNITS 688

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GILLETTE								MONTH/YEAR MAY 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.000	.602	1.205	3.012	1.807	1.807	1.205	1.205	3.012	1.807	1.205	6.024	3.012	1.205	1.205	1.205
3-4	1.205	.000	2.410	1.205	3.614	1.807	1.807	2.410	4.217	3.012	1.807	3.012	6.627	3.012	1.205	1.205
5-6	2.410	.002	1.205	.000	.000	.602	1.205	.000	.000	.000	2.410	1.205	.602	1.205	.000	1.807
7-8	6.627	1.807	.602	.000	.000	.000	.000	.000	.000	.000	.602	.000	.000	.000	2.410	.602
9-10	.602	1.205	.602	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
11-)	.000	.602	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	3.012
	10.343	4.819	6.024	4.217	5.422	4.217	4.217	3.614	7.229	4.819	6.024	10.241	10.241	5.422	4.819	7.831

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	0	1	2	5	3	3	2	2	5	3	2	10	5	2	2	2
3-4	2	0	4	2	6	3	3	4	7	5	3	5	11	5	2	2
5-6	4	1	2	0	0	1	2	0	0	0	4	2	1	2	0	3
7-8	11	3	1	0	0	0	0	0	0	0	1	0	0	0	4	1
9-10	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11-)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5
	18	8	10	7	9	7	7	6	12	8	10	17	17	9	8	13

TOTAL SAMPLE UNITS 166

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GILLETTE								MONTH/YEAR JUN 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.694	.000	.000	.000	.000	.000	.139	.139	.000	.278	.139	.417	.278	.000	.139	.139
3-4	1.528	1.111	.139	.278	.556	.139	1.250	.139	.556	.417	.833	.278	1.389	1.528	1.528	1.806
5-6	4.028	.556	.694	.417	1.111	1.250	1.250	1.250	2.778	.833	.972	1.111	1.944	1.806	2.639	2.778
7-8	6.806	.972	1.528	.417	1.250	1.389	.833	1.250	2.222	.833	.556	.833	1.250	1.111	1.944	.972
9-10	2.917	.833	.694	.972	.833	.417	.139	.694	.694	.278	.417	.417	1.111	.694	.972	1.944
11-)	1.667	2.361	4.167	1.250	.278	.139	.556	.278	.139	.139	.000	.139	.278	.139	2.083	6.944
	17.639	5.833	7.222	3.333	4.028	3.333	4.167	3.750	6.389	2.778	2.917	3.194	6.250	5.278	9.306	14.583

m/s	NUMBER OF OBSERVATIONS															
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	5	0	0	0	0	0	1	1	0	2	1	3	2	0	1	1
3-4	11	8	1	2	4	1	9	1	4	3	6	2	10	11	11	13
5-6	29	4	5	3	8	9	9	9	20	6	7	8	14	13	19	20
7-8	49	7	11	3	9	10	6	9	16	6	4	6	9	8	14	7
9-10	21	6	5	7	6	3	1	5	5	2	3	3	8	5	7	14
11-)	12	17	30	9	2	1	4	2	1	1	0	1	2	1	15	50
	127	42	52	24	29	24	30	27	46	20	21	23	45	38	67	105

TOTAL SAMPLE UNITS 720

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GILLETTE								MONTH/YEAR-JUL 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.946	1.486	.811	.270	.676	.135	.541	.405	.405	.270	.000	.541	.811	.541	.135	.135
3-4	2.703	2.162	3.108	2.432	3.108	.946	1.486	1.486	2.297	1.892	1.081	.946	1.622	1.892	1.351	1.486
5-6	4.459	1.757	1.081	1.216	1.486	1.216	.541	.946	1.622	2.568	1.486	1.081	1.081	1.216	1.216	2.432
7-8	6.486	1.892	1.351	.946	.541	.676	.270	.135	3.108	2.838	2.297	1.216	.405	.811	1.081	.676
9-10	1.622	.946	.270	.135	.000	.135	.000	.000	1.216	1.216	.676	.000	.135	.541	.405	.541
11-)	.270	.405	.270	.135	.000	.000	.000	.135	.135	.405	.270	1.081	.135	.000	.135	.541
	16.486	8.649	6.892	5.135	5.811	3.108	2.838	3.108	8.784	9.189	5.811	4.865	4.189	5.000	4.324	5.811

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	7	11	6	2	5	1	4	3	3	2	0	4	6	4	1	1
3-4	20	16	23	18	23	7	11	11	17	14	8	7	12	14	10	11
5-6	33	13	8	9	11	9	4	7	12	19	11	8	8	9	9	18
7-8	48	14	10	7	4	5	2	1	23	21	17	9	3	6	8	5
9-10	12	7	2	1	0	1	0	0	9	9	5	0	1	4	3	4
11-)	2	3	2	1	0	0	0	1	1	3	2	8	1	0	1	4
	122	64	51	38	43	23	21	23	65	68	43	36	31	37	32	43

TOTAL SAMPLE UNITS 740

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GILLETTE															
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.147	.147	.295	.000	.147	.000	.147	.000	.737	.442	.590	.590	.442	.000	.442	.590
3-4	3.982	.885	.737	.442	.590	1.032	1.032	1.327	1.770	1.475	.237	.737	.622	.295	.737	1.475
5-6	3.392	.590	.885	.442	.442	1.032	1.917	.737	3.982	2.802	2.655	1.475	.737	1.475	.885	1.180
7-8	6.637	.737	.590	.295	.590	.885	.442	1.622	6.195	1.327	1.475	2.655	1.180	.147	.147	.590
9-10	3.835	.442	.590	.295	.590	.442	.295	1.622	2.212	.590	.885	2.360	1.327	.147	.000	.295
11-)	.295	.295	.147	.147	.000	.000	.000	1.475	.295	.737	.737	1.917	2.507	.147	.590	1.032
	18.289	3.097	3.245	1.622	2.360	3.392	3.835	6.785	15.192	7.375	7.080	9.735	7.817	2.212	2.802	5.162

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	1	1	2	0	1	0	1	0	5	3	4	4	3	0	3	4
3-4	27	6	5	3	4	7	7	9	12	10	5	5	11	2	5	10
5-6	23	4	6	3	3	7	13	5	27	19	18	10	5	10	6	8
7-8	45	5	4	2	4	6	3	11	42	9	10	18	8	1	1	4
9-10	26	3	4	2	4	3	2	11	15	4	6	16	9	1	0	2
11-)	2	2	1	1	0	0	0	10	2	5	5	13	17	1	4	7
	124	21	22	11	16	23	26	46	103	50	48	66	53	15	19	35

TOTAL SAMPLE UNITS 678

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GILLETTE								MONTH/YEAR SEP 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.557	.186	.186	.186	.928	.742	.742	.186	.371	.371	.000	.000	.928	.000	.000	.371
3-4	.742	.742	.742	1.113	2.597	.371	.742	.742	2.412	1.484	.371	.371	.742	1.113	.742	1.855
5-6	2.597	1.855	.928	.742	.742	.557	1.113	2.597	6.679	.557	1.299	.557	.557	.742	.742	2.041
7-8	3.340	1.670	1.113	.000	.371	.371	.557	2.783	5.751	1.113	1.299	1.670	1.299	1.299	4.453	2.783
9-10	2.968	1.855	.186	.000	.186	.186	.371	.928	1.113	.742	.000	.000	.928	.557	2.597	1.299
11-)	2.226	1.113	.371	.000	.000	.000	.186	.371	.186	.000	.000	.000	.000	.186	2.412	2.226
	12.430	7.421	3.525	2.041	4.824	2.226	3.711	7.607	16.512	4.267	2.968	2.597	4.453	3.896	10.946	10.575

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	3	1	1	1	5	4	4	1	2	2	0	0	5	0	0	2
3-4	4	4	4	6	14	2	4	4	13	8	2	2	4	6	4	10
5-6	14	10	5	4	4	3	6	14	36	3	7	3	3	4	4	11
7-8	18	9	6	0	2	2	3	15	31	6	7	9	7	7	24	15
9-10	16	10	1	0	1	1	2	5	6	4	0	0	5	3	14	7
11-)	12	6	2	0	0	0	1	2	1	0	0	0	0	1	13	12
	67	40	19	11	26	12	20	41	89	23	16	14	24	21	59	57

TOTAL SAMPLE UNITS 539

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GILLETTE								MONTH/YEAR OCT 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.979	.653	.000	.000	.489	.163	.000	.326	1.142	.326	.163	.653	.653	.326	.163	.163
3-4	1.142	.489	.326	.000	.326	.326	.000	1.305	2.773	1.142	2.121	1.142	1.468	.979	.489	1.468
5-6	2.610	.816	.326	.653	.163	.326	.000	.979	1.794	1.305	.979	.653	2.284	.489	.979	2.284
7-8	5.220	1.631	.326	.653	.163	.163	.326	1.142	3.100	1.468	1.794	1.958	2.284	.816	3.100	2.447
9-10	.653	.979	.000	.000	.000	.000	.000	.816	1.794	1.305	2.936	1.794	.653	1.305	.979	1.142
11-)	.326	.000	.000	.000	.000	.000	.000	.000	1.468	2.610	6.036	6.036	.816	1.468	1.631	.326
	10.930	4.568	.979	1.305	1.142	.979	.326	4.568	12.072	8.157	14.029	12.235	8.157	5.383	7.341	7.830

m/s	NUMBER OF OBSERVATIONS															
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	6	4	0	0	3	1	0	2	7	2	1	4	4	2	1	1
3-4	7	3	2	0	2	2	0	8	17	7	13	7	9	6	3	9
5-6	16	5	2	4	1	2	0	6	11	8	6	4	14	3	6	14
7-8	32	10	2	4	1	1	2	7	19	9	11	12	14	5	19	15
9-10	4	6	0	0	0	0	0	5	11	8	18	11	4	8	6	7
11-)	2	0	0	0	0	0	0	0	9	16	37	37	5	9	10	2
	67	28	6	8	7	6	2	28	74	50	86	75	50	33	45	48

TOTAL SAMPLE UNITS 613

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION GILLETTE															
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.140	.420	.560	.560	.840	.140	.140	.140	.560	.420	.980	1.120	1.541	1.120	.560	.280
3-4	.560	.420	.000	.420	.280	.280	.700	.700	2.661	.980	1.961	2.381	3.081	1.261	1.681	.280
5-6	1.401	.560	.140	.420	.140	.140	.140	.280	2.521	1.261	2.381	1.401	3.361	1.821	1.821	1.681
7-8	3.361	.420	.280	.000	.000	.000	.000	.280	2.661	1.261	2.661	2.241	2.801	1.261	3.361	1.541
9-10	2.381	.140	.280	.000	.000	.000	.000	.000	1.261	.420	1.401	2.521	.840	.840	2.521	1.541
11-)	1.541	.140	.000	.000	.000	.000	.000	.000	.560	.840	1.961	7.563	.280	.000	3.081	1.120
	9.384	2.101	1.261	1.401	1.261	.560	.980	1.401	10.224	5.182	11.345	17.227	11.905	6.303	13.025	6.443

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	1	3	4	4	6	1	1	1	4	3	7	8	11	8	4	2
3-4	4	3	0	3	2	2	5	5	19	7	14	17	22	9	12	2
5-6	10	4	1	3	1	1	1	2	18	9	17	10	24	13	13	12
7-8	24	3	2	0	0	0	0	2	19	9	19	16	20	9	24	11
9-10	17	1	2	0	0	0	0	0	9	3	10	18	6	6	18	11
11-)	11	1	0	0	0	0	0	0	4	6	14	54	2	0	22	8
	67	15	9	10	9	4	7	10	73	37	81	123	85	45	93	46

TOTAL SAMPLE UNITS 714

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GILLETTE										MONTH YEAR DEC 75					
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.134	.403	.134	.269	.403	.134	.000	.269	.000	.000	.403	.134	.269	.134	.672	.000
3-4	1.344	2.016	.538	.134	.134	.269	.000	.403	.672	.134	.672	.672	2.285	1.075	.672	.269
5-6	1.747	.806	.672	.134	.000	.000	.000	.403	1.882	.672	.806	1.613	5.645	1.075	1.344	.806
7-8	1.747	1.210	.000	.000	.000	.000	.000	.269	1.478	.806	1.210	4.570	6.183	1.882	1.075	.538
9-10	.269	.000	.000	.000	.000	.000	.000	.000	2.688	.538	2.016	2.957	2.957	.941	2.688	1.344
11-)	2.419	.134	.000	.000	.000	.000	.000	.000	.403	.269	2.419	15.323	2.016	1.882	4.032	1.478
	7.661	4.570	1.344	.538	.538	.403	.000	1.344	7.124	2.419	7.527	25.269	19.355	6.989	10.484	4.435

m/s	NUMBER OF OBSERVATIONS															
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	1	3	1	2	3	1	0	2	0	0	3	1	2	1	5	0
3-4	10	15	4	1	1	2	0	3	5	1	5	5	17	8	5	2
5-6	13	6	5	1	0	0	0	3	14	5	6	12	42	8	10	6
7-8	13	9	0	0	0	0	0	2	11	6	9	34	46	14	8	4
9-10	2	0	0	0	0	0	0	0	20	4	15	22	22	7	20	10
11-)	18	1	0	0	0	0	0	0	3	2	18	114	15	14	30	11
	57	34	10	4	4	3	0	10	53	18	56	188	144	52	78	33

TOTAL SAMPLE UNITS 744

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GILLETTE								MONTH/YEAR JAN 76							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	1.518	.337	.337	.169	.337	.000	.169	.000	.169	.675	.337	.337	.337	.843	.675	.843
3-4	1.686	.506	.169	.169	.169	.000	.000	.000	.675	1.180	.337	1.518	2.192	.843	.843	.506
5-6	.675	.000	.337	.169	.000	.000	.000	.169	1.518	.506	.169	1.349	2.361	1.180	1.686	.843
7-8	1.349	.000	.169	.000	.000	.000	.000	.000	.506	1.012	2.361	3.204	5.734	2.192	1.518	.675
9-10	.337	.000	.000	.000	.000	.000	.000	.000	.506	1.180	2.698	4.722	3.710	2.867	2.361	2.192
11-)	2.024	.000	.000	.000	.000	.000	.000	.000	.675	.169	4.047	10.961	1.518	2.867	4.722	4.890
	7.589	.843	1.012	.506	.506	.000	.169	.169	4.047	4.722	9.949	22.091	15.852	10.793	11.804	9.949

NUMBER OF OBSERVATIONS																
m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	9	2	2	1	2	0	1	0	1	4	2	2	2	5	4	5
3-4	10	3	1	1	1	0	0	0	4	7	2	9	13	5	5	3
5-6	4	0	2	1	0	0	0	1	9	3	1	8	14	7	10	5
7-8	8	0	1	0	0	0	0	0	3	6	14	19	34	13	9	4
9-10	2	0	0	0	0	0	0	0	3	7	16	28	22	17	14	13
11-)	12	0	0	0	0	0	0	0	4	1	24	65	9	17	28	29
	45	5	6	3	3	0	1	1	24	28	59	131	94	64	70	59

TOTAL SAMPLE UNITS 593

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - GILLETTE								MONTH/YEAR FEB 76							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.148	.148	.000	.148	.297	.000	.000	.000	.593	.148	.148	.297	.445	.000	.000	.148
3-4	2.819	.593	.890	.148	.742	.148	.148	.742	.445	.297	1.187	2.077	1.929	.742	.742	1.187
5-6	2.522	1.039	.742	.000	.742	.445	.445	.593	.148	.890	.593	1.929	2.671	.593	1.187	.148
7-8	1.929	.000	.890	.000	.000	.000	.000	.593	.148	.148	2.077	2.671	3.709	1.484	2.077	.593
9-10	1.039	.445	.890	.000	.000	.000	.000	.742	.445	.148	1.039	2.522	1.187	2.077	1.335	.445
11-)	.445	.593	.000	.000	.000	.000	.000	.000	.593	.742	4.154	25.816	2.522	1.335	2.374	.742
	8.902	2.819	3.412	.297	1.780	.593	.593	2.671	2.374	2.374	9.199	35.312	12.463	6.231	7.715	3.264

NUMBER OF OBSERVATIONS																
m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	1	1	0	1	2	0	0	0	4	1	1	2	3	0	0	1
3-4	19	4	6	1	5	1	1	5	3	2	8	14	13	5	5	8
5-6	17	7	5	0	5	3	3	4	1	6	4	13	18	4	8	1
7-8	13	0	6	0	0	0	0	4	1	1	14	18	25	10	14	4
9-10	7	3	6	0	0	0	0	5	3	1	7	17	8	14	9	3
11-)	3	4	0	0	0	0	0	0	4	5	28	174	17	9	16	5
	60	19	23	2	12	4	4	18	16	16	62	238	84	42	52	22

TOTAL SAMPLE UNITS 674

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - BOWMAN								MONTH/YEAR FEB 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.840	.420	.000	.000	.000	.000	.000	.000	.840	.420	.840	.420	.000	1.261	1.681	.000
3-4	2.101	3.361	.000	.000	.000	.000	.000	4.202	2.101	2.101	1.261	1.261	.840	.000	.000	.420
5-6	2.941	.840	.000	.000	.000	.000	.000	.840	4.622	.840	.420	.840	1.681	1.681	1.261	.420
7-8	.000	.000	.000	.000	.000	.000	.420	.840	3.361	1.261	1.261	.000	10.504	5.462	2.101	.840
9-10	.000	.000	.000	.000	.000	.000	.000	3.361	2.101	2.521	.000	.000	5.042	5.882	3.782	.420
11-)	.000	.000	.000	.000	.000	.000	.000	.420	.000	.000	.000	.000	.000	4.202	5.462	.000
	5.882	4.622	.000	.000	.000	.000	.420	9.664	13.025	7.143	3.782	2.521	18.067	18.487	14.286	2.101

m/s	NUMBER OF OBSERVATIONS															
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	2	1	0	0	0	0	0	0	2	1	2	1	0	3	4	0
3-4	5	8	0	0	0	0	0	10	5	5	3	3	2	0	0	1
5-6	7	2	0	0	0	0	0	2	11	2	1	2	4	4	3	1
7-8	0	0	0	0	0	0	1	2	8	3	3	0	25	13	5	2
9-10	0	0	0	0	0	0	0	8	5	6	0	0	12	14	9	1
11-)	0	0	0	0	0	0	0	1	0	0	0	0	0	10	13	0
	14	11	0	0	0	0	1	23	31	17	9	6	43	44	34	5

TOTAL SAMPLE UNITS 238

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - BOWMAN								MONTH/YEAR MAR 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.299	.000	.299	.000	.448	.000	.000	.000	.000	.000	.000	.000	.000	.000	.299	.000
3-4	1.495	.897	.897	.598	.149	.598	1.495	1.495	.299	.598	.598	.598	.299	1.345	.598	1.644
5-6	1.943	.747	1.196	1.196	.299	.747	3.139	3.587	1.196	.747	.598	.598	1.644	1.794	1.046	4.185
7-8	1.046	.448	.448	.448	.897	.000	.897	1.495	1.345	.448	.299	1.495	4.335	4.335	2.990	2.242
9-10	1.046	.299	.299	.299	1.196	.000	1.046	1.495	1.196	.747	.448	.299	1.943	2.392	2.242	1.345
11-)	1.046	.149	.598	.299	2.990	.448	2.093	.299	.897	.149	.000	.448	1.943	2.242	5.381	1.943
	6.876	2.541	3.737	2.840	5.979	1.794	8.670	8.371	4.933	2.691	1.943	3.438	10.164	12.108	12.556	11.360

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	2	0	2	0	3	0	0	0	0	0	0	0	0	0	2	0
3-4	10	6	6	4	1	4	10	10	2	4	4	4	2	9	4	11
5-6	13	5	8	8	2	5	21	24	8	5	4	4	11	12	7	28
7-8	7	3	3	3	6	0	6	10	9	3	2	10	29	29	20	15
9-10	7	2	2	2	8	0	7	10	8	5	3	2	13	16	15	9
11-)	7	1	4	2	20	3	14	2	6	1	0	3	13	15	36	13
	46	17	25	19	40	12	58	56	33	18	13	23	68	81	84	76

TOTAL SAMPLE UNITS 669

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - BOWMAN										MONTH/YEAR APR 75					
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.180	.000	.360	.540	.540	.180	.180	.180	.000	.000	.180	.540	.000	.719	.180	.540
3-4	2.158	1.259	1.079	.719	1.079	.180	1.079	1.799	1.978	.719	.000	.000	.540	.180	1.439	.719
5-6	3.058	1.259	1.259	1.079	1.799	.899	3.777	1.619	3.957	.899	.000	.000	.180	.180	1.079	1.259
7-8	1.978	.719	.719	.540	1.259	1.799	6.115	1.799	2.878	1.259	.000	.180	.360	.899	2.338	3.597
9-10	1.439	.540	.000	.360	.719	.360	.540	1.619	2.698	.719	.000	.540	1.079	.540	2.698	4.137
11-)	1.439	.540	.000	.000	.180	1.439	2.518	.000	.360	.000	.000	.000	.000	.180	1.799	5.576
	10.252	4.317	3.417	3.237	5.576	4.856	14.209	7.014	11.871	3.597	.180	1.259	2.158	2.698	9.532	15.827

NUMBER OF OBSERVATIONS																
m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	1	0	2	3	3	1	1	1	0	0	1	3	0	4	1	3
3-4	12	7	6	4	6	1	6	10	11	4	0	0	3	1	8	4
5-6	17	7	7	6	10	5	21	9	22	5	0	0	1	1	6	7
7-8	11	4	4	3	7	10	34	10	16	7	0	1	2	5	13	20
9-10	8	3	0	2	4	2	3	9	15	4	0	3	6	3	15	23
11-)	8	3	0	0	1	8	14	0	2	0	0	0	0	1	10	31
	57	24	19	18	31	27	79	39	66	20	1	7	12	15	53	88

TOTAL SAMPLE UNITS 556

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - BOWMAN								MONTH/YEAR MAY 75.							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.000	.310	.000	.000	.000	.000	.310	.000	.000	.310	.000	.310	.310	.000	.619	.310
3-4	1.238	.310	1.238	.929	1.548	.619	.310	.929	.619	.310	.929	.619	.929	1.238	1.548	1.238
5-6	2.167	1.548	2.477	.619	4.954	.929	.000	3.715	.929	.929	.000	.000	3.406	4.025	2.477	2.167
7-8	1.238	.929	.310	.310	3.096	1.238	.310	.619	2.167	.619	1.548	3.715	4.644	3.715	4.334	1.858
9-10	1.858	.000	.000	.000	1.548	.310	.000	.000	1.238	.619	.929	1.548	1.548	1.238	.929	.929
11-)	.310	.000	.000	.000	2.477	1.548	.000	.000	.619	.929	.310	.619	.310	.310	.619	1.238
	6.811	3.096	4.025	1.858	13.622	4.644	.929	5.263	5.573	3.715	3.715	6.811	11.146	10.526	10.526	7.740

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	0	1	0	0	0	0	1	0	0	1	0	1	1	0	2	1
3-4	4	1	4	3	5	2	1	3	2	1	3	2	3	4	5	4
5-6	7	5	9	2	16	3	0	12	3	3	0	0	11	13	8	7
7-8	4	3	1	1	10	4	1	2	7	2	5	12	15	12	14	6
9-10	6	0	0	0	5	1	0	0	4	2	3	5	5	4	3	3
11-)	1	0	0	0	8	5	0	0	2	3	1	2	1	1	2	4
	27	10	13	6	44	15	3	17	18	12	12	22	36	34	34	25

TOTAL SAMPLE UNITS 323

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - BOWMAN								MONTH/YEAR JUN 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.559	.000	.000	.000	.559	.279	.559	.279	.559	.559	.279	.279	1.117	.279	.000	.000
3-4	.279	.279	.279	.838	.279	.838	1.676	.838	.838	.559	.279	.838	2.514	1.397	1.676	1.397
5-6	.279	.559	.279	.838	1.955	.559	.838	1.955	1.117	.838	.559	.279	5.028	4.190	1.117	.279
7-8	.838	.559	1.397	.838	.838	1.955	.000	1.397	2.235	1.397	.000	.559	3.631	3.073	1.117	.279
9-10	1.117	.000	.279	.279	.279	1.117	.559	.559	.559	.838	.559	.279	.559	4.190	3.911	.279
11-)	2.235	.559	.279	.279	.559	1.397	.279	.838	3.352	1.117	.000	.000	.559	2.514	3.352	6.425
	5.307	1.955	2.514	3.073	4.469	6.145	3.911	5.866	8.659	5.307	1.676	2.235	13.408	15.642	11.173	8.659

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	2	0	0	0	2	1	2	1	2	2	1	1	4	1	0	0
3-4	1	1	1	3	1	3	6	3	3	2	1	3	9	5	6	5
5-6	1	2	1	3	7	2	3	7	4	3	2	1	18	15	4	1
7-8	3	2	5	3	3	7	0	5	8	5	0	2	13	11	4	1
9-10	4	0	1	1	1	4	2	2	2	3	2	1	2	15	14	1
11-)	8	2	1	1	2	5	1	3	12	4	0	0	2	9	12	23
	19	7	9	11	16	22	14	21	31	19	6	8	48	56	40	31

TOTAL SAMPLE UNITS 358

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - BOWMAN								MONTH/YEAR JUL 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.000	.000	.218	.218	.000	.218	.437	.000	.218	.437	.218	.218	.000	.000	.218	.437
3-4	1.092	1.092	1.310	1.965	.873	.873	1.092	1.965	3.712	1.092	.218	1.092	1.747	.437	.218	.437
5-6	5.459	.655	1.310	2.183	1.747	2.183	1.965	2.620	3.712	.655	.873	.437	1.528	1.092	1.747	1.965
7-8	1.747	.655	.873	2.838	3.493	2.402	3.057	2.838	2.838	1.310	1.310	.437	3.493	.873	1.747	1.092
9-10	.655	.655	.218	1.092	.000	1.310	.218	.218	2.402	.873	.218	.000	1.092	.873	.218	1.092
11-)	.000	.000	.000	.000	.000	.000	.218	.000	1.528	.000	.218	.000	.655	1.747	.873	.437
	8.952	3.057	3.930	8.297	6.114	6.987	6.987	7.642	14.410	4.367	3.057	2.183	8.515	5.022	5.022	5.459

NUMBER OF OBSERVATIONS																
m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	0	0	1	1	0	1	2	0	1	2	1	1	0	0	1	2
3-4	5	5	6	9	4	4	5	9	17	5	1	5	8	2	1	2
5-6	25	3	6	10	8	10	9	12	17	3	4	2	7	5	8	9
7-8	8	3	4	13	16	11	14	13	13	6	6	2	16	4	8	5
9-10	3	3	1	5	0	6	1	1	11	4	1	0	5	4	1	5
11-)	0	0	0	0	0	0	1	0	7	0	1	0	3	8	4	2
	41	14	18	38	28	32	32	35	66	20	14	10	39	23	23	25

TOTAL SAMPLE UNITS 458

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - BOWMAN										MONTH/YEAR - AUG 75					
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.000	.156	.000	.000	.156	.000	.312	.312	.000	.156	.780	.000	.312	.000	.000	.000
3-4	1.560	.156	.468	1.716	1.872	.780	.936	1.560	.624	.312	1.092	.780	1.092	.780	.468	.468
5-6	1.092	.468	.312	1.248	2.184	.936	4.368	2.652	.624	.312	.624	.312	.780	1.716	.624	1.092
7-8	3.276	.624	.624	.624	2.496	1.716	4.836	3.276	2.340	.780	1.404	.156	2.028	1.716	1.404	1.248
9-10	2.184	.624	.312	1.092	1.872	1.560	2.652	2.496	2.496	.624	.156	.156	1.404	1.092	.780	1.404
11-)	.780	.000	.000	.312	.780	.468	.000	.156	2.964	.000	.000	.000	2.496	4.056	1.404	.936
	8.892	2.028	1.716	4.992	9.360	5.460	13.105	10.452	9.048	2.184	4.056	1.404	8.112	9.360	4.680	5.148

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	0	1	0	0	1	0	2	2	0	1	5	0	2	0	0	0
3-4	10	1	3	11	12	5	6	10	4	2	7	5	7	5	3	3
5-6	7	3	2	8	14	6	28	17	4	2	4	2	5	11	4	7
7-8	21	4	4	4	16	11	31	21	15	5	9	1	13	11	9	8
9-10	14	4	2	7	12	10	17	16	16	4	1	1	9	7	5	9
11-)	5	0	0	2	5	3	0	1	19	0	0	0	16	26	9	6
	57	13	11	32	60	35	84	67	58	14	26	9	52	60	30	33

TOTAL SAMPLE UNITS 641

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - BOWMAN								MONTH/YEAR SEP 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.000	.181	.000	.362	.362	.543	.725	.181	.000	.181	.000	.000	.000	.181	.000	.000
3-4	1.812	.543	.181	1.087	.906	.543	.725	.181	.000	.181	.181	.725	.906	1.087	.906	.543
5-6	3.442	.906	.906	.906	1.812	.362	.362	.181	.362	.543	.543	1.087	1.449	1.812	1.268	1.268
7-8	2.899	.906	1.630	1.087	1.630	.543	1.268	.906	2.536	.000	.000	.181	1.449	2.174	2.174	1.993
9-10	1.449	1.812	.000	.543	1.087	.725	.725	2.174	.725	.181	.000	.000	.725	1.630	4.529	4.529
11-)	.362	.543	.000	.181	.362	1.449	1.087	.362	2.536	.725	.906	.000	.725	3.986	11.594	2.536
	9.964	4.891	2.717	4.167	6.159	4.167	4.891	3.986	6.159	1.812	1.630	1.993	5.254	10.870	20.471	10.870

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	0	1	0	2	2	3	4	1	0	1	0	0	0	1	0	0
3-4	10	3	1	6	5	3	4	1	0	1	1	4	5	6	5	3
5-6	19	5	5	5	10	2	2	1	2	3	3	6	8	10	7	7
7-8	16	5	9	6	9	3	7	5	14	0	0	1	8	12	12	11
9-10	8	10	0	3	6	4	4	12	4	1	0	0	4	9	25	25
11-)	2	3	0	1	2	8	6	2	14	4	5	0	4	22	64	14
	55	27	15	23	34	23	27	22	34	10	9	11	29	60	113	60

TOTAL SAMPLE UNITS 552

FREQUENCY OF OBSERVATIONS IN ~~PERCENTAGE~~

m/s	STATION - BOWMAN								MONTH/YEAR OCT 75							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.141	.000	.000	.000	.000	.000	.000	.000	.000	.141	.141	.282	.141	.000	.282	.000
3-4	.845	.141	.563	.704	.423	.000	.423	.141	.563	.282	.282	.282	.563	.000	.845	.141
5-6	1.831	.141	.986	2.113	.563	.423	1.408	1.127	.141	.563	1.268	.986	2.394	1.408	1.408	.704
7-8	3.380	.986	1.831	1.831	.141	.704	1.408	1.690	1.690	.986	2.254	2.535	4.507	2.113	2.113	2.535
9-10	.282	.704	.845	.986	.141	.000	.563	.986	3.521	1.972	1.690	1.268	5.070	2.676	2.254	.563
11-)	.000	.282	.000	.563	.000	.141	.000	.282	4.648	1.127	.845	1.127	1.268	5.070	4.648	.986
	6.479	2.254	4.225	6.197	1.268	1.268	3.803	4.225	10.563	5.070	6.479	6.479	13.944	11.268	11.549	4.930

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	1	0	0	0	0	0	0	0	0	1	1	2	1	0	2	0
3-4	6	1	4	5	3	0	3	1	4	2	2	2	4	0	6	1
5-6	13	1	7	15	4	3	10	8	1	4	9	7	17	10	10	5
7-8	24	7	13	13	1	5	10	12	12	7	16	18	32	15	15	18
9-10	2	5	6	7	1	0	4	7	25	14	12	9	36	19	16	4
11-)	0	2	0	4	0	1	0	2	33	8	6	8	9	36	33	7
	46	16	30	44	9	9	27	30	75	36	46	46	99	80	82	35

TOTAL SAMPLE UNITS 710

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - BOWMAN															
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.000	.365	.000	.182	.182	.000	.000	.000	.182	.730	.000	.365	.000	.182	.000	.182
3-4	.182	.730	.365	.000	.182	.000	.182	.730	.547	.730	.730	.730	1.460	.547	1.277	.000
5-6	.730	.182	.000	.182	.730	.000	.182	1.642	.547	.547	.547	1.277	3.467	2.007	1.460	1.095
7-8	.730	.000	.365	.547	1.825	.547	1.277	.912	.912	1.277	1.460	2.920	5.292	2.007	.912	2.007
9-10	3.102	.547	.547	.730	.730	.365	.912	.547	1.277	2.737	1.277	3.102	5.839	1.460	.730	3.467
11-)	2.190	.912	.730	.000	1.277	.547	.730	.000	.912	1.642	.365	.000	4.015	4.745	4.562	1.642
	6.934	2.737	2.007	1.642	4.927	1.460	3.285	3.832	4.380	7.664	4.380	8.394	20.073	10.949	8.942	8.394

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	0	2	0	1	1	0	0	0	1	4	0	2	0	1	0	1
3-4	1	4	2	0	1	0	1	4	3	4	4	4	8	3	7	0
5-6	4	1	0	1	4	0	1	9	3	3	3	7	19	11	8	6
7-8	4	0	2	3	10	3	7	5	5	7	8	16	29	11	5	11
9-10	17	3	3	4	4	2	5	3	7	15	7	17	32	8	4	19
11-)	12	5	4	0	7	3	4	0	5	9	2	0	22	26	25	9
	38	15	11	9	27	8	18	21	24	42	24	46	110	60	49	46

TOTAL SAMPLE UNITS 548

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

m/s	STATION - BOWMAN									MONTH YEAR DEC 75						
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.298	.149	.149	.000	.149	.000	.298	.000	.000	.000	.000	.000	.000	.298	.000	.000
3-4	.595	.595	.149	.446	.149	.298	.149	.595	.298	.446	.149	1.190	.446	.149	.149	1.190
5-6	1.339	1.042	.298	.595	.298	.446	.446	1.339	1.339	.744	1.042	.744	1.042	.744	1.339	.446
7-8	.446	.149	.893	.298	.595	.149	1.488	1.042	1.190	2.232	1.339	3.125	6.101	2.083	2.976	.893
9-10	.149	1.042	1.042	.149	1.339	.595	.893	.000	1.190	1.339	1.786	1.637	5.655	5.208	1.935	1.786
11-)	.000	.000	.000	.000	.000	.000	.000	.000	2.381	2.232	.595	.595	5.506	5.804	9.375	1.190
	2.827	2.976	2.530	1.488	2.530	1.488	3.274	2.976	6.399	6.994	4.911	7.292	18.750	14.286	15.774	5.506

NUMBER OF OBSERVATIONS

m/s	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	2	1	1	0	1	0	2	0	0	0	0	0	0	2	0	0
3-4	4	4	1	3	1	2	1	4	2	3	1	8	3	1	1	8
5-6	9	7	2	4	2	3	3	9	9	5	7	5	7	5	9	3
7-8	3	1	6	2	4	1	10	7	8	15	9	21	41	14	20	6
9-10	1	7	7	1	9	4	6	0	8	9	12	11	38	35	13	12
11-)	0	0	0	0	0	0	0	0	16	15	4	4	37	39	63	8
	19	20	17	10	17	10	22	20	43	47	33	49	126	96	106	37

TOTAL SAMPLE UNITS 672

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

M/S	STATION BOWMAN								MONTH/YEAR JAN 76							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.134	.000	.000	.000	.00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
3-4	.000	.000	.000	.134	.134	.134	.134	.134	.000	.000	.134	.000	.538	.538	.269	.000
5-6	.134	.000	.000	.000	.134	.000	.000	.134	.403	.941	.538	.538	1.344	.538	.403	.269
7-8	.134	.000	.000	.000	.000	.000	.000	.134	2.419	.941	1.075	2.285	5.511	4.167	1.344	1.075
9-10	1.478	.269	.000	.000	.000	.000	.000	.000	.538	.538	1.344	1.075	6.586	3.898	5.108	1.747
11-)	.403	.134	.000	.000	.000	.000	.000	.000	2.151	.403	2.957	3.495	11.156	14.247	11.022	4.704
	2.285	.403	.000	.134	.269	.134	.134	.403	5.511	2.823	6.048	7.392	25.134	23.387	18.145	7.796

NUMBER OF OBSERVATIONS

M/S	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-4	0	0	0	1	1	1	1	1	0	0	1	0	4	4	2	0
5-6	1	0	0	0	1	0	0	1	3	7	4	4	10	4	3	2
7-8	1	0	0	0	0	0	0	1	18	7	8	17	41	31	10	8
9-10	11	2	0	0	0	0	0	0	4	4	10	8	49	29	38	13
11-)	3	1	0	0	0	0	0	0	16	3	22	26	83	106	82	35
	17	3	0	1	2	1	1	3	41	21	45	55	187	174	135	58

TOTAL SAMPLE UNITS 744

FREQUENCY OF OBSERVATIONS IN PERCENTAGE

M/S	STATION - BOWMAN								MONTH/YEAR FEB '6							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	.287	.144	.000	.144	.144	.144	.144	.144	.287	.000	.000	.000	.144	.000	.287	.000
3-4	.862	.718	1.293	.718	.000	.575	.431	.287	.431	.718	.144	.287	.718	.862	.287	.575
5-6	1.149	.575	.287	.431	.144	.287	.575	.718	.144	.144	.575	.862	.718	2.011	.287	1.149
7-8	1.868	.144	.287	.000	.144	.000	.718	2.155	.575	1.149	.862	2.443	3.017	2.586	2.011	1.868
9-10	1.006	.000	.000	.144	.431	.000	.718	.431	1.724	1.437	.431	2.586	6.178	3.017	1.437	.575
11-)	.862	.431	.000	.000	.144	.287	.287	.287	.718	.575	1.149	3.879	4.368	7.902	5.603	2.730
	6.034	2.011	1.868	1.437	1.006	1.293	2.874	4.023	3.879	4.023	3.161	10.057	25.144	16.379	9.914	6.897

NUMBER OF OBSERVATIONS

M/S	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0-2	2	1	0	1	1	1	1	1	2	0	0	0	1	0	2	0
3-4	6	5	9	5	0	4	3	2	3	5	1	2	5	6	2	4
5-6	8	4	2	3	1	2	4	5	1	1	4	6	5	14	2	8
7-8	13	1	2	0	1	0	5	15	4	8	6	17	21	18	14	13
9-10	7	0	0	1	3	0	5	3	12	10	3	18	43	21	10	4
11-)	6	3	0	0	1	2	2	2	5	4	8	27	100	55	39	19
	42	14	13	10	7	9	20	28	27	28	22	70	175	114	69	48

TOTAL SAMPLE UNITS 696

APPENDIX C

TABULATION OF 1-HR AVERAGES OF WIND SPEED AND DIRECTION

Glendive, MT

Gillette, WY

Bowman, ND

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, US(MS)

STATION - GLENDIVE

MONTH/YEAR DEC 74

DAY

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR DEC 74

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	SSW	---	---	---	---
02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	SSW	---	---	---	---
03	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	SSW	---	---	---	---
04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	SSW	---	---	---	---
05	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	SSW	---	---	---	---
06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	SW	---	---	---
07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
09	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	SW	S	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	S	S	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	S	SSW	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	S	SSW	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	SSW	SSW	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	SSW	SSW	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	SSW	SSW	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	SSW	SSW	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	SSW	SSW	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	SSW	SSW	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	SSW	SSW	---	---	---	---

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GLENDIVE

MONTH/YEAR JAN 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	--	--	05	--	--	--	--	--	--	--	--	04	03	03	01	05	04	03	02	06	06	05	04	04	01	03	02	03	03	04	03
02	--	--	05	--	--	--	--	--	--	--	--	04	07	03	01	04	05	02	02	05	06	05	04	08	01	02	02	03	02	04	03
03	--	--	04	--	--	--	--	--	--	--	--	06	04	03	02	05	05	02	01	05	04	05	04	09	01	01	02	04	01	03	03
04	--	--	05	--	--	--	--	--	--	--	--	04	03	03	03	04	06	03	00	06	03	05	03	06	02	01	02	04	02	02	03
05	--	--	05	--	--	--	--	--	--	--	--	03	03	01	04	04	06	02	02	06	03	05	03	08	03	02	02	04	02	03	03
06	--	--	05	--	--	--	--	--	--	--	--	03	02	01	03	05	06	02	04	05	01	06	04	07	03	01	02	03	01	02	04
07	--	--	04	--	--	--	--	--	--	--	--	03	02	02	04	05	05	03	05	05	01	05	04	05	03	01	02	02	01	03	04
08	--	--	04	03	--	04	03	--	--	--	07	03	02	--	03	05	06	04	05	06	00	03	04	06	02	01	03	03	01	03	04
09	--	--	03	03	03	04	04	--	--	--	07	04	03	--	03	05	05	02	05	05	01	01	04	08	02	01	03	02	01	02	04
10	--	--	02	03	02	04	04	--	--	--	08	03	04	--	03	04	--	03	04	06	01	03	05	08	01	01	04	02	01	03	04
11	--	--	02	02	02	03	04	--	--	--	08	04	03	--	02	03	05	04	04	--	03	04	04	08	01	02	03	02	01	03	04
12	--	--	03	01	02	04	03	--	--	--	08	03	04	--	03	03	05	03	05	--	05	04	04	08	01	02	03	01	01	02	05
13	--	--	04	02	02	04	04	--	--	--	08	04	04	--	04	04	05	04	05	05	04	04	04	08	01	03	04	01	02	02	05
14	--	--	05	02	01	03	04	--	--	--	09	03	04	--	04	04	07	07	05	05	03	04	04	07	01	03	05	01	02	03	05
15	--	--	05	02	02	03	04	--	--	--	08	04	03	--	03	04	06	05	05	04	03	04	04	07	03	03	05	01	01	03	05
16	--	--	05	01	02	03	03	--	--	--	08	05	04	01	03	02	06	06	05	05	03	04	04	08	03	03	04	01	01	02	1
17	--	--	04	02	03	03	04	--	--	--	07	05	03	01	03	03	05	04	05	04	03	04	04	07	03	03	04	02	01	02	04
18	--	--	--	02	04	02	04	--	--	--	07	06	05	01	03	03	05	04	05	05	03	04	05	06	03	02	03	01	02	01	04
19	--	--	03	02	04	02	03	--	--	--	07	06	04	02	03	02	05	04	05	06	03	04	05	05	03	02	05	02	04	02	03
20	--	08	04	03	04	02	02	--	--	--	07	06	05	--	04	02	06	04	06	05	04	04	04	05	03	03	05	03	04	03	03
21	--	07	04	03	04	01	02	--	--	--	06	06	05	02	04	02	05	05	06	06	05	05	05	03	01	02	04	03	03	04	03
22	--	04	03	03	04	03	01	--	--	--	06	05	04	02	04	03	03	07	06	06	05	04	05	03	02	02	02	02	03	04	04
23	--	04	03	03	04	03	01	--	--	--	05	04	04	02	04	04	03	05	06	08	06	04	06	02	03	02	03	01	04	03	03
24	--	05	03	03	04	03	02	--	--	--	05	03	03	02	05	03	03	03	05	07	06	04	05	02	03	02	03	02	04	03	03

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR JAN 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
01	---	---	NNW	---	---	---	---	---	---	---	---	NW	NNW	WSW	S	SW	S	---	NE	---	NNW	SW	W	W	SSW	NNE	WNW	S	NW	SW	SSE				
02	---	---	NNW	---	---	---	---	---	---	---	---	NW	NNW	W	NW	SSW	S	---	---	---	N	SW	WSW	WNW	W	NE	WNW	S	WNW	SW	SE				
03	---	---	NW	---	---	---	---	---	---	---	---	WNW	NNW	W	N	S	S	---	---	---	N	WSW	WSW	WNW	W	NE	---	S	WNW	WSW	SE				
04	---	---	NW	---	---	---	---	---	---	---	---	WNW	NW	W	NNE	S	S	---	---	---	N	W	WSW	WNW	WNW	NE	W	S	W	W	SE				
05	---	---	NW	---	---	---	---	---	---	---	---	W	NNW	N	NNE	S	S	---	---	---	NNE	W	SSW	WNW	NW	NE	W	S	W	W	ESE				
06	---	---	NW	---	---	---	---	---	---	---	---	W	NW	SSW	N	S	S	---	---	---	NNE	WNW	SSW	WNW	NNW	NE	WNW	S	NW	W	ESE				
07	---	---	NW	---	---	---	---	---	---	---	---	WSW	W	SW	N	S	S	---	---	---	ENE	NW	SSW	W	NW	NE	W	S	W	W	E				
08	---	---	NW	S	---	SW	S	---	---	---	---	NW	SW	WSW	---	NNW	S	S	---	---	---	E	W	SSW	W	WNW	NE	WSW	SSW	WNW	W	SE			
09	---	---	WNW	S	WSW	WSW	SSW	---	---	---	---	NW	SW	SSW	---	NW	S	SSW	SSW	---	---	---	W	WSW	SSW	WNW	WNW	NE	SW	SSW	W	WSW	SE		
10	---	---	W	S	WSW	WSW	SSW	---	---	---	---	NW	SSW	SSW	---	NW	S	---	SSW	---	---	---	NW	W	SSW	SSW	WNW	WSW	NE	SW	SSW	W	SW	ESE	
11	---	---	SSW	SE	WNW	W	SSW	---	---	---	---	NW	SSW	SSW	---	W	SSW	SW	WNW	---	---	---	WNW	SSW	SSW	WNW	SW	NE	SW	SSW	W	WSW	ESE		
12	---	---	SSW	SSE	NW	W	SSW	---	---	---	---	NW	S	SSW	---	WNW	SSW	SW	---	---	---	---	WNW	SSW	SSW	NW	W	NE	SW	SSW	W	W	ESE		
13	---	---	SSW	SE	WNW	WNW	SSW	---	---	---	---	NW	S	SSW	---	NW	SSW	W	WNW	---	---	---	NNW	WNW	SSW	SSW	NW	W	NNE	SW	SW	WSW	W	SE	
14	---	---	SSW	SE	WSW	W	SW	---	---	---	---	NW	S	SSW	---	NW	SW	WNW	---	---	---	NW	W	S	SSW	NW	W	NNE	SW	W	SW	WNW	SE		
15	---	---	SSW	ESE	SW	W	SSW	---	---	---	---	NW	S	SSW	---	WNW	SW	WNW	---	---	---	---	WNW	W	S	SW	NNW	NW	N	SW	SW	SW	WNW	SE	
16	---	---	SSW	SE	S	W	SW	---	---	---	---	NW	SSW	S	---	W	WNW	SSW	NW	---	---	---	---	WNW	WSW	SW	SW	NNW	NNW	N	SW	SW	SSW	WNW	
17	---	---	SW	SSE	S	W	W	---	---	---	---	NW	SSW	S	WNW	W	SSW	NW	---	---	---	---	---	WNW	SW	SW	SSW	N	NNW	N	SSW	SW	S	NW	SE
18	---	---	---	S	S	W	WNW	---	---	---	---	NW	S	S	NNW	W	SSW	---	---	---	---	---	---	NW	SW	SSW	SSW	N	NNW	NNW	S	W	SSE	NNE	SE
19	---	---	W	SSE	S	W	NNW	---	---	---	---	NW	SSW	SSW	NNW	WSW	SW	---	NW	---	---	---	---	NNW	SSW	SSW	SW	N	NNW	NNW	S	NNW	S	ENE	SE
20	---	---	NNW	W	SSW	S	SW	WSW	---	---	---	NW	SW	SSW	---	SSW	SW	---	---	---	---	---	---	NW	SSW	SSW	SSW	N	N	NNW	S	NNW	S	E	SSE
21	---	---	NNW	W	SSW	S	SSW	WNW	---	---	---	NW	SW	SW	SSE	SSW	SSW	---	---	---	---	---	---	NW	SSW	SSW	SW	N	NE	NNW	S	NW	SSW	E	ESE
22	---	---	NW	W	SSW	S	SSW	WSW	---	---	---	NW	W	SW	S	SW	SSW	---	---	---	---	---	---	NNW	SSW	SW	WSW	NNW	NE	NNW	SSW	NW	SSW	E	SE
23	---	---	NW	WSW	SSW	S	SSW	SW	---	---	---	NW	WNW	WSW	S	SW	SSW	---	NNE	---	---	---	---	NNW	SSW	WSW	W	NNW	NNE	WNW	S	NW	SSW	ESE	SE
24	---	---	NW	WSW	SW	SSW	S	SW	---	---	---	NW	NW	W	S	SW	SSW	---	NNE	---	---	---	---	N	SSW	W	W	NW	NNE	WNW	S	WNW	SW	SE	SE

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GLENDIVE

MONTH/YEAR FEB 75

		DAY																														
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
H C U R	01	03	02	03	04	02	04	05	04	05	03	05	03	04	03	00	05	03	04	04	05	05	06	05	05	05	05	04	03			
	02	03	02	04	04	02	05	05	02	04	03	04	02	06	04	00	04	04	05	04	05	05	04	05	05	04	05	04	02			
	03	03	01	03	03	01	05	07	02	05	03	05	01	05	04	01	04	03	05	05	05	06	05	--	05	05	05	05	03			
	04	02	01	04	04	02	03	08	03	05	02	02	01	05	04	01	03	03	05	04	05	06	04	04	05	05	05	04	03			
	05	02	02	04	03	02	03	07	03	05	02	04	01	04	03	02	03	02	06	05	06	06	04	03	05	05	05	04	03			
	06	03	03	04	03	02	03	06	03	05	02	04	01	03	04	02	03	03	05	04	06	06	03	03	05	04	05	05	03			
	07	03	03	03	03	03	03	05	03	04	02	03	01	02	03	03	03	03	05	04	05	07	04	03	04	05	04	05	02			
	08	03	04	03	03	03	02	03	04	04	01	03	02	03	04	02	03	02	06	04	06	07	02	03	04	05	03	06	02			
	09	03	04	04	03	03	02	04	02	03	01	03	03	03	02	02	02	02	06	04	05	07	02	02	05	05	02	06	02			
	10	03	01	04	03	03	04	06	03	03	01	02	03	02	04	02	02	02	06	03	04	07	02	02	05	06	01	06	02			
	11	02	02	04	03	03	03	05	03	03	02	02	03	01	03	02	01	02	05	02	03	08	02	02	03	07	01	04	02			
	12	04	02	04	03	03	02	05	05	04	03	02	03	00	03	03	01	02	05	03	03	08	03	03	04	07	02	05	03			
	13	03	03	04	02	03	03	04	04	04	03	01	04	01	03	03	01	03	04	04	03	10	04	05	07	07	02	05	04			
	14	03	03	05	03	03	04	05	04	02	03	02	04	01	03	03	01	03	05	04	02	09	03	04	08	07	03	05	04			
	15	03	03	05	03	04	05	05	05	01	03	02	05	02	03	04	01	03	05	04	02	10	02	03	07	07	03	04	04			
	16	03	03	05	03	04	05	05	05	00	04	03	05	03	02	04	01	03	05	04	02	08	03	04	07	08	03	05	04			
	17	03	03	05	03	03	04	04	05	00	05	04	05	03	02	04	01	03	04	03	06	07	03	03	07	07	03	04	05			
	18	03	03	05	03	04	06	04	03	00	04	03	05	02	01	04	01	02	03	03	04	06	03	03	06	07	02	04	04			
	19	03	02	05	03	04	06	03	04	00	04	04	04	02	01	04	02	03	04	03	06	06	04	03	05	07	02	03	03			
	20	03	02	05	03	04	06	03	04	02	04	04	04	04	01	04	03	02	04	04	05	06	04	03	05	05	02	02	03			
	21	02	02	04	03	03	05	04	04	01	05	03	04	04	01	05	03	02	04	04	05	07	04	03	06	04	03	03	03			
	22	03	02	04	02	04	05	05	05	02	07	03	04	04	00	04	04	03	04	05	04	07	05	05	06	04	03	03	04			
	23	02	01	04	03	04	04	05	05	03	06	04	03	04	01	04	03	03	04	05	05	07	05	05	05	04	03	03	02			
	24	03	02	04	02	04	04	04	05	02	06	03	03	04	01	05	03	03	04	05	06	06	05	04	05	04	04	03	02			

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR FEB 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
01	SSE	SE	NW	NNW	NNW	SW	NW	N	S	NNE	SSW	---	---	N	N	S	NW	SSW	SSW	S	NNW	WNW	SSW	SSW	WNW	NW	S	NW	---	---	---	
02	SE	E	NNW	NNW	NW	WSW	NNW	NW	S	NNE	WSW	---	---	N	N	S	WNW	SSW	SSW	S	NNW	NW	SSW	SSW	NW	NW	S	WNW	---	---	---	
03	SE	ENE	NW	NNW	NW	WSW	NNW	WNW	S	NNE	WNW	---	---	N	SW	S	WNW	SSW	SSW	S	NNW	NW	---	SSW	WNW	NW	SSW	WNW	---	---	---	
04	SE	NE	NNW	NNW	NNW	SW	NNW	NW	S	NE	WNW	---	---	N	SSW	S	W	SSW	SSW	S	NNW	NW	SW	SSW	NW	NW	SW	WNW	---	---	---	
05	SE	E	NNW	NNW	NNW	SW	NNW	NW	S	NE	NW	---	---	NNE	S	S	W	SSW	SSW	S	NNW	NW	SSW	SW	NW	NW	W	WNW	---	---	---	
06	SE	E	NNW	NNW	NW	W	N	WNW	S	NE	---	---	---	NNE	S	S	WNW	SSW	SSW	S	NNW	WNW	W	SSW	WNW	NW	W	WNW	---	---	---	
07	ESE	ESE	NW	NNW	WNW	WNW	N	WNW	S	NE	---	---	---	NNE	S	S	W	SSW	SSW	S	NNW	W	W	SSW	WNW	NW	W	W	---	---	---	
08	E	E	NW	NNW	NW	WSW	N	WNW	S	ENE	---	---	---	S	NNE	S	S	WNW	SSW	SW	S	NNW	WSW	WNW	SSW	WNW	W	WNW	W	---	---	---
09	ESE	ESE	NNW	NNW	WNW	W	N	WNW	SSW	ENE	---	---	---	S	NNE	S	S	WNW	SSW	SW	S	NNW	WSW	NNW	SSW	WNW	WSW	WNW	W	---	---	---
10	ESE	E	NNW	NW	WNW	WNW	N	WNW	S	ENE	---	---	---	S	N	S	S	W	SSW	SW	S	NNW	W	NW	SSW	WNW	WSW	NW	W	---	---	---
11	ESE	ESE	NNW	NNW	WNW	WNW	N	NW	SSW	E	---	---	---	S	NNE	SSW	SSW	W	SSW	SSW	SSW	NNW	W	WNW	SW	WNW	SSW	NW	W	---	---	---
12	ESE	ESE	NNW	NNW	WNW	WNW	N	WNW	SSW	E	---	---	ENE	N	S	SSW	WNW	SW	SSW	SSW	NNW	WNW	WNW	WNW	WNW	SW	WNW	WNW	---	---	---	
13	ESE	E	NNW	NW	WNW	WSW	NNW	WNW	SSW	SE	---	---	ESE	N	S	SSW	WNW	WSW	WSW	SW	NNW	WNW	NNW	NNW	NW	SW	WNW	NW	---	---	---	
14	ESE	ESE	NNW	NNW	W	SW	NNW	WNW	SW	ESE	---	ESE	W	N	S	WSW	NW	WSW	W	SW	NNW	W	NNW	NNW	NW	SW	NW	NNW	---	---	---	
15	SE	E	NNW	NNW	W	SW	NNW	WNW	S	E	---	ESE	N	N	S	WNW	NW	W	W	SSW	NNW	WNW	NNW	NNW	NW	SSW	WNW	NNW	---	---	---	
16	ESE	ESE	NNW	NNW	WNW	SW	NNW	WNW	NE	ESE	---	ESE	NNE	N	S	WNW	NW	W	WSW	WSW	NNW	WNW	NNW	NNW	NW	SSW	NW	NNW	---	---	---	
17	ESE	SE	NNW	NNW	W	SW	NNW	WNW	NNE	SE	---	SE	NE	N	S	WSW	NW	W	SSW	NW	NNW	W	NW	NNW	NNW	SSW	NW	N	---	---	---	
18	SE	SE	NNW	NNW	W	SW	NW	W	NE	SSE	---	---	NE	NNE	S	W	WNW	W	SSW	NW	NW	WSW	WNW	NNW	NW	SSW	NW	N	---	---	---	
19	SE	SE	NNW	NNW	WSW	SW	NW	WSW	NNE	SSE	---	---	NNE	NNE	S	NW	WNW	WSW	SSW	NW	WNW	SW	WNW	NNW	NW	SSW	NW	NNE	---	---	---	
20	SSE	SE	NNW	N	WSW	SW	W	SW	NNE	SSE	---	---	N	NNE	S	NNW	WNW	SW	S	NW	WNW	SW	WNW	NW	NNW	S	NW	NNE	---	---	---	
21	SE	SSE	NNW	NNW	SW	SW	WNW	SSW	NNE	SSE	---	---	N	NNE	S	NW	WSW	SW	S	NW	WNW	SSW	WSW	NW	NNW	S	W	NNE	---	---	---	
22	SSE	SSE	NNW	NNW	SW	SW	NNW	SSW	N	S	---	---	N	NNE	S	NW	SW	SW	S	W	WNW	SSW	SW	NW	NNW	S	WNW	NNE	---	---	---	
23	SE	WNW	NNW	NNW	SW	SSW	N	SSW	NNE	S	---	---	N	N	S	NW	SSW	SW	S	W	WNW	SW	SW	NW	NW	S	W	NE	---	---	---	
24	SSE	NW	NNW	NNW	SW	W	N	S	N	S	---	---	N	N	S	NW	S	SW	S	NW	WNW	SW	SSW	NW	NW	S	WNW	NE	---	---	---	

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, US(MS)

STATION - GLENDIVE

MONTH/YEAR MAR 75

DAY

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	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	01	02	03	--	03	01	01	03	00	02	00	03	04	01	04	05	02	04	02	02	04	05	--	03	02	07	02	07	03	03	07
02	01	03	03	--	03	01	02	03	01	03	00	02	04	00	04	05	00	04	02	03	04	05	--	03	03	06	03	06	02	04	07
03	01	03	03	--	02	01	02	03	02	02	00	02	05	01	03	04	02	05	03	03	03	--	--	03	02	05	02	07	02	04	05
04	01	03	02	--	02	01	01	03	03	02	00	02	05	01	03	04	05	05	04	01	03	--	--	03	03	05	04	07	02	03	04
05	01	03	02	--	04	01	02	03	03	02	01	02	05	00	02	04	00	05	04	02	02	--	--	02	03	04	03	06	02	04	03
06	01	04	01	--	03	01	02	03	03	02	01	02	05	01	02	03	07	05	05	02	02	--	--	02	04	03	02	06	03	03	
07	01	04	01	--	03	02	03	03	03	02	02	02	05	01	03	03	07	06	06	03	07	--	--	02	03	02	04	07	03	04	02
08	01	04	01	02	01	03	03	03	03	01	04	02	05	01	03	03	05	05	06	03	03	--	--	02	04	02	04	07	03	04	03
09	00	03	01	03	01	01	03	03	03	02	04	01	05	03	03	03	03	05	06	03	03	--	--	02	03	02	04	06	03	04	01
10	01	03	01	03	03	01	04	04	03	01	04	01	05	04	02	03	04	04	04	02	02	--	--	02	04	02	05	06	02	04	00
11	01	03	01	02	03	03	04	04	03	00	03	01	04	03	02	03	05	04	03	03	03	--	--	02	03	02	05	07	02	03	01
12	01	04	02	03	03	03	04	04	03	00	04	01	03	02	02	04	05	05	05	03	03	--	04	02	05	02	07	07	02	05	02
13	01	04	02	04	03	03	03	04	02	00	05	01	03	03	04	03	05	05	04	04	04	--	04	02	06	03	08	07	04	05	02
14	01	04	02	04	03	02	03	03	02	00	05	02	04	04	04	04	06	05	04	04	03	--	04	02	07	04	07	07	04	06	01
15	01	05	--	05	03	03	03	03	02	00	05	02	05	05	04	04	06	05	04	06	03	--	04	02	07	03	07	08	05	05	07
16	01	05	--	05	03	04	03	02	01	00	05	02	05	05	03	04	06	07	03	06	03	--	03	02	06	04	07	07	05	04	02
17	01	05	--	05	03	04	04	02	02	00	05	01	04	05	03	05	06	06	03	07	03	--	02	02	05	04	08	07	04	04	03
18	01	05	--	05	03	05	03	03	02	01	05	01	04	04	03	04	05	06	03	06	03	--	02	02	06	04	08	07	04	06	04
19	01	05	--	05	03	05	03	03	03	01	04	01	04	03	03	03	04	05	02	06	02	--	03	02	05	03	08	06	04	06	03
20	02	05	--	04	02	03	02	02	03	01	04	03	03	03	03	03	03	04	02	04	02	--	03	01	06	03	07	05	03	06	02
21	02	05	--	03	01	03	02	01	03	01	04	03	04	03	04	04	03	03	02	03	04	--	03	02	06	02	08	04	02	06	02
22	03	05	--	03	01	04	02	01	03	00	02	04	04	02	04	04	03	03	02	03	04	--	04	03	07	03	08	04	02	06	03
23	04	05	--	03	01	02	03	01	03	00	02	04	03	02	05	04	04	03	02	03	03	--	04	03	07	03	08	04	02	05	02
24	03	04	--	03	01	01	03	01	03	00	02	04	02	03	05	04	04	03	03	04	05	--	03	02	06	03	08	03	02	07	02

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR MAR 75

	DAY																														
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	NNE	E	SE	---	NNW	NE	NE	E	E	ESE	E	NW	S	NE	SSW	SSE	SE	SSW	S	SSE	W	E	---	NNE	SSE	ESE	SW	NNW	WNW	SSW	N
02	NE	E	SE	---	NW	ENE	NNE	E	N	ESE	S	WNW	S	SW	SSW	SSE	NNE	SSW	SSW	ESE	W	E	---	NNE	SE	ESE	WSW	NNW	W	SSW	N
03	NE	E	SSE	---	NW	E	NE	ESE	NNE	ESE	W	W	S	SW	SSW	SSE	NW	S	SSW	SE	WNW	---	---	NNE	SSE	SE	W	NNW	WSW	SSW	N
04	NE	E	SSE	---	NNW	ENE	NE	SE	NNE	E	W	WSW	S	SW	S	SSE	NW	S	SW	ENE	W	---	---	NNE	SSE	SE	NW	NNW	W	S	N
05	NE	ESE	SSE	---	N	NE	NNE	SE	NE	E	W	SW	S	S	S	S	NNW	SSW	SW	ENE	W	---	---	NNE	SE	SE	NNW	NNW	SW	S	N
06	NE	ESE	E	---	N	NE	NNE	SE	NNE	ESE	W	SW	S	ESE	SSW	S	NNW	SSW	WSW	ENE	W	---	---	N	SE	SE	N	NNW	S	S	
07	NE	E	E	---	N	NNE	NNE	SSE	NNE	ESE	WNW	WSW	S	S	S	S	NNW	SW	W	E	W	---	---	N	SE	ESE	NNE	NNW	S	S	N
08	NNE	ESE	ESE	SSW	NW	NE	N	SSE	NNE	E	NNW	SW	SSW	S	SSW	S	NNW	SW	WNW	E	W	---	---	N	SE	E	N	NNW	SSW	S	NNW
09	NE	SE	S	SW	NNW	NE	N	SSE	NNE	ESE	NW	SSW	SSW	SW	S	S	WNW	SW	WNW	E	NW	---	---	N	SE	E	N	NNW	SSW	S	N
10	ENE	ESE	S	WSW	N	NE	N	SSE	NNE	ESE	NNW	S	SSW	WSW	S	S	W	SW	NNW	SE	WNW	---	---	N	SE	ESE	N	NNW	SW	S	W
11	ENE	ESE	SSW	WSW	N	N	N	SSE	NE	E	NNW	SW	SSW	SW	S	SSW	WNW	WSW	NNW	SW	NW	---	---	N	SE	SSE	N	NNW	W	S	NNW
12	ENE	ESE	S	W	N	N	N	SSE	NNE	ENE	NNW	SSW	SSW	W	S	SW	WNW	W	NNW	W	WNW	---	NNE	N	SE	SW	N	NNW	NNW	SSW	N
13	NE	SE	SSW	WNW	N	N	N	SSE	NE	ENE	NNW	SSW	SSW	WSW	S	SW	WNW	WNW	NW	W	WNW	---	NNE	N	SE	WSW	N	NNW	NNW	SSW	NNW
14	NE	SE	SSW	WNW	NNW	N	N	SSE	NE	NE	NNW	SSW	WSW	SW	S	SW	W	W	WNW	W	WNW	---	NNE	N	SE	W	N	NNW	NNW	SW	NNW
15	ENE	SE	---	W	NNW	N	N	SSE	NE	ENE	NNW	SW	W	W	SSW	SW	W	W	NW	WNW	NW	---	NNE	N	ESE	W	N	NNW	NNW	WSW	N
16	ENE	SE	---	W	NNW	NNW	N	S	NE	NNE	NNW	SSW	W	W	SSW	SW	W	W	WNW	WNW	NW	---	NNE	NNE	ESE	WNW	N	NNW	NNW	WSW	NNW
17	ENE	ESE	---	WNW	NNW	N	N	SSE	ENE	N	NNW	SW	W	WNW	SSW	SW	W	W	W	WNW	NW	---	NE	NNE	ESE	WNW	N	NNW	NW	SW	NNW
18	NE	ESE	---	WNW	N	N	N	SSE	E	N	NW	SSW	W	W	SSW	S	W	W	W	NW	NNW	---	NE	NNE	ESE	WNW	N	NNW	NW	W	N
19	NE	ESE	---	NW	N	N	NNE	S	E	N	NNW	SSE	W	W	S	S	W	W	W	NNW	N	---	NNE	NE	ESE	WNW	N	NNW	NW	W	N
20	ENE	SE	---	NW	NNE	N	NE	SSE	ESE	N	NNW	SE	WNW	WNW	S	S	W	WSW	WNW	NW	NE	---	NNE	NE	ESE	W	N	NNW	WNW	NW	NNE
21	ENE	SE	---	NW	NE	NNW	ENE	SE	ESE	NE	NW	SSE	NNW	WNW	S	S	W	SW	NNW	NNW	E	---	NNE	ENE	ESE	W	N	NW	W	WNW	N
22	ENE	SE	---	NW	NE	N	ENE	SE	ESE	NE	NNW	S	NNW	SW	S	S	WSW	SSW	E	WNW	E	---	NNE	ENE	ESE	W	NNW	NW	WSW	NW	N
23	E	SE	---	NNW	NE	NE	ENE	SE	SE	ENE	NNW	S	NNW	SSW	S	S	SW	S	SE	WSW	ENE	---	NNE	E	ESE	W	NNW	NW	SW	NW	NNE
24	E	SE	---	NNW	NE	NE	E	SE	SE	ENE	NW	S	NNW	SW	S	SSE	SSW	S	SSE	SW	E	---	NNE	SSE	ESE	W	NNW	WNW	SW	NNW	

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GLENDIVE

MONTH/YEAR APR 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
01	01	03	06	02	02	01	02	08	04	01	01	04	--	02	02	03	02	03	03	04	03	05	04	04	05	07	02	03	05	03
02	01	02	05	03	01	03	02	08	04	01	01	04	--	01	02	04	01	03	03	03	04	05	04	02	05	07	04	04	05	03
03	02	03	05	04	02	02	01	07	04	01	01	05	--	01	02	04	02	04	03	04	03	04	03	03	06	06	05	05	05	03
04	02	03	05	03	03	03	01	07	03	02	01	05	--	01	02	04	03	03	03	04	03	04	03	03	05	06	04	05	06	03
05	02	04	05	03	02	03	02	07	03	02	01	05	--	01	02	03	04	02	03	04	04	04	03	02	05	06	04	07	06	04
06	02	04	05	03	02	03	02	06	03	02	01	05	--	01	02	03	04	03	03	05	04	04	02	02	05	07	04	06	05	04
07	01	02	05	03	02	02	03	06	03	03	01	04	--	01	01	03	05	04	03	05	04	04	01	02	05	07	03	06	05	04
08	02	03	05	03	01	03	03	06	03	03	01	--	02	02	01	03	05	04	02	04	04	03	01	02	05	07	03	06	05	04
09	01	02	04	04	02	03	03	06	03	02	01	--	02	01	02	04	04	04	01	02	04	00	02	02	04	06	03	06	06	03
10	01	02	04	04	03	03	04	05	03	02	01	--	02	01	03	03	04	05	02	03	05	02	03	03	05	06	03	06	07	03
11	01	02	04	03	02	03	05	06	02	02	02	--	02	01	03	03	05	04	03	03	04	03	03	03	07	05	02	08	07	03
12	01	02	03	02	02	02	06	07	02	02	02	--	01	02	02	02	05	05	03	03	04	04	03	03	07	04	02	09	07	03
13	01	02	03	02	01	02	06	07	02	02	02	--	02	02	01	02	05	05	02	03	04	03	03	02	09	04	02	10	06	04
14	01	02	03	02	01	02	06	06	01	01	03	--	03	03	02	02	05	06	02	04	04	03	03	01	08	02	04	09	06	04
15	02	02	03	03	01	02	05	05	01	01	03	--	03	03	01	01	05	07	02	04	05	03	04	02	07	01	05	10	06	03
16	01	02	03	03	01	03	06	03	01	01	03	--	03	03	02	03	06	05	02	05	05	04	04	01	07	02	04	12	06	03
17	01	02	03	03	01	02	05	01	01	01	03	--	03	03	03	02	06	07	02	05	05	04	04	01	07	02	04	10	07	03
18	01	02	02	03	01	02	06	01	01	02	03	--	03	04	02	03	05	07	01	05	05	03	04	01	07	02	04	08	07	01
19	01	02	04	03	02	01	07	01	03	03	03	--	03	04	03	03	05	07	01	05	04	04	04	02	06	02	04	08	07	02
20	02	03	04	03	01	01	07	02	02	02	03	--	03	04	03	03	05	06	01	04	05	04	05	04	07	04	04	07	05	02
21	02	03	04	03	01	01	07	03	02	02	03	--	03	03	03	02	04	05	03	03	06	03	06	05	09	04	04	07	04	02
22	02	04	04	03	01	01	06	04	01	01	03	--	03	02	03	03	03	04	04	03	06	02	07	05	06	04	02	06	04	01
23	03	05	03	03	02	01	06	05	01	01	04	--	03	02	03	02	03	03	04	02	06	04	07	06	05	04	03	06	06	02
24	03	05	03	03	02	01	08	04	01	01	04	--	03	03	03	01	03	03	04	02	06	04	06	07	03	02	04	06	04	01

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR APR 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
01	N	SE	S	E	E	NW	ENE	E	SSE	N	N	SSW	---	ESE	N	ESE	NNE	NW	NW	SE	E	S	E	SSE	SSE	E	E	NNE	NNW	N	---
02	NNW	SSE	S	E	ENE	NNW	E	E	SSE	NNW	NW	SSW	---	S	NNW	ESE	NNE	NNW	NW	SSE	ESE	S	E	SE	SE	E	NNW	NNW	N	NNW	---
03	NNW	SSE	S	ENE	NNE	NNW	ENE	E	S	NNW	WNW	SW	---	SSE	NNW	ESE	NNE	NNW	NW	S	SE	SSE	E	SE	SE	ENE	N	NNW	N	NNW	---
04	N	S	S	ENE	NNE	N	ENE	E	S	N	WNW	SW	---	SSE	N	ESE	N	NW	NW	S	SE	SSE	E	ESE	SE	ENE	NNW	NNW	N	NW	---
05	N	S	S	ENE	ENE	NNE	NE	E	SSE	N	WNW	SW	---	ENE	N	SE	NNW	WNW	NW	S	SSF	S	E	ESE	SE	E	N	NNW	N	NNW	---
06	NNE	S	S	ENE	NE	NNE	ENE	E	ESE	N	WNW	SW	---	ENE	NW	SE	N	WNW	NW	S	S	S	ESE	S	SE	E	N	NW	N	NNW	-
07	N	S	S	ENE	NE	N	E	E	ESE	N	W	SW	---	ENE	W	SE	N	WNW	NNW	S	S	SSE	SE	S	SE	E	N	NW	N	NNW	---
08	NNE	SSE	S	ENE	ENE	N	ENE	E	ESE	N	WNW	---	E	ENE	WSW	SE	N	WNW	NNW	S	S	S	SE	SSW	SE	E	NE	NW	N	N	---
09	NE	S	S	ENE	ENE	NNE	ENE	E	SE	N	NW	---	SE	E	NNW	SE	N	WNW	NNW	SW	S	WNW	SE	SW	SE	E	ENE	NNW	N	N	---
10	ENE	S	S	ENE	E	NNE	ENE	E	SSE	N	NNW	---	SE	NE	N	SE	N	NNW	WNW	SSW	SSW	NNW	SE	NW	SE	E	NNW	NNW	NNE	NNW	---
11	ENE	S	S	E	E	NNE	E	E	SSE	N	NNW	---	ESE	NNE	N	SE	N	NNW	N	WSW	SW	N	ESE	N	SE	E	W	NNW	NNE	N	---
12	NE	S	S	E	ESE	NE	E	E	SSE	N	NNW	---	ESE	NNE	N	SSE	NNW	NNW	NNW	WSW	SW	NNE	SSE	N	SE	E	W	NNW	NNE	NNW	---
13	NE	S	S	ENE	E	NE	E	E	S	N	WNW	---	E	N	ENE	SSE	NW	N	NNW	W	SW	NE	SSE	NNE	SE	E	W	NNW	N	N	---
14	ENE	S	S	ENE	NNE	NE	E	E	S	NE	WNW	---	E	N	E	SSE	NNW	N	WNW	WNW	SSW	NE	SSE	WNW	SE	ESE	W	N	N	NNW	---
15	NNE	SSW	S	ENE	NNE	NNE	ESE	ENE	SW	NE	WNW	---	E	N	NE	SSW	NNW	N	WNW	WNW	S	NNE	S	N	ESE	WNW	W	N	N	NNW	---
16	ENE	SW	S	ENE	ENE	N	ESE	ENE	W	NE	NW	---	ENE	NNW	E	NNW	NNW	NNW	WNW	NW	S	N	S	WSW	ESE	W	NW	N	N	NNW	-
17	NE	SW	SSE	E	N	N	ESE	NE	NW	N	WNW	---	E	N	E	WNW	N	W	NNW	S	NNE	SSE	WNW	ESE	W	NW	N	N	NNW	---	
18	N	SSW	SSE	E	WNW	NNE	E	E	NNW	N	WNW	---	E	N	ESE	N	NNW	N	NW	NNW	S	NNE	S	SW	ESE	NNW	NW	N	N	NW	---
19	NE	S	SSE	E	WNW	NNE	ESE	SSE	N	N	W	---	E	N	E	NNE	NNW	N	N	N	S	NNE	SSE	SSE	E	E	NW	N	N	WNW	---
20	ENE	SSE	SE	ENE	W	NNE	ESE	SSE	NNE	N	W	---	E	N	ESE	NNE	NNW	N	E	N	SSE	NNE	SE	SE	E	E	NNW	N	N	NNW	---
21	E	SSE	SE	E	W	NE	ESE	SSE	NE	NNE	W	---	E	N	E	NE	NNW	NNW	E	NNE	SSE	NE	SE	SE	E	E	N	N	N	NW	---
22	E	SSE	SE	E	WNW	ENE	ESE	S	E	NNE	WSW	---	E	N	ESE	E	NNW	N	E	NNE	SSE	ENE	SE	SE	ENE	E	NE	N	N	WNW	---
23	E	S	SE	E	NW	E	E	SSE	NE	NE	SW	---	E	N	ESE	E	NNW	NNW	ESE	NE	SSE	E	SE	SE	ENE	E	NE	N	N	W	---
24	ESE	S	ESE	E	N	E	E	SSE	NE	N	SW	---	ENE	N	SE	NE	NW	NNW	SE	NE	SSE	E	SSE	SE	ENE	ENE	NNE	N	NNE	WNW	---

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C-11
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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GLENDIVE

MONTH/YEAR MAY 75

DAY

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C-12
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	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	02	03	04	06	07	05	08	04	04	02	02	04	04	03	04	05	03	00	05	01	05	02	03	03	06	04	01	01	04	01	02
02	02	04	04	05	05	05	07	04	05	02	02	04	04	03	04	05	01	01	05	01	05	03	03	04	04	03	02	00	03	02	02
03	01	04	04	05	04	04	07	04	05	02	02	05	04	03	04	03	02	01	02	02	05	03	03	04	04	03	02	00	01	03	03
04	03	04	04	05	05	03	07	05	05	01	02	05	04	03	04	03	03	02	03	02	04	02	03	04	05	04	03	00	02	03	02
05	02	04	05	06	05	05	06	04	04	02	02	05	05	02	04	03	03	04	03	02	04	03	03	04	05	04	02	00	02	03	01
06	02	04	04	05	05	05	06	04	04	00	02	04	04	02	04	05	04	03	04	02	04	03	02	04	05	04	02	00	01	03	01
07	03	04	04	06	04	04	04	03	04	02	02	04	04	02	04	03	03	02	03	03	04	03	02	03	06	04	03	02	01	03	02
08	02	04	04	07	05	04	05	04	03	02	01	03	04	01	04	02	04	03	03	02	04	04	02	03	06	04	03	03	02	02	00
09	01	03	04	07	04	07	05	05	02	02	00	03	04	01	04	01	03	04	03	01	03	03	02	02	05	03	02	03	03	02	01
10	03	03	03	07	03	08	05	05	03	01	01	03	03	01	04	02	03	04	04	02	03	04	02	01	06	04	02	02	05	01	01
11	01	02	03	07	04	08	03	06	03	01	00	02	03	01	04	02	03	05	04	02	02	04	02	02	05	04	03	02	05	03	02
12	03	01	02	07	05	08	05	06	04	01	01	02	04	02	05	03	04	05	03	02	02	04	02	03	07	04	02	02	05	04	02
13	03	01	02	08	05	08	06	06	03	01	01	02	04	02	05	03	04	04	03	03	02	04	03	05	06	05	02	02	06	03	02
14	03	02	03	08	06	07	06	06	02	01	01	03	05	03	04	03	05	02	03	04	01	04	03	06	05	05	02	03	05	02	00
15	02	02	03	07	06	06	06	06	03	02	01	03	05	02	05	03	05	04	03	04	01	04	02	06	05	04	02	03	05	01	01
16	03	03	02	08	07	04	05	06	04	01	03	02	06	02	05	03	05	05	03	04	01	04	03	06	05	04	03	04	05	01	00
17	02	03	02	08	06	03	05	05	04	02	02	02	06	03	04	03	05	05	03	04	01	03	02	07	06	04	03	04	05	02	01
18	02	04	02	10	07	04	05	05	03	02	02	04	06	02	04	04	04	02	03	04	02	03	04	07	07	05	02	03	04	04	01
19	02	02	01	09	05	08	05	06	02	01	02	03	06	03	04	05	04	02	04	05	02	02	04	05	07	04	02	04	03	03	02
20	02	02	01	10	05	08	05	06	02	00	04	04	07	02	05	05	03	03	04	05	02	02	03	03	06	03	02	04	03	03	01
21	02	02	01	10	06	07	03	04	01	01	04	03	05	02	05	03	03	04	03	06	03	02	02	01	05	04	02	04	02	01	01
22	03	03	03	09	07	07	04	04	02	01	05	03	04	03	05	07	02	03	02	07	02	03	03	03	05	03	03	04	01	02	03
23	02	04	05	08	08	07	04	04	02	02	05	04	03	03	06	08	01	04	01	05	02	03	03	05	04	03	02	03	02	02	02
24	03	04	04	07	04	07	03	05	02	02	04	04	02	03	06	06	01	04	01	05	02	03	03	06	03	01	01	03	01	02	01

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR MAY 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	WNW	WNW	S	E	E	ESE	ESE	ENE	E	ENE	NNW	SE	SSW	NNW	SSE	SE	NNE	SSE	NW	WNW	N	SSE	SSE	SSW	SW	SW	WNW	N	NNW	ESE	NNW
02	W	SW	S	E	E	E	ESE	ENE	E	ENE	NW	SE	S	NW	SSE	SSE	WNW	S	NNW	W	N	SE	SE	SSW	SW	W	N	WNW	NE	SSW	NNW
03	W	W	S	E	E	ENE	E	E	E	NE	NW	SE	SSW	NW	S	NNW	S	SSW	NNW	W	N	E	SSE	SSW	WSW	WSW	NNW	WNW	NE	SSW	NNW
04	WNW	WNW	S	ENE	E	NE	ESE	E	E	ENE	NW	SE	SSW	NNW	SSE	NNE	SW	SSW	NW	W	NNE	E	SSE	SW	WSW	SSW	NNW	W	NNE	SSW	NNW
05	WNW	NW	S	E	E	NE	E	E	ESE	E	NNW	SE	SSW	WNW	SSE	NE	SW	S	WNW	W	N	ESE	S	SW	SW	SW	N	SW	NE	SSW	NNW
06	WNW	NNW	S	E	E	NE	E	E	ESE	E	NNW	SE	SSW	WNW	SSE	ENE	SW	S	NW	W	N	E	SW	SSW	SW	SW	NNW	WSW	ENE	S	
07	NW	NNW	S	E	E	NE	E	ENE	E	N	N	SE	SSW	W	SSE	W	SW	SW	NW	WNW	NNE	ESE	SSW	SSW	SW	WSW	N	NW	NNE	S	NNW
08	NW	NNW	S	E	E	ENE	E	ENE	E	NE	SSW	SSE	SSW	WSW	SSE	N	SW	SW	NW	WNW	N	ESE	S	SSW	SW	SW	NNE	NNW	N	SW	NNE
09	NW	NNW	S	E	E	ENE	E	E	E	E	SSW	SSE	SW	SSW	S	WNW	SW	SW	WNW	WNW	N	ESE	SSW	SW	WSW	SW	N	N	N	SW	SW
10	N	NNW	SSW	E	E	E	E	E	E	ESE	N	S	SW	WSW	S	N	SW	WSW	WNW	W	NNE	ESE	SW	SSW	W	SW	N	NNW	N	WSW	SW
11	WNW	N	SSW	E	E	E	ENE	E	E	NE	NNW	SSE	WNW	WSW	S	N	WSW	W	WNW	NNW	NE	SE	SW	SW	W	SW	N	NW	N	WSW	SW
12	WNW	NNW	S	E	E	E	E	E	ESE	NE	N	ESE	WNW	WSW	S	N	W	W	W	NNW	NE	ESE	SW	NW	W	SW	N	WNW	NNW	SW	SW
13	WNW	WNW	S	E	E	E	E	E	E	ENE	N	SE	W	SSW	S	N	W	W	WSW	NNW	NE	ESE	SW	NNW	W	WSW	NNW	WNW	NNW	SW	S
14	W	W	SW	E	E	E	ENE	E	ENE	E	W	SSE	W	SW	SSE	N	W	WSW	SW	N	NE	ESE	SW	NNW	W	WSW	N	NW	NNW	SW	W
15	W	W	SW	E	E	E	ENE	ESE	ENE	ENE	N	S	W	WSW	S	N	W	SW	WSW	N	NNE	ESE	WSW	NNW	W	WSW	W	NNW	N	W	NNW
16	W	WSW	W	E	E	ESE	ENE	ESE	E	NE	E	S	W	SW	S	N	W	W	WSW	N	ENE	ESE	WSW	NNW	W	WSW	NNW	NW	NNW	SW	NNW
17	WSW	W	W	E	E	NE	NE	ESE	E	N	ESE	S	WNW	SW	SSE	N	W	W	WSW	N	SE	SE	W	NNW	WNW	SW	NNW	NW	NNW	SSW	NE
18	WSW	WNW	W	E	E	E	ENE	ESE	ENE	NNE	ESE	S	WNW	SW	SSE	N	W	W	SW	N	SE	SE	W	NNW	WNW	SW	NNW	NW	NNW	SSW	NE
19	WSW	W	NW	E	E	ESE	ENE	E	NNE	NNE	ESE	S	WNW	SSW	SSE	NNW	WNW	NW	SW	N	SSE	ESE	W	NW	WNW	SW	N	NW	NNW	W	NNE
20	SW	WSW	NE	E	E	E	E	E	NE	N	ESE	S	N	S	SSE	NNW	WNW	NNW	SW	N	SSE	SSE	W	WNW	WNW	W	N	WNW	NNW	NNE	E
21	SSW	S	ENE	E	ENE	E	ENE	E	ENE	NW	SE	S	NNE	SSE	SSE	NNE	NW	N	WSW	N	SSE	SSE	WSW	W	WNW	NW	NNW	NW	NNW	NW	WNW
22	SSW	S	E	E	ENE	E	ENE	E	ENE	NW	SE	S	N	SSE	SSE	NNW	NW	N	NNW	N	SE	ESE	SW	SW	WNW	NNW	N	NNW	NNW	WSW	SW
23	W	S	E	E	ENE	E	E	E	ENE	NW	SE	SSW	N	SSE	SSE	NNW	W	NNW	N	N	ESE	SE	SSW	SW	WNW	NNW	N	NNW	NW	WSW	SSW
24	WNW	S	E	E	ESE	E	ENE	E	ENE	NW	SE	SSW	NNW	SSE	SSE	N	SSW	NW	NNW	NNE	ESE	SSE	SSW	SW	SW	WNW	N	NW	W	W	S

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

	GLENDDIVE															MONTH/YEAR JUN 75															
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	02	05	05	02	01	03	02	04	05	04	03	04	03	02	02	03	03	03	03	05	03	02	02	05	07	03	03	05	05	05	
02	02	04	05	03	02	03	02	05	04	04	03	04	02	02	02	03	02	02	03	03	03	02	02	05	07	04	02	04	05	05	
03	01	04	04	02	03	03	01	05	04	02	04	04	01	03	02	03	02	02	04	03	02	02	03	06	06	04	04	03	02	04	
04	01	03	05	02	02	03	02	05	04	03	03	04	01	02	02	02	02	02	05	03	03	02	04	04	06	04	04	03	02	04	
05	01	03	05	02	02	04	03	05	07	03	02	05	02	04	02	02	01	03	05	03	02	02	04	03	06	05	02	02	05	02	
06	01	02	03	02	03	04	03	05	07	03	03	05	01	05	01	02	01	02	05	04	02	02	03	03	06	07	02	02	03	04	
07	01	03	02	03	03	04	03	04	09	03	03	04	03	04	01	02	01	03	06	05	01	03	02	02	05	08	02	02	02	03	
08	01	03	02	03	04	04	03	04	11	02	03	04	02	04	01	02	01	03	04	03	02	03	01	01	04	07	04	01	03	03	
09	02	02	01	02	04	04	02	05	09	03	01	04	01	03	00	02	01	03	05	03	01	02	00	02	04	05	03	01	02	03	
10	02	02	01	03	06	04	02	05	06	02	01	03	01	02	01	02	01	04	05	04	01	01	01	03	05	06	03	01	01	02	
11	02	01	02	03	07	05	03	04	05	03	01	02	02	02	01	02	01	04	05	03	01	02	01	03	03	07	03	01	02	01	
12	02	02	01	04	06	05	05	04	05	04	01	02	02	03	00	03	01	04	04	04	02	03	01	03	05	07	02	02	02	01	
13	02	03	02	04	07	05	05	04	05	04	02	03	01	03	01	02	04	--	04	05	03	04	01	04	04	07	01	01	01	01	
14	02	03	04	05	07	05	06	07	05	04	02	03	00	03	01	02	03	--	04	05	03	04	02	03	05	07	02	02	01	02	
15	02	03	04	05	06	05	05	09	05	04	02	04	01	03	01	02	02	--	06	05	02	03	02	04	05	07	04	06	01	01	
16	03	03	05	06	07	05	02	10	06	05	02	04	01	04	00	03	02	03	06	05	02	04	02	04	05	07	05	02	02	01	
17	06	03	05	04	06	03	01	08	05	05	02	04	01	04	01	02	02	04	05	05	01	03	02	04	04	06	04	02	02	01	
18	04	02	05	05	05	03	01	07	05	04	03	05	01	03	01	02	02	03	04	05	01	02	02	04	04	04	04	02	02	02	
19	03	02	05	05	05	04	01	08	04	04	02	05	01	02	01	03	02	04	03	04	01	00	02	05	04	03	05	02	01	01	
20	03	02	04	04	04	02	02	08	02	04	02	03	01	02	01	04	01	03	02	04	01	00	02	05	05	02	03	03	03	01	
21	02	03	03	03	02	02	04	06	01	02	02	04	01	01	02	04	01	03	01	03	01	01	03	07	04	02	02	03	04	02	
22	02	04	02	02	02	02	05	06	02	01	03	--	02	01	02	03	01	03	02	03	02	03	04	07	10	02	07	03	04	03	
23	02	04	02	02	03	03	06	05	02	01	03	--	03	00	02	02	03	04	03	03	02	04	05	08	07	02	07	03	03	04	
24	04	04	02	02	03	02	05	06	04	03	04	03	02	02	02	02	03	03	05	03	02	03	05	08	03	02	06	05	03	04	

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR JUN 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	S	SW	SSE	W	E	SE	ESE	NNE	NNW	NNW	SW	SSW	NNE	NNE	WNW	WNW	NW	NE	ENE	SW	N	WSW	S	ESE	SSE	NW	SSE	N	E	N	---
02	SSW	SW	SSE	WNW	S	SSE	S	NNE	NNW	NNW	SSW	SSW	NNE	NNE	W	NW	WNW	ENE	ENE	SSW	N	WSW	SSW	ESE	SSE	NNW	SE	N	E	NNE	---
03	SW	SW	SSE	W	S	SSE	SSW	NNE	NNW	WNW	SSW	SSW	NW	N	SW	N	WSW	ENE	ENE	S	NNW	SW	SSW	ESE	SSE	WNW	ESE	NW	E	ENE	---
04	SSW	SW	SSE	W	SW	SSE	SSW	NNE	NNW	WNW	SSW	SSW	NW	N	SW	NW	W	ESE	E	S	NNW	SW	S	ESE	S	W	ESE	NNW	ENE	NE	---
05	SSW	SSW	SSE	SW	SW	SSE	SSW	NNE	N	WNW	SSW	SSW	W	N	WSW	NW	W	ESE	E	S	NNW	SW	S	ESE	S	W	ESE	NW	E	NNE	---
06	SW	SSW	SE	SW	W	S	S	NNE	NNW	WNW	SSW	SSW	SSW	N	W	WSW	NW	ENE	E	S	NW	SW	S	ESE	S	W	SE	NW	N	N	---
07	SW	SSW	SSE	SW	W	S	SSW	NNE	N	WNW	SSW	SSW	SW	N	NNW	SW	W	ENE	E	SSW	NNW	SSW	SSW	ESE	S	WNW	S	W	NNE	NNE	---
08	SSW	S	SE	WSW	W	S	SSW	NNE	N	WNW	SSW	SSW	SW	N	WSW	SW	W	ENE	E	SSW	N	S	SSW	ESE	S	WNW	S	W	NNE	NNE	---
09	SSW	SSW	SSE	WSW	W	S	SSW	NNE	N	W	SSW	SSW	NNW	NNW	SSW	WSW	WSW	E	E	S	NNW	S	SSW	SE	S	W	S	W	ENE	NNE	---
10	SSW	S	S	W	WNW	S	SSW	NNE	N	W	SSW	SSW	NNW	NNW	S	W	WSW	E	E	S	NNW	SW	S	S	S	W	S	W	ENE	NNE	---
11	SSW	S	S	W	WNW	SSW	SW	NNE	NNW	W	SSW	SW	N	NNW	SSW	W	W	E	E	SW	NW	SW	SSW	S	S	W	S	W	E	NNE	---
12	SSW	SSW	WSW	WNW	WNW	SW	SW	N	NNW	WNW	SW	SW	N	NW	WSW	W	WSW	E	E	SW	WNW	SW	S	S	S	W	SSW	WNW	ENE	NE	---
13	W	SW	WNW	W	NW	SW	SW	NNW	NNW	NW	WSW	WNW	NW	NNW	SW	WNW	NW	---	ESE	SW	W	SW	SSE	S	S	W	SSW	NE	ENE	NE	---
14	S	SW	WNW	WNW	NW	SW	SW	N	N	NNW	W	WNW	W	NW	WSW	NW	NNW	---	SE	SW	W	SW	SSE	S	S	W	S	SSW	NNW	NE	---
15	SSW	SW	NW	WNW	NW	SW	SW	N	N	NW	WSW	W	SSW	NW	SSW	NNW	N	---	S	SW	NW	W	SSW	S	SSE	W	SSE	SSW	NNW	NE	---
16	N	SSW	WNW	WNW	NNW	WSW	NE	N	N	NNW	SW	W	SW	NNW	S	NNW	NNE	E	S	WSW	WNW	N	S	S	SSE	W	SSE	SSE	SW	ENE	---
17	N	SSW	NW	WNW	NNW	WNW	NE	N	N	NNW	SW	WNW	E	NNW	SW	N	ESE	E	SSW	WSW	WSW	N	S	SSE	SSE	W	SE	S	WSW	ENE	---
18	N	SSW	WNW	WNW	NNW	W	NE	N	N	NNW	SW	WNW	S	NNW	SW	NNW	SE	NE	SSW	W	SW	S	S	SSE	SSE	W	SE	SE	W	E	---
19	N	SSW	WNW	WNW	N	W	N	N	N	NNW	SSW	WNW	SW	NNW	SW	NW	SSE	NE	S	W	W	S	SE	SSE	SE	WSW	W	ESE	W	ESE	---
20	WSW	S	NW	NW	N	W	NNW	N	N	NNW	SSW	WNW	SW	NNE	SSW	NNW	SSE	NE	SSW	WNW	WNW	WNW	SE	SE	SE	WSW	ENE	E	NNW	SSE	---
21	SSW	SSE	NW	WNW	NNE	NW	NNW	N	NW	NW	SSW	WNW	SW	NE	WSW	NNW	ESE	ENE	SE	NW	WSW	NE	ESE	SE	SE	SSW	ENE	E	N	ESE	---
22	NNW	SSE	NW	WNW	E	N	N	N	WNW	N	SSW	---	W	NNE	W	NNW	SSE	NE	S	NW	W	SSE	ESE	SE	SW	S	N	E	NNE	ESE	---
23	SW	SSE	NW	NNE	E	E	N	N	WNW	S	SSW	---	W	ENE	WNW	NW	E	NE	S	NNW	WSW	S	ESE	SSE	WSW	SSE	N	E	N	ESE	---
24	SW	SSE	W	E	E	ENE	NNE	N	NNW	SSW	SSW	N	NW	SW	W	NW	ESE	ENE	S	NNW	W	S	ESE	SSE	WNW	SSE	N	ESE	N	ESE	---

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GLENDIVE

MONTH/YEAR JUL 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	05	01	03	02	03	02	03	05	02	01	02	01	03	04	04	07	06	03	02	01	00	04	04	01	05	02	03	04	04	05	01
02	06	01	03	02	03	02	02	04	01	01	01	00	04	04	03	05	07	04	02	01	00	03	03	01	05	01	03	04	02	05	03
03	06	01	01	01	01	02	03	02	01	02	01	00	04	04	03	03	03	04	03	01	00	03	03	03	05	01	02	05	02	04	02
04	07	02	03	02	01	02	03	02	01	03	02	00	03	03	03	03	02	05	03	02	00	02	04	03	04	02	02	05	02	02	03
05	07	01	03	02	01	04	03	02	01	02	02	01	04	03	03	03	01	04	02	02	01	02	04	02	04	03	03	02	04	03	03
06	05	01	03	01	01	03	02	01	01	03	02	00	03	04	04	02	03	04	02	03	02	02	04	02	05	02	04	03	02	03	
07	02	02	04	01	01	04	01	01	02	02	02	01	03	02	03	03	01	04	02	03	03	02	03	03	05	02	05	04	02	03	01
08	03	02	04	01	01	03	01	00	01	02	02	01	03	02	02	02	01	03	02	03	02	03	03	03	04	02	05	04	02	02	01
09	03	02	03	01	00	01	02	00	01	03	02	01	02	01	02	01	01	02	02	02	03	01	04	01	03	01	04	03	02	02	01
10	02	01	03	02	00	01	01	01	01	03	02	01	01	01	02	01	02	03	03	03	01	01	06	02	03	02	03	02	02	02	01
11	02	02	03	03	00	01	01	02	01	03	02	01	02	02	01	02	03	03	04	04	02	02	05	02	04	02	02	03	01	02	02
12	02	02	03	04	01	00	01	02	02	04	03	01	03	02	01	03	03	05	05	04	02	02	04	02	04	02	02	02	01	03	02
13	02	03	02	03	01	01	01	02	02	03	03	02	02	02	01	02	02	04	05	04	03	02	05	02	04	02	02	02	01	04	03
14	01	02	02	02	01	01	07	02	03	04	03	02	03	03	02	02	02	05	05	04	03	02	05	02	03	05	02	02	01	04	02
15	01	02	03	02	01	01	05	02	03	04	03	02	03	03	03	03	02	05	05	04	03	03	05	02	04	02	02	02	01	03	
16	01	02	03	02	02	01	05	02	03	05	03	02	03	03	03	03	01	05	05	04	03	02	04	03	04	02	02	01	02	02	04
17	01	03	03	01	04	01	04	02	04	04	03	02	03	03	03	02	01	05	04	04	03	02	04	02	04	02	03	01	02	02	05
18	02	03	03	02	05	01	03	02	04	04	04	02	03	03	02	02	01	04	04	04	03	03	03	02	04	02	02	02	03	03	05
19	03	03	03	02	03	01	03	02	03	04	04	02	03	02	01	02	01	05	04	03	02	03	03	02	03	02	03	02	04	04	05
20	02	03	04	02	01	02	05	02	02	05	04	01	03	02	02	02	06	04	03	02	02	03	03	01	03	02	03	03	04	04	04
21	02	03	03	02	00	02	05	01	02	04	03	01	03	01	03	02	03	03	03	01	01	03	02	02	03	02	03	03	05	03	03
22	02	04	03	02	00	02	05	01	02	03	02	03	04	03	04	03	02	02	03	01	01	03	01	04	03	04	03	03	06	03	05
23	02	04	04	02	02	03	05	01	02	03	01	04	04	03	05	06	03	03	02	01	02	03	01	04	03	04	04	03	07	03	03
24	03	04	03	02	03	03	05	01	01	03	02	04	04	04	06	07	02	02	02	00	03	04	01	05	03	03	04	05	06	01	02

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528

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR JUL 75

	DAY																														
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	SE	ENE	ESE	SE	N	E	S	NE	NNW	NNW	N	E	SSE	S	SE	S	NNW	SW	WSW	NW	ENE	SSE	NE	ENE	SSE	NNW	SE	S	N	W	NNE
02	ESE	ENE	ESE	SE	N	NNE	SSW	NE	N	NW	NNW	E	SSE	S	SSE	S	NNW	SSW	SSW	SSW	ENE	SSE	NNE	ENE	S	NNE	SE	S	NE	WNW	N
03	ESE	NE	E	ESE	NNE	E	S	NE	N	WNW	WNW	SSE	SSE	S	S	W	NE	SSW	SSW	SSW	E	S	N	E	S	NE	SE	S	ENE	NW	NNE
04	ESE	NE	E	E	N	S	SSW	NNE	WNW	NW	W	SE	S	S	S	N	ENE	SSW	SW	SSW	ENE	W	N	SE	S	NE	SSE	S	ENE	WNW	NNE
05	ENE	ENE	E	E	NNE	N	SSW	NE	W	WNW	NW	S	S	S	SSW	E	ENE	SSW	SSW	S	NE	NW	NNE	SSE	S	NE	S	SSW	E	SW	NNE
06	NNE	NE	E	SSE	NNW	NNE	SSW	NNE	WSW	NW	NW	SSW	SSE	S	SW	ENE	NNW	SW	SSW	S	NNE	NNW	NNE	S	S	NE	S	S	SSW	WSW	
07	ENE	E	E	NE	WNW	E	SSW	NW	WNW	NNW	NNW	SSE	S	S	WNW	E	NNW	SW	SW	S	E	NNW	NNE	S	S	ENE	S	S	S	WSW	NE
08	ENE	E	E	ENE	W	E	NNW	NW	W	NNE	NW	SSE	SSE	SW	W	SE	W	WSW	W	S	ENE	SE	NNE	S	S	ENE	S	S	SW	WNW	NNE
09	NE	E	E	ENE	WNW	WNW	NNE	WNW	W	N	NNW	S	SSE	SW	WNW	SW	WSW	W	W	S	ESE	SSW	N	S	S	ENE	S	SSW	WSW	NW	N
10	ENE	ENE	ESE	N	SW	WNW	ENE	SW	WNW	N	NNW	S	SSE	SW	NNE	WSW	SW	W	WNW	S	SE	S	N	S	SSW	ENE	S	SW	SSW	WNW	N
11	ENE	NE	ESE	N	W	NW	NE	SW	NNW	N	N	SSW	S	W	E	SSW	SSW	WNW	WNW	S	SE	S	N	SSW	SW	NE	SSW	SW	SSW	W	N
12	E	NE	ESE	N	W	NNE	E	SW	NNW	N	N	SSE	S	W	S	SW	ESE	WNW	WNW	S	S	S	N	S	SW	ENE	S	W	S	W	N
13	E	ENE	SE	N	N	NE	ENE	W	NNW	N	N	S	S	W	SSW	SW	W	W	WNW	SSW	S	S	N	S	SW	E	S	NNE	SSW	NW	NNW
14	ENE	ENE	ESE	NNW	N	NE	N	WNW	NNW	N	N	S	S	WNW	SSW	S	W	W	WNW	SW	S	SW	N	SSE	WSW	NE	S	N	SSW	NNW	NNW
15	ENE	ENE	ESE	NNW	WNW	NNE	N	NW	NNW	N	N	SSW	SE	W	SW	SW	SW	W	WNW	WSW	S	W	N	SSE	W	NE	SSW	NW	SSE	NW	
16	NE	ENE	ESE	NNW	WSW	NE	N	NW	NNW	N	NNE	SSW	SSE	W	SW	W	WSW	W	NW	W	S	WNW	N	S	WNW	NE	SSW	WNW	SSE	WNW	WNW
17	NE	ENE	SE	W	ENE	E	NNE	NNW	N	N	N	SSW	S	W	SW	SW	SW	W	NW	WNW	SW	WNW	NNW	SSW	WNW	NE	S	WNW	SSE	NNW	WNW
18	NNE	ENE	SE	W	NE	ESE	NE	NNW	N	N	N	S	SSE	W	SSW	NW	SSW	W	NW	WNW	WSW	WNW	NNW	SSW	NW	NE	S	SSW	SE	NNW	WNW
19	NNE	E	ESE	NNW	E	ESE	NNE	NNW	N	N	N	SSE	SSE	NW	SSE	NNW	S	WNW	NW	NW	WSW	NNW	N	NNW	NW	NE	S	ESE	ESE	N	WNW
20	NE	E	ESE	WNW	SSE	ESE	NNE	N	N	N	N	S	SE	N	E	N	NW	WNW	NNW	NW	SW	NNW	N	NE	NNW	NE	S	SE	ESE	N	WNW
21	NE	E	E	NW	SW	ESE	NNE	NNW	N	NNE	N	SSE	ESE	NNE	ESE	NNE	NNW	WNW	NW	NW	WNW	NW	N	E	NNW	ENE	SSE	SE	ESE	N	WNW
22	ENE	E	ENE	NNW	N	SSE	N	NNW	N	NNE	NNE	SE	ESE	E	SE	NNE	W	W	NW	N	SSE	NW	ENE	SE	NNW	ENE	SSE	SE	SE	NNE	WNW
23	ENE	E	ESE	NNW	SE	SSE	N	NW	N	NNE	ENE	SE	SE	E	ESE	N	SSE	W	NW	NNE	SSE	NNW	ENE	SSE	NNW	E	S	SSE	SSE	NNE	WNW
24	ENE	E	SE	N	SSE	SSE	NNE	NNW	N	NNE	E	SSE	SE	ESE	S	N	SE	WSW	NW	E	SSE	N	ENE	SSE	NW	E	S	NNW	S	NE	WNW

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GLENDIVE

MONTH/YEAR AUG 75

DAY

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	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	02	03	03	02	03	06	03	04	04	03	03	05	02	02	01	02	02	04	02	03	03	04	03	03	04	02	04	06	--	--	--
02	02	03	02	04	03	06	03	04	03	03	02	05	01	00	02	03	01	04	03	03	03	03	03	01	04	01	04	03	--	--	--
03	02	04	04	03	02	05	04	04	03	02	02	06	01	01	01	03	01	04	06	01	03	03	02	03	05	02	04	02	--	--	--
04	02	04	03	02	03	03	02	03	02	02	01	06	01	01	01	04	01	03	05	03	02	03	02	03	05	02	05	02	--	--	--
05	02	03	03	01	03	02	03	03	--	03	01	05	01	01	01	04	01	02	03	02	02	04	02	05	04	02	04	02	--	--	--
06	02	04	03	01	03	02	02	03	--	02	00	04	00	02	01	04	02	03	01	01	01	04	03	05	04	02	03	02	--	--	--
07	02	04	02	02	04	03	03	03	--	02	02	03	01	01	01	04	02	04	01	01	01	05	03	06	03	02	02	02	--	--	--
08	02	04	01	02	04	03	03	03	--	03	02	03	01	02	01	03	02	03	01	01	01	05	03	06	04	02	01	03	--	--	--
09	03	04	02	01	04	03	04	02	--	02	02	04	01	00	01	01	03	03	02	02	01	06	03	07	04	01	01	02	--	--	--
10	03	03	03	02	04	03	04	02	--	01	01	04	01	00	01	01	02	04	02	01	01	06	02	08	05	01	01	02	--	--	--
11	04	03	03	02	05	02	04	02	--	02	01	04	02	01	01	01	03	04	01	02	01	04	03	08	06	01	01	02	--	--	--
12	04	04	03	01	05	02	05	03	--	02	01	04	02	01	01	01	03	03	01	02	02	03	03	08	06	01	01	02	--	--	--
13	04	04	04	02	05	02	03	04	--	03	02	03	02	01	02	01	03	03	01	02	01	03	04	07	07	01	03	03	--	--	--
14	05	04	04	02	05	01	04	--	--	03	02	03	02	02	02	02	03	03	01	03	02	04	04	07	07	01	03	04	--	--	--
15	05	04	03	02	05	01	05	--	--	03	02	03	02	03	02	02	03	02	01	04	02	02	04	07	06	01	03	03	--	--	--
16	06	04	03	02	06	01	07	06	02	03	03	03	02	01	02	02	04	04	01	05	02	03	04	07	06	01	03	--	--	--	--
17	06	04	03	02	06	01	08	05	02	03	02	03	02	01	02	02	04	04	02	04	02	04	03	08	05	01	03	--	--	--	--
18	05	04	03	03	06	01	06	05	01	03	02	03	02	02	03	03	04	04	03	05	02	03	03	07	04	02	03	--	--	--	--
19	04	04	03	02	06	01	05	04	01	04	03	03	03	03	03	04	03	04	03	05	03	04	03	07	04	01	04	--	--	--	--
20	03	03	01	02	05	01	07	03	01	05	05	02	02	03	03	03	03	04	03	04	04	02	05	06	03	01	03	--	--	--	--
21	01	02	01	01	05	03	08	02	01	04	05	01	02	03	02	02	03	04	03	04	03	02	02	06	03	02	03	--	--	--	--
22	02	02	01	01	05	04	06	03	03	03	05	01	02	02	03	03	04	05	03	04	04	02	01	05	01	03	04	--	--	--	--
23	03	02	01	03	07	04	05	04	04	03	04	01	02	01	03	03	05	05	02	03	04	03	02	05	01	04	04	--	--	--	--
24	03	03	02	03	07	04	04	04	04	02	04	01	03	02	03	02	04	03	03	03	04	03	02	04	02	04	06	--	--	--	--

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR AUG 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	WNW	SSW	W	NW	ESE	SE	S	W	N	SE	N	N	N	E	NE	N	ENE	SE	WSW	SSE	N	SE	NW	ENE	W	WNW	SE	ESE	---	---	---
02	W	SW	WNW	N	ESE	SSE	SSE	WNW	N	SE	N	N	NE	E	NNE	N	ENE	SSE	NE	S	NNE	SE	NNW	E	W	WSW	SSE	ESE	---	---	---
03	WSW	SSW	SSW	NNE	E	SSE	S	WNW	NNE	SSE	N	N	S	SSW	NNE	NNE	NE	SE	ESE	ESE	NNE	SE	NW	ESE	W	SW	S	E	---	---	---
04	SW	SW	SSW	NE	E	SSE	WSW	W	NNE	S	N	N	S	SSW	NE	NE	NE	SSE	SE	ESE	NE	SE	WSW	S	W	SSW	S	E	---	---	---
05	SSW	SSW	SW	NE	E	SE	NE	SSW	---	SSE	E	N	S	SW	ENE	NE	NE	SSE	SE	ESE	NE	SE	SW	WSW	W	SSW	S	ESE	---	---	---
06	SW	SSW	WSW	NE	E	SE	NE	SSW	---	SSE	SSE	N	S	SW	E	NNE	ENE	S	SE	SSE	E	SSE	SSW	W	W	SSW	SSE	E	---	---	---
07	WSW	SSW	WSW	NE	E	SE	ENE	SSW	---	S	S	N	SSE	WNW	SE	NNE	E	SSE	E	SE	NE	SSE	SSW	W	WSW	SSW	SSE	ENE	---	---	---
08	SW	SSW	SW	NE	E	SSE	ENE	SW	---	S	SSW	N	SE	NNE	S	NE	E	SSE	ENE	S	NE	SSE	S	WSW	W	SSW	SSE	E	---	---	---
09	SW	SSW	W	NE	E	S	ENE	SW	---	S	SSW	NNW	SSE	NE	SW	NE	ESE	SSE	E	SSW	NE	S	S	WSW	W	SSW	SE	E	---	---	---
10	SW	SSW	NNW	NE	SE	SSW	ENE	SW	---	SSW	SSW	NNW	SE	SSW	SSW	ENE	ESE	S	E	W	ENE	S	S	W	WNW	S	SE	W	---	---	---
11	WSW	SW	NNW	NE	SE	SW	NNE	W	---	SSW	S	NNW	SE	WSW	S	NE	SE	S	ENE	W	ENE	S	S	W	WNW	S	ENE	NNE	---	---	---
12	W	SW	NNW	NE	SE	SW	NNE	SW	---	WSW	SW	N	SE	W	SSW	E	SE	SSE	ENE	WSW	ESE	SW	S	W	WNW	SSE	ENE	NNE	---	---	---
13	W	SW	NW	NE	SE	WSW	ENE	SW	---	SSW	SW	NNW	ESE	NNW	SSW	ENE	ESE	SSE	ENE	W	E	WSW	SSW	W	WNW	S	ENE	E	---	---	---
14	W	WSW	WNW	NE	SE	WNW	NE	---	---	SW	WSW	NNW	ESE	N	SW	NE	ESE	S	NE	W	ESE	W	SW	W	WNW	SW	E	E	---	---	---
15	WNW	WSW	WNW	NE	SE	W	N	---	---	SW	WSW	NNW	ESE	E	SW	NE	SE	SE	ENE	W	E	WSW	SW	W	WNW	SW	E	E	---	---	---
16	WNW	W	WNW	NE	SE	WNW	N	W	NW	SW	WSW	NW	E	E	WSW	NE	ESE	ESE	ENE	WNW	E	W	SW	W	NW	WSW	SSE	ESE	---	---	---
17	WNW	W	NW	NE	SE	NNW	N	W	NNW	W	W	NNW	E	N	WSW	NE	E	E	ENE	WNW	E	WSW	SW	W	NW	SSW	SE	ESE	---	---	---
18	WNW	W	NW	NE	SE	NNE	NNW	W	NW	W	WNW	NNW	ESE	N	WNW	NNE	ESE	ESE	E	WNW	E	W	WSW	W	NNW	SSW	NE	---	---	---	---
19	WNW	W	NW	NE	SE	NE	WNW	W	NNW	WNW	NW	N	E	NNE	NNW	NE	ESE	ESE	E	WNW	E	W	NNW	W	NNW	NW	SE	---	---	---	---
20	WNW	W	NW	NE	SE	ENE	WNW	W	NNE	NNW	NNW	N	NE	NNE	NNW	NE	SE	ESE	ESE	NW	ESE	W	N	W	NW	NE	ESE	---	---	---	---
21	W	W	NW	E	SE	ESE	WNW	W	ENE	N	N	N	NE	NE	N	ENE	SE	ESE	SE	NW	ESE	SW	NE	W	NW	ENE	ESE	---	---	---	---
22	WSW	WSW	NNW	E	SE	ESE	WNW	NNW	E	N	N	NW	ENE	NE	NNE	NE	ESE	ESE	SSE	NW	ESE	WSW	NE	W	WNW	E	ESE	---	---	---	---
23	SSW	SSW	N	ESE	SE	SE	WNW	N	ESE	N	N	NNW	ENE	NE	NE	NE	SE	ESE	SSE	NNW	ESE	WSW	N	W	WNW	ESE	ESE	---	---	---	---
24	SSW	SSW	NW	ESE	SE	SE	W	N	SE	N	N	N	ENE	NNE	N	ENE	SE	ESE	SE	NNW	ESE	SW	NNW	W	NW	SE	ESE	---	---	---	---

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C-19

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GLENDIVE

MONTH/YEAR SEP 75

	DAY																														
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
-01	--	--	--	--	--	--	--	--	--	--	--	--	04	03	02	06	04	05	--	03	02	00	03	05	04	04	04	01	03	04	
02	--	--	--	--	--	--	--	--	--	--	--	--	03	03	01	06	04	06	--	03	01	01	03	05	04	04	03	01	03	03	
03	--	--	--	--	--	--	--	--	--	--	--	--	03	03	01	05	04	05	--	03	02	01	03	05	04	01	03	01	02	03	
04	--	--	--	--	--	--	--	--	--	--	--	--	03	03	01	05	03	05	--	03	02	02	02	04	03	02	04	00	03	03	
05	--	--	--	--	--	--	--	--	--	--	--	--	02	02	01	05	02	05	--	04	02	02	02	05	02	04	03	01	03	03	
06	--	--	--	--	--	--	--	--	--	--	--	--	02	02	01	04	02	04	--	04	02	02	03	05	03	05	03	00	04	02	
07	--	--	--	--	--	--	--	--	--	--	--	--	02	02	02	04	02	04	05	03	02	02	02	05	03	05	03	00	04	02	
08	--	--	--	--	--	--	--	--	--	--	--	--	02	01	03	04	02	05	06	03	02	02	02	05	03	03	03	01	05	02	
09	--	--	--	--	--	--	--	--	--	--	--	--	01	01	02	03	02	06	07	02	02	02	02	04	01	04	02	01	04	01	
10	--	--	--	--	--	--	--	--	--	--	--	--	01	01	02	03	02	06	07	03	02	02	01	04	01	04	03	01	05	02	
11	--	--	--	--	--	--	--	--	--	--	--	--	01	02	02	03	04	06	07	03	02	03	01	04	01	04	03	01	06	01	
12	--	--	--	--	--	--	--	--	--	--	--	--	01	01	01	04	05	06	07	04	03	03	03	00	01	02	03	01	06	03	
13	--	--	--	--	--	--	--	--	--	--	--	--	02	01	02	04	04	07	--	04	03	04	01	03	02	03	03	02	05	02	
14	--	--	--	--	--	--	--	--	--	--	--	--	03	01	02	04	03	07	04	04	05	04	01	03	02	04	03	02	05	02	
15	--	--	--	--	--	--	--	--	--	--	--	--	01	02	01	02	04	02	07	06	04	05	04	01	03	02	04	03	02	06	03
16	--	--	--	--	--	--	--	--	--	--	--	--	02	02	02	01	03	02	07	05	04	04	03	02	02	01	05	03	03	06	03
17	--	--	--	--	--	--	--	--	--	--	--	--	02	02	01	01	04	01	08	05	03	04	04	02	02	01	04	03	03	05	02
18	--	--	--	--	--	--	--	--	--	--	--	--	02	02	01	01	03	01	08	05	04	04	04	02	02	02	03	04	03	05	02
19	--	--	--	--	--	--	--	--	--	--	--	--	02	01	01	02	02	02	07	04	03	03	03	03	01	02	03	03	02	05	01
20	--	--	--	--	--	--	--	--	--	--	--	--	02	01	01	03	01	03	07	04	02	03	02	04	01	02	03	03	03	05	01
21	--	--	--	--	--	--	--	--	--	--	--	--	01	02	01	04	02	03	08	04	02	03	02	04	01	02	04	03	03	05	02
22	--	--	--	--	--	--	--	--	--	--	--	--	03	03	02	05	03	03	07	03	02	02	03	04	04	02	04	02	05	05	02
23	--	--	--	--	--	--	--	--	--	--	--	--	04	03	02	05	03	04	07	03	03	01	03	04	05	04	04	02	05	04	03
24	--	--	--	--	--	--	--	--	--	--	--	--	04	03	03	05	03	05		03	02	00	03	04	05	04	04	02	03	05	03

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR SEP 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
01	---	---	---	---	---	---	---	---	---	---	---	---	SE	SSE	SE	S	SW	NW	---	NNW	WNW	N	NNE	S	S	S	WNW	N	SSW	NNW	---	
02	---	---	---	---	---	---	---	---	---	---	---	---	SSE	S	ESE	S	SW	NW	NNW	NNW	W	WSW	NNE	S	S	S	W	NNW	SSW	NNW	---	
03	---	---	---	---	---	---	---	---	---	---	---	---	SSE	S	SSE	S	SW	NW	---	N	WNW	WSW	NNE	S	S	SSW	WNW	NNW	W	NNW	---	
04	---	---	---	---	---	---	---	---	---	---	---	---	SE	S	SW	S	SW	NW	---	N	WNW	WSW	NNE	S	S	W	NW	N	NNW	NNW	---	
05	---	---	---	---	---	---	---	---	---	---	---	---	SSE	S	SW	S	W	NW	---	N	W	SSW	NNE	S	S	N	NW	NW	N	NNW	---	
06	---	---	---	---	---	---	---	---	---	---	---	---	S	S	S	S	W	WNW	---	N	W	SSW	NE	S	S	N	NW	NNW	NNW	NW	---	
07	---	---	---	---	---	---	---	---	---	---	---	---	S	S	S	S	NNW	WNW	NW	NNW	WNW	SSW	ENE	S	S	N	NNW	SSW	NNW	NNW	---	
08	---	---	---	---	---	---	---	---	---	---	---	---	SSE	SSW	S	S	WSW	WNW	NW	NNW	W	SSW	ENE	S	S	NNW	NNW	S	NNW	NW	---	
09	---	---	---	---	---	---	---	---	---	---	---	---	SSE	SSW	S	S	WNW	WNW	NNW	NNW	W	SSW	ENE	S	S	NNW	NNW	S	NNW	NNW	---	
10	---	---	---	---	---	---	---	---	---	---	---	---	SSE	SSW	S	SSW	NNW	WNW	NNW	N	W	SSW	E	S	S	NNW	NNW	S	NNW	NNW	---	
11	---	---	---	---	---	---	---	---	---	---	---	---	S	SW	S	SW	NNW	NW	NNW	N	WNW	SW	SE	SSW	S	NW	NW	S	NNW	N	---	
12	---	---	---	---	---	---	---	---	---	---	---	---	S	SW	SSW	SW	NW	NW	NNW	N	NNW	SW	ESE	SSW	SE	W	NW	S	NNW	N	---	
13	---	---	---	---	---	---	---	---	---	---	---	---	S	NNW	S	SW	NW	NW	---	N	NNW	W	E	SSW	SE	WNW	NNW	S	NW	N	---	
14	---	---	---	---	---	---	---	---	---	---	---	---	S	ENE	SSW	SW	WNW	NW	NNW	N	N	W	E	SSW	SE	NW	NNW	S	NW	NW	---	
15	---	---	---	---	---	---	---	---	---	---	---	---	WNW	S	NW	S	SW	WNW	NW	N	NNW	N	WNW	E	SSW	ESE	NW	N	S	NW	NNW	---
16	---	---	---	---	---	---	---	---	---	---	---	---	NNW	SSW	NNW	S	SW	W	NW	N	NNW	N	WNW	ESE	SSW	ESE	NNW	NNW	S	NW	NNW	---
17	---	---	---	---	---	---	---	---	---	---	---	---	N	S	WNW	SSE	SW	W	NW	N	NNW	N	NNW	ESE	SSW	SSE	NW	NNW	S	NW	NW	---
18	---	---	---	---	---	---	---	---	---	---	---	---	NNW	SSW	N	SE	SW	W	NW	N	NNW	N	NNW	ESE	SW	S	WNW	N	S	NW	NW	---
19	---	---	---	---	---	---	---	---	---	---	---	---	N	S	N	SE	WSW	WNW	NW	N	NNW	N	NW	ESE	WSW	S	NW	N	S	NNW	N	---
20	---	---	---	---	---	---	---	---	---	---	---	---	NNE	SSE	N	SE	W	NW	NW	N	WNW	N	WNW	ESE	SW	SSE	NW	N	SSE	NNW	ENE	---
21	---	---	---	---	---	---	---	---	---	---	---	---	ENE	SSE	ENE	SE	WSW	NW	NNW	N	NNW	NNE	NW	SE	S	SSE	WNW	N	S	NNW	E	---
22	---	---	---	---	---	---	---	---	---	---	---	---	E	SSE	E	SSE	SW	NW	NW	N	NNW	NE	NNE	SSE	S	SSE	WNW	N	S	NNW	E	---
23	---	---	---	---	---	---	---	---	---	---	---	---	ESE	SSE	E	SSE	SW	NW	NW	N	NNW	NE	NNE	SSE	S	S	WNW	N	S	NNW	SE	---
24	---	---	---	---	---	---	---	---	---	---	---	---	SE	SE	E	S	SW	NW	---	N	NNW	NNE	NNE	SSE	S	S	WNW	N	SSW	NNW	SSE	---

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GLENDIVE

MONTH/YEAR OCT 75

DAY

C-22
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	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	02	02	01	04	03	--	07	04	05	02	01	02	02	03	04	03	03	05	04	07	02	02	02	02	04	04	04	01	03	05	02
02	03	02	01	05	04	--	07	05	05	03	03	02	04	03	03	04	04	05	03	05	03	02	03	03	04	04	04	02	04	05	01
03	04	02	01	04	02	--	07	06	04	02	03	02	03	02	03	03	04	05	02	04	03	02	02	02	04	04	04	02	04	04	01
04	04	03	02	05	02	--	05	05	06	02	03	02	03	02	02	04	05	05	02	03	04	02	03	02	04	04	03	02	04	04	02
05	03	04	02	04	04	--	06	04	05	03	03	03	01	02	03	03	04	05	01	03	04	02	02	01	04	04	05	03	03	04	02
06	02	04	02	04	03	--	05	05	05	03	04	02	01	03	02	03	04	04	01	03	05	02	02	01	04	04	04	02	03	04	
07	03	04	02	04	02	05	04	04	04	03	01	02	02	02	03	03	05	04	02	02	05	02	02	01	03	04	03	03	04	04	03
08	03	04	03	02	02	04	03	04	--	03	01	02	02	03	03	04	05	04	02	03	05	02	01	01	03	04	03	04	04	04	03
09	03	04	03	02	03	04	04	04	--	02	01	02	02	03	04	04	05	04	03	03	05	03	01	01	04	04	03	02	04	04	03
10	03	04	02	02	03	03	04	05	--	01	01	03	03	03	04	03	04	03	03	02	04	03	02	00	04	04	04	02	04	04	03
11	02	04	01	02	03	02	03	08	--	01	01	02	02	04	03	03	04	03	04	02	04	02	02	00	04	03	04	03	03	03	04
12	02	04	01	02	04	02	02	05	--	02	01	02	01	04	03	04	03	04	04	04	04	02	03	00	04	04	04	03	02	03	05
13	03	03	01	03	04	02	02	04	--	03	02	02	01	04	03	05	03	04	06	04	04	02	03	01	03	04	03	03	03	04	04
14	04	03	01	03	03	02	02	05	--	02	02	02	01	04	04	04	04	04	05	04	03	03	04	02	03	03	02	03	04	04	03
15	04	03	02	03	--	02	02	05	--	04	02	02	01	04	04	04	03	03	05	04	02	03	05	03	04	04	02	04	05	03	
16	03	03	02	08	--	03	02	05	--	04	02	02	01	03	03	03	03	04	05	01	04	05	03	04	02	01	04	05	03	02	
17	03	03	03	07	--	02	02	04	--	03	02	01	01	03	03	02	03	03	04	05	01	03	04	03	03	02	01	04	04	03	02
18	03	02	03	05	--	04	03	05	02	04	03	01	01	04	03	01	03	03	03	04	01	01	03	02	02	04	01	03	04	02	01
19	02	02	03	04	--	05	03	05	02	04	03	02	01	02	03	01	03	03	03	04	01	02	02	03	03	03	01	02	05	01	02
20	02	03	04	04	--	04	03	05	01	05	03	04	01	02	03	01	05	02	04	03	01	02	02	03	04	03	01	02	05	02	04
21	01	02	04	04	--	06	03	05	01	04	01	01	01	02	03	01	05	05	04	04	00	02	02	04	04	03	00	03	05	02	04
22	01	03	05	02	--	05	03	05	01	03	01	01	00	02	03	03	05	06	02	03	--	01	03	04	04	03	00	03	05	03	04
23	00	02	06	02	--	04	03	05	01	03	01	02	00	02	03	02	05	05	03	02	01	01	02	04	05	04	01	04	05	02	04
24	01	01	05	02	--	04	05	06	02	02	01	02	02	03	04	03	05	07	07	02	01	02	02	04	05	04	01	04	05	02	04

242

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR OCT 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	S	SSW	SW	S	W	---	NE	NNE	NW	E	S	NNE	E	N	WSW	WNW	S	S	N	NW	SW	E	NNW	N	SW	S	NNW	SSE	SSW	S	SW
02	S	SSW	SW	S	WNW	---	NNE	N	NW	E	SSE	N	NE	N	WSW	WNW	S	S	NNW	NNW	SW	ESE	N	N	SW	S	NNW	SSE	SSW	SSW	WNW
03	S	SSW	SSW	SSW	W	---	NE	N	NW	E	SE	N	ENE	N	WSW	W	S	S	NNW	NNW	SW	NE	N	NNW	SW	S	NNW	SSE	SSW	S	WSW
04	S	SSW	SSW	SSW	W	---	NE	NNE	NW	ENE	SSE	N	NE	NNW	SW	W	S	S	NW	NW	SW	NE	N	NNW	SSW	S	NNW	SE	SSW	SSW	SW
05	S	SSW	SSW	SSW	WNW	---	NE	N	NW	E	SSE	NNE	SSE	NNW	SSW	W	S	S	W	WNW	SW	NE	NNE	NW	SW	SSW	N	SSE	SSW	SSW	W
06	SSW	S	SSW	SSW	NW	---	NE	N	NW	E	SSE	NNE	E	NNW	SSW	W	S	S	WSW	W	SW	NE	NNE	NW	SW	SSW	NNW	SSE	S	SSW	N'
07	SSW	SSW	SSW	SW	W	S	NNE	N	NW	ESE	S	NNE	E	NNW	SSW	W	S	S	SSW	W	SW	NE	N	NW	SW	SSW	NNW	S	S	SSW	NNW
08	SSW	SSW	SSW	SW	SW	S	NE	NNW	---	ESE	ESE	NNE	E	N	SSW	WNW	S	S	SSW	W	SW	NE	NNE	NW	SSW	SSW	NNW	S	S	S	WNW
09	SSW	SSW	SSW	S	SSW	S	NE	NNW	---	ESE	SSE	NNE	E	NNW	S	WNW	S	SSW	SSW	W	SW	NE	NNW	NW	SW	SW	NNW	S	S	S	WNW
10	SSW	SSW	SSW	S	SW	S	NNE	NNW	---	E	E	NNE	E	N	SSW	WNW	S	SSW	SSW	W	SW	NE	N	WSW	SW	SW	N	S	S	S	WNW
11	SSW	SW	S	SSW	SW	S	NNE	N	---	ENE	NE	NNE	E	N	SSW	WNW	SSW	S	SSW	W	SW	NE	N	WSW	SW	SSW	N	S	S	SSW	NW
12	SW	SW	S	SSW	SW	S	NE	NNW	---	E	NE	NNE	E	N	SSW	WNW	SSW	SSW	SSW	WNW	SW	NE	N	WSW	SW	SW	N	SSW	S	SSW	NW
13	SW	SSW	S	SSW	SW	S	NE	NW	---	E	N	N	ENE	N	SW	NW	S	SSW	SSW	W	WSW	NNE	N	W	SW	SW	N	SSW	S	SSW	WNW
14	SW	SW	S	SW	SW	S	NE	NW	---	ESE	ENE	N	E	N	SW	NNW	SSW	SW	SSW	W	WSW	NNE	N	WNW	SW	SW	N	SW	S	SSW	WNW
15	SW	SW	S	SW	---	SW	NE	NNW	---	SE	ENE	NNE	E	NNW	SW	N	SW	SW	SW	W	SW	N	N	NW	WSW	W	N	WSW	S	SW	W
16	SW	SW	S	NW	---	WSW	ENE	NNW	---	SSE	NE	NNE	ESE	NW	SW	N	SW	SW	WSW	WNW	WSW	N	N	WNW	SW	WSW	N	SW	S	SW	W
17	SSW	SW	S	NNW	---	WNW	ENE	NW	---	SSE	NE	NNE	ENE	NW	SW	N	SSW	SSW	WSW	W	SW	NNE	N	W	SW	WSW	N	WSW	S	WSW	WNW
18	SW	WNW	S	WNW	---	NNW	ENE	NW	NW	SE	ENE	NNE	E	NW	SW	NNE	SSW	SSW	WSW	W	SW	NNE	N	W	S	WSW	N	W	S	SW	W
19	SW	NW	SSE	WNW	---	N	ENE	NW	NNW	SE	ENE	NNE	ESE	WNW	SW	NE	S	SSW	W	WNW	WSW	NNW	N	WSW	S	WSW	N	W	S	W	S
20	SW	NW	SSE	NW	---	NNE	ENE	NW	N	SE	ENE	NNE	NE	WNW	SW	ENE	S	SW	NW	WNW	WNW	N	N	SW	S	W	NE	SW	S	NW	S
21	W	NW	SSE	WNW	---	NNE	ENE	NNE	NE	SE	ENE	ENE	E	W	SSW	E	S	NNW	NW	WNW	NE	NNW	N	SW	S	W	ENE	SW	S	SSW	SSW
22	NNW	WNW	S	W	---	NE	ENE	NW	ENE	SE	NE	ENE	ESE	W	SW	E	S	N	W	WNW	---	NW	N	SW	S	NW	ENE	SW	S	SSW	SSW
23	WNW	WNW	S	W	---	NE	NE	NW	ENE	SE	NE	ENE	N	WSW	WNW	SE	S	N	WNW	WNW	E	NW	N	SW	S	NW	SE	SW	S	SSW	SW
24	SSW	WSW	S	SW	---	NE	ENE	WNW	ENE	SSE	NE	NE	N	WSW	NW	SSE	S	N	NW	SW	ENE	NNW	N	SW	S	NW	SE	SW	S	W	SW

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GLENDIVE

MONTH/YEAR NOV 75

	DAY																														
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	04	03	06	04	05	03	02	03	03	02	03	03	04	05	02	03	02	02	04	02	02	02	02	02	01	03	01	01	03	02	
02	04	02	04	05	04	03	02	03	03	02	02	03	04	05	02	03	02	02	03	02	02	02	02	02	02	03	01	01	02	02	
03	05	02	04	05	04	03	03	02	02	01	02	01	04	05	02	04	03	02	03	01	02	02	02	02	02	03	01	00	04	01	
04	05	03	03	05	05	03	03	03	03	01	03	01	05	05	03	03	03	02	04	01	02	03	01	02	01	03	01	01	04	01	
05	04	03	03	05	05	03	03	04	03	01	04	01	05	05	03	02	03	03	03	01	02	03	02	02	01	03	00	01	04	01	
06	05	03	01	05	04	04	02	05	03	00	04	02	05	05	03	03	02	03	03	01	02	03	02	03	01	03	00	01	04	02	
07	06	03	03	05	03	03	03	04	04	01	04	02	06	05	03	06	01	02	03	02	03	02	02	03	01	03	01	01	03	02	
08	05	04	04	05	04	03	02	04	04	02	05	03	05	05	04	06	01	01	03	02	03	02	01	03	01	04	01	01	04	03	
09	06	03	05	04	04	02	01	04	04	02	06	03	05	05	04	05	01	01	03	01	03	02	01	03	01	04	01	01	03	03	
10	05	03	05	04	04	02	02	04	03	02	05	03	05	05	04	03	02	01	02	01	02	01	03	04	01	04	01	01	03	03	
11	05	03	05	04	05	02	02	03	03	03	05	03	04	05	03	01	03	01	03	01	02	01	04	05	01	03	01	01	03	04	
12	05	03	05	04	04	02	05	03	02	04	05	03	05	05	04	02	03	02	04	01	03	00	04	05	01	03	01	02	02	04	
13	05	03	05	03	04	02	06	04	03	05	05	03	04	04	04	03	03	04	04	01	03	00	04	04	01	03	01	02	03	04	
14	05	03	05	03	04	04	06	04	03	05	05	03	04	04	04	04	03	03	03	01	03	01	03	04	01	03	02	02	03	05	
15	05	04	05	03	02	04	07	04	03	05	05	03	03	04	04	03	02	04	03	01	02	01	04	04	00	04	02	02	03	04	
16	04	04	04	03	02	04	06	04	04	05	04	03	04	03	04	03	01	03	03	01	02	00	03	04	00	04	02	03	02	04	
17	03	03	03	03	03	03	05	03	03	05	03	03	04	03	05	03	01	04	03	00	02	01	02	03	01	04	02	03	02	04	
18	03	04	04	03	03	03	03	03	03	05	04	04	05	03	04	03	01	03	02	00	03	01	02	03	00	03	01	03	02	04	
19	03	04	04	04	03	03	04	02	03	05	04	04	05	04	04	03	01	04	02	01	03	02	02	02	01	03	01	03	02	04	
20	04	04	04	03	04	02	05	02	02	04	04	05	05	04	04	03	01	03	02	00	03	03	02	01	01	03	01	02	02	04	
21	04	05	04	04	04	01	05	02	02	02	03	05	05	03	04	03	01	03	03	00	03	02	01	01	02	02	01	03	02	04	
22	04	05	05	03	04	01	04	02	02	01	04	05	05	02	04	02	01	03	03	01	03	02	01	01	02	02	01	03	02	04	
23	04	03	05	05	04	01	03	03	02	03	04	05	05	02	04	01	02	03	03	02	02	02	00	02	03	02	01	03	01	03	
24	03	06	04	05	04	01	04	03	02	03	04	05	05	02	04	02	02	03	03	02	02	02	01	02	03	02	00	03	02	03	

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C-24

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR NOV 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	SW	NW	NW	SSW	S	S	SSW	WSW	SSW	W	N	NNW	SSW	SSW	SW	W	S	NE	N	NNE	WSW	SW	SSE	SE	SSE	SSW	ESE	ENE	N	WNW	---
02	SW	W	NNW	SSW	S	S	SSW	WSW	SSW	W	NNW	NNW	SSW	SW	SW	N	SSE	NNE	N	N	W	W	S	SE	S	SSW	ESE	ENE	NNW	WNW	---
03	SW	SW	NNW	SSW	S	S	SSW	WSW	SSW	SW	NW	WNW	SSW	SW	SSW	N	SE	NNE	N	N	WSW	W	SSW	SE	S	SSW	ESE	E	NW	WNW	---
04	SW	SW	NNW	SSW	S	SSW	S	SW	SSW	SW	NW	WNW	SSW	SSW	SSW	N	ESE	NNE	N	N	SW	WNW	SW	SE	SSW	S	NE	NE	NW	NW	---
05	SW	SW	NW	SSW	S	SSW	SSW	SW	SSW	WNW	NW	SW	SSW	SSW	SSW	N	E	NNE	N	N	SW	NNW	SSW	SSE	SW	S	NE	NE	NW	WNW	---
06	SW	SW	SSW	SSW	SSW	SSW	SSW	SW	SSW	SSW	NNW	SSW	SSW	SSW	S	N	ESE	NNE	N	W	NNE	NNW	SW	SSE	WNW	S	NNE	NE	NW	WSW	---
07	SW	SSW	SSW	SSW	SSW	SSW	SW	SSW	SSW	SSE	NNW	SSW	SW	SSW	S	N	SE	NNE	N	WSW	SSW	NNW	SW	SSE	NNW	S	NNE	NE	NW	WSW	---
08	SW	SSW	SSW	S	SSW	SSW	SSW	SW	SSW	SSE	NNW	SSW	SW	S	SSW	N	E	E	N	WSW	SW	NNW	W	SE	N	S	NNE	ENE	NW	SW	---
09	SSW	S	SSW	S	SSW	SSW	SW	SSW	SW	SE	N	SSW	SW	SSW	S	N	E	E	N	WSW	SW	NNW	NW	SSE	NNE	S	NNE	ENE	NW	SW	---
10	SW	S	SSW	S	SSW	SSW	SSW	SW	SSW	E	N	SSW	SW	SSW	S	N	ENE	NNE	N	SSE	SSW	N	NNW	SE	N	S	NNE	ENE	NNW	SW	---
11	SW	SSW	SW	SSW	SSW	S	SW	SSW	S	E	N	SSW	SW	SW	S	WNW	ENE	N	N	S	SW	N	N	SSE	N	S	N	ENE	NNW	SSW	---
12	SW	SSW	SW	SSW	SSW	SW	W	SW	SW	E	N	SSW	SSW	SW	S	SW	E	N	N	SW	SW	NE	N	SSE	N	S	N	ENE	NW	SSW	---
13	SW	SW	SW	SSW	SSW	NNW	W	W	SW	E	NNW	SSW	SSW	SSW	SSW	SSW	ENE	N	N	SW	WSW	N	N	SSE	N	S	N	ENE	NNW	SSW	---
14	SW	SW	SW	SSW	SW	N	WNW	W	WSW	E	NNW	SSW	SSW	SW	SSW	SSW	ENE	N	N	SW	SW	NW	N	SSE	N	SSE	N	ENE	NNW	SSW	---
15	SW	SW	SW	SSW	SSW	NNW	WNW	W	W	E	NNW	SW	SW	WSW	S	SSW	ENE	N	NNW	W	SW	NNE	N	SSE	N	SE	N	ENE	NW	SSW	---
16	WSW	SW	SW	SW	SSW	NNW	WNW	W	WNW	E	NNW	SSW	SW	SW	S	SW	ENE	N	WSW	W	SW	ENE	NNE	SSE	NE	SE	N	ENE	WNW	SSW	---
17	WSW	WSW	SW	S	SSW	NNW	NW	WNW	WNW	E	NW	S	SSW	WSW	S	SW	NE	N	NNW	SW	SW	ENE	NNE	SSE	E	SE	N	NE	WNW	S	---
18	W	SW	SW	S	S	NNW	WNW	WNW	W	E	NNW	S	SSW	W	SSW	SSW	ENE	N	NW	WNW	SW	E	N	SE	ENE	SE	NNE	NE	NW	S	---
19	W	SW	SW	S	S	NNW	WNW	W	W	E	NNW	S	SSW	WNW	SSW	SSW	NE	N	NNW	N	SW	E	NNE	SSE	W	SE	N	NE	NW	S	---
20	W	SW	SW	S	S	NNW	WNW	WSW	W	ENE	NNW	S	SSW	NW	SSW	SSW	NE	N	N	NE	WSW	E	NNE	SE	SSW	SE	NNE	NNE	NW	S	---
21	W	SW	SSW	S	S	NNW	WNW	SW	W	ENE	NNW	S	SW	NW	SSW	SSW	ENE	N	N	NE	WSW	E	NNE	E	S	SE	NE	NNE	NNW	S	---
22	NW	SW	SW	SSW	S	NNW	W	SSW	W	ENE	NNW	S	SW	NW	SSW	SW	ENE	N	N	S	SW	E	E	ESE	SSW	SE	NE	N	NW	S	---
23	NW	W	SSW	S	S	SW	W	SSW	W	NNE	NNW	S	SSW	WSW	SSW	WSW	NNE	N	N	SSW	SW	E	ESE	ESE	SSW	ESE	NE	N	NW	S	---
24	NW	NW	SW	S	S	SW	W	SSW	W	N	NNW	S	SW	WSW	SSW	S	NNE	N	NNE	SW	SW	SE	ESE	ESE	SSW	ESE	NE	N	WNW	S	---

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GLENDIVE

MONTH/YEAR DEC 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	02	02	04	05	04	04	02	02	03	03	00	02	02	01	05	03	01	04	05	02	04	01	05	02	04	02	04	05	05	05	03
02	02	01	04	04	04	04	03	02	02	03	01	02	01	01	06	03	01	03	06	02	04	00	04	02	05	03	03	04	04	05	04
03	02	01	06	05	04	03	02	02	03	02	01	02	01	01	05	02	01	03	05	01	04	00	04	02	04	04	03	04	04	05	05
04	01	02	05	05	04	03	02	02	04	02	02	02	01	01	04	02	01	04	04	00	03	01	04	03	03	03	02	03	03	04	05
05	01	02	06	05	03	05	03	02	05	01	02	03	01	01	03	02	01	05	05	01	03	01	04	03	04	04	02	03	03	05	04
06	01	02	06	04	03	04	03	03	05	02	02	02	01	01	03	03	01	03	05	02	04	02	04	02	03	04	03	04	02	04	07
07	01	02	06	05	03	04	03	03	05	02	03	04	01	01	03	03	02	03	06	02	03	03	04	03	03	04	04	04	02	04	03
08	00	01	06	05	02	04	03	03	05	02	02	04	01	01	02	02	02	03	06	03	03	02	05	02	04	04	05	04	02	03	03
09	00	02	06	05	02	04	03	03	05	02	03	06	01	01	02	02	02	04	07	03	03	03	05	04	03	04	05	04	02	05	04
10	00	02	06	05	01	04	04	04	04	03	03	07	01	02	02	02	01	04	07	04	04	02	03	03	04	04	04	03	03	03	03
11	01	02	05	05	02	05	03	04	03	03	03	06	01	03	01	03	01	04	06	04	03	03	04	03	05	04	03	03	03	03	03
12	01	02	05	05	03	06	02	04	04	03	03	04	00	02	02	03	02	04	05	04	03	03	03	03	05	04	04	02	03	04	04
13	01	02	05	05	03	05	03	04	04	03	03	02	01	02	02	03	02	04	06	03	02	01	03	03	05	04	04	03	03	03	04
14	01	02	05	05	04	03	03	03	04	03	02	01	02	02	02	02	02	04	05	03	02	02	05	03	05	04	04	03	03	01	04
15	01	02	05	05	04	02	02	04	04	03	03	01	02	03	03	03	02	04	05	03	01	02	03	03	04	04	03	03	04	04	04
16	01	02	05	05	03	02	04	05	04	03	02	01	01	04	03	03	02	03	04	04	01	04	03	03	04	03	03	03	04	05	04
17	01	02	05	05	03	02	04	05	04	02	01	01	01	04	04	02	03	04	05	05	02	04	02	03	04	03	04	04	04	04	05
18	01	03	04	05	03	02	03	04	03	02	01	01	02	05	04	01	03	04	05	04	02	03	02	03	03	04	05	04	04	03	06
19	02	03	04	05	03	02	03	03	02	02	01	01	01	05	04	02	03	04	05	04	02	03	02	03	03	03	05	04	03	03	07
20	00	03	04	05	03	01	03	03	01	02	01	03	01	05	04	02	03	05	04	05	01	04	02	04	01	03	06	04	04	03	07
21	02	03	04	04	03	02	02	02	03	01	01	03	01	05	04	02	04	05	04	05	01	04	02	04	01	03	04	04	04	02	07
22	01	02	04	04	03	02	03	02	03	01	01	03	01	05	04	01	03	06	04	05	01	04	02	04	02	03	05	05	03	02	05
23	01	02	04	06	03	02	03	02	03	01	02	03	02	05	04	01	03	06	04	06	01	04	02	04	02	04	04	05	04	03	05
24	03	04	05	05	03	02	03	02	03	01	02	03	02	05	04	01	03	05	02	04	00	04	03	04	02	04	03	05	04	03	04

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR DEC 75

	DAY																																
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
01	SSE	NE	SSW	SW	N	S	SSW	NW	SSW	NE	ENE	E	NW	NE	SW	N	NW	SW	SW	N	SSW	WNW	SSW	SW	SSW	NNE	SSW	WNW	SW	S	NNW		
02	S	ENE	SSW	SSW	N	S	SW	WNW	SW	NE	NNE	E	NW	NNE	SW	N	WNW	SSW	SW	N	SSW	W	S	SW	SSW	S	SSW	WNW	SW	S	NNW		
03	SSE	ENE	SSW	SSW	N	SSE	SSW	W	SSW	NE	NNE	E	NW	NNE	SW	NNW	W	SSW	SW	NNW	SSW	W	SSW	SSW	SW	S	SW	NW	SW	S	NNW		
04	SE	ENE	SW	SSW	N	S	S	W	SW	NE	NNE	ESE	WNW	NE	WSW	NNW	W	SSW	WSW	SSW	S	S	SSW	SSW	W	S	SW	NW	SW	S	NNW		
05	ESE	ENE	SW	SSW	NNW	S	S	WSW	SSW	NE	NNE	SE	W	NE	W	NNW	SW	SW	W	S	S	S	SW	SSW	NW	S	WSW	NW	SW	S	N		
06	ESE	ENE	SW	S	N	S	S	SW	SSW	NE	NNE	ESE	SW	NE	W	N	SW	SW	WNW	S	S	S	SSW	SSW	NW	SSW	SW	NW	WSW	S	NNW		
07	ESE	ENE	SW	S	NNW	S	S	SW	SSW	NE	NNE	ESE	SW	E	W	N	SW	SW	WNW	S	S	SSW	SSW	SSW	WNW	S	W	NW	W	S	NNW		
08	SSE	ENE	SW	SSW	N	S	S	SW	SSW	ENE	NNE	ESE	W	E	WSW	N	SSW	W	NW	S	SSW	SW	SSW	SSW	WNW	SSW	WNW	NW	WSW	S	NNW		
09	ESE	E	SW	SSW	NNW	S	S	SSW	SW	E	NNE	SE	WNW	S	W	NNW	SW	NW	WNW	S	SSW	SSW	SSW	SW	W	SSW	WNW	NW	SW	S	N		
10	SSW	SE	SSW	SSW	SW	SSW	SSW	SSW	SSW	E	NNE	SE	N	SSW	SW	NNW	SW	NW	WNW	S	SSW	S	SSW	SSW	WNW	SSW	W	WNW	SSW	S	N		
11	SSW	SE	SW	SSW	SW	SW	SSW	SSW	SSW	E	NNE	SE	N	SSW	SW	NNW	SW	NW	NW	S	SSW	S	SSW	SSW	NW	SSW	W	WNW	SSW	SSW	N		
12	SSW	ESE	SW	SW	SSW	SW	SSW	SSW	SSW	E	NE	SSE	NW	SSW	SW	N	SW	WNW	NW	S	SSW	S	SSW	SSW	NW	SSW	W	W	S	SSW	N		
13	SSW	E	SW	SW	SW	SW	SSW	SSW	SW	E	NE	SE	N	SSW	WSW	N	SSW	WNW	NW	S	SSW	SSW	SSW	SSW	NNW	SSW	W	W	SSW	SW	N		
14	SW	ESE	SW	SW	SSW	SSW	SSW	S	SW	E	NE	ENE	N	S	W	NNW	SSW	WNW	WNW	S	SSW	SSW	SW	SSW	WNW	SSW	WNW	SW	SSW	WSW	N		
15	SSW	E	SW	SW	SSW	SSW	SW	SSW	SW	E	NE	NE	NNE	S	W	NNW	S	SW	NW	S	SSW	S	SW	SSW	NW	SSW	WNW	SW	SSW	NW	NNE		
16	NNW	E	SW	SW	SSW	SW	SW	SSW	SW	E	NE	NE	ENE	S	W	NNW	S	SW	NW	S	SW	S	WSW	SSW	NNW	SSW	WNW	SW	SSW	NNW			
17	N	ESE	SW	SW	SSW	SW	SW	SSW	SW	E	NE	N	NE	S	W	NNW	S	SW	NW	S	WNW	SSE	SW	SSW	NNW	SSW	WNW	SW	SSW	NNW	N		
18	S	ESE	SSW	SW	SSW	SW	WSW	SW	SSW	E	NE	NNW	NE	S	W	NNW	S	SW	NW	SSW	NW	S	SW	SSW	NNW	SW	WNW	SW	SSW	NNW	N		
19	S	SSE	SSW	SW	SSW	WSW	W	SSW	SW	E	NE	WNW	ENE	S	NW	N	S	SW	NW	SSW	NNW	S	SW	SSW	NNW	SSW	WNW	SW	SSW	NW	N		
20	S	S	SSW	SW	SSW	SW	NW	SSW	NNE	E	NE	NW	NE	S	NNW	N	SSW	SW	NNW	SSW	N	S	WSW	SSW	NE	SSW	WNW	SW	S	NW	N		
21	NNE	SSW	SSW	WSW	S	SW	WNW	SSW	NE	E	ENE	NW	NE	SSW	NNW	N	SSW	SW	NNW	S	NNE	S	SW	S	SSW	SSW	NW	SSW	SSW	NW	N		
22	NNE	SSW	SSW	NW	S	SW	WNW	W	NE	E	ENE	NNW	NNW	SSW	NNW	NNW	SSW	SW	N	S	NE	S	SW	S	S	S	NNW	SSW	S	NW	NNE		
23	NE	SSW	SSW	NNE	S	SSW	NW	W	NE	E	ENE	NW	NNW	SSW	NNW	NW	SSW	SW	N	SSW	NE	SSW	SW	S	NNW	S	NW	SW	S	WNW	NNE		
24	NE	SSW	SSW	N	S	SW	NNW	SW	NE	ENE	E	NW	NE	SW	N	NNW	SSW	SW	N	SSW	NNW	SSW	SSW	SSW	N	SSW	NW	SW	S	NW	NNW		

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GLENDIVE

MONTH/YEAR JAN 76

DAY

C-28
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	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	04	01	02	04	04	02	01	01	02	02	05	06	03	03	09	03	03	05	06	04	03	06	03	03	01	03	04	08	06	--	05
02	04	01	02	03	04	02	01	02	02	03	06	05	03	03	09	03	02	06	05	03	04	06	04	03	01	03	04	07	06	--	04
03	04	01	02	03	05	02	01	02	03	02	05	05	03	03	08	03	02	06	04	03	03	06	04	04	02	02	04	05	07	--	04
04	04	01	02	03	05	01	01	02	03	02	05	05	03	03	05	03	03	05	05	03	04	06	04	04	01	02	04	05	06	--	05
05	03	02	03	03	05	02	01	02	02	03	06	05	03	04	04	02	02	04	05	03	04	06	04	04	01	02	05	05	06	--	05
06	03	02	02	03	05	02	02	02	03	03	06	03	03	04	05	02	03	04	03	03	03	06	03	05	00	03	05	05	05	--	1
07	03	02	02	03	04	01	01	02	03	03	05	03	03	04	03	02	03	05	03	03	03	06	02	04	01	03	05	05	05	--	04
08	04	02	02	04	03	01	02	02	03	02	05	03	03	04	03	03	03	05	02	03	03	06	03	04	04	03	05	04	05	01	04
09	04	02	02	04	03	01	02	02	03	03	05	04	02	04	02	02	03	05	02	03	04	06	03	03	04	03	05	04	04	01	03
10	03	01	01	05	02	02	01	02	03	03	05	04	01	04	03	01	04	05	01	04	03	06	04	04	04	03	06	04	06	02	04
11	03	04	01	05	02	01	01	03	02	02	05	04	02	03	04	01	04	07	01	04	03	06	07	04	04	03	06	03	05	02	05
12	03	05	01	05	02	01	01	02	01	02	06	04	03	05	03	01	05	06	01	02	02	05	09	04	04	02	05	03	05	03	07
13	03	04	02	04	03	01	01	03	02	02	05	04	03	04	02	02	04	07	01	04	02	05	09	05	04	02	06	04	04	04	07
14	03	05	02	04	04	02	02	02	01	02	05	03	03	04	02	02	04	07	04	04	02	05	07	04	03	02	06	04	05	05	07
15	03	06	02	03	05	01	03	02	02	02	05	04	02	04	01	02	05	07	03	03	01	03	06	04	03	02	07	05	04	05	07
16	03	06	02	03	06	01	03	03	02	03	04	03	03	04	00	02	05	06	04	03	02	04	06	04	03	03	04	03	03	04	07
17	03	05	03	03	05	01	02	03	02	04	04	03	04	05	01	03	04	06	04	03	04	05	06	04	02	03	05	03	02	04	08
18	03	04	03	04	06	01	02	02	02	04	04	02	04	05	01	04	04	05	04	04	04	04	05	04	01	03	07	03	03	05	08
19	03	04	03	04	06	02	02	02	02	04	05	03	04	05	01	03	05	05	04	04	04	03	05	03	02	03	06	03	05	06	06
20	02	03	03	04	06	01	02	03	03	05	05	02	04	05	01	03	05	07	04	04	04	03	05	03	02	04	06	04	03	04	07
21	01	03	03	04	04	01	02	03	02	05	04	02	03	05	02	03	05	06	03	03	03	02	03	03	01	04	07	04	02	04	07
22	01	03	03	05	05	01	02	03	02	05	05	02	03	05	03	04	05	04	04	03	04	02	03	03	01	03	08	05	02	04	07
23	01	02	03	05	03	01	02	02	02	05	06	01	03	06	03	04	04	04	04	01	04	03	03	02	03	04	08	05	01	05	04
24	01	03	04	05	03	01	02	03	02	05	07	01	03	09	03	03	05	05	03	02	05	03	04	02	03	04	08	05	00	05	02

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR JAN 76

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	N	W	NW	S	SSW	NNW	WNW	SW	SSW	WNW	SSW	W	NW	WSW	WNW	SSW	WNW	SSW	NW	WSW	SSW	SSW	W	WSW	E	SW	SSW	SSW	SSW	---	W
02	N	W	NW	S	SSW	N	NW	SW	SW	WNW	SSW	W	NNW	SW	WNW	SW	W	SW	NNW	WSW	SW	SW	WNW	WSW	S	SSW	SSW	NW	SSW	---	WSW
03	N	W	NNW	S	SSW	N	WNW	SSW	SW	W	SSW	W	NNW	SW	NW	SSW	WSW	SW	NNW	W	SW	SSW	NW	W	S	SSW	SW	WNW	SSW	---	WSW
04	N	WSW	NNW	S	SSW	N	W	SSW	SSW	W	SSW	WNW	NNW	SSW	NNW	SSW	SW	SSW	NNW	SSW	SW	SSW	WSW	W	S	S	SSW	NW	SSW	---	WSW
05	N	SW	NNW	S	SW	N	WNW	SSW	SSW	WNW	SSW	WNW	NNW	SSW	NW	SW	WSW	SW	NNW	SSW	SW	SSW	SW	W	S	SSW	SSW	NW	SSW	---	W
06	N	SSW	NNW	S	SSW	NNE	WNW	SSW	SSW	WNW	SSW	W	NNW	SSW	NW	SW	SW	WNW	NNW	SSW	SSW	SW	WSW	WNW	S	S	SSW	NW	SSW	---	I
07	N	SSW	NNW	S	SW	NE	NW	S	SSW	WNW	SSW	W	NNW	S	NNW	SW	SW	NNW	NW	SSW	SSW	SSW	W	W	N	S	S	NW	SSW	---	SW
08	N	SW	NW	SSW	SSW	NE	NNW	S	SSW	W	SSW	WSW	NNW	SSW	NNW	SW	SSW	NNW	NW	SSW	SSW	SSW	WSW	WNW	NNE	S	S	NNW	SW	NNE	SSW
09	N	SW	WNW	SSW	SW	NE	NNW	S	SSW	W	SSW	SW	NNW	SSW	NW	SSW	SSW	NNW	W	SW	SSW	SSW	SW	NW	NNE	S	S	NW	W	NE	WSW
10	N	WNW	WSW	SSW	SW	ENE	NNW	S	SSW	W	SSW	SSW	WSW	SSW	N	SW	SSW	NNW	WSW	SW	SSW	SSW	W	NW	NNE	S	S	WNW	NW	NNW	WNW
11	N	NNW	W	SSW	WNW	NE	NNW	SSE	S	WSW	SSW	SW	SW	S	N	W	SSW	NNW	WSW	SW	SSW	SSW	WNW	NW	N	S	SSW	WSW	WNW	NW	WNW
12	N	N	W	SSW	N	NNE	NW	SSE	SSW	W	SSW	SW	SW	S	N	SSW	SW	NNW	SW	WSW	SSW	SSW	WNW	NW	NNW	S	SSW	W	WNW	NW	NW
13	NNW	NNW	SSW	SSW	NE	NNE	NW	SSE	SSW	SW	SSW	SW	SW	S	N	S	SSW	NNW	SSW	NW	SSW	SSW	NW	NW	NNW	S	SSW	WNW	WNW	WNW	NW
14	NNW	NNW	SSW	SSW	N	NNE	NW	SE	SSW	SW	SSW	SW	SW	S	NNW	S	SSW	NNW	SW	NW	SSW	SSW	NW	NW	NNW	S	SSW	WNW	NW	WNW	NW
15	NNW	N	S	SSW	N	NNE	NW	SE	SSW	S	SSW	SW	SSW	S	NW	S	SSW	NNW	SW	NW	S	SSW	NW	NW	NNW	S	SW	WNW	NW	NW	NW
16	NNW	N	S	S	N	NE	NW	SSE	S	SSW	SSW	WSW	SSW	S	SW	S	SSW	NW	SSW	WNW	S	SSW	NW	NNW	NNW	S	W	W	W	NW	NW
17	NNW	NNW	S	S	N	NE	NNW	SE	S	SW	SSW	W	SSW	S	SSW	S	SSW	NW	SSW	WNW	S	SSW	NW	NNW	NNW	S	WNW	WSW	WNW	WNW	NW
18	NNW	NNW	S	S	N	NNE	NW	S	S	SSW	SSW	W	SSW	S	WSW	SSW	SSW	NW	SW	NW	SSW	SW	NW	NNW	WNW	S	WNW	WSW	NW	NW	NW
19	NNW	NNW	S	S	N	N	WNW	S	SW	SSW	W	WSW	SSW	S	SW	SW	S	WNW	SW	NNW	SSW	WSW	NW	NNW	WNW	S	NW	SSW	NNW	NW	NNW
20	N	NW	SSE	S	N	N	W	SSE	SW	SSW	W	SW	SW	SSW	SW	W	S	NW	WSW	NW	SSW	W	WNW	NNW	WNW	S	WNW	SSW	NNW	WNW	NNW
21	NW	WNW	SSE	S	N	NNW	W	SSE	SW	SSW	WSW	WSW	SW	SSW	SW	WNW	S	WNW	SW	NW	SSW	W	W	NNW	NW	S	WNW	SSW	N	WNW	NNW
22	W	WNW	S	S	N	NNW	SW	SSE	SW	SSW	W	NW	SSW	SW	SW	NW	S	NW	SW	NW	SSW	WSW	W	NNW	SSW	SSW	WNW	SSW	N	W	NNW
23	W	WNW	S	S	N	NW	SW	S	WNW	SSW	W	W	WSW	W	SW	NW	S	NW	WSW	WNW	SSW	SW	WSW	NW	SSW	SSW	WNW	S	WNW	W	NW
24	W	NW	S	S	N	NW	SW	S	WNW	SSW	W	W	WSW	NW	SSW	NW	S	NW	SW	SSW	SSW	SW	W	N	SW	SSW	WNW	S	NW	WSW	SW

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED. US(MS)

STATION - GLENDIVE

MONTH/YEAR FEB 76

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	02	06	06	03	01	04	07	05	05	04	04	03	01	04	05	04	03	03	03	02	01	04	04	02	01	04	04	03	02		
02	03	05	07	02	01	05	07	04	05	04	04	03	01	03	05	04	04	03	02	02	01	04	05	02	02	03	04	04	01		
03	03	04	07	02	01	04	06	04	05	06	04	03	01	03	05	04	03	04	03	01	02	04	05	01	02	03	04	04	01		
04	02	03	09	01	01	04	05	05	04	05	04	03	02	03	05	04	03	04	02	01	03	05	04	02	02	04	03	04	01		
05	03	02	10	01	01	04	03	05	03	04	04	04	02	03	04	04	06	04	01	01	04	05	04	02	03	04	03	04	01		
06	03	02	08	00	01	04	03	05	03	04	04	03	02	02	03	03	05	03	01	01	04	04	04	02	03	02	03	02	01		
07	03	02	08	00	01	05	04	05	03	04	04	03	02	03	03	04	05	03	01	01	04	04	04	02	03	03	03	01	01		
08	02	02	06	00	01	05	05	05	03	04	04	03	02	02	03	04	05	03	01	00	04	04	04	02	04	03	05	01	01		
09	02	01	06	00	01	07	04	06	02	04	04	03	02	02	04	03	04	04	01	00	04	05	04	02	04	01	04	02	01		
10	01	02	03	00	01	07	04	06	02	05	04	04	01	01	03	03	05	05	01	01	05	04	04	03	04	00	04	05	01		
11	02	03	05	01	01	06	05	05	02	06	05	05	02	01	02	03	05	06	01	01	04	04	05	03	04	01	04	05	02		
12	02	03	05	01	01	05	05	05	04	06	04	05	02	01	02	04	06	08	01	02	04	05	05	02	04	01	04	03	01		
13	03	04	06	01	02	05	05	05	03	05	04	05	01	01	03	04	05	06	02	02	04	05	04	02	04	01	03	04	01		
14	04	04	05	01	02	05	05	04	03	04	03	05	02	00	03	05	05	05	--	03	04	04	04	03	04	03	03	04	02		
15	04	03	04	01	03	05	04	05	03	04	04	04	02	00	03	04	04	06	--	03	04	04	05	03	05	03	04	05	02		
16	04	04	04	01	03	05	04	05	01	03	03	04	02	01	03	04	02	05	--	03	04	05	05	03	05	04	03	06	02		
17	07	05	05	01	03	06	04	03	01	02	04	03	03	01	02	04	01	05	--	03	04	05	05	03	03	04	02	05	03		
18	08	05	05	01	03	06	02	05	01	01	03	02	03	02	02	04	01	03	03	02	03	04	04	02	04	03	02	04	03		
19	08	05	05	00	03	05	02	05	01	00	04	01	03	02	02	04	02	03	03	03	02	04	04	03	04	03	02	04	04		
20	09	04	03	00	04	06	02	04	01	00	04	01	04	03	02	03	03	03	02	04	03	05	04	04	05	03	04	04	04		
21	08	05	04	00	04	07	03	05	02	02	03	01	03	04	02	03	03	03	02	03	03	05	04	02	03	02	04	04	03		
22	07	05	04	01	04	06	03	05	02	05	02	01	04	05	03	03	03	03	01	02	03	05	04	02	04	03	04	03	03		
23	06	06	03	01	05	06	04	04	03	04	02	01	04	07	03	03	03	03	01	01	02	05	04	02	05	04	04	02	03		
24	06	06	04	01	04	07	05	05	03	04	02	01	05	07	04	03	03	04	02	01	03	04	03	02	04	03	03	02	03		

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GLENDIVE

MONTH/YEAR FEB 76

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	WNW	NNW	WNW	NNE	E	SW	SW	SSW	SSW	SW	SW	SSW	ESE	S	WNW	SSW	SW	S	W	NNE	W	SW	SSW	W	SW	W	SW	ESE	NE	---	---
02	NW	NNW	NW	NNE	E	SW	SW	SSW	SSW	W	SW	SW	SE	S	W	SW	W	S	W	NNE	SW	SSW	SW	NNW	SSW	W	SW	SE	NE	---	---
03	WNW	NNW	NW	NE	S	SW	SW	SSW	SSW	WNW	SW	SW	SE	SSW	W	SW	W	S	W	NE	SSW	SSW	WSW	W	S	SSW	SW	SE	ENE	---	---
04	WNW	NNW	NNW	NE	S	SW	SW	SSW	SSW	WNW	SW	SW	ESE	SSW	W	SSW	WNW	SSW	W	NE	SW	SSW	WSW	SW	S	SSW	W	SSE	ESE	---	---
05	WNW	NNW	N	NE	S	SW	WSW	SSW	SW	W	SW	SW	SE	SW	WSW	SSW	NW	SW	WNW	NNE	SW	SSW	WSW	SSW	S	SSW	W	S	ESE	---	---
06	WNW	NW	N	NE	SSW	SW	W	SSW	SW	WNW	SW	WSW	SSE	SSW	W	SSW	NW	SW	NNW	E	SSW	SW	SW	SW	S	SW	WNW	SSW	E	---	---
07	W	WNW	N	WNW	SW	SSW	WNW	SSW	SW	WNW	SW	W	S	SSW	W	SSW	NNW	W	NNE	E	SSW	SSW	SW	SW	S	SSW	NW	N	E	---	---
08	WNW	NW	N	N	W	SSW	NW	SSW	SW	WNW	SW	W	S	SSW	WSW	SSW	NNW	WNW	N	S	SSW	SSW	SW	SW	S	S	NW	WNW	ESE	---	---
09	WNW	WNW	N	N	WNW	SW	WNW	SSW	W	WNW	SW	WNW	S	SSW	W	SSW	NW	WNW	N	WSW	SSW	SW	SW	SSW	S	SSE	NW	W	SE	---	---
10	WSW	SW	N	N	WNW	SW	WNW	SSW	W	WNW	SW	NW	SW	SSW	W	SSW	NW	WNW	NNW	W	SW	SSW	SW	SSW	S	S	WNW	NW	SE	---	---
11	WSW	SSW	N	N	W	SW	NW	SW	W	WNW	SW	N	WSW	S	WSW	SSW	WNW	WNW	W	SSW	SW	SSW	SW	SSW	S	S	NW	NW	SSE	---	---
12	SW	SSW	N	NNE	W	SW	WNW	SW	WNW	NW	SW	N	SW	S	WSW	SSW	WNW	WNW	W	SSW	SW	SW	SW	SSW	S	ENE	NW	NW	SSE	---	---
13	SW	SSW	N	NNE	WSW	SSW	WNW	SW	NW	NNW	SW	N	SSW	ESE	W	S	WNW	WNW	NW	SSW	SW	SW	SW	S	SSW	NE	NW	NW	SE	---	---
14	SW	S	N	NE	W	SW	WNW	SW	NNW	NNW	SW	N	SSW	ENE	W	S	NW	WNW	---	SSW	WSW	SW	SW	SSW	SW	ENE	NNW	NW	SSE	---	---
15	SW	S	N	NE	W	SW	NW	WSW	NNW	NNW	SW	N	S	SSW	WSW	S	NW	WNW	---	SW	WNW	SW	SW	SW	WSW	E	N	NW	SE	---	---
16	NW	S	N	ENE	W	SW	WNW	SW	NNW	NNW	WSW	N	S	NNE	SW	S	NW	WNW	---	SW	NW	SW	SSW	SW	W	E	N	NW	ESE	---	---
17	NW	S	N	NE	W	SW	WNW	SW	N	NNW	WSW	NNE	S	SSE	WSW	S	NNW	WNW	---	SW	NW	SW	SSW	SW	WSW	ENE	NNE	NW	ESE	---	---
18	NW	SSW	N	NE	WSW	SW	W	SW	N	N	SW	NE	ENE	SSW	WSW	SSW	NE	WNW	N	W	NNW	SW	SSW	W	W	ENE	NE	NNW	SE	---	---
19	NNW	SW	N	NE	WSW	SW	W	SW	S	NNW	SW	NE	S	SW	WSW	SSW	E	W	N	N	NW	WSW	SSW	N	NNW	ENE	ENE	N	SE	---	---
20	NNW	WNW	N	ENE	WSW	SW	SW	SSW	ENE	E	SW	NE	S	SW	SW	WSW	ESE	W	NE	N	NW	WSW	SSW	N	NW	E	ENE	N	SE	---	---
21	N	NW	N	E	SW	SW	SSW	SSW	E	S	WNW	E	S	SW	SSW	WSW	SE	WNW	NE	N	NW	SW	SSW	N	W	ESE	E	N	SE	---	---
22	N	NW	N	E	SW	SW	SSW	SSW	SSE	S	WNW	SE	S	W	SSW	WSW	SSE	WNW	NE	N	NW	SW	SSW	NW	SW	S	E	NNE	ESE	---	---
23	N	NW	N	E	SW	SW	SSW	SSW	SSW	SSW	SW	ESE	S	WNW	SSW	WSW	SSE	W	NE	N	WNW	SW	SSW	NW	WSW	SW	E	NNE	ESE	---	---
24	N	WNW	N	E	SW	SW	SSW	SSW	SSW	SW	SSW	E	S	WNW	SSW	WSW	SSE	WNW	NNE	NNW	SSW	SW	WSW	NW	WSW	W	E	NNE	ESE	---	---

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GILLETTE

MONTH/YEAR DEC 74

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CHARACTER														DAY																	MONTH																	YEAR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR DEC 74

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NW
02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NW
03	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NW
04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NW
05	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NW
06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	WNW
07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	N
08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NW
09	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	WNW
10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	WNW
11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	WNW
12	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	WNW
13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	WNW
14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	W
15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	N	W
16	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NNW	J
17	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NNW	SW
18	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NNW	SW
19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NNW	WSW
20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NNW	WSW
21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NNW	WSW
22	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NW	WSW
23	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NW	WSW
24	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NW	WSW

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GILLETTE

MONTH/YEAR JAN 75

	DAY																															
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
01	09	06	09	07	06	11	04	10	--	--	--	--	--	05	06	10	--	05	08	11	13	10	09	13	08	02	07	08	08	06	08	
02	08	07	09	08	07	11	03	14	--	--	--	--	--	03	05	11	--	04	07	11	11	08	07	14	07	03	06	08	06	06	10	
03	06	08	10	07	08	07	04	14	--	--	--	--	--	03	04	12	--	03	06	11	11	08	05	13	06	05	--	06	05	06	12	
04	05	09	08	08	08	09	03	--	--	--	--	--	--	01	04	--	--	02	04	12	10	07	06	10	05	06	--	06	06	05	11	
05	04	09	10	09	09	08	02	--	--	--	--	--	--	03	03	--	--	02	04	12	10	06	05	07	06	06	--	06	07	04	11	
06	05	11	11	07	07	08	03	--	--	--	--	--	--	04	05	--	--	04	04	12	10	08	04	08	06	06	--	06	07	05	08	
07	06	09	11	11	06	09	03	--	--	--	--	--	--	07	07	--	--	05	07	13	10	07	02	09	08	07	--	06	06	07	08	
08	08	13	12	10	05	10	03	--	--	--	--	--	--	06	06	--	--	09	08	12	09	06	02	10	08	09	--	03	05	07	09	
09	08	14	11	08	05	10	03	--	--	--	--	--	--	05	05	--	--	12	09	10	09	07	03	09	08	09	--	02	06	06	09	
10	08	13	11	11	05	09	03	--	--	--	--	--	--	05	07	--	--	13	09	08	09	08	03	10	08	09	--	04	07	06	07	
11	09	12	09	13	06	07	05	--	--	--	--	--	--	08	08	--	--	10	10	06	09	08	05	10	08	07	--	05	05	05	07	
12	09	12	07	13	06	09	06	--	--	--	--	--	--	11	07	--	--	12	09	06	08	08	05	12	08	06	--	07	05	04	07	
13	06	11	06	13	06	08	05	--	--	--	--	--	--	08	06	--	--	13	09	06	07	08	05	12	09	05	--	08	06	04	06	
14	05	11	07	14	03	09	05	--	--	--	--	--	--	04	05	--	--	13	08	07	06	08	06	12	08	06	--	08	04	03	06	
15	04	10	10	13	04	07	05	--	--	--	--	--	--	02	04	--	--	10	07	10	06	11	06	11	07	05	--	08	09	02	04	
16	04	09	09	12	04	05	05	--	--	--	--	--	--	01	04	--	--	10	07	13	05	12	08	11	07	06	04	08	07	01		
17	06	08	07	08	05	04	06	--	--	--	--	--	--	05	01	03	--	--	10	08	11	03	12	09	09	05	06	04	09	10	02	03
18	10	07	07	06	06	03	06	--	--	--	--	--	--	05	02	01	--	--	10	09	12	05	12	10	07	05	07	05	08	10	03	05
19	12	07	09	05	08	03	06	--	--	--	--	--	--	06	03	02	--	--	10	09	11	08	11	11	07	03	08	05	07	07	04	07
20	13	07	09	04	09	03	05	--	--	--	--	--	--	06	05	03	--	--	10	10	11	10	11	12	07	03	09	07	07	05	04	07
21	10	07	09	04	10	02	06	--	--	--	--	--	--	06	05	05	--	04	10	11	10	12	12	12	08	04	10	05	07	04	04	07
22	09	07	08	04	10	03	08	--	--	--	--	--	--	08	05	07	--	04	07	11	10	10	12	10	08	02	09	05	07	05	04	12
23	08	07	07	06	10	02	08	--	--	--	--	--	--	06	05	08	--	04	07	12	11	12	11	10	07	01	09	05	09	05	07	11
24	08	09	07	06	10	04	09	--	--	--	--	--	--	05	06	09	--	05	08	12	12	11	10	12	08	01	08	07	08	06	07	13

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C-34

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR JAN 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	WSW	W	WSW	W	W	WSW	ESE	SW	NNW	NW	NNW	NW	NNW	---	SE	SSW	W	W	NW	WSW	NW	WSW	WSW	NW	WNW	ESE	NNW	S	NW	NW	SSE
02	SW	NW	WSW	WSW	WNW	WSW	SSE	SW	N	NW	NNW	NW	NNW	---	SE	SSW	WSW	W	NW	WSW	NNW	WSW	W	NW	NW	E	NNW	S	WNW	NW	SE
03	SW	NNW	SW	SW	WNW	W	ENE	SW	NNW	WNW	NNW	NW	NNW	---	E	SSW	WSW	WNW	NW	WSW	NW	WSW	W	NW	WNW	E	NNW	S	W	NW	SSE
04	SW	NNW	SW	SW	NW	WSW	NE	WSW	N	W	NNW	NW	NW	---	ENE	S	WSW	WSW	WNW	WSW	NW	W	W	NNW	WNW	E	NNW	S	W	NW	SSE
05	SW	NNW	WSW	SW	NW	WSW	E	WSW	NNW	W	NNW	W	WNW	---	NNE	S	SW	S	W	WSW	NW	W	W	NNW	WNW	E	NW	S	W	NW	SSE
06	SW	NNW	WSW	S	NNW	WSW	ENE	WSW	NNW	W	NW	W	WNW	---	NNW	S	SW	S	WSW	WSW	NW	W	W	NNW	WNW	ESE	WNW	S	W	NW	S
07	SSW	NNW	WSW	SSW	NW	WSW	N	WSW	NNW	WNW	NNW	WSW	WNW	---	NNW	S	SW	S	WSW	WSW	NW	W	W	WNW	WNW	ESE	WNW	S	W	NW	SSE
08	SW	NNW	WSW	SSW	NW	WNW	NNW	WSW	NNW	WNW	NNW	WSW	W	---	N	S	WSW	SSW	WSW	WSW	NNW	WSW	WSW	NW	WNW	SE	W	SSW	WSW	NW	S
09	SW	NNW	WSW	SSW	NW	NNW	NW	WSW	NNW	NW	NNW	WSW	W	---	N	S	WSW	WSW	WSW	W	NW	SW	WSW	NW	WNW	SE	WNW	SW	SSW	WNW	S
10	SW	NNW	WSW	SW	WNW	NW	WNW	WSW	NNW	WNW	NW	SW	W	---	N	SSW	WSW	WSW	WSW	WSW	NW	SW	SW	NNW	WNW	SE	W	NW	SSW	WNW	S
11	SSW	NNW	W	WSW	WNW	WNW	W	WSW	N	W	NNW	SW	SW	---	N	SW	WSW	W	WSW	W	NW	SW	SSW	NW	WNW	SSE	W	N	S	NW	S
12	SW	NNW	W	WSW	WNW	WNW	WNW	WSW	NNW	W	NW	SW	SW	---	N	SW	WSW	NW	WSW	WSW	WNW	SW	SSW	NW	WNW	SE	WSW	NNW	S	NW	SW
13	SSW	NNW	W	WSW	W	NW	WNW	WSW	N	WNW	NW	SW	SW	---	NNE	W	W	N	WSW	WNW	WNW	SW	SSW	NW	WNW	SE	W	NNW	S	NW	W
14	S	NNW	NW	WSW	WSW	NW	W	WSW	N	WNW	NW	SW	SW	---	N	W	WNW	N	WSW	NW	WNW	WSW	SW	NW	WNW	ESE	WSW	N	S	NW	WNW
15	S	NW	NNW	WSW	S	WNW	W	WSW	N	NNW	NW	SW	SW	---	N	NNW	NW	N	WSW	NW	W	WSW	SW	NNW	WNW	E	SW	NNW	S	N	WNW
16	S	NW	NNW	WSW	S	WNW	W	SW	NNE	N	NW	WSW	SW	---	NNE	NW	NNW	NNW	WSW	NNW	WNW	WSW	SW	NW	WNW	NNE	SSW	NW	S	ENE	
17	S	NW	NNW	WNW	S	W	WSW	WSW	NE	N	NW	WSW	---	ESE	NNE	WNW	NW	NW	WSW	NNW	WSW	WSW	SW	NW	NW	NNE	S	NW	S	ESE	ENE
18	S	WNW	NW	NW	S	NNW	WSW	WSW	NNE	N	NW	WSW	---	SE	NW	WNW	NNW	NW	WSW	NNW	SW	WSW	SW	NW	WNW	N	S	NW	S	ESE	S
19	S	WNW	WNW	***	SW	E	WSW	WNW	NNE	N	NW	WSW	---	SE	W	W	NW	NNW	SW	NNW	SW	WSW	WSW	NW	NW	N	S	NW	SSW	SE	S
20	S	WNW	WNW	***	WSW	NE	WSW	NNW	NNE	NNE	NW	WSW	---	SSE	SW	W	N	NW	WSW	NNW	SW	WSW	WSW	WNW	WNW	N	S	NW	W	SSE	S
21	S	W	WNW	NNW	WSW	NNE	WSW	NNW	N	NNE	NW	WSW	---	SSE	SW	WNW	NW	NW	WSW	NNW	SSW	WSW	WSW	WNW	W	N	S	WNW	W	S	S
22	SSW	W	WNW	WNW	WSW	NNE	WSW	NNW	NNW	NNE	NNW	W	---	SSE	SSW	WNW	W	NW	WSW	NNW	SW	WSW	WSW	WNW	W	N	S	WNW	WNW	S	S
23	SSW	W	W	W	WSW	E	SW	NNW	N	NNW	NNW	W	---	SSE	SSW	WNW	WNW	NW	WSW	NNW	WSW	WSW	WNW	WNW	W	N	SSE	WNW	NW	SE	S
24	SW	WSW	W	W	WSW	SSE	SW	NNW	NNW	NNW	NW	WNW	---	SE	SSW	W	WNW	NW	WSW	NNW	WSW	WSW	NNW	NW	ENE	N	S	WNW	NW	SSE	S

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C-35
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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

H C-36 U R	STATION - GILLETTE														MONTH/YEAR FEB 75																
															DAY																
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	14	21	23	14	12	15	09	05	10	07	04	03	08	06	05	07	05	04	10	12	11	08	06	08	06	06	07	08			
02	15	22	22	13	13	18	07	04	09	06	03	02	08	04	05	07	07	04	09	12	11	07	07	07	06	07	06	07			
03	16	23	15	14	13	14	05	04	10	04	03	01	06	04	04	07	05	05	10	13	12	07	--	07	06	06	07	06			
04	16	23	11	15	14	--	05	04	10	03	03	00	05	04	03	07	05	05	09	15	13	08	06	07	07	05	11	07			
05	16	22	13	14	15	--	04	05	12	02	05	01	01	04	01	08	04	06	08	15	14	07	06	09	07	05	12	07			
06	16	22	12	15	15	--	06	05	12	03	--	02	03	02	01	08	03	05	07	14	14	07	04	07	08	04	13	07			
07	17	21	14	14	15	--	04	05	12	02	--	--	05	04	01	07	03	05	06	10	14	07	05	07	08	03	12	06			
08	17	21	15	14	13	--	03	04	13	05	--	--	06	03	02	07	04	05	07	10	14	06	07	05	08	02	12	06			
09	17	22	15	13	14	--	01	05	12	05	--	--	06	03	02	07	05	05	06	08	14	06	08	07	08	03	12	05			
10	16	22	14	13	15	--	02	05	13	05	--	--	07	04	02	06	06	04	05	08	15	05	06	07	08	03	13	05			
11	16	22	14	13	14	--	06	05	12	04	--	--	08	05	02	04	07	05	03	07	15	05	06	06	08	03	14	04			
12	19	22	14	13	15	--	07	05	13	05	--	--	09	05	04	03	08	06	03	06	14	06	09	06	08	03	15	04			
13	20	23	13	13	15	--	08	06	13	04	--	--	11	03	04	03	08	06	04	05	14	06	11	07	07	04	14	05			
14	20	24	15	13	15	--	08	06	12	07	--	--	06	03	04	05	08	07	05	04	13	07	09	07	07	04	13	06			
15	19	23	15	13	14	--	08	06	12	06	--	--	04	07	04	06	08	07	05	02	13	07	05	09	08	04	13	07			
16	20	24	14	13	15	--	07	04	12	05	06	07	02	07	04	06	08	07	04	05	12	07	06	13	08	05	12	06			
17	20	25	15	13	16	06	06	04	11	05	06	07	07	07	04	07	08	05	05	05	11	08	06	13	08	06	12	05			
18	20	22	16	13	14	06	06	04	12	06	07	08	06	07	05	06	07	05	06	07	09	06	05	12	08	07	08	07			
19	19	21	17	13	15	08	07	06	13	06	07	08	06	06	06	06	05	05	07	09	07	06	05	09	08	08	08	06			
20	19	24	15	14	15	10	06	08	13	06	08	08	06	07	06	07	05	05	09	10	07	07	05	11	07	08	05	05			
21	20	24	15	13	15	10	06	07	13	05	09	08	06	07	05	08	04	06	09	11	07	06	05	10	07	08	07	05			
22	21	25	15	13	16	11	05	08	12	04	06	10	05	06	07	07	04	09	10	12	07	06	05	08	08	09	07	04			
23	20	24	14	13	16	11	05	08	11	05	03	09	06	06	07	06	03	10	08	11	07	06	05	07	07	09	07	04			
24	21	23	13	12	14	10	05	10	08	05	03	09	06	05	06	06	03	10	08	11	08	06	06	06	07	07	07	04			

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR FEB 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	S	SW	WSW	NNE	N	W	WSW	NE	SSW	N	W	N	WSW	N	N	S	NW	WNW	WSW	SW	NW	WNW	W	W	NW	WNW	W	WNW	---	---	---
02	S	WSW	WSW	NNE	N	W	W	NE	S	N	WNW	NNE	WSW	N	N	S	NNW	W	WSW	SW	NW	WNW	WNW	W	NW	WNW	W	WNW	---	---	---
03	S	WSW	NW	N	N	W	W	NE	S	WNW	WNW	ENE	WSW	N	N	S	NNW	W	WSW	SW	NW	W	---	W	WNW	WNW	WNW	WNW	---	---	---
04	S	SW	NNW	N	N	W	W	NNE	S	NW	WNW	NE	WSW	N	NNE	S	NNW	W	WSW	WSW	NW	W	WNW	W	WNW	W	NW	W	---	---	---
05	S	SW	N	NNE	N	W	WNW	N	SSW	WNW	WSW	ESE	S	N	NE	S	N	W	WSW	WSW	NW	W	WNW	W	WNW	W	NW	W	---	---	---
06	S	SSW	NNE	NNE	N	W	NNW	NNE	SSW	SW	SW	ESE	S	NE	N	S	N	WSW	WSW	WSW	NW	W	NW	W	WNW	WSW	NW	W	---	---	---
07	S	SSW	N	NNE	NNW	W	NNW	NNE	SW	S	SW	SSE	S	NE	NW	S	NW	W	WSW	WSW	NW	W	NW	W	WNW	WSW	NW	W	---	---	---
08	S	SSW	N	NE	NNW	W	NNW	NNE	SW	S	NNW	SSW	SSW	ENE	WNW	S	WNW	W	WSW	WSW	NW	W	NW	W	WNW	SSW	NW	W	---	---	---
09	S	SW	N	NNE	NNW	W	NW	N	WSW	S	N	E	SSW	NE	W	S	WNW	W	WSW	WSW	NW	WNW	NW	W	WNW	S	NW	W	---	---	---
10	S	SSW	N	NNE	NNW	WNW	N	N	WSW	S	E	S	SSW	NNE	WSW	S	WNW	WSW	WSW	WSW	NW	W	NW	W	NW	SSE	NW	WSW	---	---	---
11	S	SW	N	NNE	NNW	WNW	NNE	N	WSW	SSE	E	WSW	SW	NNE	SSW	S	NW	W	WSW	WSW	NW	W	NW	W	NNW	SSW	NW	W	---	---	---
12	SSW	SW	N	NNE	NW	WNW	NNE	NNW	WSW	SSE	ESE	WSW	WSW	NNE	SSW	S	NW	W	W	WSW	NW	W	NNW	W	N	SSW	NW	WNW	---	---	---
13	SW	SW	N	NNE	NW	W	NNE	NW	WSW	S	S	WSW	WSW	ENE	SSW	S	NW	WNW	W	W	NW	W	NNW	WNW	N	SW	NW	WNW	---	---	---
14	WSW	SW	N	N	NW	W	NNE	NW	WSW	SSW	SSW	SSW	SSW	ENE	S	NW	NW	WNW	WSW	WNW	NNW	WNW	NNW	NW	N	WSW	NW	NW	---	---	---
15	WSW	SSW	NNE	N	NW	W	NNE	NW	WSW	S	WSW	S	S	NNE	S	NW	NW	WNW	WSW	WNW	NW	NW	N	NW	N	WSW	NNW	NNW	---	---	---
16	W	SSW	NE	N	NW	WSW	NNE	WNW	WSW	S	WSW	SSW	SSW	NNE	S	NNW	NW	NW	SW	N	NW	NW	N	NW	N	WSW	NNW	NNW	---	---	---
17	W	SW	NNE	N	NW	WSW	NNE	WNW	WSW	S	WSW	S	WSW	NNE	S	NNW	NNW	NW	SSW	NNW	NW	NW	NNW	NNW	N	SW	NW	NNW	---	---	---
18	W	SW	NNE	NNE	WNW	SW	NNE	W	WSW	S	WSW	SSW	W	N	S	NNW	NNW	WNW	SSW	NNW	NW	WNW	NNW	N	N	SSW	NW	NNW	---	---	---
19	W	SW	NNE	NE	WNW	WSW	NNE	WSW	WSW	SSW	WSW	SSW	W	N	S	NNW	NW	W	SSW	NW	NW	WNW	NW	N	NNW	SSW	NW	NNW	---	---	---
20	WSW	SW	NNE	NNE	WNW	WSW	NNE	SW	WSW	SSW	W	SSW	NW	N	S	NW	NW	W	SW	NW	NW	WNW	NW	N	NW	S	WNW	NNW	---	---	---
21	WSW	SW	NNE	NNE	WNW	WSW	NNE	SW	WSW	SSW	WSW	SW	NNW	N	S	NNW	NW	W	SW	NNW	NW	W	NW	N	WNW	SSW	WNW	WNW	---	---	---
22	WSW	SW	NNE	NNE	WNW	WSW	NNE	SSW	WSW	WSW	NW	WSW	NNW	N	S	NNW	WNW	WSW	SW	NW	WNW	W	WNW	N	WNW	SW	WNW	WNW	---	---	---
23	WSW	SW	NNE	N	WNW	WSW	NNE	SSW	W	W	N	W	NNW	N	S	NW	NW	WSW	SSW	NW	WNW	W	WNW	NNW	WNW	WSW	WNW	NW	---	---	---
24	WSW	WSW	NNE	N	W	WSW	NE	SSW	NNW	W	NNE	W	N	N	S	NW	WNW	WSW	SW	NW	WNW	W	W	NW	WNW	W	WNW	NNW	---	---	---

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WST(MS)

STATION - GILLETTE

MONTH/YEAR MAR 75

	STATION														DAY																
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	04	--	05	04	02	--	--	05	03	04	04	05	06	04	06	06	--	08	10	05	04	05	09	06	03	12	07	09	05	05	06
02	04	--	04	04	01	--	--	05	03	04	02	05	06	03	07	08	--	07	11	05	03	05	09	06	03	11	07	09	05	06	08
03	04	--	04	05	01	--	--	06	04	04	03	04	05	03	07	07	--	07	11	05	02	05	10	06	04	11	07	09	05	06	07
04	04	--	02	05	02	--	--	06	06	04	03	05	06	03	07	07	--	05	10	06	02	05	09	06	06	05	08	08	05	07	06
05	04	--	03	05	02	--	--	08	07	03	02	04	06	03	06	07	--	05	08	07	03	05	11	05	05	03	07	08	05	07	06
06	05	--	03	04	01	--	--	06	07	03	02	06	05	04	03	07	--	05	07	07	03	06	10	04	04	04	08	07	04	07	--
07	06	--	04	04	02	--	--	08	06	05	04	06	03	04	02	07	--	06	05	06	03	06	10	04	05	05	07	09	05	07	--
08	06	--	04	04	01	--	--	08	06	05	04	06	03	04	03	06	--	07	03	05	03	05	11	04	06	06	08	09	05	--	--
09	06	--	04	03	02	--	--	07	05	05	05	05	03	02	03	07	--	07	03	05	02	05	12	04	06	06	09	09	05	--	--
10	06	--	04	03	02	--	--	08	06	04	06	04	03	02	02	06	--	06	04	05	02	05	11	05	07	06	10	09	05	--	--
11	05	--	03	04	02	--	--	08	06	03	07	03	03	03	02	05	--	06	03	04	01	05	11	04	09	06	10	09	05	--	--
12	06	--	05	03	02	--	--	08	05	02	07	03	02	02	03	06	--	05	03	05	01	04	11	04	10	06	09	10	06	--	--
13	05	--	06	02	03	--	--	08	05	03	07	02	03	02	--	06	--	06	02	08	01	06	10	04	10	06	10	09	06	--	--
14	05	--	06	02	03	--	--	08	05	03	08	02	03	06	--	--	--	06	01	05	02	08	11	05	11	06	10	09	07	--	--
15	04	--	05	02	03	--	--	08	04	02	08	02	03	05	--	--	--	05	01	04	02	06	11	06	10	06	10	09	09	--	
16	04	--	05	02	04	--	--	07	04	02	07	02	03	04	--	--	--	03	02	04	02	05	10	06	11	06	11	09	09	08	--
17	03	--	05	02	--	--	--	07	04	02	07	03	01	03	--	--	02	04	03	05	03	08	10	06	11	06	10	08	07	08	--
18	03	--	04	02	--	--	--	07	04	02	06	04	01	02	--	--	05	05	04	05	03	08	09	06	12	06	11	07	07	08	05
19	04	--	03	03	--	--	--	05	04	02	05	03	01	02	04	--	04	04	05	05	05	08	08	05	12	06	11	07	06	07	05
20	04	03	02	03	--	--	05	05	03	03	04	04	01	02	05	--	04	06	05	05	06	08	08	04	12	05	11	06	05	07	05
21	04	03	01	02	--	--	04	04	03	03	05	05	02	02	05	--	03	08	05	05	06	08	07	03	11	05	11	05	03	06	05
22	03	03	01	02	--	--	04	03	03	03	05	05	02	02	05	--	05	09	04	05	06	08	06	03	13	06	11	04	03	06	05
23	04	04	02	02	--	--	05	01	03	04	05	05	03	03	05	--	05	10	05	05	06	08	06	02	13	06	10	04	04	04	04
24	--	04	03	03	--	--	06	04	03	04	04	05	04	04	06	--	06	11	05	05	05	08	05	02	13	07	10	05	05	06	04

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR MAR 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
01	NW	---	S	SSW	NE	---	---	SSE	NNE	SE	S	W	S	SSE	---	S	---	WSW	WSW	S	NE	S	NW	NW	SE	SSE	N	NW	W	WSW	NW	
02	NW	SSE	S	SSW	NE	---	---	SE	NNW	SE	S	W	S	SSE	---	S	---	WSW	WSW	S	NNE	S	NW	NW	SSE	SSE	N	NW	W	WSW	NNW	
03	NW	---	S	SSW	ENE	---	---	SSE	NNW	SSE	SSE	W	S	S	---	SSW	---	WSW	WSW	S	N	S	NNW	NW	SSE	SSE	N	NW	W	WSW	NNW	
04	NW	---	SSW	SSW	---	---	---	SSE	N	S	SSE	W	S	S	---	SSW	---	W	WSW	S	NNW	S	NNW	NW	S	S	NNW	NW	W	WSW	N	
05	WNW	---	WSW	SSW	---	---	---	SSE	N	S	SE	WSW	S	S	---	SSW	---	W	W	S	NW	S	NNW	NNW	S	W	N	NW	W	WSW	N	
06	WNW	---	WNW	SW	---	---	---	S	N	S	E	W	SSW	S	---	SSW	---	W	N	SW	NNW	S	NNW	N	S	NNW	NNW	NNW	W	WSW	-	
07	WNW	---	WNW	SW	---	---	---	S	N	SSE	NNE	W	WSW	---	---	SW	---	W	NNW	WSW	NNW	SSE	NNW	N	S	NNW	NNW	NW	W	WSW	---	
08	WNW	---	WNW	WSW	---	---	---	S	NNE	SSE	NNE	W	W	---	---	SW	---	WSW	NW	W	N	S	NNW	NNW	S	NNW	NNW	NW	W	---	---	
09	W	---	WNW	WSW	---	---	---	S	NNE	SSE	NNE	W	WNW	---	---	WSW	---	WSW	W	W	N	S	NNW	NW	S	NNW	NNW	NW	W	---	---	
10	W	---	WNW	WNW	---	---	---	S	N	SSE	NNE	WSW	WNW	---	---	S	WSW	---	W	W	W	N	S	NNW	NNW	SSE	N	NNW	NW	W	---	---
11	WNW	---	NW	NNW	---	---	---	S	N	S	N	WSW	NW	---	---	S	WSW	---	W	NNW	W	NNW	S	NNW	N	SSE	N	NNW	NW	W	---	---
12	WNW	---	NW	N	---	---	---	S	N	S	NNE	SSW	NNW	---	---	S	WSW	---	W	N	WNW	WSW	S	NNW	NNW	SSE	N	NNW	NNW	W	---	---
13	WNW	---	NNW	NNE	---	---	---	S	N	S	N	SSW	N	---	---	WSW	---	W	NNW	W	WSW	SSW	N	N	SSE	N	NNW	NNW	NW	---	---	
14	NW	---	NNW	NNE	---	---	---	S	N	S	N	SSW	NNE	---	---	---	---	W	NE	NNW	SSW	WSW	NNW	N	SSE	N	NNW	NNW	NNW	---	---	
15	NW	---	NNW	NNE	---	---	---	S	NNE	S	N	S	NNE	---	---	---	---	WNW	E	N	S	NW	NNW	N	SSE	N	NNW	NNW	NNW	---	---	
16	NW	---	NNW	NE	---	---	---	S	NNE	S	N	S	NNE	---	---	---	---	WNW	E	N	S	NNW	N	N	SSE	N	NNW	NNW	NNW	WSW	---	
17	NNW	---	N	ENE	---	---	---	S	NNE	S	N	SSE	NE	---	---	---	---	W	W	E	NNW	S	NNW	N	N	SSE	N	NNW	NNW	N	WSW	---
18	N	---	N	ENE	---	---	---	SSE	NE	S	N	SSE	E	---	---	---	---	W	WSW	E	N	SSE	NNW	N	N	SSE	N	NNW	NNW	NNW	WSW	NE
19	NNE	---	N	ENE	---	---	---	SSE	NE	SSE	N	SSE	ESE	---	---	S	---	WSW	SSW	ESE	N	SE	NNW	N	N	SSE	N	NNW	NNW	NNW	WSW	NE
20	ENE	S	N	E	---	---	---	ESE	SSE	ENE	SSE	NNW	SSE	SSE	---	S	---	WSW	SSW	ESE	N	SSE	NNW	N	NE	SSE	N	NNW	NNW	N	NW	NE
21	E	S	W	E	---	---	---	SE	SSE	E	S	NW	S	SSE	---	S	---	SSW	SW	ESE	N	SSE	NW	N	ENE	SSE	N	NNW	NW	NNW	NNW	NE
22	ESE	S	WSW	E	---	---	---	SE	SSE	E	S	NW	S	ESE	---	S	---	SSW	WSW	S	N	SSE	NW	NNW	E	SSE	N	NW	WNW	WNW	NNW	NE
23	SE	S	SSW	NNE	---	---	---	SE	N	E	SSE	WNW	S	SE	---	S	---	WSW	WSW	S	N	SSE	NNW	NNW	E	SSE	N	NW	W	W	NW	NE
24	---	S	SSW	NNE	---	---	---	SSE	NNE	E	S	WNW	S	SE	---	S	---	WSW	WSW	S	N	S	NW	NNW	ESE	SSE	N	NW	W	W	NW	NE

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GILLETTE

MONTH/YEAR APR 75

DAY

C-40
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	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
01	04	05	07	04	06	03	04	05	01	02	02	07	03	05	03	05	04	03	04	03	03	04	01	07	05	05	04	09	08	05
02	03	04	07	05	06	03	03	05	01	02	02	07	03	04	04	06	03	04	04	03	03	04	02	05	05	05	04	08	07	05
03	03	04	07	05	05	02	04	05	01	02	02	07	03	04	04	05	02	05	04	03	04	04	03	05	05	05	03	08	09	05
04	02	04	07	07	05	03	04	06	02	01	02	07	03	04	03	05	03	06	03	03	03	04	03	06	05	04	02	08	09	06
05	02	06	07	05	05	03	04	05	02	01	02	06	03	02	03	05	03	06	04	04	03	04	03	05	05	04	01	07	08	05
06	02	05	07	04	04	02	05	05	02	01	02	06	02	03	04	05	04	06	04	04	04	04	03	06	06	03	01	07	08	06
07	02	04	07	06	04	02	05	06	01	01	02	06	01	04	04	04	05	06	05	03	04	04	03	06	06	04	01	08	08	05
08	01	05	06	06	03	02	04	06	01	02	02	04	02	04	04	04	06	05	04	02	05	04	02	05	06	02	02	08	08	05
09	01	04	06	07	02	02	04	06	01	02	01	04	01	04	04	04	06	05	04	02	05	04	03	05	06	02	02	09	08	06
10	01	05	06	07	01	02	05	05	01	02	01	03	01	02	04	04	06	05	04	02	04	03	03	05	05	04	03	09	08	06
11	01	04	06	06	01	02	05	05	01	02	01	02	01	01	04	04	07	05	05	02	04	02	02	04	05	06	01	10	08	06
12	01	03	06	06	01	02	04	04	02	02	01	03	01	01	03	03	07	06	05	03	04	02	02	03	05	06	02	10	08	07
13	02	02	05	05	02	03	04	05	02	02	01	03	01	01	03	03	08	07	05	03	04	03	02	02	06	06	03	10	08	06
14	02	02	08	05	02	03	05	04	02	02	01	05	01	01	03	02	07	08	04	03	05	02	02	02	07	07	04	09	08	06
15	03	03	08	05	03	03	04	04	02	02	01	05	01	01	03	02	07	09	05	05	05	02	01	02	08	04	02	09	08	06
16	03	04	08	05	03	04	05	03	02	03	01	06	02	01	02	03	07	07	04	05	05	03	02	02	06	03	01	09	07	05
17	03	05	07	05	04	04	05	03	02	03	02	06	02	03	02	04	06	08	03	07	05	03	03	02	06	02	02	08	06	05
18	03	05	08	04	04	05	05	02	02	03	02	05	01	03	02	03	05	07	02	06	04	03	04	04	07	04	02	08	07	04
19	03	05	07	03	04	04	05	02	02	03	01	06	02	03	02	04	06	08	02	04	04	02	04	04	05	05	04	08	06	04
20	03	05	06	02	04	03	05	01	02	03	01	05	02	03	02	04	06	05	01	03	05	02	08	05	04	04	04	08	06	03
21	04	05	06	02	04	01	05	01	02	02	02	04	03	02	03	02	06	06	01	02	05	02	05	06	02	04	04	07	06	04
22	05	05	06	03	04	03	05	01	02	02	02	03	02	02	04	03	06	05	02	01	05	01	03	05	04	04	05	08	05	03
23	05	06	06	05	03	03	06	01	02	02	04	03	03	02	04	05	05	04	03	02	05	01	05	04	05	05	06	08	06	03
24	05	06	06	06	04	04	06	01	02	01	06	04	05	02	05	06	04	04	03	02	04	02	06	05	05	05	07	08	05	03

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR APR 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
01	NE	SSW	WSW	S	N	NE	NNE	NW	WNW	N	N	SSW	N	S	N	S	N	N	NW	S	W	S	E	---	S	WNW	N	NW	NW	NW	---
02	NE	WSW	WSW	S	N	NNE	N	NW	WNW	NE	N	SSW	NNE	S	N	S	N	NNW	WNW	S	W	S	SSE	---	S	WNW	N	NNW	NW	NW	---
03	NE	WSW	WSW	S	NNW	N	N	NNW	N	NE	NNE	SSW	N	S	N	S	NW	NNW	WNW	S	WSW	S	---	---	S	WNW	NNW	NNW	NW	NW	---
04	NE	SW	WSW	SSW	N	NNE	N	NNW	NE	NE	NNE	SW	N	S	NNE	S	NW	NNW	W	S	WSW	S	---	---	S	WNW	N	NNW	NW	NW	---
05	NNE	WSW	WSW	SSW	N	NNE	NNE	NW	ENE	N	NNE	SW	NNE	SSE	NNE	S	NNW	NW	W	S	WSW	S	---	---	S	WNW	NNE	NNW	NW	NW	---
06	NNE	W	WSW	SSW	N	N	N	NW	ENE	N	NE	SW	N	S	NNE	S	NW	NW	W	S	WSW	S	---	---	S	W	N	NW	NW	NW	-
07	N	W	SW	SSW	N	NNE	N	NW	NW	N	NNE	WSW	N	S	NNE	S	NW	NW	W	S	SSW	S	---	---	S	W	WSW	NW	NNW	NW	---
08	NNW	WSW	SW	SW	N	NE	N	WNW	NNW	N	NNE	W	NNE	S	NNE	S	N	NNW	W	S	S	S	---	---	S	SW	E	NW	NW	NW	---
09	N	W	SW	WSW	N	ENE	NNW	WNW	NW	N	NNE	W	NNW	SSW	NNE	S	N	NNW	WNW	S	S	S	---	---	S	SSW	SSE	NW	NW	NW	---
10	S	WSW	SW	WSW	NNW	E	NNW	WNW	N	N	WNW	W	WNW	SW	NNE	S	N	NNW	WNW	W	S	SSW	---	---	S	WSW	WSW	NW	NW	NW	---
11	S	WSW	SW	WSW	NW	ESE	NNW	WNW	N	N	E	WNW	W	WSW	NNE	S	N	NW	WNW	N	S	WNW	---	N	S	WSW	WSW	NW	NW	NW	---
12	S	WSW	SW	WSW	WNW	S	NNW	W	N	N	E	WNW	ESE	WSW	NNE	S	N	NW	WNW	N	S	NW	---	N	S	WSW	W	NW	NW	NW	---
13	S	W	SW	WSW	S	S	NNW	WNW	NNE	N	ENE	NW	S	SSW	NE	S	N	NW	WNW	N	S	NW	---	NNE	S	W	W	NW	NNW	NW	---
14	SSW	WSW	WSW	W	SSE	S	NNW	WNW	NNE	N	ESE	NW	SSE	ESE	NE	S	N	NW	WNW	N	S	NW	---	NNW	SSE	W	W	NW	NNW	NW	---
15	SSW	SW	SW	WSW	SSE	SSE	NNW	W	NE	N	WNW	NW	ESE	ESE	ENE	SW	N	NNW	WNW	NNE	S	NW	---	W	SSE	SW	SSW	NW	NNW	NW	---
16	SSW	SW	WSW	SW	SSE	SSE	NW	WNW	NNE	NNE	WNW	NNW	SE	E	ENE	WSW	N	NNW	WNW	NNE	S	NNW	---	SSE	SSE	SSW	E	NW	NNW	NNW	-
17	SSW	WSW	WSW	SSW	SE	SSE	NNW	W	NNE	NNE	WNW	NNW	SE	NE	E	W	N	NNW	NW	NNW	S	N	---	SE	SSE	SSW	N	NW	NNW	NW	---
18	SW	WSW	SW	SW	ESE	SE	NW	W	NNE	NNE	W	NNW	SE	NE	ESE	N	N	NNW	NNW	NNW	S	N	---	SE	SE	W	NNE	NW	N	NW	---
19	SW	WSW	SW	SW	ESE	SE	NW	WNW	N	NNE	NNW	NNW	SE	NE	SE	NNE	N	NNW	N	N	S	NNE	---	ESE	WSW	WNW	N	NW	N	NW	---
20	SW	WSW	SSW	SW	NE	SE	NW	SSW	N	NNE	E	NNW	SE	NE	SSE	N	N	NNW	ESE	N	SSE	N	---	SE	W	WNW	NNE	NW	NNW	WNW	---
21	SW	WSW	SSW	S	NNE	E	NW	S	N	NNE	SSE	N	SE	NE	SSE	NNE	N	N	SE	N	SSE	N	---	SE	NNW	NW	N	WNW	NNW	NW	---
22	SSW	WSW	SSW	NNW	NE	E	NW	S	N	NNE	ENE	N	SSE	N	S	N	N	NNW	SE	NNW	S	N	---	SSE	NW	WNW	N	NW	NW	WNW	---
23	SW	WSW	S	N	NE	NE	NW	WSW	NNW	NE	S	N	S	N	S	NNW	NNW	NNW	SE	NW	S	N	---	S	NW	NW	NNW	NW	NW	WNW	---
24	SW	WSW	S	N	NE	N	NNW	W	NNW	N	SSW	N	S	N	S	N	N	NW	ENE	W	S	NE	---	S	NW	NNW	NNW	NW	NNW	WNW	---

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GILLETTE

MONTH/YEAR MAY 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	03	04	04	05	03	06	07	03	02	02	03	07	04	04	05	04	06	03	04	04	--	01	03	03	04	01	04	03	02	02	07
02	03	02	04	06	04	06	05	03	02	02	03	07	04	03	05	06	05	03	05	05	--	02	03	03	04	03	03	04	02	02	08
03	03	01	06	05	04	06	05	03	01	02	03	07	04	02	05	05	04	02	05	04	--	04	02	04	04	04	03	04	02	05	08
04	03	02	07	05	04	05	05	02	01	03	02	07	04	04	04	04	04	02	05	04	--	04	03	05	02	04	01	04	02	06	06
05	03	03	06	06	04	05	06	02	02	02	02	07	04	03	05	04	03	02	05	05	--	03	03	05	03	06	02	05	02	07	05
06	03	03	06	06	04	05	07	02	03	02	02	08	04	02	05	03	03	03	04	05	--	03	03	05	04	04	03	04	03	05	06
07	03	03	06	05	05	05	06	02	02	02	02	07	03	01	05	03	02	04	03	04	--	03	03	05	04	04	03	03	03	04	05
08	02	02	05	06	05	06	06	02	02	02	01	06	03	01	03	03	02	04	04	04	--	04	03	06	04	04	03	03	03	04	07
09	02	03	04	04	05	06	06	02	02	04	01	05	02	01	03	03	02	04	04	04	--	03	04	06	04	04	04	03	04	03	08
10	01	03	04	04	05	06	05	02	02	04	01	04	02	01	03	03	02	03	04	04	--	03	04	07	05	03	03	03	05	04	07
11	01	03	03	05	04	05	04	01	03	04	01	04	01	01	03	02	02	03	04	04	--	02	02	07	05	04	03	04	05	07	07
12	01	03	03	05	04	06	04	02	02	05	03	04	01	01	03	01	01	02	03	04	--	03	02	08	06	05	02	04	--	12	07
13	01	02	03	06	05	05	05	02	03	04	03	04	02	01	03	01	01	02	03	05	--	03	02	09	06	06	03	04	--	13	07
14	01	02	03	06	05	05	04	02	02	04	02	05	03	01	03	01	02	02	04	04	--	03	01	09	05	06	01	05	09	13	06
15	02	03	04	05	04	03	03	04	02	05	02	05	03	02	03	01	03	02	06	04	--	04	02	09	03	06	01	04	08	14	06
16	02	03	04	05	04	05	02	03	02	05	03	04	04	02	02	02	02	02	07	04	--	04	04	09	04	06	02	04	08	14	06
17	02	03	04	05	06	06	04	04	02	05	04	05	04	02	02	02	02	02	07	03	03	04	04	10	03	06	02	02	08	09	12
18	02	02	05	05	07	04	03	04	01	05	03	04	03	02	02	02	03	03	06	02	02	04	03	09	04	05	03	02	08	09	08
19	02	02	04	05	07	03	03	03	01	04	04	04	04	02	02	02	03	02	06	03	02	05	04	08	04	04	03	01	07	07	03
20	03	00	04	04	06	06	04	06	02	04	05	03	03	03	03	03	04	02	06	03	02	04	02	07	03	05	04	02	07	06	05
21	03	01	03	04	05	06	04	02	03	04	05	03	03	04	05	05	03	03	06	--	02	04	01	06	02	04	05	02	06	07	05
22	05	03	01	03	06	05	03	03	04	03	04	03	02	04	03	03	02	03	05	--	02	05	01	06	01	03	06	02	03	08	06
23	05	03	01	03	06	05	04	03	03	04	05	04	02	04	05	07	03	03	05	--	03	03	02	06	01	03	04	02	03	06	04
24	05	03	04	03	06	06	03	04	01	04	06	04	03	05	05	07	04	03	05	--	02	03	03	05	02	03	03	02	02	05	02

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLET

MONTH/YEAR MAY 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
01	W	SE	---	---	---	---	---	---	ESE	---	---	---	---	---	---	---	---	---	---	---	---	SE	N	---	---	---	---	---	---	---	S	NW	
02	W	SSE	---	---	---	---	---	---	ESE	---	---	---	---	---	---	---	---	---	---	---	---	SSW	NNW	---	---	---	---	---	---	---	SW	NW	
03	W	---	---	---	---	---	---	---	SSE	---	---	---	---	---	---	---	---	---	---	---	---	SSE	NNW	---	---	---	---	---	---	---	SW	NW	
04	W	---	---	---	---	---	---	---	SSW	---	---	---	---	---	---	---	---	---	---	---	---	S	NW	---	---	---	---	---	---	---	SW	NNW	
05	W	---	---	---	---	---	---	---	SW	---	---	---	---	---	---	---	---	---	---	---	---	S	WNW	---	---	---	---	---	---	---	SW	NNW	
06	WSW	---	---	---	---	---	---	---	SSW	---	---	---	---	---	---	---	---	---	---	---	---	SSE	WNW	---	---	---	---	---	---	---	SW	N	
07	W	---	---	---	---	---	---	---	SSW	---	---	---	---	---	---	---	---	---	---	---	---	SSE	WNW	---	---	---	---	---	---	---	SSW	N	
08	WSW	---	---	---	---	---	---	---	WSW	---	---	---	---	---	---	---	---	---	---	---	---	S	W	---	---	---	---	---	---	---	SW	N	
09	WSW	---	---	---	---	---	---	---	W	---	---	---	---	---	---	---	---	---	---	---	---	S	W	---	---	---	---	---	---	---	SSW	N	
10	W	---	---	---	---	---	---	---	WNW	---	---	---	---	---	---	---	---	---	---	---	---	SSE	W	---	---	---	---	---	---	---	WNW	N	
11	W	---	---	---	---	---	---	---	W	---	---	---	---	---	---	---	---	---	---	---	---	S	NW	---	---	---	---	---	---	---	NNW	N	
12	W	---	---	---	---	---	---	---	WNW	---	---	---	---	---	---	---	---	---	---	---	---	S	NW	---	---	---	---	---	---	---	NNW	N	
13	WSW	---	---	---	---	---	---	---	WNW	---	---	---	---	---	---	---	---	---	---	---	---	S	NNW	---	---	---	---	---	---	---	NNW	N	
14	W	---	---	---	---	---	---	---	WSW	---	---	---	---	---	---	---	---	---	---	---	---	SSW	WSW	---	---	---	---	---	---	---	NNE	NNW	N
15	S	---	---	---	---	---	---	---	WSW	---	---	---	---	---	---	---	---	---	---	---	---	WSW	---	---	---	---	---	---	---	---	N	NNW	NNW
16	ENE	---	---	---	---	---	---	---	WSW	---	---	---	---	---	---	---	---	---	---	---	---	WSW	---	---	---	---	---	---	---	---	N	NNW	N
17	NNE	---	---	---	---	---	---	SE	WSW	---	---	---	---	---	---	---	---	---	---	---	---	E	SW	---	---	---	---	---	---	---	N	N	NNE
18	NE	---	---	---	---	---	---	ESE	S	---	---	---	---	---	---	---	---	---	---	---	---	E	SW	---	---	---	---	---	---	---	N	NE	NNE
19	NE	---	---	---	---	---	NE	NW	ENE	---	---	---	---	---	---	---	---	---	---	---	---	E	SW	---	---	---	---	---	---	---	NNE	NE	NNW
20	E	---	---	---	---	---	NE	WSW	ENE	---	---	---	---	---	---	---	---	---	---	---	---	E	WSW	---	---	---	---	---	---	---	NNE	NE	WNW
21	E	---	---	---	---	---	NE	S	ENE	---	---	---	---	---	---	---	---	---	---	---	---	ENE	WSW	---	---	---	---	---	---	---	NE	N	W
22	ESE	---	---	---	---	---	NE	ESE	S	---	---	---	---	---	---	---	---	---	---	---	---	ENE	WSW	---	---	---	---	---	---	---	E	NW	WNW
23	SE	---	---	---	---	---	---	SE	SSW	---	---	---	---	---	---	---	---	---	---	---	---	E	W	---	---	---	---	---	---	---	E	NNE	ENE
24	SE	---	---	---	---	---	---	ESE	---	---	---	---	---	---	---	---	---	---	---	---	---	SE	N	---	---	---	---	---	---	---	ESE	N	WSW

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GILLETTE

MONTH/YEAR JUN 75

DAY

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	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	05	02	09	10	07	06	03	07	14	10	07	06	06	11	03	06	05	09	05	12	11	03	10	06	08	04	10	06	11	08	
02	06	03	08	05	07	05	04	08	12	10	08	06	05	12	04	05	05	08	06	14	12	03	09	07	07	06	11	07	08	07	
03	06	04	14	07	08	05	03	06	10	10	09	08	04	11	06	03	05	09	07	12	11	07	09	10	08	10	12	09	09	08	
04	07	07	12	07	09	06	03	05	11	09	08	10	06	11	08	05	06	07	07	13	09	08	08	10	09	13	10	08	09	06	
05	07	06	15	08	08	06	03	05	12	08	09	10	03	12	09	05	05	06	11	14	09	08	05	12	09	14	12	08	11	06	
06	06	05	15	07	07	08	05	04	13	08	09	11	03	11	09	07	05	05	12	14	10	07	03	10	09	13	11	06	10	07	
07	05	04	12	07	07	12	04	04	12	08	08	11	05	12	09	06	03	08	13	15	08	06	03	08	06	12	11	05	10	06	
08	05	07	12	06	06	12	05	03	12	09	06	08	05	13	08	04	02	09	16	14	05	05	04	07	08	09	10	05	08	06	
09	04	09	08	05	07	12	05	05	13	10	05	07	06	14	07	04	02	11	15	11	05	02	03	07	08	10	10	05	07	05	
10	04	07	04	05	07	11	03	06	13	11	03	08	10	14	08	03	03	14	16	13	07	01	02	06	07	07	08	05	04	04	
11	05	06	03	05	09	06	02	08	13	10	03	08	09	14	07	02	03	13	18	13	07	01	03	06	08	05	07	04	03	04	
12	07	02	03	04	11	05	03	11	13	10	03	07	07	12	05	03	03	13	18	13	08	02	05	07	09	07	07	03	03	03	
13	07	02	05	04	10	05	12	12	12	09	04	06	06	14	05	06	04	13	18	14	06	02	04	07	10	10	08	03	03	03	
14	06	03	07	05	09	06	12	13	12	08	04	06	05	14	06	08	04	14	16	13	06	03	08	08	10	10	12	03	03	03	
15	06	03	06	06	08	07	10	12	12	07	06	06	05	14	05	10	06	12	15	11	08	04	08	08	09	11	13	03	04	04	
16	06	03	09	07	07	06	06	11	12	07	07	06	06	12	06	09	06	11	16	10	08	05	08	10	08	12	11	04	08	06	
17	06	04	12	07	07	04	07	12	09	07	08	07	07	11	10	06	06	12	17	08	06	04	08	13	11	10	08	09	09	06	
18	06	04	13	08	07	04	06	13	11	09	06	07	08	11	07	06	09	12	16	06	06	04	06	12	12	09	09	11	09	07	
19	08	05	10	09	05	04	07	14	10	07	06	06	08	07	11	06	08	10	13	06	06	04	06	12	08	07	07	11	09	08	
20	06	06	04	08	05	08	07	14	09	06	05	06	08	07	08	07	06	09	13	10	05	06	04	1	09	05	06	10	08	10	
21	05	07	03	07	05	07	06	12	10	06	06	06	08	05	04	06	07	08	13	06	05	05	02	12	09	07	09	09	08	11	
22	02	08	04	05	06	05	06	13	11	05	07	06	05	04	05	04	06	08	12	05	06	06	05	12	05	09	10	09	08	11	
23	02	08	08	06	05	05	05	13	10	04	07	05	06	03	04	05	07	07	12	05	05	07	07	08	05	11	07	11	07	11	
24	01	09	10	05	05	03	06	13	10	06	07	06	07	03	03	03	08	07	13	07	03	09	07	08	05	09	06	12	07	10	

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR JUN 75

	DAY																														
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	WNW	SSE	N	S	ESE	N	NNW	ESE	SSE	ESE	ESE	ESE	SSE	SSE	E	ENE	ESE	NNW	NNW	NE	NNE	ESE	NNE	N	N	S	N	S	NNW	S	---
02	W	S	N	SE	ESE	N	E	SSE	SSE	ESE	ESE	ESE	S	SE	E	SSE	E	NW	N	NE	NNE	E	N	N	N	SSE	N	SSW	N	S	---
03	WNW	S	ENE	ESE	E	N	E	S	SE	SE	E	E	ESE	ESE	E	SSE	E	NW	NNE	NNE	NNE	ENE	NNE	N	N	SE	NNE	S	N	SSE	---
04	WNW	SSW	ENE	ESE	E	N	SW	W	SSE	SE	E	ENE	E	SE	ENE	E	E	NW	NNE	NNE	N	E	N	N	N	SE	N	S	N	SSE	---
05	NW	SSW	ENE	ESE	E	N	SW	NW	SE	SE	E	E	E	SSE	ENE	E	ESE	W	NE	NNE	NNE	E	NNE	NNE	N	SE	NE	S	N	SSW	---
06	WNW	SSW	ENE	ESE	E	N	NNW	SSE	SSE	SE	E	E	E	SSE	E	ENE	ESE	W	NE	NNE	NE	E	ENE	NNE	N	SE	NNE	S	N	WSW	-
07	WNW	SSW	ENE	ESE	ESE	N	WNW	SSE	SE	SE	E	E	E	SSE	E	ENE	SE	W	NE	NE	ENE	E	ENE	N	N	SE	N	SW	N	WSW	---
08	WNW	SW	E	ESE	ESE	N	NNW	SE	SSE	SSE	E	E	ESE	SSE	E	E	WSW	W	NE	NE	E	ESE	NNE	N	N	ESE	N	SW	N	WSW	---
09	NW	SW	E	SE	SE	NNE	N	SSE	SSE	SSE	E	E	ESE	SSE	ESE	E	NW	NW	NE	NE	S	SE	NNE	N	N	ESE	N	SW	N	WSW	---
10	NW	SSW	SE	SE	SSE	NNE	NW	SSE	SSE	SSE	ESE	ESE	E	SSE	E	S	NNW	NW	NE	NE	SSW	SSW	N	N	N	ESE	N	SW	NNE	WSW	---
11	NW	SSW	SE	SE	SSE	ENE	W	SSE	SE	SSE	ESE	SE	ESE	SSE	E	S	N	NNW	NE	NE	S	SSW	NNW	N	N	E	N	W	E	W	---
12	NW	WSW	SE	SE	SSE	SE	SW	SSE	SSE	SSE	SE	S	SE	SSE	SE	N	NNW	NNW	NE	NE	S	WSW	N	N	NE	NE	N	W	NNE	WNW	---
13	NNW	NNW	S	SSE	SSE	SSE	SSW	SSE	S	SSE	SSE	SSE	SE	SSE	S	SW	NW	NNW	NE	NE	S	N	NNE	N	NE	ENE	N	NW	WSW	NW	---
14	NW	N	S	SSE	SSE	SSE	WSW	SSE	S	S	SE	SSE	SE	SSE	SSW	SW	NNW	NNW	NE	NE	S	NNW	NE	N	ENE	ENE	NNE	N	W	NNW	---
15	NW	N	S	S	SE	S	WSW	SSE	SSE	S	SSE	SSE	SE	SSE	SW	SSW	NW	NNW	NE	ENE	SSE	NNE	NE	N	E	ENE	NE	NNW	SW	NW	--
16	NW	NNW	S	SSE	SE	SW	WSW	SSE	S	S	S	S	S	S	SW	S	NW	NW	NE	E	S	NNE	NE	NNW	E	ENE	NE	WNW	SW	NW	---
17	NW	N	S	SSE	SSE	SW	WSW	SSE	SSE	S	S	SSE	SSW	S	SW	ESE	NW	NW	NE	E	SSW	NNE	NE	NNW	E	E	NE	NW	SW	NW	---
18	WNW	N	SSE	SSE	SSE	SW	WSW	SSE	SE	S	SSE	S	SSW	S	SSW	NW	NE	NW	ENE	E	S	NNE	NNE	NNW	ESE	ENE	ENE	NW	SW	NW	---
19	NNW	NNW	S	SSE	S	SSW	WSW	SSE	SE	S	SSE	S	SSW	S	SSW	SE	NNE	NNW	NE	ENE	S	N	NE	NNW	SE	ENE	NE	NNW	SSW	NW	---
20	NNW	NNW	S	S	S	S	SW	SSE	SSE	S	SE	S	SW	SSE	S	S	N	NNW	NE	NNE	SSE	N	NE	NNW	ESE	NE	NE	NNW	SSW	NW	---
21	N	N	SSW	S	SSW	WSW	SW	SE	SE	S	SE	S	SW	SE	S	S	NNW	NW	NE	N	SSE	N	N	NNW	E	NE	ENE	N	SSW	NW	---
22	N	N	SE	SSE	WSW	W	S	SE	SE	SSE	ESE	S	W	ESE	S	SE	NNW	NNW	NNE	N	S	N	NNW	NNW	S	ENE	E	N	S	NNW	---
23	W	N	SE	SE	W	WNW	SSE	S	ESE	ESE	ESE	SSE	WSW	ESE	SE	ESE	NW	N	NNE	N	S	N	N	N	W	NNE	SE	NNW	S	NNW	---
24	SW	N	SSE	ESE	NW	WNW	SE	SSE	ESE	ESE	ESE	SSE	S	ESE	S	SE	NW	NE	NE	N	SE	N	N	N	S	NNE	S	NNW	S	NNW	---

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GILLETTE

MONTH/YEAR JUL 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	09	06	09	04	05	07	05	05	04	02	03	03	09	05	06	03	07	05	06	06	08	07	03	05	02	02	04	07	09	07	07
02	08	05	08	04	04	08	06	04	02	02	03	03	08	05	07	08	10	05	04	05	10	07	03	05	03	01	05	08	08	09	06
03	07	04	08	04	06	08	02	05	03	03	01	05	08	07	08	06	13	03	04	07	08	07	05	05	03	03	02	10	08	12	04
04	08	04	08	04	05	08	01	06	04	04	01	05	08	07	10	08	12	01	05	10	06	06	06	05	03	05	02	11	11	11	06
05	08	06	08	03	03	10	03	05	05	04	02	05	08	03	08	10	13	02	04	09	06	06	05	07	02	04	03	10	10	10	05
06	09	06	08	06	02	11	01	04	02	03	02	06	07	03	06	13	09	04	03	09	04	04	06	08	02	03	02	10	12	06	
07	09	06	07	04	03	09	03	03	01	04	01	06	07	03	05	12	09	05	03	07	03	02	06	06	02	03	03	10	09	07	01
08	11	06	07	04	03	07	02	03	01	04	01	05	07	02	06	11	09	04	02	08	03	03	06	08	01	03	03	07	08	09	03
09	06	05	07	04	02	03	03	02	04	03	03	05	08	03	04	07	07	04	02	09	04	04	05	09	01	02	02	05	08	05	04
10	05	06	07	04	02	05	03	02	04	05	05	04	09	04	05	06	05	05	04	07	05	05	04	09	02	02	02	07	08	08	04
11	05	05	07	05	03	04	03	02	04	05	07	05	08	06	04	08	04	04	07	08	04	03	05	07	02	03	02	06	08	08	05
12	05	02	08	03	03	05	04	03	05	07	07	04	07	06	02	07	03	04	11	09	04	03	05	03	03	03	02	05	10	08	09
13	04	03	08	03	03	05	04	03	06	08	07	--	05	07	03	04	02	03	08	07	03	05	05	03	05	03	02	04	09	08	09
14	03	03	07	03	03	07	04	03	06	08	07	--	03	06	04	04	02	04	07	07	03	05	06	05	04	03	03	04	09	05	09
15	03	04	06	04	03	08	04	04	07	08	07	--	02	05	04	03	05	04	05	04	03	06	06	06	05	03	03	04	09	04	
16	03	03	06	04	04	08	03	05	07	08	07	--	03	04	05	04	06	04	05	03	02	06	06	06	04	05	03	07	08	03	08
17	03	05	08	05	04	08	04	05	08	08	07	04	03	03	06	05	08	05	06	03	03	07	05	05	06	05	03	09	09	04	09
18	06	08	09	07	04	08	03	04	08	08	08	04	03	02	07	05	08	04	06	04	07	06	04	07	06	05	03	11	09	04	08
19	07	07	08	08	04	13	10	04	09	08	07	06	04	02	07	03	08	05	06	07	06	06	03	06	05	05	05	10	13	04	08
20	07	07	07	07	04	07	08	04	07	07	07	08	05	03	08	12	07	04	06	06	05	07	07	06	04	06	07	08	10	06	08
21	07	09	09	06	03	03	06	05	06	08	07	08	05	05	13	14	12	04	07	08	04	12	07	06	03	08	07	07	13	07	07
22	08	08	09	07	03	05	06	06	05	07	06	09	05	05	12	14	10	04	06	06	03	10	07	04	03	07	08	11	12	06	07
23	08	08	08	06	03	08	05	05	03	06	05	07	05	06	07	12	06	04	05	09	04	08	05	03	03	04	07	08	08	07	05
24	07	11	07	04	04	08	04	05	03	05	03	07	05	06	03	09	04	04	06	10	03	06	05	02	02	04	07	04	07	08	05

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR JUL 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	N	SSW	S	WNW	NNE	N	ENE	SE	NNW	W	SW	W	N	S	NNW	NW	S	ENE	NE	SE	E	WSW	NE	E	ESE	SW	S	S	NNE	N	S
02	NNW	S	S	W	NNE	N	E	S	NW	WNW	WSW	WNW	N	S	NNE	NNE	SSW	ENE	ENE	SSE	ESE	W	E	ESE	SE	W	SSW	S	N	N	SW
03	N	SSE	S	WSW	NNE	NNE	SE	S	NW	NW	WSW	NNW	N	SSW	NE	N	SW	ESE	ENE	S	ESE	WNW	SSW	ESE	SSE	N	WSW	SSW	N	NE	WSW
04	N	ESE	S	SSW	NNE	NNE	S	S	N	N	N	NNW	N	SW	NE	NNE	WSW	SE	ESE	SSW	SW	NW	W	SSE	S	ESE	WNW	SSW	NNE	ENE	SE
05	N	ESE	S	SSW	NNE	NNE	ESE	S	NNE	NE	NNE	N	N	SW	NE	NNE	W	WSW	E	S	WSW	WNW	W	S	SSW	ESE	NW	SSW	N	E	SSE
06	N	SSE	S	SW	NNW	NNE	ESE	SSW	W	E	NE	NNW	N	SW	N	NNE	WNW	WNW	NE	S	WSW	NW	WNW	S	SSW	SSE	NNW	SSW	N	ESE	J
07	N	SSE	S	W	NNW	N	ESE	SW	SSW	ESE	ENE	NNW	N	W	NNE	NNE	WNW	NW	ENE	S	WSW	SW	WNW	S	SSW	ESE	N	S	N	ENE	S
08	N	S	S	WNW	NW	NE	SSW	WSW	SSE	SSE	E	NNW	N	NNW	E	NE	NW	NW	E	S	W	SW	W	S	SW	SE	N	S	N	NE	ESE
09	NE	S	S	NW	N	ENE	W	SSW	SSW	SSW	S	NNW	N	SW	SE	ENE	NW	WNW	NNE	S	WNW	W	WNW	S	S	S	N	S	NNE	NE	ESE
10	ESE	SSE	S	N	NNE	NE	WNW	SSW	SSW	SSW	S	N	N	NW	S	E	NNW	NNW	N	S	WNW	WNW	N	SSW	ENE	S	E	S	NNE	ENE	S
11	SE	SSW	S	N	NNE	E	W	SW	SW	SSW	S	N	N	NNW	SW	SSE	N	N	N	S	NNW	WNW	NNE	SW	S	SW	SSW	S	NNE	ENE	SSE
12	N	SW	S	N	NNE	SE	W	S	SSW	S	SSW	N	N	N	W	S	NNE	NW	N	S	NE	N	NNE	W	WSW	S	NW	S	NNE	E	S
13	NNE	NW	S	NNE	N	S	W	SSW	SSW	S	S	---	N	NNE	NNW	SW	S	NW	NNE	S	E	N	NNE	NW	WSW	SSW	NW	S	NE	ENE	S
14	N	NNW	S	N	SSW	S	W	SSW	SSW	SSW	SSW	---	N	ENE	NNE	W	WSW	NW	N	S	SE	NNE	NNE	NNW	WSW	SW	ESE	WSW	NNE	E	S
15	S	NNW	SSE	NNE	SW	SSE	WSW	SSW	SW	S	SSW	---	WNW	E	NNE	SSW	WSW	NW	N	S	NNE	N	NE	NNW	S	S	WSW	W	NE	W	
16	SW	W	SE	N	W	S	WSW	SSW	SSW	S	SSW	---	SSE	ESE	N	SSW	W	NNW	N	S	E	N	NNE	NW	SSE	S	NW	WNW	NNE	WSW	S
17	W	S	ESE	NE	SW	S	SW	SW	SSW	SSW	SSW	NNW	NE	ESE	N	SSW	W	NNW	N	SSE	SSE	N	NNE	NNW	S	S	NNW	WSW	NNE	SW	SSW
18	WSW	SE	ESE	NE	SW	SW	S	SW	SSW	SSW	SW	NNW	E	W	NNE	WSW	W	N	N	ESE	NW	N	W	NW	S	SSW	ENE	SSE	NNE	WSW	SSW
19	WSW	SE	ESE	NE	WSW	WSW	SSE	SW	SW	SSW	SW	NW	NE	W	ENE	WSW	WNW	NNE	N	ESE	NW	NNE	N	NNW	SSW	S	S	SSE	NNE	WSW	SSW
20	WSW	ESE	ESE	NE	WSW	W	SW	SW	SW	SW	SW	NW	ENE	W	NNE	WSW	NW	NE	NNE	ESE	NNW	NE	ENE	NNE	SSW	SSW	SSE	S	NE	WSW	SW
21	SW	ESE	SE	NE	W	NNW	WSW	WSW	WSW	SW	WSW	NW	ENE	WNW	NNW	WSW	NW	E	NNE	ESE	N	NNW	ENE	NE	SW	SSW	SSE	S	ENE	WSW	SW
22	SSW	ESE	SSE	NE	W	N	SSW	W	WSW	SW	WSW	NW	E	WNW	NNW	WSW	NNW	E	NE	SE	NNW	N	ENE	ENE	SSW	SW	S	SW	ENE	SW	SSW
23	SSW	SE	S	NE	W	NE	S	W	W	SW	W	NNW	E	WNW	SE	WSW	N	ESE	E	NE	N	NNE	E	E	SSW	WSW	S	W	ENE	S	SSW
24	SSW	SSE	WSW	NNE	NNW	NE	SE	WNW	W	SW	W	N	SE	NW	W	SSW	NNE	NE	E	NNE	NNW	NE	E	E	SSW	SW	S	NE	N	SSW	SW

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GILLETTE

MONTH/YEAR AUG 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	08	02	07	04	05	11	05	06	08	08	06	10	06	05	02	05	06	10	07	04	06	07	04	04	05	--	11	08	11	08	07
02	07	02	06	04	07	09	03	05	09	09	06	10	05	04	01	05	04	07	06	03	05	07	08	03	07	--	10	10	10	09	07
03	05	03	08	04	09	10	02	04	08	09	06	09	05	05	03	04	04	06	08	03	04	07	10	02	09	--	08	11	08	08	10
04	05	07	09	05	08	12	04	05	08	08	04	08	09	05	05	05	05	09	07	02	02	08	08	08	07	--	07	10	06	08	10
05	03	06	10	05	08	12	05	07	08	09	03	08	09	04	04	04	05	09	08	02	04	08	07	09	07	--	06	10	06	09	09
06	01	06	10	06	09	11	06	07	08	07	01	10	09	04	03	05	05	07	07	08	02	10	08	12	08	--	09	11	05	09	
07	02	05	08	06	09	08	10	08	08	06	--	10	08	05	03	04	03	06	06	12	01	12	07	11	07	--	08	11	05	08	03
08	03	04	06	05	08	07	12	06	06	06	--	11	07	06	04	03	03	--	05	10	01	11	10	09	05	--	08	12	04	05	07
09	03	05	05	06	08	07	11	05	07	07	--	11	08	06	04	03	03	--	04	08	03	13	10	08	06	--	05	11	05	04	09
10	04	04	06	08	08	05	14	04	07	06	--	10	09	05	04	05	02	--	04	05	04	12	10	10	08	--	05	10	05	02	08
11	03	05	05	08	08	06	16	04	07	05	--	11	08	05	04	05	02	--	03	03	06	10	12	10	07	--	05	13	03	04	09
12	04	05	07	08	08	05	18	05	05	03	--	10	08	05	03	05	02	--	03	02	06	12	14	10	05	--	04	12	02	03	10
13	04	05	08	07	08	03	20	07	04	02	--	09	08	08	03	05	02	--	03	05	07	11	15	13	03	--	04	--	02	03	10
14	05	04	07	05	09	03	22	--	03	--	--	08	09	09	05	05	03	--	04	04	08	11	14	11	03	--	03	08	03	03	09
15	05	04	04	03	09	04	23	--	--	--	--	09	07	09	08	05	04	--	04	05	07	10	14	13	04	06	06	08	02	03	09
16	06	03	04	06	09	03	21	--	--	--	--	08	08	10	07	05	03	--	05	06	07	10	13	14	04	05	07	10	04	04	09
17	06	03	05	06	10	03	19	--	--	06	--	09	07	10	12	06	05	--	07	06	08	14	12	15	04	05	04	10	05	04	09
18	07	03	06	07	13	03	17	--	--	06	--	09	08	10	07	04	06	08	07	06	09	14	12	13	05	06	03	09	04	05	10
19	07	04	07	08	15	07	15	--	--	07	--	09	08	08	04	06	09	09	08	06	09	11	11	12	06	07	06	09	07	07	11
20	07	03	06	06	13	06	--	--	--	08	--	09	06	07	03	06	09	09	07	07	09	11	09	11	06	09	06	08	08	08	10
21	06	03	06	05	14	06	--	--	--	08	02	08	06	05	03	04	07	06	05	01	09	05	07	07	05	10	08	08	09	10	09
22	05	03	06	05	14	07	--	--	08	06	03	08	05	03	02	04	08	08	06	02	10	02	08	04	05	09	06	09	07	07	44
23	05	04	07	06	16	07	--	--	08	07	08	07	04	--	05	04	09	07	05	04	08	02	06	04	--	10	07	08	06	07	45
24	03	05	05	05	14	07	07	09	07	07	08	05	04	01	05	07	09	08	03	07	08	03	06	06	--	11	07	11	09	06	08

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR AUG 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	S	W	SSE	ENE	WNW	N	SE	N	N	N	SW	S	WNW	WNW	SSW	SSW	N	SSE	S	NW	SSW	S	W	ESE	ESE	---	SSE	SSW	NNW	S	N
02	SW	NW	S	E	N	N	SSE	NNW	N	N	SW	SSW	NNW	N	WSW	SW	NNE	SE	E	NW	SSW	S	WSW	S	ESE	---	S	WSW	N	N	N
03	SW	N	S	ESE	N	N	S	W	N	N	SW	SSW	N	N	NW	WSW	N	SE	SSE	W	SSW	S	WSW	SE	ESE	---	S	WSW	N	N	N
04	SSW	NNE	SSW	SE	N	N	S	W	N	N	SW	SSW	N	N	NNE	WSW	NNW	SSE	S	NNW	S	S	WSW	WSW	ESE	---	S	WSW	N	N	NE
05	SSW	N	WSW	SSE	N	NNE	S	W	N	N	WSW	SSW	N	N	NNE	W	NNW	SE	S	WSW	S	S	WSW	W	ESE	---	S	SW	N	N	E
06	SW	N	WSW	S	N	NNE	SSW	W	N	N	WSW	S	N	N	N	WSW	NNW	SSE	S	WSW	SW	S	WSW	SSE	ESE	SSE	S	SSW	NNW	NNE	
07	S	N	W	S	N	N	SW	WSW	N	N	---	S	N	N	N	W	N	S	S	WSW	NW	SSW	WSW	SSE	ESE	S	S	SW	NNW	NNE	ENE
08	ESE	N	WNW	S	N	N	SW	WSW	NNE	N	---	SSW	N	N	N	W	N	---	SSE	WSW	NNW	SW	WSW	SSE	ESE	S	S	WSW	NNW	NE	NNE
09	ESE	N	NW	S	N	NE	SW	SW	NE	N	---	SSW	N	NNE	N	SSW	NNE	---	SSE	WSW	S	WSW	WSW	SSE	SE	S	S	WSW	NNW	NE	NE
10	SE	N	NW	S	N	E	WSW	SSW	ENE	N	---	SSW	N	NE	N	SW	N	---	SSE	WNW	SSW	WSW	WSW	SSE	SE	S	S	WSW	N	E	NE
11	SE	NE	N	S	N	S	WSW	S	NE	NNE	---	SW	N	ESE	N	SSW	NNE	---	ESE	NNW	S	W	WSW	SSE	SSE	S	SSW	WSW	N	N	ENE
12	SSE	ENE	NNW	S	N	S	WSW	SSW	NE	NNE	---	SW	N	SSE	N	S	NE	---	SE	NNW	SSW	W	W	SSE	SE	S	SSW	ENE	NW	N	E
13	SE	ESE	NNW	S	N	S	WSW	S	NE	NNW	---	SW	N	SSE	NNW	SSW	W	---	S	WSW	SSW	W	WSW	SSE	SE	S	S	---	SW	N	E
14	SE	SE	NNW	SSW	N	SSW	W	---	NE	---	---	SW	N	SSE	NW	SSW	W	---	SW	NNW	SSW	W	W	SSE	ESE	S	SSE	SW	NNW	N	ENE
15	ESE	WSW	NNW	WNW	N	SSE	W	---	---	---	---	SW	N	S	NW	SW	W	---	WSW	SSW	SW	W	W	SSE	SE	S	S	WSW	NE	NNW	N
16	SE	N	N	ESE	N	SSE	W	---	---	---	---	WSW	N	S	WSW	WSW	NW	---	SW	SW	S	WSW	W	SSE	S	S	SSE	W	ENE	N	N
17	SE	SSE	N	SE	NNW	WNW	WNW	---	---	SSE	---	WSW	N	S	SSW	WSW	NW	---	SW	SW	SSE	W	W	SSE	S	S	ESE	WSW	WNW	NNE	NNE
18	S	NNW	N	S	NW	NE	NNW	---	---	S	---	WSW	N	S	SW	W	WNW	WSW	WSW	WSW	SSE	W	W	SSE	S	SSE	E	W	N	N	NE
19	S	NNW	NNE	SSW	NNW	S	NNW	---	---	S	---	WSW	N	S	SW	WNW	WNW	WSW	WSW	SSW	S	W	W	S	SSW	SSE	E	W	E	N	NE
20	S	NNW	NE	W	NNW	S	NNW	---	---	SSW	---	SW	NW	SSW	SSW	N	N	W	SW	S	S	W	W	SSE	SW	SE	SE	W	E	NNW	NE
21	SSW	N	NE	W	NW	SE	NNW	---	---	SSW	S	WSW	WNW	SSW	SW	NE	SW	S	SW	SSW	S	S	WSW	SSE	SW	SSE	ESE	W	E	NNW	NNE
22	SSW	E	ENE	WSW	NW	SSE	NNW	---	WNW	SW	S	WSW	WNW	SW	S	N	SE	S	S	SW	SSE	WSW	W	S	SW	S	S	W	E	N	NNE
23	SSW	E	ENE	WSW	NNW	S	N	---	N	SW	S	W	NW	W	SW	NNE	ESE	S	S	SSW	S	SSW	W	SSE	SW	S	S	W	ESE	N	N
24	WSW	SE	ENE	NW	NNW	S	N	N	N	SW	S	W	W	W	SW	N	ESE	S	SSW	S	S	W	WSW	SE	SW	S	S	NW	SSE	N	N

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GILLETTE

MONTH/YEAR SEP 75

DAY

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	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	09	09	03	03	04	02	03	06	03	07	10	03	05	--	03	07	08	14	--	--	--	--	--	08	08	--	07	--	09	09	
02	08	10	03	04	05	02	02	05	03	06	10	03	08	--	03	06	05	13	--	--	--	--	--	09	10	--	10	--	07	10	
03	07	08	03	04	04	04	02	04	05	06	09	06	08	--	03	06	04	09	--	--	--	--	--	08	10	--	09	--	05	08	
04	07	07	03	04	04	07	01	05	05	04	10	05	09	--	05	06	05	09	--	--	--	--	--	08	08	07	08	--	06	07	
05	04	10	02	04	05	07	02	05	03	05	09	06	09	--	06	06	07	08	--	--	--	08	--	08	09	08	08	06	07	07	
06	03	14	02	06	08	08	04	05	01	05	08	05	10	--	07	06	09	09	--	--	--	08	--	08	09	08	09	--	07	07	
07	02	12	03	08	08	08	04	06	02	05	07	04	07	--	05	05	09	11	--	--	--	08	--	08	08	08	09	--	08	08	
08	01	09	04	09	08	06	07	06	01	05	04	04	07	--	07	--	09	12	--	--	--	--	--	11	07	09	09	--	10	06	
09	02	12	04	08	07	06	06	06	01	04	05	02	05	--	08	--	10	12	--	--	--	--	--	10	07	13	08	--	10	04	
10	07	10	05	09	06	06	08	07	01	05	05	05	06	04	07	--	10	13	--	--	--	07	--	08	--	13	10	--	07	06	
11	08	10	06	08	05	04	08	06	02	05	04	03	08	--	07	--	10	13	--	--	--	07	--	08	--	16	11	--	08	08	
12	10	09	07	09	06	04	08	05	03	05	04	04	08	--	06	--	10	13	--	--	--	07	--	08	--	16	11	--	08	07	
13	12	09	07	05	05	06	07	05	03	--	03	03	08	--	06	--	09	13	--	--	--	07	--	08	--	14	12	--	07	08	
14	13	07	05	07	05	07	06	06	03	09	03	03	08	--	06	--	08	13	--	--	--	08	--	08	--	14	12	--	07	08	
15	13	06	05	07	04	07	06	07	04	09	03	03	06	--	07	--	08	--	--	--	--	08	--	--	--	14	12	03	09	08	
16	14	05	05	06	05	07	06	07	05	09	03	03	06	--	07	--	08	--	--	--	09	08	--	--	07	14	11	03	09	07	
17	14	04	03	05	06	06	05	05	04	10	03	02	06	--	06	--	09	--	--	--	09	08	--	--	07	11	10	03	09	07	
18	15	06	02	06	07	06	05	06	04	11	03	03	07	09	06	--	10	--	--	--	09	08	--	--	08	09	09	02	09	06	
19	19	06	02	06	06	06	05	07	05	12	02	03	07	08	06	--	--	--	--	--	08	08	--	--	10	08	08	01	09	05	
20	19	07	03	06	06	07	06	07	04	12	03	06	06	07	09	--	--	--	--	--	08	06	--	08	09	08	06	01	07	04	
21	19	07	03	05	06	07	06	05	05	12	03	07	07	07	08	--	--	--	--	--	--	--	08	08	08	--	06	02	08	01	
22	17	04	07	05	03	05	06	05	06	13	02	07	--	04	07	--	--	--	--	--	--	--	09	08	08	--	--	05	10	01	
23	15	03	04	04	03	04	06	06	05	12	03	06	--	04	08	11	--	--	--	--	--	--	08	07	07	--	--	05	09	03	
24	11	03	03	04	02	04	06	04	06	13	02	05	--	04	08	10	13	--	--	--	--	--	08	08	--	07	--	08	08	06	

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064

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR SEP 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	NNE	N	E	WNW	E	E	E	S	S	N	NNE	SE	S	S	E	NW	NW	NW	NNW	---	---	WNW	N	S	S	SW	WNW	WSW	SSW	WNW	---
02	NNE	N	ENE	NW	SSE	S	ESE	S	S	N	NNE	S	S	S	E	N	NW	NW	N	---	---	W	N	S	S	WSW	WNW	SW	SW	NW	---
03	NE	N	E	NNW	S	SSW	E	S	SSW	NNE	N	SW	SSW	S	ESE	NNE	WNW	NW	N	---	---	W	NNW	S	SSW	W	W	WSW	WNW	NW	---
04	NE	N	E	N	S	SW	ENE	S	SW	ENE	NNE	SW	S	S	SE	NE	WNW	NW	N	---	---	W	NW	S	SSW	WSW	WNW	WNW	NW	NW	---
05	NE	E	E	NNW	S	SW	ESE	S	W	E	NNE	SW	S	S	S	WNW	NW	NW	NNE	---	---	W	NNW	S	SSW	WSW	WNW	W	NW	NW	---
06	NNE	SE	E	NNW	SSW	WSW	SE	S	W	E	NNE	SW	S	S	SW	N	NW	NW	NNW	---	---	W	NNW	S	SSW	WSW	W	WNW	NW	NW	---
07	N	SSE	ESE	NNW	SW	WSW	S	S	W	ESE	NNE	SW	S	S	WSW	E	NW	NW	NW	---	---	W	NW	S	SSW	W	W	WNW	NW	NW	---
08	NNW	SE	SSE	NNW	SW	WSW	S	S	SE	SE	N	SSW	S	SSW	WSW	ESE	NW	NW	NW	---	---	W	WNW	S	SSW	WNW	W	WNW	NW	WNW	---
09	NNW	SSE	S	N	SW	WSW	S	S	W	SSE	NNE	S	S	SSW	WSW	S	NW	NW	NW	---	NW	W	WNW	S	SSW	NW	W	WNW	N	WNW	---
10	NNE	SSE	S	N	SW	W	S	S	ESE	S	NNE	SSW	S	SSW	WSW	SW	NW	NW	WNW	---	NW	WNW	NW	S	S	N	W	NW	N	NNW	---
11	N	SSE	S	NNE	NW	WNW	S	S	SE	S	NNE	S	S	WSW	S	SW	NW	WNW	NW	---	NNW	NW	N	S	S	N	NW	WNW	N	NNW	---
12	N	SSE	S	NE	NNW	NNW	S	S	SE	SSW	NNW	SSW	S	WNW	SSE	SW	NNW	NW	NW	---	NNW	NNW	N	S	S	N	NW	NW	N	NNW	---
13	N	SSE	S	NE	NNW	NNW	S	S	SSE	---	NNW	S	SSE	NNW	SE	WSW	NNW	NW	---	---	NNW	NNW	N	S	S	N	NNW	NW	NNW	NNW	---
14	N	SE	S	NE	NW	NNW	S	S	S	NNE	NNW	SSW	SSE	NNW	S	SW	NW	NW	---	---	NNW	NNW	NNE	S	SE	N	NNW	NW	NNW	NNW	---
15	N	SE	S	NNE	NW	N	S	SSE	SSW	NNE	NW	S	S	NNW	W	SSW	NW	NW	---	---	NNW	N	NNE	SSW	S	N	NW	NNW	N	NNW	---
16	NNW	SSE	S	NE	NNW	N	S	SSE	SW	NNE	NNW	SSW	S	N	WNW	SSW	WNW	NW	---	---	N	NW	N	ESE	S	N	NNW	W	N	NNW	---
17	N	N	SSW	NNE	NNW	N	SSE	SSE	SW	NNE	NNW	SSE	SSE	NNW	N	SSW	NW	NNW	---	---	N	NW	NNE	E	S	NNW	NNW	W	N	NW	---
18	NE	N	SSW	NE	NNW	N	SE	ESE	WSW	NNE	NNW	E	SSE	N	NNE	SW	NW	NNW	---	---	N	NW	ENE	SE	SSE	N	N	W	N	NNW	---
19	NNW	NNE	W	NE	NNW	N	SSE	ESE	W	NNE	NNE	E	SSE	N	NNE	W	NW	NW	---	---	N	NW	ENE	SSE	SE	N	N	N	NNW	NNW	---
20	NNW	NNE	WNW	ENE	N	NE	SSE	ESE	W	NNE	NE	E	SSE	N	NNE	NNW	NW	NW	---	---	N	NNW	ENE	SE	SSE	N	NNE	E	NW	N	---
21	NNW	NNE	WSW	FNE	N	NE	S	ESE	N	NNE	E	E	SSE	NNE	NE	N	NNW	NW	---	---	N	NNW	E	SSE	SSE	N	NNE	SE	NW	N	---
22	NNW	NE	NW	ENE	NNE	ENE	S	SE	N	NE	ESE	SE	SSE	NE	WSW	NNW	NNW	NW	---	---	NNW	NNW	ESE	SSE	SSE	NNW	N	SSE	NW	SSW	---
23	NNW	E	NW	ENE	NNE	ENE	S	SSE	N	NNE	SE	SSE	SSE	ENE	W	NNW	NNW	NW	---	---	WNW	NW	SSE	SSE	SSE	WNW	NNE	SSE	NNW	S	---
24	N	E	WNW	E	NE	ENE	S	SSE	N	NNE	SE	SSE	S	E	NNW	NNW	NNW	NNW	---	---	WNW	NNW	S	S	SE	WNW	NNW	S	NW	S	---

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C-51

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GILLETTE

MONTH/YEAR OCT 75

DAY

C-52
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	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	06	--	--	--	08	09	14	10	13	08	05	05	07	07	08	09	04	11	07	09	10	05	--	07	08	20	06	--	05	16	07
02	07	--	--	--	06	11	13	10	10	08	05	05	06	07	07	08	08	11	05	08	08	04	--	07	08	20	04	--	07	14	07
03	06	--	--	--	07	11	13	15	10	09	03	05	04	07	07	10	10	10	08	07	07	07	--	07	08	18	03	--	06	14	08
04	06	--	--	--	07	10	13	14	06	10	02	04	03	08	07	11	11	10	08	08	04	09	--	07	09	20	05	--	08	13	08
05	05	--	--	--	05	11	14	10	04	08	00	04	05	07	06	05	11	06	07	07	--	09	--	06	09	19	05	--	08	13	08
06	04	--	--	--	03	11	14	09	05	09	03	05	02	07	07	02	10	03	04	05	--	--	--	07	11	16	04	--	10	15	
07	04	--	--	--	01	08	10	14	05	10	03	05	02	07	08	05	07	04	04	03	--	--	--	07	10	16	04	--	10	16	12
08	03	--	--	--	01	10	08	15	06	11	03	05	03	08	05	07	06	04	03	--	01	--	--	07	10	16	04	--	08	15	10
09	03	--	--	--	03	08	03	14	05	12	04	04	04	07	04	08	09	05	01	--	03	--	--	07	10	15	04	--	06	15	10
10	03	--	--	--	03	10	03	13	04	12	05	02	03	09	02	09	08	06	03	--	05	05	--	07	10	16	04	--	09	15	10
11	02	--	--	12	05	10	07	16	03	11	07	02	03	10	03	08	06	04	--	--	07	05	--	07	09	19	04	--	12	13	10
12	03	--	--	12	08	09	13	15	03	08	07	02	03	12	06	08	06	03	--	--	07	05	--	05	10	17	06	--	12	15	09
13	02	--	--	13	09	09	14	15	05	11	12	02	03	12	05	09	05	04	--	--	07	06	--	05	11	14	06	--	13	16	07
14	04	--	--	14	08	11	14	15	04	12	10	02	03	11	08	09	04	02	--	--	05	08	--	08	10	14	07	--	14	14	07
15	--	--	--	18	05	12	14	16	03	12	10	03	07	11	08	09	03	02	--	--	07	08	--	07	09	14	07	--	15	10	
16	--	--	--	16	05	10	12	15	02	13	09	06	06	10	08	08	04	01	--	--	07	09	--	06	14	11	07	--	15	09	05
17	--	--	--	14	06	08	09	17	02	07	08	08	06	10	06	08	05	02	--	01	08	08	--	04	12	08	06	--	14	07	04
18	--	--	--	10	07	11	07	15	03	04	06	08	07	07	08	07	07	04	05	03	07	07	--	04	12	06	05	--	14	03	03
19	--	--	--	14	10	10	05	14	05	03	08	08	06	05	05	05	08	03	04	07	06	08	07	06	14	07	05	--	15	01	02
20	--	--	--	12	09	08	04	09	06	03	08	09	06	05	07	02	09	04	03	07	07	08	08	07	19	08	04	07	15	01	02
21	--	--	--	09	08	11	09	07	07	03	06	09	04	06	06	01	08	06	07	05	07	09	08	09	20	07	03	07	15	05	02
22	--	--	--	06	09	11	09	09	06	02	07	09	05	08	03	02	08	06	08	12	08	--	08	07	23	05	04	05	16	04	02
23	--	--	--	08	09	13	13	11	07	02	06	10	05	08	01	02	08	07	08	10	08	--	08	08	19	08	03	06	20	04	04
24	--	--	--	08	08	14	13	13	09	02	06	08	06	09	02	03	09	08	09	09	07	--	07	08	20	08	04	03	16	04	07

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR OCT 75

	DAY																															
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
01	SSW	---	---	---	N	S	SSW	W	WNW	S	SSW	NNW	N	NW	W	NNW	SSE	S	NNE	WSW	NNE	N	---	N	SW	WSW	NNW	---	SW	WSW	NNW	
02	SSW	---	---	---	N	S	S	WSW	NW	SSE	SSW	NNW	NNW	NW	W	NNW	S	S	SSW	W	NNE	NNW	---	N	SW	WSW	NW	---	SW	WSW	NNW	
03	SW	---	---	---	N	SSW	S	SW	WNW	SSE	W	NNW	NNW	NW	W	WNW	S	SSW	SSW	W	NNE	NW	---	N	SW	WSW	W	---	SW	WSW	NNW	
04	SSW	---	---	---	N	SSW	SSW	SW	W	SSE	WSW	NNW	NNE	NW	W	NW	SSW	SSW	SSW	N	NNE	NNW	---	NNW	SW	WSW	WNW	---	SSW	WSW	NNW	
05	SSW	---	---	---	NNW	SSW	SSW	WSW	W	SSE	SW	NNW	E	NW	WSW	NNW	SSW	S	SW	NE	---	NNW	---	NNW	SW	WSW	W	---	SSW	SW	NW	
06	SSW	---	---	---	N	SSW	SSW	WNW	W	S	SSE	NNW	S	NW	SW	NW	SSW	SSW	WNW	NE	---	---	---	NNW	SW	WSW	W	---	SW	SW	N	
07	SSW	---	---	---	WNW	SW	SW	NW	W	S	S	NNW	S	NW	SSW	W	S	SW	NNW	NE	---	---	---	NW	SW	WSW	W	---	SSW	WSW	NW	
08	SW	---	---	---	S	SW	WSW	NW	W	S	S	NNW	SW	NW	SSW	WNW	S	WSW	N	---	E	---	---	NW	SW	WSW	W	---	S	WSW	NW	
09	SW	---	---	---	SSE	WSW	NW	SSW	W	S	S	N	SW	WNW	S	WNW	S	WSW	N	---	SSE	---	---	NW	SW	WSW	WNW	---	S	SW	NNW	
10	SW	---	---	---	S	WSW	SSE	WNW	W	SSW	S	N	SSW	WNW	S	NW	S	W	SSW	---	SSE	NNE	---	WNW	SW	SW	NNW	---	SSW	SW	NNW	
11	S	---	---	WSW	S	WSW	S	WNW	W	SW	S	NNE	SSE	WNW	S	NW	S	WNW	---	---	S	NNE	---	WNW	SW	SW	NNE	---	SSW	SW	NNW	
12	SSW	---	---	WSW	S	WSW	SW	WNW	SW	SW	SSW	NNE	S	WNW	SSW	NW	S	NNW	---	---	S	N	---	WNW	SW	SW	NE	---	SSW	WSW	N	
13	WSW	---	---	SW	S	SW	SW	WNW	SW	WSW	SW	N	S	WNW	SW	WNW	S	N	---	---	S	N	---	WNW	SW	WSW	NNE	---	SW	WSW	NNW	
14	WNW	---	---	SW	S	SW	SW	WNW	SSW	WSW	WSW	N	S	NW	WSW	WNW	S	NNE	---	---	SSE	N	---	W	SW	WSW	NE	---	WSW	WSW	NNW	
15	---	---	---	WSW	S	SW	SW	NW	SW	WSW	SW	N	NNE	NW	W	NW	S	NNW	---	---	SE	NNW	---	W	SW	WSW	ENE	---	WSW	WSW		
16	---	---	---	W	SSE	SW	SW	WNW	WSW	WSW	SW	N	N	NW	W	NW	S	W	---	---	E	NNW	---	W	SW	W	ENE	---	WSW	SW	NW	
17	---	---	---	W	SSE	SSW	SSW	NW	SSE	WSW	WSW	NNE	N	NW	NNW	NW	SSE	WSW	---	S	ENE	N	---	WSW	SW	NNW	ENE	---	WSW	WSW	WNW	
18	---	---	---	W	SSE	SSW	S	NW	E	WSW	WSW	NNE	N	NW	N	NW	SSE	SW	S	ESE	ENE	N	---	SW	SW	NNE	ENE	---	SW	N	WNW	
19	---	---	---	NNW	SSE	S	S	NW	ESE	W	NNE	NNE	N	NW	N	NNW	SSE	SW	S	ESE	ENE	N	N	SW	SW	N	ENE	---	SW	E	WNW	
20	---	---	---	N	SSE	S	S	WNW	ESE	WSW	NNE	NNE	N	W	N	N	SSE	SW	S	SSE	NNE	N	N	SW	SW	N	E	WSW	SW	N	W	
21	---	---	---	N	S	SSW	SSW	W	SE	WSW	N	NNE	NW	W	N	NNE	S	WSW	SSW	N	N	N	N	WSW	SW	N	ESE	WSW	SW	NNE	W	
22	---	---	---	N	S	SSW	WSW	W	SSE	SSW	N	NNE	NW	W	NE	E	S	W	SW	N	N	---	N	WSW	SW	N	SSE	W	WSW	N	WSW	
23	---	---	---	NNW	S	S	SW	W	SSE	SSW	N	N	NW	W	ESE	SSE	S	W	WSW	NNE	N	---	N	WSW	WSW	NNW	S	W	SW	NNW	WSW	
24	---	---	---	NNW	S	S	WSW	W	S	S	NNW	N	NW	W	W	SSE	S	N	WSW	NNE	N	---	N	WSW	WSW	NNW	S	SW	WSW	NNW	SW	

C-53
H
O
C
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22

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, US(MS)

STATION - GILLETTE

MONTH/YEAR NOV 75

DAY

C-54
H
D
U
R

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	08	02	06	05	09	14	09	03	03	03	08	08	11	07	07	14	03	08	09	07	04	04	05	02	18	07	07	02	12	08	
02	08	02	06	04	06	14	08	04	05	04	14	05	12	07	08	13	06	07	09	07	06	05	05	02	15	07	09	02	12	08	
03	08	01	03	04	08	12	08	04	06	07	18	04	12	11	06	13	07	06	09	06	05	05	09	03	11	08	08	02	10	08	
04	09	02	02	03	06	15	08	03	06	06	15	07	11	12	05	12	07	06	08	05	06	04	07	03	11	07	07	03	07	08	
05	09	01	02	03	05	16	07	05	06	06	14	08	12	13	03	11	06	08	10	05	03	03	06	05	12	07	07	04	08	09	
06	08	02	04	07	04	14	06	05	06	08	14	07	12	15	02	13	07	08	10	06	02	04	05	05	12	07	06	06	07	09	
07	08	03	06	08	04	13	04	05	07	08	19	07	12	14	02	12	07	08	10	05	01	04	06	06	09	09	06	04	07	10	
08	08	02	07	08	04	10	03	04	06	08	16	07	14	13	03	11	08	07	09	03	01	04	08	06	06	12	06	04	08	09	
09	08	03	06	10	03	07	03	03	06	09	15	07	13	10	06	05	06	08	10	03	02	05	08	06	10	08	05	04	09	10	
10	07	04	06	09	03	09	01	04	03	10	16	07	10	06	06	06	05	08	10	01	02	07	08	07	14	06	03	04	09	10	
11	06	05	07	06	03	06	00	04	03	10	18	07	09	06	07	10	04	08	10	01	02	04	09	08	13	07	03	02	09	09	
12	05	08	06	08	03	06	01	03	03	10	19	05	09	03	09	11	03	09	11	01	02	03	11	09	10	07	04	03	08	10	
13	04	08	--	09	02	03	01	03	07	10	15	05	09	02	12	10	02	10	10	01	02	05	12	08	09	08	04	03	08	10	
14	04	07	--	07	03	03	06	07	07	12	18	04	09	02	12	09	06	10	11	02	03	04	11	06	10	08	03	03	08	09	
15	04	07	--	07	03	05	06	06	08	13	16	05	08	02	12	08	07	10	11	02	03	04	12	05	12	07	03	04	09	08	
16	03	05	--	06	02	06	05	09	07	13	14	06	08	03	11	09	08	10	10	02	02	06	11	05	10	12	02	04	08	11	
17	02	06	--	06	02	07	08	08	07	13	10	07	09	04	10	07	08	10	08	01	03	09	09	04	09	14	02	03	09	12	
18	01	08	--	06	02	06	04	07	06	14	09	08	13	08	10	06	06	10	08	02	04	13	08	03	11	12	03	03	10	12	
19	03	10	04	09	04	05	03	06	07	13	09	08	13	08	10	06	05	10	07	03	04	13	08	02	10	09	02	05	10	14	
20	03	07	06	12	07	03	03	05	04	13	08	11	13	05	13	02	05	09	07	05	05	05	08	07	07	06	02	07	08	14	
21	03	04	06	11	10	01	06	05	04	10	09	12	13	05	12	01	07	08	07	04	06	02	07	13	06	04	01	09	08	14	
22	06	05	05	13	10	02	05	03	02	12	08	13	12	08	13	01	06	08	06	05	06	04	04	15	06	05	02	10	07	15	
23	03	04	05	08	11	08	05	02	03	14	09	13	11	07	14	03	07	08	06	05	04	05	02	14	05	06	04	11	07	16	
24	02	04	05	11	13	10	05	03	02	10	10	12	10	07	15	06	07	07	07	03	04	04	02	15	06	06	04	11	06	17	

853

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR NOV 75

		DAY																														
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
C-55 H O. U R	01	SW	SE	N	W	S	SSW	WSW	W	WNW	S	NW	WNW	WSW	SW	W	WSW	S	N	NNW	NW	S	W	WNW	SSW	N	W	WNW	E	NW	W	---
	02	SW	E	N	WSW	S	SSW	WSW	W	W	S	NW	WNW	WSW	SW	W	WSW	SSE	N	N	NW	SSW	W	WNW	S	N	W	NW	ENE	NW	W	---
	03	WSW	NE	NNE	WSW	SSW	SSW	W	W	W	S	NW	WNW	WSW	SW	W	WSW	SSE	NNE	N	NNW	SSW	W	NW	SSE	N	WSW	NW	E	NW	WNW	---
	04	WSW	NE	NNE	WSW	SSW	SW	W	W	W	S	NNW	WNW	WSW	SW	W	WSW	SSE	N	N	NNW	SW	WNW	NNW	SSE	N	WSW	NNW	SE	NW	W	---
	05	WSW	ENE	WSW	WSW	SSW	WSW	W	WSW	W	S	NW	W	WSW	WSW	NW	WSW	S	N	NNW	NNW	SSW	W	NW	S	N	SW	NNW	SE	NW	W	---
	06	SW	WNW	WSW	SW	SW	WSW	W	WSW	W	S	NW	W	WSW	WSW	NNW	WSW	S	N	NNW	NW	SW	W	NW	S	NNW	S	NNW	SSE	NW	W	--
	07	WSW	WNW	SW	SSW	WSW	WSW	W	WSW	W	S	NW	W	WSW	WSW	W	SW	S	N	NNW	NNW	SW	WSW	NW	S	NNW	S	NNW	SSE	NW	W	---
	08	SW	WSW	SSW	SW	WSW	W	WNW	SW	W	S	NW	W	WSW	WSW	SW	WSW	SSW	N	NNW	NW	SW	SW	W	S	NNW	SSW	N	S	NW	W	---
	09	WSW	SW	S	SW	WSW	WSW	NW	S	W	S	NW	W	WSW	WSW	SW	NW	SSW	NNE	N	W	WSW	SSW	WNW	S	NW	S	NNW	S	NW	WSW	---
	10	SW	SSW	S	SW	W	WSW	NNE	S	SSW	S	NW	W	WSW	WSW	SW	NW	SSW	NNE	N	W	WSW	SSW	WNW	S	NW	S	NW	SSE	NNW	WSW	---
	11	SW	S	SSW	SW	W	WSW	WSW	S	S	S	NW	W	WSW	W	SW	N	SSW	N	NNW	W	W	SSW	WNW	S	NW	S	WNW	ESE	NNW	SW	---
	12	SW	SSW	SW	SSW	W	WSW	WNW	S	SW	S	NW	W	WSW	W	SSW	NNE	SW	N	N	S	W	S	NW	S	NW	S	NW	SE	N	SW	---
	13	WSW	SW	---	SSW	W	W	E	SSW	W	S	NNW	W	WSW	SW	WSW	NNE	WNW	N	N	WSW	W	SSW	NNW	SSW	NW	S	NW	ENE	NNW	SW	---
	14	SW	WSW	---	S	W	NNW	N	NNW	NW	SSW	NNW	WSW	WSW	SW	WSW	NE	NW	N	N	WNW	W	S	NNW	SW	NW	S	NW	ENE	NW	SW	---
	15	SW	WSW	---	S	W	N	NNE	N	NW	SW	NW	WSW	WSW	WSW	WSW	NE	NW	N	N	NW	W	S	NW	SW	NW	S	NW	ENE	NW	SW	-
	16	SW	WSW	---	S	WSW	N	NE	N	NNW	SW	NW	SW	WSW	SW	WSW	NE	NW	N	NNW	WNW	W	SSW	NNW	SW	NW	SW	WNW	NNW	NNW	WSW	---
	17	SW	SW	---	S	SSW	N	N	N	NNW	SW	NW	SW	SW	SW	WSW	NE	NNW	N	NNW	ENE	W	SW	N	WSW	NNW	WSW	WNW	N	NW	WSW	---
	18	S	WSW	---	S	SSE	NNW	NNE	NNE	NW	SW	NW	SW	WSW	SW	WSW	ENE	NNW	N	NW	E	WSW	WSW	N	SW	NW	WSW	N	NW	NW	WSW	---
	19	SSE	WSW	SSW	S	S	N	NNE	NNE	NW	WSW	WNW	SW	WSW	SW	WSW	ENE	NNW	N	NW	E	WSW	WSW	N	NW	NW	WSW	NNW	WNW	NW	SW	---
	20	S	WSW	WSW	S	S	N	WNW	NNE	WNW	W	WNW	SW	WSW	SW	WSW	NNE	NNW	N	NNW	E	WSW	NW	N	N	NW	WNW	N	NW	NW	SW	---
	21	S	WSW	W	S	SSW	NE	NW	ENE	NW	W	WNW	WSW	WSW	SW	WSW	NE	N	N	NW	ESE	SW	NW	N	NNW	WNW	NW	ENE	NW	NW	WSW	---
	22	S	W	W	S	SW	SSW	NW	E	NW	WSW	WNW	WSW	WSW	WSW	WSW	S	N	N	NW	SE	SW	W	N	N	WNW	WNW	E	NW	WNW	WSW	---
	23	S	W	W	S	SW	SW	WNW	W	WSW	W	WNW	WSW	SW	WSW	WSW	S	N	N	NW	ESE	SW	W	WNW	N	WNW	WNW	SE	NW	NW	WSW	---
	24	W	NW	W	S	SSW	SW	WNW	W	SW	WNW	WNW	WSW	WSW	WSW	WSW	S	N	N	NW	SE	WSW	WNW	W	N	W	WNW	ESE	NW	W	WSW	---

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GILLETTE

MONTH/YEAR DEC 75

DAY

C-56
H
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R

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	16	09	17	18	16	09	07	06	07	13	00	11	05	07	15	06	05	09	11	08	13	01	09	08	07	06	07	16	07	10	10
02	18	10	18	19	12	09	04	09	06	12	03	11	04	07	15	05	05	09	07	08	14	03	10	08	10	05	09	16	09	11	09
03	20	07	15	18	11	10	04	04	08	10	05	10	04	07	13	06	05	09	07	08	12	05	09	08	11	06	09	14	08	10	07
04	18	04	15	19	12	10	05	04	08	10	06	10	03	06	13	05	05	11	07	07	11	05	08	08	11	07	05	13	09	11	07
05	20	06	16	22	12	09	08	07	09	10	07	09	03	07	13	04	04	12	11	06	07	05	09	08	12	08	09	13	08	10	09
06	21	11	16	22	13	09	07	06	10	11	08	09	03	05	13	03	04	11	11	06	09	04	09	06	13	08	12	13	08	14	10
07	17	12	16	19	13	07	07	06	11	13	07	09	04	04	13	02	05	10	11	05	07	04	06	06	13	08	11	12	07	16	12
08	15	13	15	18	12	08	06	07	11	10	06	09	05	02	14	02	05	10	13	03	04	05	05	07	13	07	09	11	08	18	14
09	14	15	14	21	11	08	05	06	09	11	07	10	05	01	16	03	06	09	12	04	04	05	05	07	11	08	10	12	08	19	16
10	13	15	13	22	08	05	04	06	08	06	07	09	05	01	16	03	05	08	13	03	05	05	04	07	12	09	12	10	07	24	15
11	13	15	13	20	04	02	05	07	08	02	05	07	05	02	15	03	07	10	12	04	04	04	02	07	10	08	11	10	08	22	15
12	10	14	12	21	01	01	07	07	05	03	04	07	03	03	15	04	07	09	13	06	03	04	03	08	09	08	14	10	09	23	14
13	09	16	10	19	00	03	09	08	04	03	03	08	03	06	13	07	08	08	12	06	03	01	06	06	09	08	13	08	08	18	13
14	09	14	11	20	01	03	07	08	04	03	03	09	04	06	13	05	08	09	10	06	03	01	07	06	10	08	15	07	08	11	13
15	09	13	11	20	01	02	06	06	03	03	03	12	04	07	06	05	08	10	09	06	03	03	07	05	09	07	14	06	06	07	15
16	13	13	13	17	02	03	04	07	04	04	02	11	04	05	05	05	08	10	10	08	03	02	06	07	09	08	14	05	07	06	
17	14	13	14	14	03	06	05	07	07	03	03	08	05	08	07	05	09	08	10	10	05	03	05	08	08	08	12	04	06	09	18
18	15	14	18	14	03	06	11	07	11	06	04	09	06	11	07	05	08	09	10	13	05	05	05	06	08	09	14	05	06	09	18
19	15	15	14	18	04	06	09	07	11	05	04	09	07	12	07	04	09	08	10	15	05	07	05	07	08	09	14	06	08	10	18
20	15	15	18	18	05	03	11	07	12	04	05	09	07	10	07	03	09	08	11	15	04	08	06	07	09	09	14	07	11	09	17
21	14	15	16	18	06	03	10	07	11	04	05	09	08	12	07	05	08	08	09	15	04	06	06	07	09	09	14	06	11	09	18
22	11	16	16	17	06	02	07	05	11	03	08	08	08	12	07	05	09	10	09	18	05	05	05	07	08	10	14	08	10	08	16
23	10	16	16	18	10	05	07	05	12	02	09	07	08	14	06	05	09	11	08	18	05	08	06	08	07	09	14	06	10	08	14
24	10	17	18	16	10	06	06	06	12	01	10	06	08	14	06	06	09	10	08	16	05	09	06	07	26	09	16	07	12	08	13

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR DEC 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	WSW	W	WSW	WSW	W	S	S	NW	W	WSW	NNE	S	N	NNE	WSW	NNW	W	W	WSW	W	WSW	W	SSW	W	W	WNW	W	NW	W	SW	NW
02	WSW	NW	WSW	WSW	W	S	S	NW	W	WSW	NNE	S	N	N	WSW	NNW	W	W	WSW	W	WSW	W	S	W	W	W	W	NW	W	SW	NW
03	WSW	WNW	WSW	WSW	NW	S	S	NW	WSW	WSW	NNE	S	N	N	WSW	N	WSW	W	W	W	WSW	W	S	W	W	W	W	NW	W	SW	NNW
04	WSW	W	WSW	WSW	NNE	S	S	WNW	WSW	SW	N	S	N	N	WSW	NNW	SW	WNW	W	W	WSW	W	SSW	W	WNW	W	WNW	NW	WSW	SW	NNW
05	WSW	SW	WSW	WSW	N	S	S	WNW	WSW	SW	N	S	NNE	N	WSW	N	SW	WNW	W	W	WNW	W	SW	W	WNW	W	NW	NW	W	SW	N
06	WSW	WSW	WSW	WSW	N	S	S	WNW	WSW	SW	N	S	NNE	N	WSW	N	WSW	W	W	W	WSW	WNW	SW	W	NW	WSW	NNW	NW	W	SW	N
07	WSW	WSW	WSW	WSW	N	S	SSE	W	WSW	WSW	N	S	NNE	NNE	WSW	NW	W	W	WNW	W	WSW	W	SW	W	NW	W	NNW	NW	W	SW	N
08	WSW	WSW	WSW	WSW	N	S	SSE	W	WSW	WSW	N	S	NE	NNE	WSW	NW	W	W	WNW	W	W	W	WSW	W	NW	WSW	NNW	NW	W	SW	N
09	W	WSW	WSW	WSW	N	S	S	WSW	WSW	WSW	N	S	NE	WNW	WSW	WNW	W	W	WNW	WSW	W	W	WNW	W	NW	WSW	NW	NW	W	SW	N
10	W	WSW	WSW	WSW	N	S	S	SW	WSW	W	NNE	S	ENE	W	WSW	W	W	W	WNW	SW	W	W	NW	WSW	NW	WSW	NNW	NW	W	WSW	N
11	W	WSW	WSW	WSW	N	SSE	WSW	SW	SW	N	NNE	S	NE	SW	WSW	NW	W	W	WNW	SSW	W	W	NW	WSW	NW	WSW	NNW	NW	W	SW	N
12	W	WSW	WSW	WSW	NNE	E	WSW	SW	WSW	N	NNE	S	NE	SW	WSW	N	WSW	W	WNW	SSW	W	WSW	WNW	WSW	NW	WSW	NNW	NW	W	WSW	N
13	W	WSW	WSW	WSW	NW	W	WSW	SW	W	NNE	NNE	SSW	NE	SW	WSW	NNE	WSW	W	WNW	SSW	W	WSW	NW	WSW	WNW	WSW	NNW	NW	W	WSW	N
14	W	WSW	WSW	WSW	NE	W	WSW	WSW	W	NNE	NNE	SW	NNE	SW	W	N	WSW	WSW	NW	S	NW	SW	NW	WSW	WNW	WSW	NW	NW	W	NW	N
15	WSW	WSW	SW	WSW	ENE	NW	W	WSW	W	NE	ENE	WSW	NNE	SSW	N	N	WSW	WSW	NW	S	WNW	SW	NW	WSW	WNW	SW	NW	W	W	N	NNW
16	W	WSW	SW	WSW	ESE	NW	NNW	W	WSW	NE	E	WSW	NNE	S	N	NNW	WSW	WSW	NW	S	WNW	SW	NW	WSW	NW	SW	NW	W	W	NW	NNW
17	W	WSW	SW	WSW	SSE	NNE	N	W	SW	NNE	E	N	NNE	S	N	NW	W	WSW	NW	SSW	WNW	SW	WNW	W	WNW	SW	NW	WSW	W	NNW	NNW
18	W	WSW	WSW	WSW	S	NE	N	W	WSW	N	SSE	NNW	NNE	S	NNW	NNW	WSW	SW	WNW	SW	NW	SSW	W	WSW	WNW	WSW	NW	SSW	WSW	NNW	N
19	W	WSW	WSW	WSW	S	NE	NW	W	WSW	NNE	SSE	NNW	NNE	SSW	WNW	NNW	W	WSW	WNW	SW	NW	SSW	W	W	WNW	SW	NW	S	WSW	NNW	N
20	W	WSW	WSW	WSW	S	ESE	NW	WNW	WSW	N	SSE	NNW	NNE	SSW	WNW	WNW	WSW	WSW	WNW	SW	WNW	SSW	W	WSW	WNW	SW	NW	SSW	WSW	NNW	N
21	WNW	WSW	WSW	WSW	S	ESE	NW	WNW	WSW	N	SSE	NNW	NNE	SW	WNW	NW	W	WSW	W	SSW	W	S	W	WSW	WNW	SW	NW	SSW	WSW	NW	N
22	NW	WSW	WSW	WSW	S	SSE	NW	W	WSW	NNE	SSE	N	NNE	SW	WNW	NNW	WSW	WSW	W	SW	W	S	W	WSW	WNW	SW	NW	SW	SW	NW	NNW
23	NW	WSW	SW	WSW	S	S	NW	W	WSW	ENE	S	N	NNE	WSW	WNW	WNW	WSW	WSW	W	WSW	W	S	W	WSW	WNW	SW	NW	WSW	WSW	NW	NNW
24	NW	WSW	WSW	WSW	S	S	NW	W	WSW	E	S	N	NNE	WSW	NW	W	W	WSW	W	WSW	W	SSW	W	W	WNW	WSW	NW	W	WSW	NNW	NNW

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C-57

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GILLETTE

MONTH/YEAR JAN 76

DAY

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C-58
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	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	14	09	05	08	15	10	01	02	08	10	--	--	--	--	--	--	--	13	11	10	06	11	12	02	04	03	10	08	10	05	10
02	13	08	07	08	14	10	02	04	07	10	--	--	--	--	--	--	--	11	10	09	06	11	10	02	10	03	10	10	12	06	11
03	14	08	08	11	14	09	03	03	04	09	--	--	--	--	--	--	--	10	11	08	08	13	08	02	07	02	11	10	15	05	11
04	14	08	08	08	13	07	03	05	03	10	--	--	--	--	--	--	--	10	12	09	09	13	06	02	08	02	12	10	18	05	12
05	14	08	07	10	13	06	03	06	04	10	--	--	--	--	--	--	--	07	12	07	09	13	06	04	09	04	12	10	16	06	10
06	13	09	04	10	13	05	03	05	05	11	--	--	--	--	--	--	--	06	11	07	10	13	06	06	10	05	12	10	14	06	
07	13	08	05	10	14	04	03	08	04	10	--	--	--	--	--	--	--	06	08	07	09	13	04	06	09	06	12	09	13	14	12
08	13	09	04	11	12	02	02	10	04	10	--	--	--	--	--	--	--	05	09	09	10	10	04	05	08	08	12	09	13	15	14
09	12	08	03	12	12	01	02	07	07	10	20	--	--	--	--	--	--	07	07	08	09	09	05	04	08	07	12	09	10	14	08
10	12	07	04	11	11	01	00	10	08	11	20	--	--	--	--	--	06	07	06	08	07	09	03	07	08	08	13	08	10	12	11
11	13	08	02	09	12	02	01	14	10	09	20	--	--	--	--	--	06	12	06	09	07	10	03	07	07	07	13	07	11	19	13
12	13	10	03	06	10	01	01	11	10	09	22	--	--	--	--	--	07	11	07	10	06	11	01	07	09	06	13	07	11	17	12
13	13	10	06	04	09	02	00	11	09	08	18	--	--	--	--	--	07	12	07	10	06	11	01	08	12	07	14	07	11	18	17
14	12	12	04	03	10	03	01	12	11	--	23	--	--	--	--	--	08	12	08	10	08	11	03	09	11	07	15	07	10	16	16
15	11	12	05	03	11	04	02	10	05	--	23	--	--	--	--	--	08	14	08	10	08	12	07	08	11	04	14	07	09	15	'4
16	10	14	05	03	11	04	02	10	07	--	22	--	--	--	--	--	08	14	09	12	10	13	06	09	09	05	13	05	07	14	14
17	11	12	09	04	13	04	03	07	04	--	21	--	--	--	--	--	07	13	10	11	10	13	06	08	07	06	11	06	05	12	13
18	11	11	09	09	15	04	03	04	04	--	21	--	--	--	--	--	09	12	11	10	08	13	06	06	05	07	08	07	04	12	13
19	11	13	08	12	14	03	02	04	02	--	19	--	--	--	--	--	09	10	11	09	09	13	04	05	04	07	12	06	03	11	12
20	10	14	08	12	14	02	02	04	04	--	19	--	--	--	--	--	10	11	09	08	09	14	06	05	02	08	11	08	01	08	11
21	10	08	08	13	13	03	01	05	05	--	18	--	--	--	--	--	11	10	07	08	07	16	08	06	03	09	09	08	02	08	11
22	10	05	09	12	13	02	02	05	06	--	--	--	--	--	--	--	12	11	08	09	08	15	06	05	04	10	08	09	04	09	12
23	10	06	09	13	11	00	01	07	08	--	--	--	--	--	--	--	12	13	07	09	08	15	03	04	06	09	09	10	03	11	12
24	09	06	09	16	11	01	01	08	08	--	--	--	--	--	--	--	13	12	09	07	11	14	02	03	04	10	08	10	04	10	10

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR JAN 76

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
01	NNW	WNW	W	SSW	WSW	NNW	N	S	SW	NNW	---	---	---	---	---	---	---	WSW	WNW	WSW	WSW	WSW	WSW	WNW	WSW	W	WSW	NW	SW	S	W	
02	NNW	W	W	SW	WSW	NNW	NNW	S	SW	NNW	---	---	---	---	---	---	---	SW	WNW	W	WSW	SW	WSW	NW	W	W	WSW	NW	SW	SSE	W	
03	NNW	W	WNW	SW	WSW	NNW	N	S	WSW	NNW	---	---	---	---	---	---	---	WSW	WNW	W	WSW	SW	W	WNW	WSW	WSW	WSW	NW	WSW	S	W	
04	NNW	W	WNW	SSW	WSW	NNW	N	S	WSW	NNW	---	---	---	---	---	---	---	WSW	WNW	WSW	WSW	SW	W	WNW	WSW	SW	SW	NW	WSW	S	W	
05	NNW	W	WNW	SW	WSW	NNW	N	S	WSW	NNW	---	---	---	---	---	---	---	W	WNW	WSW	WSW	SW	W	NW	WSW	WSW	WSW	WNW	WSW	SSW	W	
06	NNW	W	W	SW	WSW	NNW	N	S	SSW	NW	---	---	---	---	---	---	---	NNW	WNW	SW	WSW	SW	W	WNW	WSW	WSW	WSW	WNW	WSW	W	W	
07	NNW	WNW	WNW	SW	WSW	N	N	S	SSW	NW	---	---	---	---	---	---	---	NNW	WNW	SW	WSW	WSW	WNW	WNW	W	WSW	WSW	WNW	W	NW	W	
08	NNW	WNW	WNW	SW	SW	N	N	S	S	NW	---	---	---	---	---	---	---	NW	WNW	WSW	W	SW	W	WNW	W	WSW	SW	WNW	W	NW	WNW	
09	NNW	WNW	WNW	SW	SW	NW	N	S	SSW	NW	WSW	---	---	---	---	---	---	NW	W	WSW	W	WSW	W	NNW	WNW	WSW	WSW	WNW	W	NW	WNW	
10	NNW	WNW	W	WSW	WSW	ENE	NW	S	S	NW	WSW	---	---	---	---	---	---	WNW	NW	W	W	W	WSW	WSW	N	NW	WSW	WSW	WNW	W	NW	WNW
11	NNW	W	SSW	SW	WSW	NE	E	S	SSW	NW	WSW	---	---	---	---	---	---	W	NNW	W	W	W	WSW	SSW	N	NW	WSW	WSW	WNW	NW	NW	WNW
12	NNW	W	SSW	NW	WSW	N	E	S	SW	NW	SW	---	---	---	---	---	---	W	N	W	W	W	WSW	SW	N	NW	SW	WSW	W	NW	NNW	WNW
13	NNW	WNW	SSW	NW	WSW	NE	SSW	S	SSW	W	SW	---	---	---	---	---	---	WSW	N	W	WNW	WSW	WSW	W	N	NW	WSW	WSW	W	NNW	NNW	WNW
14	NNW	NW	SSW	W	WSW	E	NNE	SSW	S	---	WSW	---	---	---	---	---	---	WSW	NNW	WNW	WNW	WSW	WSW	NW	N	NNW	W	WSW	WNW	NNW	NNW	NW
15	NNW	NNW	S	W	WSW	NE	NNE	SSW	S	---	WSW	---	---	---	---	---	---	WSW	NNW	W	WNW	WSW	WSW	NNW	N	NNW	WSW	WSW	W	NNW	NW	NW
16	NNW	NNW	S	W	WSW	NNE	N	WSW	SSW	---	WSW	---	---	---	---	---	---	WSW	N	WSW	WNW	WSW	WSW	NW	N	NNW	W	WSW	W	NNW	NW	NW
17	NNW	N	S	SW	WSW	NNE	N	WSW	SSW	---	WSW	---	---	---	---	---	---	SW	NNW	WSW	WNW	WSW	WSW	N	N	N	W	W	W	N	NW	NW
18	NW	N	SSW	SW	WSW	NNE	N	WSW	SSW	---	WSW	---	---	---	---	---	---	SW	NW	WSW	W	SW	WSW	ENE	N	N	W	W	W	NW	NW	NW
19	NW	N	SSW	SW	W	N	NNW	W	SSW	---	WSW	---	---	---	---	---	---	SW	NW	WSW	W	SW	WSW	ENE	NW	NNW	W	WSW	WSW	NW	NNW	NW
20	NW	N	SW	SW	N	NNW	N	WSW	WNW	---	WSW	---	---	---	---	---	---	SW	NW	WSW	W	SW	WSW	NE	NW	WNW	W	WSW	SW	WNW	NW	NW
21	NW	N	SSW	SW	N	NNW	N	WSW	NW	---	WSW	---	---	---	---	---	---	SW	WNW	WSW	W	SW	WSW	NE	NW	W	W	W	SW	WSW	NW	WNW
22	NW	NNW	SSW	SW	N	NNW	W	WSW	NW	---	---	---	---	---	---	---	---	SW	NW	W	W	SW	WSW	NE	NW	W	W	W	SW	SW	WNW	WNW
23	NW	NW	SSW	SW	N	NNW	SE	SW	NW	---	---	---	---	---	---	---	---	SW	NW	W	W	WSW	WSW	N	WNW	WNW	W	NNW	SW	SSW	WNW	WNW
24	WNW	WNW	SSW	WSW	N	NW	SSW	SW	NNW	---	---	---	---	---	---	---	---	WSW	WNW	WSW	W	WSW	WSW	N	W	W	WSW	NW	SW	S	W	WNW

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - GILLETTE

MONTH/YEAR FEB 76

		STATION										ELEVATE										DAY										MONTH YEAR FEB 19									
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31									
C-60 H U D R	01	10	12	08	08	03	06	12	13	25	08	12	19	03	14	09	04	10	13	04	05	08	11	14	18	04	13	16	13	03											
	02	10	12	08	07	03	06	15	15	25	07	11	19	03	18	07	05	08	13	04	05	08	12	14	17	04	12	15	13	02											
	03	11	08	10	07	04	08	15	17	22	04	11	18	02	--	07	07	09	14	05	05	07	12	13	16	04	12	12	15	02											
	04	10	03	08	06	03	09	13	19	18	06	12	08	02	--	08	07	11	14	04	05	06	13	13	15	04	11	06	14	03											
	05	08	03	08	06	04	11	13	20	19	08	13	18	04	--	09	06	13	12	04	04	06	13	14	11	05	09	06	16	03											
	06	07	04	08	05	03	11	09	20	18	09	14	18	04	--	09	06	10	13	07	05	04	13	15	09	05	11	07	15	04											
	07	08	03	08	05	04	12	07	20	17	08	14	16	06	--	09	04	10	11	07	05	04	13	15	09	07	13	07	14	05											
	08	08	03	09	04	04	11	08	18	18	07	15	14	07	--	07	07	11	08	06	06	06	13	14	07	09	13	08	15	06											
	09	07	02	09	03	04	11	08	17	15	06	14	12	08	--	03	08	11	09	04	06	06	12	15	06	10	12	08	13	08											
	10	08	03	11	03	04	12	08	16	13	08	14	11	05	--	02	13	13	10	02	05	06	12	13	04	10	15	08	13	09											
	11	09	03	13	03	03	11	09	15	05	07	14	08	04	--	02	14	14	13	03	07	06	11	15	06	16	18	06	10	09											
	12	10	04	13	03	04	08	09	16	05	08	14	09	05	--	05	18	12	14	04	08	07	12	15	03	15	20	05	09	08											
	13	10	06	12	04	04	07	07	16	05	08	14	09	04	--	05	19	10	16	05	08	07	11	16	03	13	20	04	10	09											
	14	10	08	10	05	05	10	07	18	07	07	13	06	06	--	06	20	09	14	06	09	08	11	16	04	14	21	02	10	09											
	15	10	08	10	05	04	10	06	18	04	08	15	05	10	--	08	20	06	14	05	09	09	13	15	04	15	18	01	10	08											
	16	11	08	10	05	04	10	08	17	03	08	18	05	13	--	08	22	04	12	04	09	08	13	14	05	14	14	04	08	05											
	17	10	09	09	05	04	10	06	19	03	06	18	04	10	13	08	20	06	10	05	07	08	15	13	05	13	13	04	07	--											
	18	12	12	09	05	05	12	07	21	03	04	18	06	12	12	07	19	07	10	05	07	10	15	14	05	12	11	05	05	--											
	19	13	11	08	04	07	13	05	22	03	04	19	04	14	06	06	18	07	10	05	06	10	17	16	04	11	12	06	03	--											
	20	12	10	08	04	08	12	04	21	04	06	18	06	13	11	04	14	11	08	01	04	11	16	18	02	11	14	08	03	--											
	21	12	11	09	05	08	08	03	20	07	08	18	06	10	14	04	14	12	07	01	06	10	15	18	00	13	17	09	04	--											
	22	13	10	09	05	06	13	03	21	08	07	18	04	10	12	06	11	11	06	03	06	11	15	17	01	15	18	08	05	--											
	23	12	10	09	04	07	14	05	24	12	09	15	02	16	10	05	11	13	06	05	04	10	14	15	02	13	18	10	04	--											
	24	11	08	08	04	07	13	08	22	11	10	16	04	11	11	05	11	13	04	05	07	10	15	14	04	13	18	09	04	--											

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR FEB 76

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	WNW	NW	NW	NE	N	W	WSW	WSW	WSW	N	WSW	WSW	S	SW	WNW	WNW	WSW	WSW	WSW	NNE	WNW	WSW	WSW	WSW	WNW	WSW	WSW	S	SW	---	---
02	WNW	NNW	WNW	NE	N	W	WSW	WSW	WSW	N	WSW	WSW	S	SW	W	W	W	WSW	W	N	WNW	WSW	WSW	WSW	WNW	WSW	WSW	S	N	---	---
03	WNW	NNW	WNW	NE	N	W	WSW	WSW	WSW	NNW	WSW	WSW	WSW	---	W	W	NW	WSW	W	N	WNW	WSW	WSW	WSW	W	WSW	WSW	SSW	NNE	---	---
04	WNW	N	NW	NE	N	W	WSW	WSW	WSW	NW	WSW	WSW	S	---	WSW	W	NNW	WSW	W	N	W	WSW	WSW	WSW	W	WSW	N	SW	NE	---	---
05	WNW	N	NW	NE	N	W	WSW	WSW	WSW	NW	WSW	WSW	SW	---	WSW	W	NW	WSW	WSW	N	W	WSW	WSW	WSW	WSW	SW	NNE	WSW	E	---	---
06	W	N	NNW	NE	N	W	W	WSW	WSW	NW	WSW	WSW	SW	---	WSW	W	NW	WNW	SW	N	W	WSW	WSW	WSW	SSW	SW	N	SW	ESE	---	---
07	W	NW	NNW	NE	NNW	WSW	W	WSW	WSW	NW	WSW	WSW	SW	---	WSW	WSW	NW	NW	SW	N	W	WSW	WSW	WSW	SW	SW	N	WSW	ESE	---	---
08	W	W	NNW	NE	N	WSW	W	WSW	WSW	WNW	WSW	WSW	WSW	---	WSW	SW	NW	NW	SSW	N	W	WSW	WSW	WSW	SW	SW	N	WSW	SE	---	---
09	W	W	N	NNE	N	WSW	W	WSW	WSW	WNW	WSW	WSW	WSW	---	SW	SW	NW	NW	SSW	N	WSW	WSW	WSW	WSW	SW	SW	N	NNW	SSE	---	---
10	W	WSW	NNE	NNE	NNW	WSW	W	WSW	WSW	WNW	WSW	WSW	WSW	---	W	SW	NW	NW	S	N	WSW	WSW	WSW	SW	WSW	WSW	N	N	SSE	---	---
11	W	WSW	NNE	NE	NW	WSW	W	WSW	W	NW	WSW	WSW	SSW	---	S	SW	NW	NW	SSE	N	WSW	WSW	WSW	SW	WSW	WSW	N	NNE	SSE	---	---
12	W	SW	NNE	NE	N	WSW	WNW	SW	W	NW	WSW	W	SSW	---	SW	WSW	NW	NW	SE	N	WSW	WSW	WSW	WSW	WSW	WSW	NNW	N	SSE	---	---
13	WNW	SW	NNE	NE	NNW	WSW	W	SW	W	NW	WSW	W	S	---	SSW	WSW	NW	NW	SE	N	WSW	WSW	WSW	E	W	W	NNW	N	SSE	---	---
14	WNW	WSW	NNE	NNE	NW	WSW	W	SW	W	NW	WSW	WSW	S	---	SSW	WSW	NW	WNW	ESE	N	SW	WSW	WSW	E	W	W	W	N	SSE	---	---
15	WNW	WSW	NNE	NNE	NW	WSW	W	SW	W	NW	WSW	W	SW	---	SW	WSW	WNW	WNW	SSE	N	WSW	WSW	WSW	E	W	W	S	NNW	SSE	---	---
16	WNW	SW	NE	N	WNW	WSW	WSW	SW	WSW	WNW	WSW	N	SW	---	SW	WSW	W	WNW	SSE	N	WSW	WSW	WSW	E	W	W	SSE	NW	SSE	---	---
17	WNW	SW	NE	NNE	WNW	WSW	WSW	SW	WSW	W	WSW	ENE	SSW	W	WSW	WSW	WSW	WNW	ESE	N	WSW	WSW	WSW	E	W	W	SSE	NW	---	---	---
18	NW	WSW	NE	NNE	W	SW	SW	WSW	WSW	W	WSW	E	SSW	W	W	WSW	SW	WNW	E	N	WSW	WSW	WSW	E	WSW	WSW	SSE	NW	---	---	---
19	NW	W	NE	N	W	SW	WSW	WSW	NNW	SW	WSW	NE	S	W	NW	WSW	SW	W	SE	N	WSW	WSW	WSW	E	WSW	WSW	SSE	NW	---	---	---
20	NNW	WNW	NE	N	W	SW	W	WSW	NNW	SSW	WSW	NE	S	W	NNE	WSW	SW	W	WSW	NNW	WSW	WSW	WSW	E	SW	WSW	SSE	W	---	---	---
21	NW	WNW	NE	N	W	SW	WSW	WSW	N	SSW	WSW	NNE	S	W	N	WSW	SW	WNW	NNW	NW	WSW	WSW	WSW	E	WSW	WSW	SSE	WSW	---	---	---
22	NW	NW	NE	N	W	SW	WSW	WSW	NNW	SW	WSW	NNE	SSW	WNW	WSW	WSW	SW	WNW	N	NW	WSW	WSW	WSW	SSW	WSW	WSW	S	WSW	---	---	---
23	NNW	NNW	NE	N	W	SW	WSW	WSW	N	SW	WSW	ENE	SSW	WNW	NW	WSW	WSW	WNW	N	NW	WSW	WSW	SW	SW	WSW	WSW	S	WSW	---	---	---
24	NW	NW	NE	N	W	WSW	WSW	WSW	N	SW	WSW	SSE	SSW	WNW	NW	WSW	WSW	W	N	WNW	WSW	WSW	SW	WSW	WSW	WSW	S	SW	---	---	---

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - BOWMAN

MONTH/YEAR FEB 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01													08	--	02	06	07	05	08	10	11							10			
02													10	04	02	08	07	05	08	09	12							10			
03													09	05	02	10	07	06	09	09	13							09			
04													09	06	01	08	08	07	08	09	13							08			
05													09	06	01	05	08	07	08	08	15							08			
06													08	05	01	10	07	07	08	09	15							08			
07													10	05	00	09	09	08	08	07	15							09			
08													08	04	00	06	10	07	08	07	16							09			
09													06	05	00	04	09	06	09	07	17							08			
10													04	04	00	06	09	07	09	06								09			
11													05	04	01	04	08	07	09	04								10			
12													06	04	01	05	09	07	08	03								12			
13													06	04	03	03	10	08	09	03							16	12			
14													04	03	04	04	10	08	09	04							14	12			
15													03	03	04	03	09	10	07	04							13	12			
16													03	04	05	03	10	10	06	06							12	13			
17													03	04	05	04	09	09	05	07							12	11			
18													03	04	06	03	08	09	06	08							10	10			
19												08	03	03	07	04	08	08	06	07							09	08			
20												09	02	04	08	03	07	10	07	10							09	07			
21												09	--	02	07	03	07	08	08	12							09	06			
22												09	--	01	07	03	06	09	08	14							07	06			
23												09	--	02	06	03	06	08	09	11							06	05			
24												11	--	03	05	05	05	08	09	10							07	06			

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - BOWMAN

MONTH/YEAR FEB 75

		DAY													MONTH/YEAR FEB 75																	
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
C-63 H D U R	01	---	---	---	---	---	---	---	---	---	---	---	---	SSE	N	NW	S	WNW	WNW	W	SSW	WNW	---	---	---	---	---	---	WNW	---	---	---
	02	---	---	---	---	---	---	---	---	---	---	---	---	SSE	N	NW	S	WNW	WNW	W	SSW	WNW	---	---	---	---	---	---	WNW	---	---	---
	03	---	---	---	---	---	---	---	---	---	---	---	---	SSE	N	NW	S	WNW	W	W	S	WNW	---	---	---	---	---	---	WNW	---	---	---
	04	---	---	---	---	---	---	---	---	---	---	---	---	SSE	N	NW	S	WNW	W	W	SSW	WNW	---	---	---	---	---	---	WNW	---	---	---
	05	---	---	---	---	---	---	---	---	---	---	---	---	SSE	N	WNW	S	WNW	W	W	SSW	WNW	---	---	---	---	---	---	WNW	---	---	---
	06	---	---	---	---	---	---	---	---	---	---	---	---	SSE	N	WNW	S	WNW	W	W	SSW	WNW	---	---	---	---	---	---	WNW	---	---	---
	07	---	---	---	---	---	---	---	---	---	---	---	---	S	N	WNW	S	WNW	W	W	S	NW	---	---	---	---	---	---	WNW	---	---	---
	08	---	---	---	---	---	---	---	---	---	---	---	---	S	N	WSW	S	WNW	W	W	S	NW	---	---	---	---	---	---	WNW	---	---	---
	09	---	---	---	---	---	---	---	---	---	---	---	---	S	N	S	S	WNW	W	W	S	NW	---	---	---	---	---	---	WNW	---	---	---
	10	---	---	---	---	---	---	---	---	---	---	---	---	SSE	N	SW	S	WNW	W	W	SSW	---	---	---	---	---	---	---	WNW	---	---	---
	11	---	---	---	---	---	---	---	---	---	---	---	---	SSE	NNE	SSW	S	WNW	W	W	SSW	---	---	---	---	---	---	---	WNW	---	---	---
	12	---	---	---	---	---	---	---	---	---	---	---	---	SSE	NNE	SW	S	WNW	W	W	SW	---	---	---	---	---	---	---	WNW	---	---	---
	13	---	---	---	---	---	---	---	---	---	---	---	---	S	NNE	SSW	S	WNW	W	W	SW	---	---	---	---	---	---	---	NW	WNW	---	---
	14	---	---	---	---	---	---	---	---	---	---	---	---	SSE	NNE	SSW	SSE	WNW	W	W	WSW	---	---	---	---	---	---	---	NW	NW	---	---
	15	---	---	---	---	---	---	---	---	---	---	---	---	SSE	NNE	SSW	SSE	NW	W	W	W	---	---	---	---	---	---	---	NW	NW	---	---
	16	---	---	---	---	---	---	---	---	---	---	---	---	SSE	N	SSW	SSE	NW	W	W	W	---	---	---	---	---	---	---	WNW	NW	---	---
	17	---	---	---	---	---	---	---	---	---	---	---	---	SSE	NNE	S	S	NW	W	WSW	W	---	---	---	---	---	---	---	WNW	NW	---	---
	18	---	---	---	---	---	---	---	---	---	---	---	---	SSE	N	S	S	NW	W	WSW	W	---	---	---	---	---	---	---	NW	NNW	---	---
	19	---	---	---	---	---	---	---	---	---	---	---	---	SE	SSE	NNE	S	SSW	NW	W	SW	WNW	---	---	---	---	---	---	NW	NNW	---	---
	20	---	---	---	---	---	---	---	---	---	---	---	---	SSE	S	NNE	SSW	SW	NW	W	SW	NW	---	---	---	---	---	---	NW	NNW	---	---
	21	---	---	---	---	---	---	---	---	---	---	---	---	SSE	S	NNE	SSW	WSW	NW	W	SW	NW	---	---	---	---	---	---	NW	NNW	---	---
	22	---	---	---	---	---	---	---	---	---	---	---	---	SSE	SSW	N	S	WSW	NW	W	SW	NW	---	---	---	---	---	---	NW	NNE	---	---
	23	---	---	---	---	---	---	---	---	---	---	---	---	SSE	WNW	N	S	W	NW	W	SSW	NW	---	---	---	---	---	---	NW	NNE	---	---
	24	---	---	---	---	---	---	---	---	---	---	---	---	SSE	ENE	NNW	S	WNW	WNW	W	SSW	NW	---	---	---	---	---	---	WNW	N	---	---

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, US(MS)

STATION - BOWMAN

MONTH/YEAR MAR 75

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	DAY																														
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	06	06	06	08	06	04	03	07	04	03	06	09	11	05	--	--	--	07	05	07	06	09	16	07	06	16	07	16	12	07	19
02	04	07	05	08	06	04	03	06	04	04	05	08	11	04	--	--	--	06	09	08	07	10	15	07	03	15	09	18	11	06	20
03	03	07	06	07	06	04	03	05	02	05	04	08	11	03	--	--	--	08	10	07	08	10	12	08	04	13	09	17	11	07	18
04	05	07	05	07	07	05	06	05	03	04	03	08	11	02	--	--	--	09	08	09	09	10	10	08	04	12	08	18	10	06	12
05	06	05	06	08	06	04	06	05	03	05	03	09	10	01	--	--	--	10	09	09	09	10	11	09	04	12	07	17	08	05	10
06	05	05	06	09	07	04	05	06	04	04	03	09	10	01	--	--	--	11	10	07	08	12	10	09	05	10	07	16	08	05	
07	05	05	05	09	07	04	06	06	04	04	04	08	11	03	--	--	--	12	13	06	09	12	11	09	05	10	06	16	08	05	08
08	05	05	05	08	08	03	06	07	05	05	04	08	10	04	--	--	--	12	15	07	10	15	10	08	05	09	07	17	08	06	07
09	04	05	04	07	07	03	06	07	06	05	04	07	09	06	--	--	--	10	18	06	08	16	11	08	05	09	07	18	06	07	06
10	04	05	03	07	07	03	07	08	06	04	07	05	06	06	--	--	--	11	17	08	08	19	10	08	04	11	08	18	07	08	05
11	04	05	04	07	07	04	06	09	07	05	10	04	06	07	--	--	--	12	15	09	08	18	10	09	07	11	09	17	06	09	03
12	03	05	04	07	08	04	06	09	07	05	11	04	05	06	--	--	--	12	13	07	09	20	12	10	08	10	09	17	06	09	04
13	04	06	04	08	07	05	06	10	06	04	12	04	06	06	--	--	--	11	12	07	08	20	14	10	08	10	11	18	06	09	04
14	04	06	04	07	08	05	05	10	07	05	11	03	07	--	--	--	--	10	11	09	09	16	14	11	09	10	11	17	07	10	04
15	04	06	03	07	07	05	07	09	07	05	12	03	07	--	--	--	--	11	10	12	09	15	14	10	10	08	13	16	10	12	05
16	05	06	04	08	06	06	07	09	06	04	12	03	07	--	--	--	--	11	09	13	08	15	12	09	11	07	14	17	11	13	05
17	05	06	04	08	06	06	07	10	06	05	11	04	07	--	--	--	13	11	07	12	07	16	10	09	12	05	14	18	11	09	05
18	05	06	05	08	05	05	06	08	06	05	11	04	07	--	--	--	13	08	05	12	06	16	09	08	16	07	13	18	10	08	06
19	04	06	05	08	04	05	06	08	06	06	10	05	06	--	--	--	11	09	03	10	06	16	09	07	13	08	15	18	09	11	04
20	05	07	07	08	03	05	06	06	06	07	09	09	07	--	--	--	08	09	02	10	02	18	08	07	14	09	15	15	10	13	03
21	06	07	07	08	03	05	05	05	07	08	09	10	08	--	--	--	08	08	04	11	02	19	08	06	13	08	15	14	09	13	03
22	06	07	07	09	04	06	06	05	06	07	09	10	06	--	--	--	06	08	06	10	08	19	08	06	15	07	16	13	09	13	02
23	06	06	07	09	04	07	07	04	04	08	08	11	06	--	--	--	08	07	05	06	10	19	09	05	15	09	16	12	09	16	02
24	05	06	08	09	05	05	07	03	04	08	08	11	06	--	--	--	09	03	06	05	09	19	08	05	16	07	17	13	08	15	03

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - BOWMAN

MONTH/YEAR MAR 75

	DAY																															
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
01	NNE	ENE	SSE	W	WNW	E	N	E	ESE	SE	SSW	WNW	S	NW	---	---	---	WSW	S	SSE	WNW	E	E	NNE	ENE	SE	WNW	NNW	NW	W	WNW	
02	N	ENE	SSE	W	WNW	ENE	NNW	ESE	ESE	SE	SW	WNW	S	NNW	---	---	---	WSW	S	S	W	E	E	N	ESE	SE	WNW	NW	WNW	W	NW	
03	N	E	SSE	W	NW	NE	NW	SE	E	SE	SSW	WNW	S	N	---	---	---	SW	S	SE	W	E	E	N	SE	SE	WNW	NW	WNW	W	NNW	
04	NNW	E	SSE	W	NW	NE	NNW	SE	ENE	SE	SW	WNW	S	N	---	---	---	SW	SW	SE	W	E	E	N	SSE	SE	WNW	NW	WNW	W	N	
05	NNW	ESE	SSE	WSW	NW	NE	NNW	SE	ENE	SSE	WSW	WNW	S	NE	---	---	---	SW	W	SE	W	E	E	N	SSE	SE	NW	NW	WNW	W	N	
06	NNW	ESE	SSE	WSW	NW	ENE	NW	SE	NE	SSE	WNW	WNW	S	E	---	---	---	WSW	W	SE	W	E	ENE	NNW	SSE	SE	NNW	NW	WNW	WSW		
07	NNW	SE	SSE	WNW	NW	NE	NNW	SE	NE	SSE	WNW	WNW	S	SE	---	---	---	WSW	W	SE	W	E	ENE	NNW	SSE	SE	NNW	NW	W	SSW	N	
08	NNW	SE	SSE	WNW	NNW	NE	NNW	SSE	NNE	SSE	WNW	WNW	S	SE	---	---	---	W	W	SE	W	E	ENE	NNW	SSE	SE	NNW	NW	W	SSW	NNW	
09	WNW	SE	SSE	NW	NW	NNE	NNW	SSE	NNE	S	WNW	WNW	SSW	S	---	---	---	W	WNW	SSE	W	E	ENE	NNW	S	SSE	NNW	NW	W	S	NNW	
10	NNW	SE	SSE	WNW	NW	NNE	N	SSE	NE	SSE	NW	WNW	SSW	S	---	---	---	W	WNW	SSE	WNW	E	NE	NW	SSE	SSE	NNW	NW	W	S	NNW	
11	NNW	SE	SSE	WNW	NW	NNE	NNW	SSE	NE	SSE	NW	WNW	SW	S	---	---	---	WNW	NW	S	NW	E	NE	NW	SSE	SSE	N	NW	W	S	NNW	
12	NNW	SE	S	WNW	NW	N	NNW	SSE	ENE	SSE	NW	WNW	WSW	SW	---	---	---	WNW	NW	SSW	NW	ESE	NE	NNW	SSE	SSE	N	NW	WNW	SSW	NW	
13	NNW	SE	SSW	WNW	NW	N	NNW	SSE	NE	SSE	NW	WNW	W	W	---	---	---	WNW	NW	W	WNW	ESE	NE	NNW	SE	SSE	N	NW	WNW	SW	NW	
14	NNW	SE	SSW	WNW	NW	N	NW	SSE	NE	SSE	NW	W	WNW	---	---	---	---	WNW	NW	W	WNW	ESE	NE	NNW	SE	S	N	NW	NW	WSW	NW	
15	NNW	SE	SSW	W	NNW	N	NNW	SSE	NE	S	NW	W	WNW	---	---	---	---	W	NW	WNW	WNW	E	NE	NNW	SE	S	N	NW	NNW	WSW	NNW	
16	N	SE	SW	W	NNW	N	NNW	SSE	ENE	S	NW	WSW	WNW	---	---	---	---	W	NW	WNW	WNW	E	NNE	NW	SE	S	N	NW	NNW	W	NNW	
17	N	SE	SW	W	NNW	N	NNW	SSE	ENE	S	NW	WSW	WNW	---	---	---	---	W	W	NW	WNW	WNW	E	NNE	NNW	SE	WNW	N	NNW	NNW	W	NNW
18	N	SE	WSW	W	NNW	N	NNW	SSE	ENE	SSE	NW	SW	WNW	---	---	---	---	W	W	WNW	NW	WNW	E	N	NNW	SE	WNW	N	NW	NNW	W	NNW
19	NNE	SE	SW	W	NNW	NNW	N	SSE	E	S	NW	SSW	W	---	---	---	---	W	W	N	NW	WNW	E	N	NW	SE	WNW	NNW	NW	NW	W	N
20	NE	SE	WSW	W	NNW	NW	N	SSE	E	S	NW	SSW	WSW	---	---	---	---	W	W	E	NW	NW	E	N	NNW	SE	WNW	NNW	NW	NW	W	N
21	NE	SE	WSW	W	N	NW	NNE	SSE	E	S	NW	SSW	WSW	---	---	---	---	W	W	ESE	NNW	NE	E	N	NNW	SE	NW	NNW	NW	WNW	WNW	N
22	NE	SSE	WSW	WNW	NNE	NNW	NE	SSE	ESE	SSW	NW	SSW	W	---	---	---	---	W	WSW	ESE	NNW	E	E	NNE	N	SE	WNW	NNW	NW	WNW	WNW	N
23	ENE	SE	WSW	WNW	NNE	NNW	ENE	SE	SE	S	NW	SSW	W	---	---	---	---	W	WSW	SSE	NNW	E	E	NNE	NNE	SE	NW	NNW	WNW	W	NW	NW
24	ENE	SSE	W	WNW	ENE	N	E	SE	SE	SSW	NW	S	WNW	---	---	---	---	W	WSW	SSE	WNW	E	E	NNE	NE	SE	WNW	NNW	NW	W	WNW	WNW

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - BOWMAN

MONTH/YEAR APR 75

DAY

C-66
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R

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
01	03	07	08	07	--	--	--	--	--	--	--	09	05	08	06	08	03	08	09	08	03	10	07	08	07	19	07	09	12	08	
02	02	06	07	07	--	--	--	--	--	--	--	09	05	09	06	07	06	06	10	08	04	09	06	07	08	18	06	09	11	08	
03	02	06	10	08	--	--	--	--	--	--	--	09	04	09	06	06	05	07	09	09	03	09	05	08	08	15	06	15	11	07	
04	02	06	10	09	--	--	--	--	--	--	--	09	04	07	06	06	05	08	09	09	02	08	06	07	09	12	06	13	11	07	
05	04	06	08	08	--	--	--	--	--	--	--	09	04	04	06	06	08	07	08	09	02	06	06	07	10	11	06	13	10	08	
06	05	06	08	07	--	--	--	--	--	--	--	09	05	05	06	07	08	09	08	10	02	07	06	07	10	09	08	18	10	08	
07	04	06	08	08	--	--	--	--	--	--	--	09	06	05	07	07	08	09	08	10	04	06	06	07	10	08	08	19	10	08	
08	03	06	08	07	--	--	--	--	--	--	--	10	05	05	06	06	08	08	07	09	04	06	07	08	10	08	07	18	09	07	
09	04	05	09	07	--	--	--	--	--	--	--	10	05	04	07	06	09	09	08	09	05	05	07	09	11	06	08	18	09	09	
10	04	05	09	07	--	--	--	--	--	--	--	11	03	05	07	07	11	10	08	07	07	04	06	09	11	07	11	20	09	11	
11	03	05	07	07	--	--	--	--	--	--	--	10	05	05	06	05	11	11	09	06	08	04	05	08	12	06	09	20	10	10	
12	03	05	07	07	--	--	--	--	--	--	--	10	05	05	05	05	10	11	08	04	09	02	05	06	13	07	08	19	11	09	
13	02	04	08	07	--	--	--	--	--	--	--	12	03	05	05	05	11	10	07	03	09	03	04	04	14	07	08	20	11	10	
14	01	04	08	07	--	--	--	--	--	--	--	11	03	03	06	05	11	09	06	04	08	03	04	01	14	04	09	21	11	09	
15	01	04	07	08	--	--	--	--	--	--	--	09	02	01	06	05	12	08	07	07	08	02	04	02	14	04	09	17	12	08	
16	01	04	06	07	--	--	--	--	--	--	--	09	03	01	05	06	11	11	05	05	09	03	04	03	16	05	10	13	10	07	
17	02	04	06	07	--	--	--	--	--	--	--	05	09	03	01	05	06	11	11	04	08	11	05	05	03	18	10	10	14	09	07
18	02	05	07	07	--	--	--	--	--	--	--	04	09	03	04	06	04	12	12	04	10	11	08	05	03	18	11	12	13	07	05
19	02	06	06	08	--	--	--	--	--	--	--	04	08	03	06	05	02	11	10	03	06	10	07	08	05	20	10	11	13	05	07
20	03	06	06	08	--	--	--	--	--	--	--	03	08	03	04	05	03	08	10	04	05	08	06	07	06	20	10	10	13	05	04
21	03	06	07	--	--	--	--	--	--	--	--	03	08	03	04	05	04	09	09	06	04	08	06	05	08	19	11	10	12	06	03
22	03	07	07	--	--	--	--	--	--	--	--	05	08	03	03	06	02	09	08	07	05	09	08	06	07	24	10	09	13	08	03
23	04	09	07	--	--	--	--	--	--	--	--	07	07	03	06	05	02	09	09	06	04	09	07	08	06	23	09	14	14	08	04
24	06	09	08	--	--	--	--	--	--	--	--	08	04	07	06	06	03	10	08	06	03	10	08	07	07	20	08	13	12	08	04

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - BOWMAN

MONTH/YEAR APR 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
H O U R	01	NW	S	S	SE	---	---	---	---	---	---	WSW	NNE	S	N	ESE	N	NNW	NW	SSE	N	SSE	ENE	SE	SE	SE	E	NNW	NNW	NW	---	
	02	WNW	S	S	SE	---	---	---	---	---	---	WSW	N	S	N	SE	N	WNW	NW	S	N	SSE	ENE	SE	SSE	SE	NNE	NNW	NNW	NNW	---	
	03	WNW	S	S	ESE	---	---	---	---	---	---	WSW	N	S	N	SE	N	WNW	NW	S	N	SSE	ENE	SE	SSE	SE	N	N	NNW	NNW	---	
	04	WNW	S	S	ESE	---	---	---	---	---	---	W	N	S	N	SE	N	NW	NW	S	NNW	SE	ENE	SE	SSE	SE	N	NNW	NNW	NNW	---	
	05	NW	SSW	S	ESE	---	---	---	---	---	---	W	N	SSE	NNW	SE	N	WNW	NW	S	WNW	SE	E	SE	SSE	SE	N	NNW	NNW	NW	---	
	06	NNW	S	SSW	SE	---	---	---	---	---	---	W	NNE	SSE	NNW	SE	N	NW	NW	S	WSW	SSE	E	E	SSE	SE	N	NW	NNW	NW	---	
	07	N	S	SSW	SE	---	---	---	---	---	---	W	NNE	SE	N	SE	N	WNW	NW	S	SSW	SSE	E	E	SE	SE	N	NW	NNW	NW	---	
	08	N	SSW	SSW	SE	---	---	---	---	---	---	W	NE	SSE	N	SE	NNW	WNW	NNW	S	S	S	E	ENE	SE	SE	NNW	NW	NNW	WNW	---	
	09	NNE	SSW	SSW	SE	---	---	---	---	---	---	W	NE	SSE	N	SE	NNW	NW	NNW	S	S	S	E	ENE	SE	SE	NNW	NW	NNW	WNW	---	
	10	NNE	SSW	SSW	SE	---	---	---	---	---	---	WNW	N	S	N	SSE	NNW	NW	NNW	S	SSW	S	E	ENE	SE	SSE	NNW	NW	NNW	NW	---	
	11	NE	SSW	S	SE	---	---	---	---	---	---	WNW	NNE	S	N	SE	NNW	NW	NNW	S	SSW	SSW	ESE	E	SE	SSE	N	NW	N	NNW	---	
	12	NE	S	S	SE	---	---	---	---	---	---	NW	NE	S	N	SE	NNW	NNW	NNW	S	SSW	NW	SE	E	SE	S	NNW	NNW	NNE	NNW	---	
	13	ENE	SSE	S	SE	---	---	---	---	---	---	NNW	NNE	S	NNE	SE	N	NNW	NNW	S	SSW	NNE	SSE	E	SE	S	NW	NNW	NNE	NNW	---	
	14	E	S	S	SE	---	---	---	---	---	---	N	NNE	S	NNE	SSE	N	NW	NW	SSE	SSW	NE	SE	WSW	SE	SSW	NW	NNW	N	NNW	---	
	15	ESE	SSW	SSE	ESE	---	---	---	---	---	---	N	NE	SW	NE	S	NNW	NW	NW	WSW	SSW	NE	SSE	NNW	SE	SE	NW	NNW	NNE	NNW	---	
	16	E	S	SSE	SE	---	---	---	---	---	---	N	ENE	WSW	NE	S	NNW	NNW	NW	NW	S	NE	SSE	NE	SE	SE	NNW	NNW	NNE	NNW	---	
	17	ENE	S	SSE	ESE	---	---	---	---	---	---	NW	N	NE	SE	ENE	S	NNW	N	NW	WNW	S	NE	SE	ENE	ESE	ESE	NNW	NNW	N	NW	---
	18	E	S	SSE	ESE	---	---	---	---	---	---	NW	N	ENE	E	E	SSE	NNW	NNW	NNW	NW	S	NNE	SE	E	ESE	E	NW	NNW	N	NW	---
	19	ENE	S	SSE	ESE	---	---	---	---	---	---	NNW	N	E	SE	ENE	SSE	NNW	NW	NNE	NNW	S	NE	ESE	ESE	ESE	E	NNW	NNW	N	N	---
	20	E	S	SE	SE	---	---	---	---	---	---	NW	NNE	E	SE	E	S	NNW	NW	ENE	NW	SSE	NE	SE	ESE	ESE	E	N	NW	NNW	NW	---
	21	SE	S	SE	---	---	---	---	---	---	---	WNW	NE	ESE	S	E	S	NNW	NNW	E	NW	SSE	ENE	SE	ESE	SE	ESE	NNE	NNW	NNW	NW	---
	22	SE	S	SE	---	---	---	---	---	---	---	W	NNE	SE	NNW	E	NNW	NNW	NNW	ESE	NNW	SSE	NE	SE	SE	ESE	E	NNE	NNW	NNW	W	---
	23	SSE	S	SE	---	---	---	---	---	---	---	W	NNE	SSE	N	ESE	N	NNW	NW	SE	N	SSE	NE	SE	SE	ESE	E	N	NNW	NNW	W	---
	24	S	S	SE	---	---	---	---	---	---	---	W	NNE	S	N	ESE	NNW	NNW	NW	SSE	N	SSE	ENE	SE	SE	ESE	E	N	NNW	NNW	W	---

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, US(MS)

STATION - BOWMAN

MONTH/YEAR MAY 75

DAY

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C-68
D
C
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	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	03	09	08	05	--	--	--	--	--	--	--	07	10	--	--	--	11	03	05	08	06	06	02	10	--	09	--	--	--	--	--
02	05	10	10	06	--	--	--	--	--	--	--	06	--	--	--	--	09	02	05	07	07	07	02	09	--	09	--	--	--	--	--
03	07	08	11	--	--	--	--	--	--	--	--	06	--	--	--	--	06	05	08	03	06	07	01	10	--	08	--	--	--	--	--
04	08	04	11	06	--	--	--	--	--	--	--	06	--	--	--	--	05	06	10	04	08	06	02	11	--	09	--	--	--	--	--
05	07	05	12	09	--	--	--	--	--	--	--	07	--	--	--	--	06	07	10	06	08	07	03	11	--	09	--	--	--	--	--
06	07	04	11	09	--	--	--	--	--	--	--	06	--	--	--	--	05	08	08	07	06	07	04	10	--	09	--	--	--	--	--
07	06	07	11	09	--	--	--	--	--	--	--	05	--	--	--	--	06	08	09	07	07	05	03	09	--	08	--	--	--	--	--
08	05	08	09	09	--	--	--	--	--	--	--	05	--	--	--	--	06	08	09	05	07	07	03	07	--	08	--	--	--	--	--
09	06	09	08	10	--	--	--	--	--	--	--	05	--	--	--	--	07	10	11	05	06	06	04	04	--	--	--	--	--	--	--
10	07	09	07	11	--	--	--	--	--	--	--	05	--	--	--	--	07	08	10	06	05	08	04	--	--	--	--	--	--	--	--
11	07	03	07	12	--	--	--	--	--	--	--	04	05	--	--	--	07	09	09	04	05	08	05	--	--	--	--	--	--	--	--
12	08	08	07	13	--	--	--	--	--	--	--	04	05	--	--	--	07	08	07	07	06	07	05	--	--	--	--	--	--	--	--
13	08	07	07	14	--	--	--	--	--	--	--	04	04	--	--	--	08	07	08	08	06	07	04	--	--	--	--	--	--	--	--
14	09	06	07	15	--	--	--	--	--	--	--	05	04	--	--	--	08	07	10	07	05	07	04	--	--	--	--	--	--	--	--
15	08	06	08	17	--	--	--	--	--	--	--	05	04	--	--	--	08	07	12	07	05	07	05	--	--	--	--	--	--	--	--
16	07	06	08	16	--	--	--	--	--	--	--	04	04	--	--	--	10	08	13	06	04	06	06	--	--	--	--	--	--	--	--
17	06	07	06	15	--	--	--	--	--	--	--	01	04	--	--	--	04	12	09	13	06	04	06	05	--	--	--	--	--	--	--
18	05	08	06	19	--	--	--	--	--	--	--	03	05	--	--	--	04	12	07	10	06	04	05	04	--	--	--	--	--	--	--
19	05	07	06	19	--	--	--	--	--	--	--	05	07	--	--	--	05	10	05	12	06	05	04	06	--	--	--	--	--	--	--
20	04	05	--	18	--	--	--	--	--	--	--	06	07	--	--	--	06	08	06	07	06	05	06	08	--	--	--	--	--	--	--
21	04	03	--	18	--	--	--	--	--	--	--	07	08	--	--	--	07	06	05	07	06	05	04	03	--	--	--	--	--	--	--
22	03	01	06	19	--	--	--	--	--	--	--	03	07	--	--	--	08	05	04	08	06	05	05	09	--	--	--	--	--	--	--
23	04	01	07	--	--	--	--	--	--	--	--	09	07	--	--	--	07	05	03	08	05	05	03	12	--	--	--	--	--	--	--
24	07	03	06	--	--	--	--	--	--	--	--	08	08	--	--	--	12	03	05	06	04	05	03	10	--	--	--	--	--	--	--

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - BOWMAN

MONTH/YEAR MAY 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	NW	S	S	SSE	E	E	---	---	---	---	---	SE	WSW	---	---	---	NNW	NE	SSW	NW	NNW	E	NW	SW	---	WNW	---	---	---	---	---
02	W	S	S	S	ESE	SSE	---	---	---	---	---	SSE	---	---	---	---	N	SE	SSW	NW	N	E	NNW	WSW	---	WNW	---	---	---	---	---
03	WNW	SW	S	SSE	ESE	ESE	---	---	---	---	---	SSE	---	---	---	---	NNE	SSE	N	NW	NNW	E	NNE	WSW	---	WNW	---	---	---	---	---
04	W	W	S	E	E	ESE	---	---	---	---	---	SSE	---	---	---	---	NNE	S	N	NNW	N	E	NW	WSW	---	W	---	---	---	---	---
05	W	NW	SSW	E	E	E	---	---	---	---	---	SSE	---	---	---	---	NNW	S	N	NW	NNE	E	NW	WSW	---	W	---	---	---	---	---
06	W	WNW	SSW	E	E	ESE	---	---	---	---	---	SSE	---	---	---	---	WNW	S	NNW	NW	NNE	E	NNW	WSW	---	W	---	---	---	---	---
07	WNW	WNW	SSW	E	E	E	---	---	---	---	---	SSE	---	---	---	---	WNW	SSE	NNW	NW	NNE	E	N	WSW	---	W	---	---	---	---	---
08	WNW	NW	SSW	E	E	E	---	---	---	---	---	SSE	---	---	---	---	W	S	N	NNW	NE	E	N	WSW	---	W	---	---	---	---	---
09	WNW	NW	SW	E	E	E	---	---	---	---	---	SSE	---	---	---	---	W	S	N	NW	NE	ESE	NNW	WSW	---	---	---	---	---	---	---
10	WNW	NW	SW	E	E	E	---	---	---	---	---	SSE	---	---	---	---	WNW	S	N	NNW	NE	ESE	NNW	---	---	---	---	---	---	---	---
11	WNW	NNW	WSW	E	ESE	E	---	---	---	---	---	ENE	SSE	---	---	---	W	SSW	N	NW	NNE	E	NW	---	---	---	---	---	---	---	---
12	WNW	NNW	WSW	E	ESE	---	---	---	---	---	---	ENE	SSE	---	---	---	W	SSW	N	NW	NE	E	WNW	---	---	---	---	---	---	---	---
13	W	NW	WSW	ESE	ESE	---	---	---	---	---	---	E	SSE	---	---	---	W	SW	NNW	NW	NE	E	WNW	---	---	---	---	---	---	---	---
14	W	NW	WSW	ESE	ESE	---	---	---	---	---	---	E	SSE	---	---	---	W	WSW	NNW	NNW	NE	E	WNW	---	---	---	---	---	---	---	---
15	WNW	NW	WSW	ESE	ESE	---	---	---	---	---	---	E	SE	---	---	---	W	WSW	NNW	NNW	ENE	E	W	---	---	---	---	---	---	---	---
16	WNW	WNW	W	ESE	ESE	---	---	---	---	---	---	SSW	SSE	---	---	---	W	W	NNW	N	E	E	W	---	---	---	---	---	---	---	---
17	WNW	NW	W	ESE	ESE	---	---	---	---	---	---	SSW	S	---	---	---	NNE	W	WNW	NNW	N	NE	E	W	---	---	---	---	---	---	---
18	WNW	NW	W	E	E	---	---	---	---	---	---	E	S	---	---	---	NE	WNW	WNW	NW	N	NE	E	SW	---	---	---	---	---	---	---
19	WNW	NW	WNW	E	E	---	---	---	---	---	---	E	S	---	---	---	NE	WNW	WNW	NW	N	NE	ESE	W	---	---	---	---	---	---	---
20	WNW	WNW	N	E	E	---	---	---	---	---	---	ESE	S	---	---	---	NNE	WNW	W	NNW	N	NE	E	WSW	---	---	---	---	---	---	---
21	W	NW	NE	E	E	---	---	---	---	---	---	ESE	SW	---	---	---	NNE	NW	W	NW	N	ENE	E	WSW	---	---	---	---	---	---	---
22	WSW	W	E	E	E	---	---	---	---	---	---	ESE	WSW	---	---	---	NW	NW	W	NW	NNW	E	E	SW	---	---	---	---	---	---	---
23	SW	WSW	ESE	E	E	---	---	---	---	---	---	ESE	W	---	---	---	ENE	NNW	SW	WNW	N	E	E	SW	---	---	---	---	---	---	---
24	SSW	S	ESE	E	E	---	---	---	---	---	---	ESE	WSW	---	---	---	NW	N	SSW	W	N	E	ENE	SW	---	---	---	---	---	---	---

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(M/S)

H O U R	STATION - BOWMAN														MONTH/YEAR JUN 75																
															DAY																
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	07	07	08	09	02	08	12	05	05	15	05	04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11	11	08	
02	07	06	11	08	02	07	12	04	09	14	07	04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12	11	11	
03	06	07	11	08	05	05	11	02	11	11	06	04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10	13	10	
04	06	07	13	08	07	05	11	02	13	09	07	05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11	12	10	
05	06	07	13	08	08	08	11	02	13	09	05	03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12	10	12	
06	06	07	09	06	08	08	11	01	13	09	03	05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12	08	13	
07	05	07	09	07	08	12	11	02	15	08	07	04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11	08	12	
08	04	06	08	08	11	13	09	05	14	06	05	05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	09	05	08	
09	04	05	08	10	11	10	09	05	16	07	03	03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	08	03	05	
10	04	03	07	09	12	09	06	07	15	08	05	03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	09	05	03	
11	03	05	05	10	12	08	03	07	16	09	06	02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	09	08	03	
12	04	05	05	11	13	07	05	07	16	09	06	02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	07	10	03	
13	05	06	05	13	15	05	03	06	15	10	06	02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	04	09	02	
14	05	06	03	13	15	06	02	05	12	10	05	02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	04	08	02	
15	05	05	05	12	15	07	02	04	11	10	06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	05	07	02	
16	04	05	03	12	15	08	02	03	15	09	06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	06	06	03	
17	07	04	13	11	16	08	03	03	15	09	06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13	05	06	03
18	09	05	12	10	15	08	06	06	18	09	05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14	06	05	04
19	08	05	13	08	14	08	06	07	22	10	04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13	07	06	05
20	05	03	11	10	12	08	03	09	20	10	03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15	07	07	07
21	06	03	09	09	09	09	03	06	20	10	04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13	09	09	08
22	04	02	10	07	07	08	04	04	20	09	03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14	13	08	09
23	03	03	09	03	07	08	06	04	20	09	03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10	12	07	10
24	06	05	09	03	08	09	04	05	10	07	04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10	11	08	12

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - GILLETTE

MONTH/YEAR JUN 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	WNW	SSE	N	S	ESE	N	NNW	ESE	NNW	WNW	WNW	WNW	NNW	NNW	W	WSW	ESE	NNW	NNW	NE	NNE	ESE	NNE	N	N	S	N	S	NNW	S	---
02	W	S	N	SE	ESE	N	E	SSE	NNW	WNW	WNW	WNW	N	NW	W	NNW	E	NW	N	NE	NNE	E	N	N	N	SSE	N	SSW	N	S	---
03	WNW	S	ENE	ESE	E	N	E	S	NNW	NW	W	W	WNW	WNW	W	NNW	E	NW	NNE	NNE	NNE	ENE	NNE	N	N	SE	NNE	S	N	SSE	---
04	WNW	SSW	ENE	ESE	E	N	SW	W	NNW	NW	W	WSW	W	NW	WSW	W	E	NW	NNE	NNE	N	E	N	N	N	SE	N	S	N	SSE	---
05	NW	SSW	ENE	ESE	E	N	SW	SE	NW	NW	W	W	W	NNW	WSW	W	ESE	W	NE	NNE	NNE	E	NNE	NNE	N	SE	NE	S	N	SSW	---
06	WNW	SSW	ENE	ESE	E	N	WNW	NNW	NNW	NW	W	W	W	NNW	W	WSW	ESE	W	NE	NNE	NE	E	ENE	NNE	N	SE	NNE	S	N	WSW	
07	WNW	SSW	ENE	ESE	ESE	N	WNW	NNW	NW	NW	W	W	W	NNW	W	WSW	SE	W	NE	NE	ENE	E	ENE	N	N	SE	N	SW	N	WSW	---
08	WNW	SW	E	ESE	ESE	N	NNW	NW	NNW	NNW	W	W	WNW	NNW	W	W	WSW	W	NE	NE	E	ESE	NNE	N	N	ESE	N	SW	N	WSW	---
09	NW	SW	E	SE	SE	NNE	N	NNW	NNW	NNW	W	W	WNW	NNW	WNW	W	NW	NW	NE	NE	S	SE	NNE	N	N	ESE	N	SW	N	WSW	---
10	NW	SSW	SE	SE	SSE	NNE	NW	NNW	NNW	NNW	WNW	WNW	W	NNW	W	N	NNW	NW	NE	NE	SSW	SSW	N	N	N	ESE	N	SW	NNE	WSW	---
11	NW	SSW	SE	SE	SSE	ENE	W	NNW	NNW	NNW	WNW	NW	WNW	NNW	W	N	N	NNW	NE	NE	S	SSW	NNW	N	N	E	N	W	E	W	---
12	NW	WSW	SE	SE	SSE	SE	SW	NNW	NNW	NNW	NW	N	NW	NNW	NW	N	NNW	NNW	NE	NE	S	WSW	N	N	NE	NE	N	W	NNE	WNW	---
13	NNW	NNW	S	SSE	SSE	SSE	SSW	NNW	N	NNW	NNW	NNW	NW	NNW	N	SW	NW	NNW	NE	NE	S	N	NNE	N	NE	ENE	N	NW	WSW	NW	---
14	NW	N	S	SSE	SSE	SSE	WSW	NNW	N	N	NW	NNW	NW	NNW	NNE	SW	NNW	NNW	NE	NE	S	NNW	NE	N	ENE	ENE	NNE	N	W	NNW	
15	NW	N	S	SSE	SE	S	WSW	NNW	NNW	N	NNW	NNW	NW	NNW	NE	SSW	NW	NNW	NE	ENE	SSE	NNE	NE	N	E	ENE	NE	NNW	SW	NW	
16	NW	NNW	S	SSE	SE	SW	WSW	NNW	N	N	N	N	N	N	NE	S	NW	NW	NE	E	S	NNE	NE	NNW	E	ENE	NE	WNW	SW	NW	---
17	NW	N	S	SSE	SSE	SW	WSW	NNW	NNW	N	N	NNW	NNE	N	NE	ESE	NW	NW	NE	E	SSW	NNE	NE	NNW	E	E	NE	NW	SW	NW	---
18	WNW	N	SSE	SSE	SSE	SW	WSW	NNW	NW	N	NNW	N	NNE	N	NNE	NW	NE	NW	ENE	E	S	NNE	NNE	NNW	ESE	ENE	ENE	NW	SW	NW	---
19	NNW	NNW	S	SSE	S	SSW	WSW	NNW	NW	N	NNW	N	NNE	N	NNE	SE	NNE	NNW	NE	ENE	S	N	NE	NNW	SE	ENE	NE	NNW	SSW	NW	---
20	NNW	NN	S	S	S	S	SW	NNW	NNW	N	NW	N	NE	NNW	N	S	N	NNW	NE	NNE	SSE	N	NE	NNW	ESE	NE	NE	NNW	SSW	NW	---
21	N		NW	S	SSW	WSW	SW	NW	NW	N	NW	N	NE	NW	N	S	NNW	NW	NE	N	SSE	N	N	NNW	E	NE	ENE	N	SSW	NW	---
22	N		SE	SSE	WSW	W	S	NW	NW	NNW	WNW	N	E	WNW	N	SE	NNW	NNW	NNE	N	S	N	NNW	NNW	S	ENE	E	N	S	NNW	---
23	W	N	SE	SE	W	WNW	SSE	N	WNW	WNW	WNW	NNW	ENE	WNW	NW	ESE	NW	N	NNE	N	S	N	N	N	W	NNE	SE	NNW	S	NNW	---
24	SW	N	SSE	ESE	NW	WNW	SE	NNW	WNW	WNW	WNW	NNW	N	WNW	N	SE	NW	NE	NE	N	SE	N	N	N	S	NNE	S	NNW	S	NNW	---

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - BOWMAN										MONTH/YEAR JUL 75																												
					DAY																																	
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31							
01	12	10	08	07	08	--	--	--	--	--	--	--	10	08	05	12	08	08	06	05	06	11	06	04	07	05	--	--	--	--	--							
02	08	09	08	07	06	--	--	--	--	--	--	--	10	08	05	08	12	04	07	04	05	10	07	03	07	06	--	--	--	--	--							
03	08	09	07	07	06	--	--	--	--	--	--	--	10	07	06	04	14	07	08	05	06	10	10	04	11	06	--	--	--	--	--							
04	10	10	06	06	06	--	--	--	--	--	--	--	10	08	05	04	11	07	08	04	06	09	09	03	12	05	--	--	--	--	--							
05	09	09	07	06	05	--	--	--	--	--	--	--	10	07	04	05	08	09	08	03	07	09	08	03	12	04	--	--	--	--	--							
06	09	08	06	07	05	--	--	--	--	--	--	--	10	08	03	07	08	09	08	04	08	08	05	03	11	02	--	--	--	--	--							
07	07	08	06	06	05	--	--	--	--	--	--	--	07	07	03	08	07	08	07	06	07	05	05	04	10	07	--	--	--	--	--							
08	04	08	06	05	04	--	--	--	--	--	--	--	06	05	04	04	06	10	08	09	05	05	06	03	09	07	--	--	--	--	--							
09	04	07	05	05	05	--	--	--	--	--	--	--	06	03	05	05	06	13	07	06	04	09	07	03	08	06	--	--	--	--	--							
10	03	07	06	03	06	--	--	--	--	--	--	--	07	03	08	05	06	12	07	07	05	09	09	04	08	07	--	--	--	--	--							
11	07	06	07	03	06	--	--	--	--	--	--	02	06	01	06	03	08	10	08	07	06	09	09	03	08	07	--	--	--	--	--							
12	06	06	08	03	06	--	--	--	--	--	--	03	07	02	03	02	11	11	08	09	06	07	09	02	08	05	--	--	--	--	--							
13	06	06	08	03	05	--	--	--	--	--	--	03	06	04	05	02	10	11	10	09	06	03	08	03	07	05	--	--	--	--	--							
14	03	07	07	02	05	--	--	--	--	--	--	03	05	04	06	02	07	10	11	08	06	04	08	03	06	04	--	--	--	--	--							
15	03	07	07	03	04	--	--	--	--	--	--	03	05	05	07	03	06	12	10	08	06	04	08	04	07	03	--	--	--	--	--							
16	03	08	06	06	04	--	--	--	--	--	--	03	06	07	07	04	05	13	12	07	05	04	09	03	08	03	--	--	--	--	--							
17	05	07	05	06	--	--	--	--	--	--	--	03	06	05	06	05	05	12	12	05	09	03	09	03	09	05	--	--	--	--	--							
18	06	07	05	06	--	--	--	--	--	--	--	04	05	05	03	04	04	11	12	06	09	03	09	03	08	05	--	--	--	--	--							
19	06	06	06	04	--	--	--	--	--	--	--	04	06	04	03	03	02	08	10	06	07	02	08	03	07	07	--	--	--	--	--							
20	06	07	06	06	--	--	--	--	--	--	--	04	07	05	07	02	03	07	07	04	05	03	06	04	08	07	--	--	--	--	--							
21	06	07	07	06	--	--	--	--	--	--	--	08	07	06	07	02	07	07	07	04	05	05	06	08	08	--	--	--	--	--	--							
22	08	08	10	05	--	--	--	--	--	--	--	07	08	07	06	04	08	05	06	03	07	06	06	07	07	--	--	--	--	--	--							
23	08	08	08	06	--	--	--	--	--	--	--	08	09	07	06	07	13	04	07	03	09	05	05	07	06	--	--	--	--	--	--							
24	07	08	08	06	--	--	--	--	--	--	--	11	08	06	08	09	10	05	06	05	12	07	05	08	06	--	--	--	--	--	--							

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - BOWMAN

MONTH/YEAR JUL 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	SE	ENE	ESE	SE	NNW	---	---	---	---	---	---	---	S	SSE	S	W	SSW	NE	W	NNW	ENE	S	NW	NNE	SSE	NW	---	---	---	---	---
02	SE	ENE	ESE	ESE	NNW	---	---	---	---	---	---	---	S	SSE	S	W	SW	E	W	NW	ENE	S	WNW	NNE	SSE	NW	---	---	---	---	---
03	ESE	ENE	ESE	ESE	N	---	---	---	---	---	---	---	S	SSE	S	W	WNW	WSW	W	W	ENE	S	WNW	NE	S	NNW	---	---	---	---	---
04	ESE	ENE	E	ESE	N	---	---	---	---	---	---	---	S	S	S	S	NNW	W	W	W	ENE	SSW	NW	ENE	S	N	---	---	---	---	---
05	ESE	ENE	E	ESE	N	---	---	---	---	---	---	---	S	S	S	S	N	W	W	W	ENE	SSW	N	ESE	S	ENE	---	---	---	---	---
06	SE	E	E	E	N	---	---	---	---	---	---	---	S	S	S	N	NNE	W	W	WSW	ENE	SW	N	S	S	ESE	---	---	---	---	---
07	SE	ENE	ESE	ESE	NNW	---	---	---	---	---	---	---	S	S	SSE	ENE	N	W	W	SW	NE	WSW	N	SSW	S	NE	---	---	---	---	---
08	N	ENE	ESE	SE	NNW	---	---	---	---	---	---	---	SSE	SSW	SSW	ENE	NE	W	W	SW	ENE	W	N	SW	S	ENE	---	---	---	---	---
09	ENE	E	SE	ESE	N	---	---	---	---	---	---	---	SSE	WSW	WNW	E	NE	W	W	SSW	E	N	NNE	S	S	E	---	---	---	---	---
10	NNE	E	SE	SE	N	---	---	---	---	---	---	---	S	WNW	NNW	ESE	NNW	W	W	SSW	ESE	NNE	NNE	S	SSW	E	---	---	---	---	---
11	NNE	E	ESE	ESE	N	---	---	---	---	---	---	NE	S	SSW	N	SE	NW	WNW	W	S	ESE	NE	NNE	S	SSW	E	---	---	---	---	---
12	ENE	ENE	SE	ENE	NE	---	---	---	---	---	---	NNE	S	WSW	E	SSW	NW	WNW	W	SSW	SE	ENE	N	SE	SSW	E	---	---	---	---	---
13	ENE	ENE	SE	ENE	NE	---	---	---	---	---	---	ESE	S	W	SSE	NNW	NNW	WNW	W	SSW	SE	SSE	N	SSE	SW	ESE	---	---	---	---	---
14	ENE	ENE	SE	ENE	NE	---	---	---	---	---	---	SSE	S	W	SSE	NNW	N	WNW	WNW	SW	SSE	WSW	N	S	SW	E	---	---	---	---	---
15	NE	ENE	SSE	N	NE	---	---	---	---	---	---	SSE	S	W	S	ESE	NNW	WNW	WNW	SW	S	W	NNW	S	SW	NE	---	---	---	---	---
16	N	ENE	SSE	N	ENE	---	---	---	---	---	---	S	S	W	S	S	WNW	WNW	NW	SW	SSE	W	NNW	SSE	W	NE	---	---	---	---	---
17	N	E	SSE	N	---	---	---	---	---	---	---	S	S	W	S	S	WNW	WNW	NW	WSW	ESE	WSW	NNW	SSE	W	ENE	---	---	---	---	---
18	N	E	SSE	N	---	---	---	---	---	---	---	S	S	W	S	SSW	WNW	WNW	NW	WNW	ESE	SSW	NNW	SSE	NW	E	---	---	---	---	---
19	N	E	SE	N	---	---	---	---	---	---	---	S	SSE	WSW	SE	SSW	NW	WNW	NNW	NW	SE	SW	NNW	SSE	NW	E	---	---	---	---	---
20	NNE	E	SE	N	---	---	---	---	---	---	---	S	SE	SW	SE	S	ENE	WNW	NW	NNW	SE	S	N	SE	NW	E	---	---	---	---	---
21	NNE	E	SE	N	---	---	---	---	---	---	---	S	SE	SSW	SE	SE	E	WNW	NW	N	SE	S	N	SE	NNW	---	---	---	---	---	---
22	NE	E	ESE	NNW	---	---	---	---	---	---	---	SSE	SSE	SSW	SSE	SE	ENE	WNW	NW	NNE	SSE	SW	N	SE	N	---	---	---	---	---	---
23	ENE	ESE	NNW	---	---	---	---	---	---	---	---	SSE	SSE	S	SSE	ESE	NNW	W	NW	NE	S	NW	N	SSE	N	---	---	---	---	---	---
24	ENE	ESE	ESE	NW	---	---	---	---	---	---	---	S	SSE	S	WSW	ESE	N	W	NW	NE	S	NW	NNE	SSE	NNW	---	---	---	---	---	---

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - BOWMAN

MONTH/YEAR AUG 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	--	--	08	05	05	10	11	13	06	08	06	07	--	--	--	02	08	07	11	04	08	06	02	08	13	02	11	07	06	06	12
02	--	--	10	06	06	09	11	12	09	07	04	07	--	--	--	03	07	08	07	03	07	07	05	09	12	03	13	07	03	06	13
03	--	--	09	09	06	08	07	11	09	07	03	07	--	--	--	04	09	07	06	05	03	08	07	08	11	03	12	07	13	06	12
04	--	--	10	08	06	10	06	11	10	10	05	09	--	--	--	07	08	09	07	02	06	08	06	08	12	06	10	06	14	06	12
05	--	--	08	08	08	10	04	10	09	12	05	10	--	--	--	07	08	09	09	04	04	08	04	06	12	03	08	07	13	06	11
06	--	--	06	06	09	08	06	10	08	11	07	12	--	--	--	07	06	09	09	04	03	09	04	12	12	03	06	06	12	07	
07	--	--	07	06	09	07	06	08	08	11	05	12	--	--	--	07	07	08	08	04	03	09	04	12	12	03	06	06	11	08	07
08	--	--	03	05	08	06	07	08	07	10	03	11	--	--	--	08	06	08	07	02	07	09	03	15	12	03	06	06	10	08	03
09	--	--	07	03	10	06	10	09	08	10	04	11	--	--	--	07	05	09	07	02	05	10	03	15	12	02	05	06	12	09	03
10	--	10	06	04	08	13	06	08	08	12	05	11	--	--	--	06	05	10	05	03	06	12	04	17	13	01	03	05	11	11	03
11	--	09	07	05	08	10	09	07	07	12	05	10	--	--	--	05	05	10	05	03	04	12	06	18	14	02	03	05	09	11	06
12	--	09	09	06	09	09	12	07	06	11	04	09	--	--	--	04	05	09	05	05	05	12	07	19	13	03	04	05	09	11	06
13	--	09	09	07	09	08	10	08	06	10	04	10	--	--	--	03	07	09	05	04	04	07	08	18	14	03	06	05	08	09	07
14	--	09	09	09	09	08	07	07	05	09	04	09	--	--	--	03	06	08	06	04	04	07	08	19	14	03	06	06	08	07	08
15	--	08	10	09	10	08	07	07	05	09	04	09	--	--	--	03	06	08	07	05	06	06	08	19	13	03	06	07	09	07	
16	--	09	10	09	10	06	07	06	04	09	05	08	--	--	--	03	07	08	06	06	06	06	07	20	13	04	05	09	08	07	09
17	--	09	09	10	10	04	08	07	04	10	06	05	--	--	03	04	09	08	06	07	08	07	05	20	13	04	05	08	08	07	10
18	--	09	10	10	10	03	21	07	03	09	05	04	--	--	03	04	09	08	07	08	10	07	04	20	12	03	02	07	07	05	10
19	--	08	09	10	10	04	21	05	03	08	05	--	--	--	04	05	08	09	07	08	10	07	01	18	11	03	04	07	05	04	09
20	--	07	07	08	10	05	20	05	03	07	07	--	--	--	05	07	07	09	08	07	10	07	01	16	07	04	08	07	04	04	07
21	--	06	07	08	09	07	17	05	04	07	06	--	--	--	05	11	06	09	07	07	09	12	03	15	06	09	09	07	03	05	09
22	--	06	08	09	09	10	18	04	07	09	07	--	--	--	04	09	07	10	07	08	10	09	04	14	06	09	10	07	02	09	37
23	--	05	07	06	09	10	18	04	08	10	07	--	--	--	03	09	07	11	08	08	08	07	08	11	04	07	09	08	02	10	09
24	--	06	07	05	10	11	15	03	08	07	06	--	--	--	03	08	07	11	05	08	07	04	08	14	03	07	07	07	06	11	09

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - BOWMAN

MONTH/YEAR AUG 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
01	---	---	SW	SE	E	SE	S	WNW	WNW	ESE	ENE	NNW	---	---	---	SW	E	SE	ESE	SSE	N	SE	SSE	N	W	W	S	SSE	SE	SE	E	
02	---	---	SW	SSE	ESE	SE	S	WNW	N	SE	E	N	---	---	---	W	ENE	SSE	E	ESE	N	SE	SW	N	WNW	WSW	S	SSE	N	SSE	E	
03	---	---	WSW	SSW	ESE	SE	S	W	NNE	SSE	NE	N	---	---	---	WNW	E	SSE	ENE	ESE	N	SE	SW	NNE	W	SW	SSE	SE	NNW	SSE	E	
04	---	---	NNW	SSW	SE	SSE	S	W	NNE	S	N	N	---	---	---	NW	E	SSE	E	SSW	NW	SE	W	NNE	W	SW	SSE	SE	NNW	SSE	E	
05	---	---	N	SW	ESE	SSE	SE	W	N	S	N	N	---	---	---	N	E	SSE	E	E	WNW	SE	WNW	NW	W	W	SSE	SE	NNW	SSE	E	
06	---	---	NW	WNW	E	SE	SE	W	N	S	N	N	---	---	---	NNE	E	SSE	ESE	ENE	SE	SSE	W	W	W	NW	SSE	SE	NNW	SSE		
07	---	---	W	NW	ESE	SSE	SSE	W	N	S	NNE	N	---	---	---	ENE	ESE	SSE	SE	ESE	WSW	SSE	W	WNW	W	NW	SSE	SE	NNW	S	ESE	
08	---	---	SW	N	ESE	SSE	S	W	N	S	NE	N	---	---	---	NE	ESE	SSE	SE	SSE	WNW	SSE	WSW	WNW	WNW	NNW	SSE	SE	NNW	S	SSE	
09	---	---	SW	ENE	ESE	S	S	W	N	S	ENE	N	---	---	---	NE	ESE	SSE	ESE	SW	N	S	SW	WNW	WNW	W	SSE	SE	NW	S	SSE	
10	---	W	WSW	ENE	SE	S	SSE	W	N	S	E	N	---	---	---	ENE	SE	SSE	E	WSW	ENE	S	S	W	WNW	SW	SSE	SE	NNW	S	WSW	
11	---	W	WNW	ENE	SE	SSW	SSE	WNW	N	S	E	N	---	---	---	NE	SE	SSE	E	W	ENE	S	SSW	W	WNW	SW	SE	SE	NNW	S	WNW	
12	---	W	WNW	NE	SE	SSW	S	WNW	NNW	S	ESE	NNW	---	---	---	E	SE	SSE	E	WNW	ENE	S	SSW	WNW	WNW	SW	SE	SE	NW	S	WNW	
13	---	WNW	NW	NE	SE	S	S	W	NNW	S	ESE	N	---	---	---	E	ESE	SSE	ENE	WNW	ESE	S	SSW	WNW	WNW	SW	ESE	SSE	NW	SSW	WNW	
14	---	W	WNW	NE	SE	S	S	W	NNW	S	SSE	NNW	---	---	---	E	SE	SSE	E	W	E	S	SW	WNW	WNW	SW	SE	SSE	NW	SW	NW	
15	---	W	WNW	ENE	SSE	SSW	S	W	NNW	S	SSE	NNW	---	---	---	E	SE	SSE	E	WNW	ENE	SW	SW	W	NW	SW	SE	SSE	NW	W	---	
16	---	W	WNW	ENE	SE	SSW	S	W	N	S	S	WSW	---	---	---	ENE	SE	SE	E	WNW	E	W	SW	WNW	NW	SSW	SE	S	NW	W	NNW	
17	---	W	NW	ENE	SE	SSW	SSW	W	N	S	S	SSE	---	---	---	W	ENE	ESE	SE	E	WNW	E	WNW	SW	W	NW	S	SE	S	NW	WNW	N
18	---	WNW	NNW	ENE	SE	S	WNW	W	NNW	S	SE	SE	---	---	---	WNW	ENE	ESE	SE	E	NW	E	WNW	SW	W	NW	S	SE	SSE	NNW	WNW	N
19	---	WNW	NNW	ENE	SE	SSE	NW	WNW	NNE	S	SE	---	---	---	---	NNW	E	SE	SE	E	NNW	E	NW	SW	WNW	NW	SSE	E	SSE	NNW	NW	N
20	---	WNW	NNW	E	SE	SSE	NW	NNW	NE	S	SSE	---	---	---	---	NNW	E	SE	SE	ESE	NNW	E	NNW	SE	WNW	NNW	SSE	E	SE	N	N	N
21	---	WNW	N	ENE	SE	SSE	NW	N	E	NW	SSE	---	---	---	---	NNE	ENE	SE	SE	ESE	N	E	WNW	SE	WNW	N	ESE	E	SE	N	NNE	N
22	---	W	NNE	ESE	SE	S	WNW	ENE	E	N	SSE	---	---	---	---	E	ENE	SE	ESE	ESE	N	ESE	WNW	SSE	W	N	ESE	E	SE	NNE	NE	NNE
23	---	W	ENE	SE	SE	S	WNW	ENE	E	N	W	---	---	---	---	ENE	E	SE	ESE	SE	N	SE	S	NNW	W	N	SE	E	SSE	E	ENE	NNE
24	---	WSW	ESE	E	SE	S	WNW	N	E	NE	WNW	---	---	---	---	E	E	SE	ESE	SE	N	SE	E	N	WNW	N	SSE	SE	SSE	E	ENE	N

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380

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - BOWMAN

MONTH/YEAR SEP 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	09	12	06	10	04	12	03	08	12	07	07	01	08	08	07	07	10	14	20	11	08	04	07	11	11	12	09	05	10	10	
02	08	12	09	09	03	12	03	08	12	10	07	02	06	08	07	08	10	16	21	11	09	04	08	12	10	08	10	05	10	10	
03	07	14	08	10	03	12	03	09	09	10	06	04	06	06	07	08	11	18	21	11	08	05	07	14	09	07	10	05	11	09	
04	07	14	08	11	03	14	03	08	06	11	07	05	06	06	05	09	10	15	21	10	08	05	07	13	08	07	10	06	09	12	
05	07	12	07	09	02	12	03	09	06	12	08	06	07	06	05	09	09	16	20	09	09	06	05	12	08	07	10	06	08	12	
06	07	09	06	08	03	12	02	08	06	09	08	05	08	06	03	08	07	14	21	10	09	07	06	11	06	08	09	06	11	11	
07	07	07	06	09	03	11	03	09	05	07	08	06	09	06	02	08	08	14	21	10	10	07	06	10	06	07	09	05	11	11	
08	06	06	06	07	04	08	03	09	06	06	06	06	08	06	01	08	07	14	20	10	10	08	07	10	06	07	08	03	10	10	
09	06	12	04	06	03	06	03	10	05	06	07	04	07	04	00	07	08	16	20	11	09	07	05	08	05	08	09	03	11	10	
10	06	20	05	07	03	06	03	10	07	09	09	04	05	03	02	05	07	19	19	13	10	08	04	10	15	12	10	02	13	11	
11	05	20	07	07	03	08	03	11	08	09	09	04	08	03	02	05	07	21	19	12	12	08	04	09	04	15	10	01	13	13	
12	04	20	06	08	03	07	02	11	12	10	09	05	08	03	02	04	07	20	19	12	12	09	03	10	05	15	10	01	13	12	
13	06	19	07	08	03	08	03	13	07	10	09	06	08	03	02	05	11	20	18	12	12	10	03	10	07	14	10	03	14	11	
14	07	18	07	09	04	09	02	10	05	09	09	06	08	04	02	07	11	20	17	11	13	10	03	09	07	14	09	04	16	10	
15	08	19	07	08	04	09	03	09	05	09	09	05	08	03	02	09	12	22	18	10	12	11	03	08	07	12	10	02	16	09	
16	10	19	06	09	06	09	03	10	05	09	09	05	07	04	03	08	12	19	16	10	12	10	04	08	06	08	09	02	15	09	
17	12	18	06	10	04	09	03	10	05	12	09	05	07	05	03	07	11	19	14	10	11	11	04	08	06	07	09	03	14	07	
18	13	17	05	08	05	10	05	11	05	13	09	05	07	05	04	07	11	17	14	10	11	11	05	08	06	10	08	04	14	06	
19	13	15	05	06	05	10	08	11	07	13	08	05	07	05	07	08	09	18	14	10	10	10	07	10	07	09	07	07	11	05	
20	12	10	06	07	05	09	10	12	09	10	07	04	08	06	10	09	08	19	13	10	08	10	09	12	10	08	07	08	09	05	
21	13	08	07	06	07	08	10	12	10	09	06	03	09	08	09	10	10	18	12	09	07	08	09	13	12	08	08	09	09	06	
22	13	09	09	06	07	06	11	14	10	09	06	04	09	08	08	11	11	20	11	07	06	08	07	13	12	08	07	11	08	06	
23	13	08	09	06	07	05	10	13	08	09	04	05	10	08	07	11	12	19	10	07	06	07	09	13	11	10	07	11	09	06	
24	13	07	11	05	11	04	08	12	07	06	02	08	09	08	08	11	13	19	10	07	04	07	09	13	12	10	06	11	10	04	

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070

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - BOWMAN

MONTH/YEAR SEP 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	NNE	SE	WNW	E	NNE	S	N	SE	S	SSE	N	SE	ESE	SSE	E	---	W	NW	NW	NW	NW	N	NNE	---	---	---	---	---	---	NW	---
02	N	SE	WNW	E	N	SSW	NNW	SE	S	S	N	SSW	SE	S	E	---	W	WNW	WNW	NW	NW	NW	N	---	---	---	---	---	---	NW	---
03	N	SE	WNW	E	N	SSW	N	SE	S	S	NNW	SSW	SE	S	E	---	W	NW	WNW	NW	NW	NW	NNE	---	---	---	---	---	---	NW	---
04	NNE	SE	WNW	E	N	SW	N	SE	SSW	S	NNW	SW	SSE	SSW	E	---	W	NW	NW	NW	WNW	NNE	---	---	---	---	---	---	NW	---	
05	NE	SE	WNW	E	WNW	SW	NNE	SE	SW	S	N	WSW	S	SW	E	---	W	NW	WNW	NW	NW	WNW	NNE	---	---	---	---	---	NW	---	
06	NE	SE	W	ENE	W	SW	NNE	SE	WSW	SSW	N	W	S	WSW	E	---	W	WNW	NW	NW	NW	WNW	NNE	---	---	---	---	---	NW	---	
07	NE	SSE	W	ENE	WNW	SW	ENE	SSE	WNW	W	N	WNW	S	WSW	E	---	W	WNW	NW	NW	WNW	WNW	NE	---	---	---	---	---	NW	---	
08	NE	SSW	W	ENE	WNW	WSW	ENE	SSE	NNW	WNW	NNW	WNW	S	WSW	ESE	---	W	WNW	NW	NW	WNW	WNW	ENE	---	---	---	---	---	NW	NW	---
09	NE	W	W	ENE	WNW	WSW	ENE	SSE	N	NW	N	WNW	S	SW	ENE	---	W	WNW	NW	NW	WNW	WNW	E	---	---	---	---	---	NW	NW	---
10	ENE	WNW	W	NE	NW	W	ENE	SSE	NE	N	NNW	W	S	WSW	ESE	---	WNW	NW	NW	NW	NW	WNW	SE	---	---	---	---	---	NNW	NNW	---
11	ENE	WNW	ENE	NE	NNW	WNW	E	SSE	NE	N	NNW	WNW	S	WSW	SE	---	NW	NW	NW	NNW	NW	WNW	SSE	---	---	---	---	---	NW	NNW	---
12	E	W	W	N	NNW	NNW	ESE	SSE	ENE	NNE	NNW	WNW	S	WSW	SSE	---	NNW	NW	NW	NNW	NW	WNW	SE	---	---	---	---	---	NW	NNW	---
13	E	W	W	N	NW	NNW	ESE	S	ENE	NNE	NNW	WNW	S	W	SE	---	NW	NW	NW	NNW	NW	WNW	E	---	---	---	---	---	NW	NW	---
14	E	WNW	W	NNW	NW	NNW	SE	SSE	E	NNE	NNW	NW	S	WSW	E	---	NW	NW	NW	NNW	NNW	WNW	ENE	---	---	---	---	---	NNW	NW	---
15	E	WNW	W	NNW	WNW	NNW	SE	SSE	ENE	NNE	NNW	NW	S	W	---	---	NW	WNW	NW	NNW	NNW	WNW	---	---	---	---	---	---	NW	NNW	---
16	ESE	WNW	W	NNW	NW	N	ESE	SSE	E	NNE	NNW	NW	S	NW	---	---	NW	WNW	NW	NNW	N	NW	---	---	---	---	---	---	NW	NNW	---
17	ESE	WNW	WNW	N	N	NNW	ESE	SSE	E	NNE	NNW	NW	S	NNW	---	---	NW	WNW	NW	NNW	NNW	NW	---	---	---	---	---	---	NW	NNW	---
18	ESE	WNW	NNW	N	N	N	ESE	S	E	NNE	NNW	N	S	NNW	---	---	NW	WNW	NW	NNW	N	NW	---	---	---	---	---	---	NW	NNW	---
19	ESE	NW	N	N	N	N	ESE	S	E	NNE	NNW	N	S	N	---	---	WNW	NW	NNW	NNW	N	NNW	---	---	---	---	---	---	NW	N	---
20	ESE	NW	NNE	N	NE	N	ESE	S	E	NNE	N	NE	SSE	N	---	---	WNW	NW	NNW	NNW	NNW	NNW	---	---	---	---	---	---	NW	NE	---
21	ESE	NW	NE	N	E	N	ESE	S	E	NNE	N	ENE	SSE	NNE	---	---	WNW	WNW	NW	NNW	NNW	NNW	---	---	---	---	---	---	NW	ENE	---
22	ESE	NW	ENE	N	ESE	NNE	ESE	S	ESE	NNE	N	E	SSE	NE	---	---	SSW	WNW	NW	NW	NW	N	NW	---	---	---	---	---	NW	E	---
23	ESE	NW	ENE	N	SSE	NNE	SE	S	SE	NNE	NNE	E	SSE	ENE	---	---	SSW	NW	NW	NW	NW	N	NNW	---	---	---	---	---	NW	ESE	---
24	SE	NW	E	N	S	N	SE	S	SE	N	ENE	E	SSE	E	---	---	SW	NW	NW	NW	NW	N	N	---	---	---	---	---	NW	SE	---

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C-77

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - BOWMAN

MONTH/YEAR OCT 75

DAY

C-78
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	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	05	07	05	13	14	09	11	07	14	02	09	06	10	06	09	10	03	10	14	10	07	06	08	08	11	09	09	04	09	12	08
02	08	09	06	14	14	11	12	07	14	03	09	06	09	07	10	10	06	10	13	11	07	07	07	08	10	07	08	03	09	10	08
03	10	08	06	13	13	10	03	07	16	05	08	07	12	07	11	08	09	09	11	09	08	07	07	07	11	08	08	05	09	09	08
04	09	08	06	13	12	09	04	07	15	07	08	08	10	08	11	08	10	08	08	06	09	07	07	07	11	08	08	05	08	10	09
05	09	09	05	10	13	07	07	10	14	06	06	09	06	11	10	10	10	06	07	07	09	06	07	07	11	08	10	06	08	10	08
06	08	08	06	09	11	07	09	11	12	07	06	09	05	11	09	12	10	08	07	08	08	06	08	07	11	08	09	07	07	10	
07	08	08	04	08	10	10	09	12	11	06	05	07	04	11	08	11	10	08	05	06	08	07	08	07	11	08	10	06	06	10	07
08	07	08	04	08	08	11	08	13	14	07	05	06	06	10	07	11	11	08	06	07	08	07	08	07	11	09	13	06	06	11	09
09	05	06	03	08	07	09	07	15	14	06	04	06	07	10	07	11	09	10	05	08	07	09	08	07	10	09	12	06	08	11	10
10	03	05	01	07	06	09	07	12	13	05	05	07	09	13	06	11	08	07	05	09	08	08	07	07	10	08	10	07	09	11	09
11	02	06	01	06	05	09	06	09	13	06	04	07	09	13	05	11	10	06	06	10	07	08	08	06	09	06	10	08	11	09	10
12	02	07	02	06	07	11	05	11	12	07	05	05	08	12	06	10	10	06	09	09	06	09	09	07	09	07	08	09	08	09	11
13	03	07	03	07	09	11	04	11	13	07	06	05	06	13	07	11	11	07	10	09	05	08	10	08	08	08	09	09	11	07	12
14	03	08	03	08	09	10	04	11	13	10	07	05	05	12	08	11	11	08	11	09	03	10	10	08	09	10	07	09	13	06	12
15	04	09	04	09	08	09	05	13	12	09	08	05	07	13	08	10	12	07	13	09	04	09	11	09	09	10	06	10	13	08	
16	05	08	03	10	08	09	06	12	12	08	07	06	06	13	08	10	11	06	12	08	03	09	11	09	08	09	07	09	13	07	10
17	06	07	04	10	07	09	07	11	11	08	08	05	04	13	08	09	10	05	11	09	03	08	10	08	07	08	07	08	12	07	09
18	05	06	05	20	05	08	08	12	10	08	08	06	05	12	07	07	09	06	10	10	04	08	10	08	05	07	06	08	13	07	07
19	04	06	06	16	03	08	08	13	08	11	06	08	06	12	09	05	12	05	09	08	04	08	08	08	09	08	06	11	14	05	04
20	03	06	08	10	03	08	09	14	06	10	07	07	06	11	07	05	13	06	09	09	04	08	08	09	12	09	05	07	13	06	03
21	20	06	09	10	05	09	10	16	06	08	08	07	04	12	08	04	11	06	10	11	04	07	08	10	13	08	05	08	14	07	05
22	02	07	12	12	09	09	11	15	05	08	07	07	06	11	09	04	13	08	10	10	05	07	07	11	11	08	05	09	14	07	04
23	04	09	13	11	09	08	11	16	04	08	06	06	06	10	09	03	12	12	09	08	05	07	08	11	11	10	05	09	13	06	09
24	06	07	13	12	07	08	11	14	02	09	07	06	06	09	10	03	12	13	08	07	06	07	07	10	11	10	04	10	13	07	11

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - BOWMAN

MONTH/YEAR OCT 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	SSE	SW	WNW	S	WNW	SSE	S	NE	NW	NW	SSE	NNE	ENE	NW	WNW	W	SSE	S	NNW	NW	WNW	E	NNW	N	W	S	WNW	E	WSW	SW	---
02	S	SW	NW	S	WNW	S	SSW	NE	NW	N	SSE	N	ENE	NW	W	WNW	SSW	SSW	NNW	WNW	WSW	ENE	NNW	N	W	S	WNW	SE	W	WSW	---
03	S	SW	NW	S	WNW	S	NW	NE	WNW	E	SE	N	ENE	WNW	W	NW	SSW	SSW	NNW	WNW	WSW	ENE	NNW	N	WSW	S	WNW	S	W	SW	---
04	S	WSW	NW	S	WNW	S	NE	NW	NW	E	SE	N	E	WNW	W	W	SSW	SSW	NNW	W	W	NE	NNW	N	WSW	SSW	NW	SSE	W	SW	---
05	S	WSW	WNW	S	WNW	SSE	NE	NW	WNW	SE	ESE	N	E	WNW	WNW	WNW	SSW	SSW	NNW	WNW	W	ENE	NNW	NNW	WSW	SW	NNW	SSE	W	SW	---
06	S	WSW	WNW	SSW	W	SSE	NE	NW	WNW	SSE	ESE	N	ENE	WNW	W	WNW	SSW	SW	NNW	NW	W	ENE	N	NNW	WSW	SW	NW	SSE	W	SW	---
07	S	WSW	NW	SW	W	S	NE	NW	WNW	SE	SE	NNE	ENE	WNW	W	W	SSW	SW	W	WNW	W	ENE	N	NNW	WSW	SW	NW	SSE	SW	SW	---
08	S	WSW	NW	WSW	W	S	NE	NW	NW	SSE	SE	N	ENE	WNW	W	W	S	SW	W	WNW	W	ENE	N	NNW	WSW	WSW	NW	SSE	SW	SW	---
09	SW	WSW	NW	W	W	S	NE	NW	NW	SE	SE	N	ENE	WNW	W	WNW	S	SW	W	WNW	W	ENE	N	NW	WSW	WSW	NW	SSE	SSW	SW	---
10	SW	WSW	NW	W	W	S	ENE	NW	WNW	SE	SE	N	ENE	WNW	WSW	WNW	S	SW	WSW	WNW	W	ENE	N	NW	W	WSW	NNW	SSE	SSW	SW	---
11	WSW	SW	W	W	W	S	ENE	WNW	WNW	SE	SE	N	ENE	NW	SW	WNW	S	SW	SW	WNW	W	NE	N	NW	W	W	NNW	S	SSW	SW	---
12	WSW	SW	SW	W	W	S	ENE	NW	WNW	SE	SE	N	ENE	NW	SW	WNW	S	SW	SW	W	W	ENE	NNE	NNW	W	W	NNW	SSE	S	SW	---
13	WSW	WSW	S	WSW	WSW	S	ENE	NW	WNW	SE	ESE	N	ENE	NW	SSW	WNW	S	SW	SW	W	W	NE	NNE	NW	W	WNW	NNW	S	S	WSW	---
14	W	WSW	S	SW	W	S	ENE	NW	WNW	SE	ESE	N	ENE	NW	SW	NW	S	SSW	SW	W	NW	NE	NNE	NW	W	NW	NNW	S	S	WSW	---
15	W	W	SSW	W	W	S	ENE	WNW	WNW	SE	ESE	N	ENE	NW	SW	NW	SSW	SW	SW	W	N	NE	NNE	NW	WSW	NW	NW	SSW	S	---	---
16	W	W	S	W	W	S	E	WNW	NW	SE	ESE	N	NE	NW	WSW	NW	SSW	WSW	WSW	WNW	NNE	NE	NNE	NW	WSW	NW	NNW	SSW	S	---	---
17	W	WNW	S	WNW	WSW	S	ENE	WNW	NW	SE	ESE	N	N	NW	WSW	NW	SSW	W	W	WNW	NE	NNE	NNE	NW	WSW	WNW	NNW	S	S	---	---
18	W	WNW	SSE	NNW	WSW	S	ENE	WNW	NW	SE	ESE	N	N	NW	WSW	NW	S	WNW	W	WNW	NE	NNE	NNE	WNW	SSW	W	NNW	S	S	---	---
19	W	WNW	SE	NNW	WSW	SSE	ENE	WNW	NW	ESE	ENE	NNE	NE	NW	W	NW	S	WNW	W	WNW	ENE	N	NNE	W	S	W	N	S	S	---	---
20	W	WNW	SSE	NW	SW	SSE	NE	WNW	NW	SE	NE	NNE	NE	WNW	W	NNW	S	WNW	W	WNW	ENE	N	N	W	S	W	N	SSW	S	---	---
21	W	W	SSE	WNW	SSE	SSE	ENE	WNW	NW	SE	ENE	NE	N	WNW	W	NW	S	W	W	NW	NE	N	N	W	S	W	NE	SSW	S	---	---
22	SSW	W	SSE	NW	S	SSE	ENE	NW	NW	SE	NE	NE	NNW	WNW	W	NNW	SSW	NW	W	NW	ENE	N	N	W	S	W	NE	SSW	S	---	---
23	SSW	W	S	NW	S	SSE	ENE	NW	N	SE	NE	NE	NNW	WNW	W	N	SSW	NNW	NW	WNW	ENE	N	N	WSW	S	W	ENE	SSW	SSW	---	---
24	SSW	NW	SSE	WNW	SSE	SSE	ENE	NW	N	SE	NNE	ENE	NNW	W	W	E	S	NNW	NW	W	ENE	NNW	N	WSW	S	WNW	E	SW	SSW	---	---

C-79
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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - BOWMAN

MONTH/YEAR NOV 75

DAY

C-80
H
D
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R

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	11	10	--	12	09	06	11	08	--	09	10	12	13	10	08	08	03	09	09	10	04	11	06	04	--	06	08	05	11	12	
02	11	09	--	12	08	04	10	09	--	09	13	12	12	10	07	08	07	11	09	10	04	09	05	04	--	08	05	05	09	12	
03	10	08	--	11	08	03	10	07	--	08	13	10	12	10	07	09	08	11	10	08	04	08	05	05	--	08	05	03	09	12	
04	10	08	--	09	08	02	09	07	--	08	12	09	10	11	06	08	08	12	08	08	04	10	05	06	--	08	05	02	10	12	
05	09	06	--	08	09	03	09	07	--	06	13	09	10	11	03	10	08	12	08	08	05	11	08	05	--	09	04	05	11	12	
06	09	07	--	08	08	06	11	07	--	05	15	08	08	12	03	09	09	10	09	08	05	11	06	05	--	08	04	05	11	13	
07	09	07	--	09	10	08	12	05	--	03	17	08	08	12	04	09	09	10	09	08	06	12	06	06	--	08	04	04	12	13	
08	09	07	--	09	08	10	11	04	--	02	18	07	08	11	06	09	10	10	10	07	06	10	05	06	07	09	03	06	13	12	
09	10	07	--	08	09	10	10	05	--	04	17	06	08	11	07	10	06	10	11	06	06	09	04	06	07	10	04	07	12	12	
10	08	07	--	07	10	09	06	05	--	05	17	06	08	10	07	12	06	11	11	06	05	07	02	08	06	11	04	08	12	13	
11	10	08	--	04	08	10	06	05	--	07	15	06	08	11	09	13	07	12	11	06	05	06	03	08	06	11	02	08	13	13	
12	11	09	--	05	07	11	08	05	--	09	14	07	08	11	09	13	07	12	12	06	05	04	08	09	06	09	03	07	13	12	
13	11	10	--	03	08	14	09	05	06	11	15	07	08	11	09	12	08	12	12	06	05	03	08	10	06	09	05	08	15	11	
14	10	10	--	03	09	13	10	06	07	12	14	07	07	11	10	10	09	12	12	06	04	02	09	10	05	10	05	07	15	10	
15	10	11	--	02	10	12	09	--	06	11	15	06	07	09	10	07	08	12	12	05	05	01	09	10	05	09	06	08	14	08	
16	10	11	--	01	11	12	08	--	08	11	15	06	07	07	09	03	08	11	10	05	05	02	08	11	05	08	06	11	15	07	
17	09	11	07	01	10	12	08	--	08	10	15	06	07	07	11	04	08	12	10	05	06	07	08	10	06	08	07	11	12	06	
18	08	10	06	03	10	09	08	--	10	11	15	07	09	08	11	04	09	11	10	05	07	07	06	11	04	09	07	13	12	07	
19	10	11	06	05	09	08	08	--	09	10	13	07	10	09	10	04	10	09	10	04	09	08	06	--	03	09	07	14	12	09	
20	11	11	06	08	08	08	08	--	08	11	13	08	10	10	10	04	09	09	09	04	10	07	05	--	02	08	05	13	13	08	
21	11	--	05	11	09	08	09	--	09	11	13	10	10	09	10	03	09	09	09	03	11	07	04	--	03	08	06	11	13	09	
22	09	--	09	10	09	09	09	--	09	09	13	10	10	09	09	02	08	09	09	02	12	06	04	--	03	08	04	12	14	10	
23	10	--	10	09	09	10	08	--	09	08	13	11	10	09	08	01	09	09	09	02	11	07	04	--	03	08	05	07	12	09	
24	10	--	11	09	08	10	08	--	09	06	12	12	09	09	08	02	09	08	09	03	10	07	03	--	04	09	04	07	12	11	

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - BOWMAN

MONTH/YEAR NOV 75

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
01	---	---	---	SSW	SW	N	W	WSW	---	W	WNW	NW	SSW	W	WNW	W	NNE	NE	N	NNW	NW	---	---	---	---	SSW	SSE	N	SW	WNW	---	
02	---	---	---	SSW	SW	N	W	WSW	---	W	WNW	NNW	SSW	W	WNW	W	NE	NE	N	NNW	NW	---	---	---	---	SSW	SSE	NNW	WSW	NW	---	
03	---	---	---	SSW	SW	NNE	W	W	---	W	WNW	NNW	SSW	W	NW	W	NE	NE	N	N	NW	---	---	---	---	S	SSE	NNE	W	WNW	---	
04	---	---	---	SSW	SW	E	W	W	---	WNW	NW	NW	SSW	W	NW	NW	ENE	NE	N	NNW	NW	---	---	---	---	S	SSE	ENE	W	WNW	---	
05	---	---	---	SSW	SSW	SSW	W	W	---	WNW	NW	NW	SSW	W	W	NNW	ENE	NE	NNW	NNW	N	---	---	---	---	S	SSE	ENE	W	NW	---	
06	---	---	---	SW	SW	SW	W	WSW	---	WNW	WNW	WNW	SW	W	SW	N	E	NNE	NNW	NNW	WNW	---	---	---	---	S	SSE	E	W	NW	-	
07	---	---	---	SW	WSW	SW	W	W	---	WNW	WNW	NW	WSW	W	SSW	N	E	NNE	NW	NNW	WNW	---	---	---	---	S	SSE	E	WNW	WNW	---	
08	---	---	---	SW	W	SW	W	WSW	---	S	NW	WNW	WSW	W	SSW	N	E	NNE	NNW	NW	W	---	---	---	SSE	S	SSE	E	WNW	WNW	---	
09	---	---	---	WSW	W	WSW	W	W	---	SE	NW	W	WSW	W	SSW	N	E	N	NNW	NNW	W	---	---	---	S	S	S	SSW	WNW	WNW	---	
10	---	---	---	WSW	WNW	W	W	WSW	---	SE	NW	W	WSW	W	SSW	N	E	NNE	N	NNW	WNW	---	---	---	SSE	S	S	E	WNW	WNW	---	
11	---	---	---	WSW	WNW	WNW	W	W	---	SE	NW	W	W	W	SSW	N	E	NNE	N	NNW	WNW	---	---	---	S	S	SSW	E	WNW	W	---	
12	---	---	---	WSW	NW	NW	W	W	---	SE	NW	W	W	W	SSW	NNW	ESE	NNE	N	NNW	WNW	---	---	---	SSE	SSE	W	E	NW	W	---	
13	---	---	---	W	NNW	NW	W	W	W	SE	NNW	W	W	W	SSW	NNW	ESE	NNE	N	NW	W	---	---	---	SSE	S	WNW	E	WNW	W	---	
14	---	---	---	W	NNW	WNW	W	W	W	SE	NNW	W	W	W	SSW	N	ESE	N	N	NW	W	---	---	---	SSE	SSE	NW	E	WNW	W	---	
15	---	---	---	WNW	NNW	W	W	---	WNW	SE	NNW	W	W	W	SSW	N	E	N	N	NW	W	---	---	---	SSE	SSE	NW	E	NW	W	-	
16	---	---	---	WSW	NNW	W	W	---	WNW	SE	NNW	W	WSW	W	SSW	NW	E	N	N	NW	WSW	---	---	---	SSE	SSE	NNW	E	NW	W	---	
17	---	---	---	WSW	SSW	NNW	W	WNW	---	W	SE	NW	WSW	WSW	W	SSW	W	E	NNE	NNW	N	WSW	---	---	---	S	SE	NNW	E	NW	WSW	---
18	---	---	---	W	S	NNW	WNW	W	---	WNW	ESE	NW	SW	WSW	W	SSW	W	ENE	N	NNW	NNE	---	---	---	---	SSW	SE	NNW	E	WNW	WSW	---
19	---	---	---	WSW	S	NNW	WNW	W	---	WNW	E	NW	SSW	WSW	W	SSW	WSW	ENE	N	NNW	NNE	---	---	---	---	SSW	SE	NNW	E	WNW	WSW	---
20	---	---	---	SW	SSE	NNW	WNW	W	---	WNW	E	NW	SSW	WSW	W	SW	WNW	ENE	N	NNW	NE	---	---	---	---	SSW	SE	NW	E	WNW	WSW	---
21	---	---	---	SSW	S	NW	W	WSW	---	WNW	E	NW	S	WSW	W	SW	W	ENE	N	NNW	NE	---	---	---	---	SW	SE	WNW	ESE	WNW	WSW	---
22	---	---	---	S	SSW	NNW	W	WSW	---	WNW	ESE	NW	S	WSW	W	SW	WSW	ENE	N	N	NNE	---	---	---	---	WSW	SE	WNW	ESE	WNW	WSW	---
23	---	---	---	SSW	SSW	NNW	W	WSW	---	W	ESE	NW	S	WSW	W	WSW	SSW	NE	N	NNW	NNW	---	---	---	---	SW	SE	WNW	SE	WNW	WSW	---
24	---	---	---	SSW	SSW	NNW	W	WSW	---	W	SW	NW	S	WSW	W	W	NNE	NE	N	N	NW	---	---	---	---	SW	SE	NW	SSE	WNW	SW	---

C-81
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859

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - BOWMAN

MONTH/YEAR DEC 75

DAY

C-82
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D
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	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	10	07	--	--	--	13	06	12	10	07	05	07	08	07	12	13	08	10	13	08	11	04	11	08	07	07	06	16	10	08	05
02	11	08	--	--	--	11	06	13	09	08	05	07	10	08	12	09	08	10	13	07	12	03	09	09	09	04	06	19	11	08	05
03	11	09	--	--	--	12	05	14	09	07	04	07	10	08	11	11	07	08	13	07	09	03	09	09	09	03	08	18	10	08	04
04	11	09	--	--	--	13	04	12	08	07	04	07	10	09	11	11	08	11	14	06	11	04	10	08	09	02	08	16	13	08	03
05	09	09	--	--	--	13	03	12	07	08	03	07	08	08	11	12	08	13	16	05	11	05	08	08	11	03	09	14	13	09	03
06	07	08	--	--	--	13	07	13	08	09	03	09	09	07	11	12	08	14	15	04	10	02	08	08	12	05	09	14	13	07	04
07	07	08	--	--	--	12	06	12	08	09	02	10	09	07	10	13	07	14	16	03	09	01	10	07	13	05	10	15	12	07	05
08	07	08	--	--	--	11	07	10	08	09	03	09	10	06	11	13	08	13	16	02	09	02	09	08	12	05	12	14	11	08	08
09	05	08	--	--	--	09	10	10	10	10	04	10	08	05	08	13	08	16	16	02	09	03	08	07	12	05	15	13	10	07	08
10	06	08	--	--	--	10	09	09	09	10	04	09	08	03	07	14	07	16	17	05	09	03	08	07	15	06	15	13	10	07	08
11	05	09	--	--	09	11	12	08	08	10	05	08	06	03	08	14	04	16	19	07	09	03	08	07	16	06	13	13	09	08	09
12	06	09	--	--	09	10	10	07	08	10	05	08	06	04	09	13	04	15	19	06	09	04	08	06	18	06	15	12	10	06	09
13	06	02	09	--	09	06	11	06	09	10	05	07	06	04	09	14	03	14	19	07	09	05	09	06	17	05	12	11	10	06	09
14	--	03	09	--	09	06	07	07	11	10	05	07	06	04	09	14	04	11	19	07	10	05	08	06	19	05	14	10	08	07	09
15	--	03	10	--	09	07	05	09	12	10	05	07	05	04	10	13	04	09	18	07	11	06	08	06	17	05	13	09	08	06	09
16	07	07	11	--	08	09	06	10	10	09	06	06	05	07	10	13	04	09	17	10	10	05	08	08	16	06	13	08	06	06	
17	07	06	13	--	08	10	07	11	10	08	06	03	06	08	11	13	07	09	15	11	10	08	09	08	16	08	14	08	07	10	09
18	06	06	14	--	08	09	08	10	12	10	07	04	06	09	11	09	07	10	15	11	10	10	12	08	10	07	14	08	09	09	10
19	02	06	16	--	10	08	07	09	11	09	07	03	07	10	12	09	08	13	15	11	11	12	08	07	15	08	13	10	10	10	10
20	03	06	16	--	10	10	10	08	11	09	07	06	06	13	12	09	08	13	14	12	11	12	08	07	14	07	15	11	09	10	09
21	05	06	16	--	09	11	11	10	10	09	08	10	05	13	15	09	09	12	11	12	10	12	08	08	13	08	16	11	08	09	09
22	05	06	--	--	09	10	12	10	08	08	08	11	05	13	14	09	09	12	11	11	08	12	07	08	12	08	17	11	08	09	10
23	04	07	--	--	10	08	13	10	05	07	06	11	06	13	15	08	10	10	10	12	07	10	07	09	10	07	18	10	08	08	10
24	03	07	--	--	11	07	13	10	04	06	06	09	06	12	14	08	09	09	10	12	06	10	07	07	10	06	17	09	08	07	10

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - BOWMAN

MONTH/YEAR DEC 75

	DAY																														
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	SW	---	---	---	---	S	NW	NW	WNW	NE	SSE	SE	NW	NNW	SW	NW	NW	W	W	NW	WSW	NNE	SSW	W	SW	N	WSW	NW	W	WSW	NNE
02	SSW	---	---	---	---	S	WNW	NW	WNW	NE	SSE	SSE	NW	NNW	WSW	NNW	NW	W	W	NW	WSW	NNE	SSW	W	SW	N	WSW	NW	W	WSW	NNE
03	S	---	---	---	---	S	NW	WNW	WNW	NE	SSE	SE	NW	NNW	WSW	NW	NW	W	W	NW	WSW	NNW	SSW	W	SW	NNW	W	NW	W	WSW	ENE
04	S	---	---	---	---	S	NNW	WNW	WNW	NE	SSE	SSE	NW	NNW	W	NW	NW	W	W	NW	W	NNW	SW	WNW	W	WNW	W	NW	W	WSW	E
05	S	---	---	---	---	S	NNW	WNW	W	ENE	SSE	SE	WNW	NNW	W	NNW	NW	W	W	WNW	W	N	SW	WNW	W	WSW	W	NW	W	WSW	ENE
06	S	---	---	---	---	S	S	WNW	WSW	ENE	SSW	SE	WNW	NW	W	NW	NW	W	WNW	NW	W	N	SW	W	WNW	WSW	WNW	NW	W	SSW	NE
07	S	---	---	---	---	S	SSE	WNW	WSW	E	WNW	SE	WNW	NW	W	NW	NW	WNW	WNW	NNW	W	E	WSW	W	NW	SW	WNW	NW	W	SSW	NE
08	SSE	---	---	---	---	S	S	WNW	WSW	E	NNW	SE	NW	NW	W	NW	WNW	WNW	WNW	NE	W	SE	WSW	S	NW	SSW	WNW	NW	W	SW	NNE
09	SSE	---	---	---	---	S	S	WNW	WSW	E	N	SE	NW	NW	W	NW	WNW	WNW	WNW	SE	W	SE	WSW	W	NW	SW	WNW	NW	WNW	SW	NE
10	SSE	---	---	---	---	S	S	W	W	E	N	SE	NW	WSW	W	NW	WNW	WNW	NW	S	WNW	ESE	WSW	W	WNW	SW	NW	NW	W	SW	NE
11	SSE	---	---	---	NW	S	S	W	W	E	N	SE	NW	WSW	W	NW	W	WNW	NW	SSW	WNW	ESE	WSW	W	WNW	SSW	NW	NW	W	SSW	NNE
12	SSE	---	---	---	WNW	SSW	S	W	W	E	NNE	SE	NNW	WSW	W	NW	W	NW	NW	SSW	WNW	S	W	W	WNW	SW	WNW	NW	WNW	S	NNE
13	S	NNE	---	---	WNW	SW	SSW	WSW	W	E	NNE	SE	NNW	WSW	W	NW	WSW	NW	NW	SSW	WNW	S	WNW	W	WNW	S	WNW	NW	WNW	SW	NNE
14	---	NNE	---	---	W	W	S	WSW	W	E	ENE	SSE	N	WSW	W	NW	WSW	WNW	NW	SSW	WNW	S	W	W	WNW	S	WNW	WNW	WNW	W	NE
15	---	ENE	---	---	W	W	S	SW	W	E	ENE	SSE	NNE	SSW	WNW	NW	SW	WNW	NW	S	WNW	S	W	W	WNW	SSW	WNW	WNW	W	WNW	NE
16	WNW	ENE	---	---	W	WNW	SSW	SW	W	ESE	NE	SSE	NNE	SSW	WNW	NW	SSW	WNW	NW	S	WNW	SSE	W	W	NW	SW	WNW	W	W	WNW	
17	NW	ENE	---	---	WSW	WNW	SSW	SSW	W	ESE	ENE	SSE	NNE	SSW	W	NW	S	WNW	NW	S	WNW	SSE	W	W	NW	SSW	WNW	W	W	NNW	NE
18	NW	E	---	---	WSW	NW	SW	SSW	W	ESE	E	S	N	SSW	W	NNW	SSW	W	NW	S	WNW	S	W	W	NW	SSW	WNW	W	W	NNW	NE
19	N	E	---	---	WSW	WNW	W	SW	W	SE	E	W	N	SSW	W	NNW	SSW	W	NW	SSW	NW	S	WNW	WSW	NNW	SSW	WNW	W	WSW	NNW	NE
20	WNW	ESE	---	---	SW	W	W	W	W	ESE	E	NW	N	SSW	WNW	NW	SSW	W	NW	SSW	NW	SSW	WNW	SW	NNW	SW	WNW	W	WSW	NW	NE
21	W	ESE	---	---	SW	WNW	WNW	W	W	ESE	E	NW	N	SSW	NW	NW	SW	W	NNW	SSW	NNW	SSW	WNW	WSW	NNW	WSW	WNW	W	WSW	NNW	NNE
22	WNW	ESE	---	---	SW	W	NW	WNW	W	SE	SE	NW	N	SSW	NW	NW	SW	W	NNW	SW	NNW	SSW	WNW	WSW	NNW	W	WNW	W	W	NW	NNE
23	NNW	SE	---	---	SSW	W	NW	WNW	NW	SE	SE	NNW	N	SSW	NW	NW	WSW	W	NNW	SW	N	SSW	W	WSW	NNW	WSW	NW	W	W	NW	NNE
24	N	SSE	---	---	S	NW	NW	WNW	NNE	SE	SE	NW	NNW	SSW	NW	NW	WSW	W	NNW	SW	N	SSW	W	WSW	N	WSW	NW	W	WSW	NNW	NNE

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - BOWMAN

MONTH/YEAR JAN 76

DAY

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	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	09	11	12	13	13	12	08	10	08	10	11	14	09	12	18	09	08	09	21	14	08	11	12	13	10	08	08	16	11	06	13
02	10	09	12	13	13	12	08	09	07	09	11	14	09	12	16	10	09	09	21	12	09	12	12	11	10	10	08	15	13	04	11
03	09	09	11	12	13	11	08	11	07	09	13	14	09	12	19	08	08	11	20	12	08	14	14	12	09	10	08	16	14	04	13
04	10	08	11	12	13	11	09	10	08	10	15	13	10	11	22	08	10	11	17	12	09	14	15	11	05	10	10	15	14	04	15
05	10	09	12	13	12	09	09	08	07	10	15	13	10	10	22	09	09	13	17	12	11	14	15	12	06	10	10	14	13	03	17
06	09	08	12	13	10	09	10	08	06	12	14	12	10	10	19	09	09	13	17	11	10	15	14	12	07	09	10	13	14	03	7
07	09	08	11	14	11	09	09	07	08	12	14	12	12	08	18	08	09	14	16	11	09	12	15	13	07	08	10	14	14	03	21
08	09	08	11	14	11	07	10	04	07	12	12	11	10	10	18	09	08	09	13	11	09	10	14	15	07	09	09	15	15	05	21
09	09	08	10	13	10	06	10	06	06	13	14	10	11	09	18	09	08	14	12	09	10	11	14	17	06	08	11	13	15	04	21
10	10	09	09	12	08	06	10	07	05	13	12	08	08	09	19	08	08	14	10	11	09	12	14	21	07	08	10	12	15	04	21
11	10	09	07	09	08	07	10	08	06	12	13	10	08	07	15	08	09	14	09	11	08	13	14	17	08	06	11	11	18	04	21
12	12	10	07	09	07	05	10	06	07	12	12	09	08	09	13	08	07	15	09	10	07	15	15	16	11	06	11	11	16	02	22
13	13	13	07	08	03	06	10	07	08	13	12	09	09	09	12	07	08	18	08	14	08	15	15	18	09	06	11	12	14	08	20
14	13	14	07	07	05	07	09	07	07	13	13	10	09	10	12	06	08	18	07	14	06	14	19	17	09	06	13	14	16	10	21
15	12	15	06	08	05	08	09	07	08	11	15	09	08	11	11	04	08	16	07	14	05	12	20	18	14	05	11	14	19	13	23
16	12	16	06	09	10	08	10	07	09	09	16	09	08	12	11	04	07	18	07	14	04	12	16	18	13	05	15	13	20	14	21
17	12	15	05	08	10	08	10	07	11	11	17	08	08	15	10	05	07	17	07	13	05	11	12	18	11	06	20	12	20	15	20
18	12	14	05	07	10	08	12	08	11	09	15	08	09	14	09	06	08	18	09	12	07	10	12	13	13	08	18	11	19	15	19
19	13	13	05	08	12	09	12	08	08	07	15	07	10	14	09	07	09	16	09	09	06	09	13	13	12	09	15	11	18	15	19
20	12	12	04	10	13	09	11	08	07	08	18	08	10	12	09	07	08	16	11	08	06	11	12	13	12	09	14	10	15	15	19
21	12	12	05	10	13	08	11	08	06	07	15	08	11	13	09	08	08	17	12	08	07	11	10	12	12	09	14	09	16	15	19
22	11	12	07	13	12	09	11	08	05	09	14	09	12	14	10	09	09	19	13	07	09	08	10	12	11	08	13	08	12	15	18
23	11	13	07	14	11	09	11	12	04	11	16	09	11	18	10	11	11	19	12	08	11	09	13	11	08	09	14	08	09	14	15
24	11	13	07	13	12	08	11	09	07	11	15	08	10	16	11	11	11	22	13	08	11	10	12	11	08	09	15	09	08	14	14

2002

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - BOWMAN

MONTH/YEAR JAN 76

	DAY																														
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	NNE	NW	WNW	S	SW	NNW	NW	WNW	S	N	WSW	W	WNW	W	WNW	W	WNW	SW	NW	W	WNW	WSW	W	WNW	NW	WNW	SW	WNW	SW	NW	W
02	NNE	NW	WNW	S	SW	NNW	NW	NW	SSW	N	WSW	W	NW	W	WNW	W	WNW	SW	NW	W	W	W	W	W	NW	W	SW	WNW	SW	NW	W
03	N	NW	NW	S	SW	NNW	NW	WNW	WSW	NNW	SW	W	NW	W	WNW	W	WNW	WSW	NW	W	W	W	WNW	W	NW	W	WSW	WNW	SW	WNW	W
04	N	WNW	NW	S	WSW	NNW	NW	WNW	W	NW	WSW	W	WNW	W	WNW	W	WNW	W	NW	W	W	W	WNW	W	W	WNW	WSW	NW	WSW	WNW	W
05	N	WNW	NW	S	W	NW	NW	W	W	NW	WSW	W	NW	W	WNW	WNW	WNW	W	NW	W	W	W	WNW	W	W	W	WSW	WNW	WSW	W	W
06	N	WNW	NW	S	W	NNW	NW	W	W	NW	WSW	W	NW	W	WNW	W	WNW	W	NNW	W	WNW	W	WNW	W	WSW	W	W	WNW	WSW	SSE	
07	N	WNW	NW	S	W	NNW	NW	W	SW	WNW	WSW	W	NW	WSW	NW	W	W	WNW	NNW	W	WNW	W	WNW	WNW	WSW	W	W	WNW	W	SE	WNW
08	NNW	WNW	NW	S	W	NNW	NW	WNW	SW	WNW	SW	W	NW	W	NW	WNW	W	NW	NNW	W	WNW	W	WNW	WNW	SSW	WNW	WSW	WNW	W	E	WNW
09	NNW	W	WNW	SSW	W	NW	NW	WSW	SW	WNW	WSW	W	NNW	WSW	NNW	WNW	W	NW	NNW	W	W	W	WNW	WNW	SW	W	WSW	WNW	W	ESE	WNW
10	NNW	W	WNW	SW	WSW	NNW	NW	SW	SSW	WNW	WSW	W	NW	WSW	NW	WNW	W	NNW	NNW	W	WNW	W	WNW	NW	W	W	WSW	WNW	WNW	E	WNW
11	NNW	W	WNW	SW	WSW	NNW	NW	SSW	SSW	WNW	SW	W	WNW	WSW	NNW	WNW	W	NW	NNW	W	W	W	WNW	WNW	WNW	W	SW	WNW	WNW	ENE	WNW
12	NNW	WNW	WNW	SW	WSW	N	NW	SSW	SSW	WNW	SW	W	WNW	SW	NNW	W	W	NW	NW	WNW	WNW	W	NW	WNW	NNE	WSW	SW	WNW	WNW	N	WNW
13	NNW	NW	WNW	WSW	W	NNW	NW	S	SSW	WNW	SW	W	W	SW	NNW	WNW	W	NW	WNW	WNW	WNW	W	WNW	WNW	N	SSW	SW	WNW	WNW	NW	WNW
14	NNW	NW	W	W	WNW	NNW	NW	S	S	WNW	WSW	W	W	SSW	NNW	NW	W	NNW	WNW	WNW	WNW	W	WNW	WNW	NNW	SSW	WSW	WNW	WNW	NW	WNW
15	NNW	NNW	W	W	WNW	NNW	NW	S	S	WNW	WSW	W	W	S	NW	WNW	W	NW	WNW	NW	WNW	W	NW	WNW	NNW	SSW	WSW	WNW	WNW	NW	WNW
16	NNW	NNW	W	W	N	NNW	NW	S	S	WNW	WSW	W	WNW	S	NW	W	WSW	NW	W	WNW	W	W	NW	NW	NW	S	W	WNW	NW	WNW	NW
17	NNW	NNW	W	W	N	NNW	NW	S	S	WNW	WSW	WNW	W	S	NW	W	WSW	NW	W	WNW	WSW	W	NW	NW	NW	S	W	W	WNW	NW	NW
18	NNW	NNW	W	WSW	N	NNW	NW	S	S	W	WSW	W	W	S	NW	SW	SW	NW	W	NW	WSW	W	WNW	NNW	NW	S	WNW	W	NW	NW	NW
19	NNW	NW	W	SW	N	NNW	NW	S	S	W	WSW	WNW	W	S	NW	WSW	SW	NW	W	NW	WSW	W	NW	WSW	NW	S	WNW	W	NW	WNW	WNW
20	NW	NW	SW	SW	N	NNW	WNW	S	SSE	W	W	WNW	W	SSW	WNW	W	WSW	WNW	W	NW	S	W	NW	NNW	NW	SSW	WNW	W	NW	WNW	NW
21	NW	WNW	SSW	SW	NNW	NNW	WNW	S	SSE	W	WNW	W	W	SW	WNW	W	SW	WNW	W	NW	S	W	W	NW	NW	SSW	NW	W	NW	WNW	NW
22	NW	WNW	S	SW	N	NW	WNW	S	SW	W	W	WNW	W	SW	WNW	WNW	WSW	NW	W	WNW	S	W	W	NW	NW	SSW	WNW	W	NNW	WNW	NW
23	NW	WNW	S	SW	NNW	NW	WNW	S	NW	W	W	NW	W	W	WNW	WNW	WSW	NW	W	WNW	SSW	W	W	NW	WNW	SSW	WNW	WSW	NNW	WNW	NW
24	NW	WNW	SSW	SW	NNW	NW	WNW	S	N	WSW	W	NW	W	W	W	WNW	SW	NW	W	WNW	SW	W	WNW	NW	WNW	SW	WNW	WSW	NW	WNW	NW

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NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND SPEED, WS(MS)

STATION - BOWMAN

MONTH/YEAR FEB 76

DAY

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
01	12	19	13	09	03	11	15	10	11	04	11	10	06	12	10	09	09	08	12	08	09	06	13	12	08	12	12	09	07		
02	12	16	14	06	03	12	15	11	10	07	11	11	06	09	16	09	10	07	12	06	08	06	13	11	08	12	12	09	08		
03	12	15	15	06	02	10	14	10	13	07	12	10	07	08	16	11	11	10	12	03	09	06	13	11	08	10	10	10	07		
04	11	15	16	06	03	11	14	12	10	10	12	08	09	08	15	10	11	10	11	04	07	08	13	10	08	08	09	11	06		
05	11	13	17	05	03	11	14	13	09	10	12	08	07	08	13	09	12	08	12	04	09	07	12	09	08	07	09	11	05		
06	09	11	21	04	03	11	13	12	13	11	11	10	06	09	13	09	13	06	10	04	08	08	09	11	07	05	08	11	03		
07	09	10	19	05	02	10	09	11	13	10	11	11	08	09	12	08	11	09	11	05	09	08	10	10	07	09	06	10	04		
08	09	08	10	05	02	13	11	13	09	12	10	13	08	09	11	08	12	10	11	04	08	09	10	09	04	10	03	08	04		
09	08	07	14	03	03	14	13	13	07	12	10	14	09	08	11	08	09	11	11	03	07	08	10	08	02	09	07	05	04		
10	08	07	13	03	03	13	12	12	10	12	10	14	08	06	11	08	12	12	11	02	08	07	11	07	03	05	10	11	05		
11	07	07	12	03	05	13	11	12	09	13	11	16	07	05	12	07	13	16	10	04	12	09	10	07	03	04	10	12	06		
12	06	08	12	05	05	14	11	12	09	13	10	15	07	03	12	08	12	16	09	04	11	09	10	07	02	06	11	17	07		
13	07	09	12	05	06	14	12	15	08	15	12	14	07	03	12	08	15	16	08	05	10	10	12	05	09	07	11	10	07		
14	07	09	14	06	07	12	12	14	05	10	11	13	05	03	12	10	14	19	07	05	11	09	11	04	10	08	11	16	07		
15	07	08	15	05	08	12	12	14	06	17	11	13	06	03	09	12	12	16	08	05	11	10	11	03	10	06	10	14	07		
16	11	07	14	04	09	12	11	15	06	13	10	10	08	04	08	10	11	13	07	05	12	10	09	02	10	04	12	14	07		
17	12	09	14	04	08	13	10	16	08	11	12	09	09	01	07	09	09	11	08	05	11	08	08	03	09	03	16	14	08		
18	17	11	12	04	08	13	10	15	08	08	12	08	08	02	05	11	06	10	08	05	09	06	08	03	10	05	15	13	08		
19	19	12	10	04	08	12	09	14	05	06	12	08	09	01	04	13	05	12	07	04	10	08	07	05	10	07	15	12	08		
20	22	13	09	03	09	12	09	13	01	03	12	08	10	01	04	12	03	11	07	06	11	10	09	06	12	06	15	13	08		
21	23	12	08	03	10	13	09	12	05	03	13	05	10	03	04	10	03	12	07	06	08	14	11	06	11	06	15	13	08		
22	22	14	09	02	12	12	09	13	06	07	12	03	13	04	05	08	04	11	06	08	07	12	12	08	08	05	14	11	08		
23	22	14	09	03	10	12	09	13	06	09	12	03	10	08	08	08	05	11	07	09	07	12	10	08	08	09	11	11	08		
24	20	15	09	04	09	14	09	12	04	11	12	05	11	13	09	08	07	12	07	09	07	13	11	07	11	12	10	08	09		

NORTHERN GREAT PLAINS ONE HOUR AVERAGES OF WIND DIRECTION

STATION - BOWMAN

MONTH/YEAR FEB 76

	DAY																															
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
01	NW	NNW	NW	N	ENE	W	W	WSW	SW	SW	WSW	W	ESE	SSW	W	SW	W	SSE	W	N	NW	WNW	W	SW	NW	W	ESE	SE	N	---	---	
02	NW	NNW	WNW	N	NE	W	W	WSW	WSW	WSW	WSW	W	SE	SSW	WNW	SSW	W	SSE	W	N	NW	WNW	W	SW	NNW	WNW	ESE	SE	N	---	---	
03	NW	NNW	WNW	NNE	N	W	W	WSW	W	WSW	WSW	W	SSE	SSW	WNW	SW	W	S	W	N	NW	W	W	WSW	N	NNW	E	SE	N	---	---	
04	NW	NNW	NW	NNE	NNE	W	W	WSW	W	W	WSW	W	S	SSW	WNW	SW	W	S	W	N	WNW	W	W	WSW	N	NNW	E	SE	N	---	---	
05	WNW	NNW	NW	NNE	NE	W	W	WSW	W	WNW	W	W	SSE	SSW	W	WSW	W	SW	W	N	W	W	W	W	NNW	WNW	ENE	SSE	N	---	---	
06	WNW	NNW	NNW	NNE	ENE	W	W	WSW	W	WNW	W	W	SSE	WSW	W	WSW	WNW	WSW	W	N	W	WSW	W	W	NNW	WNW	E	SSE	NNE	---	---	
07	NW	NNW	NNW	NNE	NNE	W	WNW	W	WNW	W	W	WNW	SSE	W	WNW	WSW	WNW	WSW	W	N	W	W	W	WNW	NNW	WNW	E	SSE	ESE	---	---	
08	NW	NW	NNE	N	NW	W	WNW	W	NW	W	WSW	WNW	S	WNW	WNW	WSW	WNW	W	W	NNW	W	W	W	WNW	N	NW	SSW	S	SE	---	---	
09	NW	NW	NNE	NNE	WNW	W	W	WSW	NW	W	WSW	WNW	S	NW	W	WSW	NW	WNW	WNW	NNW	WSW	W	W	NW	ESE	NW	WNW	SW	SSE	---	---	
10	NW	WNW	NNE	NE	WNW	W	W	W	WNW	WNW	WSW	NW	S	WNW	W	WSW	NW	WNW	WNW	W	WSW	W	W	WNW	ESE	W	WNW	WNW	SSE	---	---	
11	WNW	W	N	NE	WNW	W	WNW	W	WNW	WNW	WSW	NW	SSW	WNW	W	SW	NW	WNW	WNW	WNW	W	W	W	WNW	SSE	W	WNW	NW	SSE	---	---	
12	WNW	W	N	NE	WNW	W	WNW	W	WNW	W	WSW	NW	SW	WNW	WNW	SW	NW	WNW	WNW	WNW	W	W	W	NW	S	WSW	WNW	WNW	SSE	---	---	
13	WNW	W	NNW	ENE	WNW	W	WNW	W	NNW	WNW	W	NW	WSW	W	WNW	SSW	WNW	WNW	WNW	WNW	W	W	W	NW	S	WSW	WNW	NW	SSE	---	---	
14	W	WSW	NNW	NE	WNW	W	WNW	W	NNW	WNW	W	NNW	SW	NNW	WNW	SSW	WNW	WNW	NW	NW	W	W	W	NW	S	SW	WNW	NW	SSE	---	---	
15	W	WSW	NNW	ENE	WNW	W	WNW	W	NNW	NW	W	N	SSW	NNW	WNW	SSW	NW	WNW	NW	WNW	W	W	W	NW	S	SW	WNW	NW	SSE	---	---	
16	W	SSW	NNW	ENE	WNW	W	NW	W	NNW	NW	WSW	N	S	NNE	WNW	SSW	NW	WNW	NNW	WNW	WNW	W	W	S	S	SSW	NW	NW	SSE	---	---	
17	W	SSW	N	ENE	WNW	W	WNW	W	N	NW	WSW	N	S	N	WNW	SSW	NW	WNW	NNW	WNW	WNW	W	W	SSW	S	S	NW	NW	SSE	---	---	
18	WNW	SSW	N	NE	W	W	WNW	W	N	NNW	WSW	NNE	SSE	SE	W	S	NNW	W	N	WNW	WNW	WSW	W	WSW	SSW	SE	NW	WNW	SSE	---	---	
19	NW	SSW	NNW	NE	WNW	W	W	WSW	NNW	NNW	WSW	NE	SSE	SSE	WSW	S	NNW	W	NNW	W	WNW	WSW	WSW	WSW	SW	SSE	NW	WNW	SE	---	---	
20	NW	SW	N	NE	W	W	W	WSW	NW	W	WSW	NE	SSE	E	SSW	S	N	W	NNW	W	WNW	WSW	WSW	WSW	WSW	SSE	NW	NW	SE	---	---	
21	NNW	W	NNW	ENE	W	W	W	WSW	N	SSW	WSW	ENE	S	WNW	S	SSW	SE	W	N	W	WNW	W	SW	WSW	WSW	SSE	NW	NW	SE	---	---	
22	NNW	NW	N	ENE	WNW	W	W	WSW	NNW	SW	WSW	ESE	S	W	SW	SSW	SE	W	N	NNW	WNW	W	SW	W	WSW	SE	NNW	NNW	SE	---	---	
23	NNW	NW	N	NE	W	W	W	WSW	S	SSW	WSW	ESE	S	W	SSW	WSW	SE	W	N	NNW	NW	W	WSW	W	W	E	SE	N	SE	---	---	
24	NNW	NW	N	NE	W	W	WSW	WSW	S	WSW	W	ESE	S	W	SSW	WSW	SSE	W	N	NW	NW	W	SW	WNW	W	E	SE	N	SE	---	---	