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# Meteorological Tower Data for the Nevada Nuclear Waste Storage Investigations (NNWSI)

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## Quarterly Report, July-September, 1982 Yucca Alluvial (YA) Site

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METEOROLOGICAL TOWER DATA FOR THE  
NEVADA NUCLEAR WASTE STORAGE  
INVESTIGATIONS (NNWSI)

QUARTERLY REPORT, JULY-SEPTEMBER, 1982  
YUCCA ALLUVIAL (YA) SITE

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ABSTRACT

The purpose of the NNWSI meteorological data collection program is to support environmental evaluations of site suitability for a nuclear waste repository. This is the first of a series of quarterly data summaries for the NNWSI Site in southern Nevada.

METEOROLOGICAL TOWER DATA FOR THE  
NEVADA NUCLEAR WASTE STORAGE  
INVESTIGATIONS (NNWSI)

Quarterly Report, July - September 1982  
Yucca Alluvial (YA) Site

INTRODUCTION

The U.S. Department of Energy is studying a site at Yucca Mountain on and adjacent to the NTS as one of several potential alternatives for the first repository for high level radioactive wastes. In support of environmental, engineering design, and possible air quality assessment requirements, Sandia National Laboratories has installed two 10-metre meteorological tower systems at Yucca Mountain. One is at site YA (Yucca Alluvial) and one at site YR (Yucca Ridge), shown in Figure 1. Data collection activities began at site YA on June 19, 1982 and at site YR on November 23, 1982. Data acquisition and initial editing were conducted by Sandia National Laboratories. Final processing, editing, and archiving were conducted by the Atmospheric Sciences Center of the Desert Research Institute (DRI) in Reno, Nevada.

This report presents the results of the monitoring program for the calendar quarter July through September, 1982, at site YA.

INSTRUMENTATION

The data acquisition unit, consisting of a microprocessor-controlled logger, signal conditioning circuitry, and digital magnetic tape cassette recorder, was located near the base of the tower and was supplied with power from a battery charged by a solar collector. Table 1 presents a list of variables monitored, equipment used, and location on the tower. These variables were supplemented with squares and cross-products of orthogonal wind components to be used for analysis of turbulence. Component variances and correlation coefficients between them were calculated as an aid in locating values that did not fall within credible limits. Turbulence analysis was not started until June 3, 1983 because of software deficiencies in the microprocessor, which were remedied at that time.

Each of the 16 channels (12 shown in Table 1, plus 4 spares) was sampled at 2-second intervals, digitized, and accumulated over 20-minute periods. Wind direction and speed samples were converted to orthogonal (north-south and east-west) components, and data from each channel were averaged and recorded on cassette tape at the end of each 20-minute period. Besides component squares and products, the maximum individual measured 2-second speed was also recorded for each level. This makes a total of 24 items recorded during each 20-minute time frame.



## DATA EDITING AND PROCESSING

Twenty minute average data on cassette tapes were transferred to a disk file at Sandia Labs in Albuquerque for initial quality editing. Data were filtered using a computer algorithm that checked data values against credible limits, shown in Table 2. In this process, data were either accepted, flagged, or rejected.

After filtering, the 20-minute data were edited manually using the flag codes from the filtering process, as well as time plots and station logs. Finally, computer tapes containing 20-minute data were shipped to the Desert Research Institute where hourly-average data lists were generated, manually reviewed for reasonableness, and used to prepare tabulated summaries. During this process, wind component data were used to generate vector wind speed and direction data, and temperature data were used to prepare  $\Delta t$  (10m-3m) data.

Summaries are on microfiche contained in a pocket on the back cover of this report. Fully-edited hourly data may be made available to qualified users on 9-track magnetic tape.

TABLE 2

Credible Limits Used for  
Initial Data Filtering

| <u>Variable</u>                    | <u>Flag Limits</u>                       | <u>Discard Limits</u>                     |
|------------------------------------|--|---|
| Orthogonal Wind Components         | -40; +40 m/s                             | -50; +50 m/s                              |
| Maximum Wind Speed                 | 40 m/s                                   | 50 m/s                                    |
| Temperature                        | -30; +45C                                | -50; +50C                                 |
| Soil Temperature                   | -10; +35C                                | -50; +50C                                 |
| Barometric Pressure                | 86.5; 90.5 kPa                           | 80; 95 kPa                                |
| Solar Radiation                    | -15; 1350 W/m <sup>2</sup>               | -100; 1500 W/m <sup>2</sup>               |
| Precipitation                      | 0; 1000mm/day                            | 100; 2500mm/day                           |
| Relative Humidity                  | 2; 100%                                  | -10; 110%                                 |
| Ground IR Radiation                | 200; 700 W/m <sup>2</sup>                | 0; 1000 W/m <sup>2</sup>                  |
| Wind Components Squared            | 0; 400 m <sup>2</sup> /s <sup>2</sup>    | 0; 1000 m <sup>2</sup> /s <sup>2</sup>    |
| Cross Products                     | -400; 400 m <sup>2</sup> /s <sup>2</sup> | -1000; 1000m <sup>2</sup> /s <sup>2</sup> |
| Absolute Values of Wind Components | --                                       | < maximum speeds                          |
| Wind Component Variance            | < zero                                   | --  |
| Correlation Coefficient            | <-1; >1                                  | --  |

## DATA RECOVERY

Table 3 shows the percent data recovery (percent of all possible hours) for each parameter for each month of the quarter. Extended sensor problems with the 3m temperature and IR probes caused the low rates shown for those two items and for the temperature difference values.

TABLE 3

Percent Data Recovery  
Yucca Alluvial Site  
July-September, 1982

| <u>VARIABLE</u>             | <u>JULY</u> | <u>AUGUST</u> | <u>SEPTEMBER</u> |
|-----------------------------|-------------|---------------|------------------|
| <b>Monitored Variables</b>  |             |               |                  |
| U1-10m                      | 96.9%       | 97.0          | 98.8             |
| V1-10m                      | 94.4        | 96.5          | 96.9             |
| Temperature-10m             | 99.2        | 98.5          | 100.0            |
| Soil Temperature            | 92.5        | 98.3          | 89.3             |
| Pressure                    | 100.0       | 97.4          | 100.0            |
| Solar Radiation             | 98.7        | 98.3          | 99.7             |
| U2-3m                       | 98.7        | 97.6          | 97.9             |
| V2-3m                       | 93.4        | 97.0          | 96.7             |
| Temperature-3m              | 100.0       | 85.8          | 24.0             |
| Precipitation               | 86.6        | 94.4          | 97.2             |
| Relative Humidity           | 93.2        | 98.4          | 99.4             |
| Ground IR Radiation         | 11.8        | 0.0           | 0.0              |
| Maximum Speed-10m           | 92.5        | 95.8          | 98.3             |
| Maximum Speed-3m            | 90.6        | 95.6          | 98.1             |
| <b>Calculated Variables</b> |             |               |                  |
| Vector Wind Speed-10m       | 93.3        | 95.2          | 95.8             |
| Vector Wind Direction-10m   | 93.3        | 95.2          | 95.8             |
| Vector Wind Speed-3m        | 92.7        | 95.8          | 95.3             |
| Vector Wind Direction-3m    | 92.7        | 95.8          | 95.3             |
| Temperature Gradient        | 98.9        | 83.6          | 20.4             |



## WINDROSES

Figures 2-4 present graphic windroses for the 10-metre level for each month of the quarter. Directions indicated are the directions from which the wind was blowing. Windroses are shown for all hours and for night and day, to illustrate the diurnal wind pattern.

Tabulated wind frequency distributions for these windroses and for wind monitored at 3 metres for all hours only are included in the Appendix and on microfiche.

## TABULATED SUMMARIES

Tabulated data summaries are on microfiche contained in a pocket on the back cover of this report. These summaries were prepared by the Desert Research Institute and show, for each parameter, all of the 1-hour-average values and percent data capture for each month of the quarter. Missing data are indicated by asterisks. "Hours" refers to sequential hour (Pacific Standard Time) of the day, e.g., hour 1 is from 0000 to 0100. A description of each summary page follows:

10-metre East-West (U1) Wind Component: Numbers shown are average values in tenths of metres per second, positive from the west. Daily averages are shown along the right margins and averages for each hour of the day are shown at the bottom. The three highest values for the month are also shown.

10-metre North-South (V1) Wind Component: Same as U1, positive from the south.

10-metre Vector Wind Speed: Values are in tenths of metres per second and were generated from U1 and V1 components. Daily and hourly averages are shown on the right margin and at the bottom respectively. The three highest values for the month are also shown.

10-metre Vector Wind Direction: Values are in degrees (clockwise from true north) and represent the direction from which the wind was blowing. These were generated from U1 and V1 components. Daily and hourly averages are shown on the right margin and at the bottom respectively.

10-metre Temperature: Values are in tenths of degrees Celsius. Daily high temperatures are shown on the right margin and monthly averages for hour-of-day are shown at the bottom. The three highest values for the month are also shown.

Soil Temperature: Values are in tenths of degrees Celsius. Daily and hour-of-day averages are shown on the right margin and bottom, respectively.

Barometric Pressure: Values are in tenths of a kPa (kilo-pascal, 1 kPa = 10 mb). Daily averages and average by hour-of-day are also shown.

Total Solar Radiation: Values are in Watts/square metre. Daily highs and average by hour-of-day are also shown.

3-metre East-West (U2) Wind Component: Same as U1.

3-metre North-South (V2) Wind Component: Same as V1.

3-metre Vector Wind Speed: Same as 10-metre vector wind speed.

3-metre Vector Wind Direction: Same as 10-metre vector wind direction.

3-metre Temperature: Same as 10-metre temperature.

Precipitation: Values are in tenths of millimetres. Daily totals and the highest hourly values are also shown.

Relative Humidity: Values are in tenths of percent. Daily and hour-of-day averages and three highest hourly values are also shown.

Ground IR Radiation: Values are in Watts/square metre. Daily and hour-of-day averages are also shown.

10-metre Maximum Speed: Values are in tenths of metres per second and represent the maximum 2-second sample for the hour.

3-metre Maximum Speed: Same as 10-metre maximum speed.

Temperature Gradient ( $\Delta T$ ): Values are in hundredths of degrees Celsius per metre and are based on the difference between the 10-metre and 3-metre average temperature for the hour (temperature at 10 metres minus temperature at 3 metres). Averages by hour-of-day are also shown.

Note: These temperature gradient values are not the same as the conventionally-defined  $\Delta T$  values, which are recorded as a running relative difference rather than as an absolute difference between hourly averages. They are generally consistent, however, and can be used as indicators of low-level stability in a qualitative sense.

APPENDIX

Tabulated Wind Frequency  
Distributions

July-September, 1982

10-Metres

All Hours  
Day  
Night

3-Metres

All Hours

83/08/03

## METEOROLOGICAL JOINT FREQUENCY DISTRIBUTION (PERCENT OF VALID HOUR OBSERVATIONS)

DOE ALLUVIAL SITE

10M LEVEL

07/01/1982 - 07/31/1982  
0000 - 2400 (LST)

| WIND DIRECTION | SECTOR | WIND SPEED CLASS |      |      |      |     |     | TOTAL | AVG WS<br>(MPS) |     |
|----------------|--------|------------------|------|------|------|-----|-----|-------|-----------------|-----|
|                |        | 1                | 2    | 3    | 4    | 5   | 6   |       |                 |     |
| N              | 1      | 2.6              | 1.4  | .4   | .1   | 0.0 | 0.0 | 4.6   | 1.9             | N   |
| NNE            | 2      | .7               | .7   | .1   | 0.0  | 0.0 | 0.0 | 1.4   | 2.0             | NNE |
| NE             | 3      | 1.0              | .9   | .1   | 0.0  | 0.0 | 0.0 | 2.0   | 1.8             | NE  |
| ENE            | 4      | .6               | .6   | .6   | 0.0  | 0.0 | 0.0 | 1.7   | 2.6             | ENE |
| E              | 5      | .9               | .3   | 0.0  | 0.0  | 0.0 | 0.0 | 1.2   | 1.4             | E   |
| ESE            | 6      | 1.0              | 0.0  | .1   | .1   | 0.0 | 0.0 | 1.3   | 2.1             | ESE |
| SE             | 7      | 1.2              | 1.2  | 0.0  | .1   | 0.0 | 0.0 | 2.4   | 2.0             | SE  |
| SSE            | 8      | 1.6              | 2.3  | 1.4  | .4   | .1  | 0.0 | 5.9   | 3.2             | SSE |
| S              | 9      | 1.7              | 5.5  | 11.2 | 10.7 | .6  | 0.0 | 29.7  | 4.8             | S   |
| SSW            | 10     | 1.6              | 4.0  | 3.3  | .3   | 0.0 | 0.0 | 9.2   | 3.2             | SSW |
| SW             | 11     | 1.4              | 1.4  | .1   | 0.0  | 0.0 | 0.0 | 3.0   | 1.9             | SW  |
| WSW            | 12     | .7               | .6   | .1   | 0.0  | 0.0 | 0.0 | 1.4   | 2.2             | WSW |
| W              | 13     | .4               | 0.0  | .3   | 0.0  | 0.0 | 0.0 | .7    | 2.3             | W   |
| WNW            | 14     | 1.9              | .1   | .1   | 0.0  | 0.0 | 0.0 | 2.2   | 1.4             | WNW |
| NW             | 15     | 5.0              | 6.2  | 1.0  | 0.0  | 0.0 | 0.0 | 12.2  | 2.1             | NW  |
| NNW            | 16     | 4.5              | 5.8  | .4   | 0.0  | 0.0 | 0.0 | 10.7  | 2.0             | NNW |
| CALM           |        | 10.1             |      |      |      |     |     | 10.1  |                 |     |
| TOTAL          |        | 36.9             | 31.0 | 19.6 | 11.8 | .7  | 0.0 | 100.0 | 2.8             |     |

93.3% DATA RECOVERED  
100.0% OF RECOVERED DATA  
REPORTED ABOVE

| WIND SPEED CLASSES<br>(MPS) |            |
|-----------------------------|------------|
| CALM                        | < .5       |
| 1                           | .5 - 1.8   |
| 2                           | 1.9 - 3.3  |
| 3                           | 3.4 - 5.4  |
| 4                           | 5.5 - 8.5  |
| 5                           | 8.6 - 10.8 |
| 6                           | >10.8      |

83/08/03

## METEOROLOGICAL JOINT FREQUENCY DISTRIBUTION (PERCENT OF VALID HOUR OBSERVATIONS)

DOE ALLUVIAL SITE

10M LEVEL - DAY

07/01/1982 - 07/31/1982  
0600 - 1900 (LST)

| WIND DIRECTION | SECTOR | WIND SPEED CLASS |      |      |      |     |     | TOTAL | AVG WS<br>(MPS) |     |
|----------------|--------|------------------|------|------|------|-----|-----|-------|-----------------|-----|
|                |        | 1                | 2    | 3    | 4    | 5   | 6   |       |                 |     |
| N              | 1      | .3               | .3   | 0.0  | .3   | 0.0 | 0.0 | .8    | 2.9             | N   |
| NNE            | 2      | .3               | .8   | 0.0  | 0.0  | 0.0 | 0.0 | 1.1   | 2.2             | NNE |
| NE             | 3      | 1.6              | 1.6  | .3   | 0.0  | 0.0 | 0.0 | 3.6   | 1.8             | NE  |
| ENE            | 4      | 1.1              | 1.1  | 1.1  | 0.0  | 0.0 | 0.0 | 3.3   | 2.6             | ENE |
| E              | 5      | 1.6              | .5   | 0.0  | 0.0  | 0.0 | 0.0 | 2.2   | 1.4             | E   |
| ESE            | 6      | 1.9              | 0.0  | 0.0  | .3   | 0.0 | 0.0 | 2.2   | 1.7             | ESE |
| SE             | 7      | 1.6              | 2.2  | 0.0  | .3   | 0.0 | 0.0 | 4.1   | 2.1             | SE  |
| SSE            | 8      | 2.7              | 4.1  | 2.5  | .8   | .3  | 0.0 | 10.4  | 3.2             | SSE |
| S              | 9      | 1.9              | 9.0  | 18.9 | 17.8 | 1.1 | 0.0 | 48.6  | 4.8             | S   |
| SSW            | 10     | 1.9              | 4.6  | 4.4  | .3   | 0.0 | 0.0 | 11.2  | 3.3             | SSW |
| SW             | 11     | .5               | .5   | 0.0  | 0.0  | 0.0 | 0.0 | 1.1   | 2.0             | SW  |
| WSW            | 12     | 0.0              | .5   | .3   | 0.0  | 0.0 | 0.0 | .8    | 3.4             | WSW |
| W              | 13     | 0.0              | 0.0  | .3   | 0.0  | 0.0 | 0.0 | .5    | 3.7             | W   |
| WNW            | 14     | 0.0              | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 | 0.0   | 0.0             | WNW |
| NW             | 15     | 0.0              | 0.0  | .3   | 0.0  | 0.0 | 0.0 | .3    | 4.0             | NW  |
| NNW            | 16     | 0.0              | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 | 0.0   | 0.0             | NNW |
| CALM           |        | 9.8              |      |      |      |     |     | 9.8   |                 |     |
| TOTAL          |        | 25.4             | 25.4 | 28.1 | 19.7 | 1.4 | 0.0 | 100.0 | 3.5             |     |

90.8% DATA RECOVERED  
100.0% OF RECOVERED DATA  
REPORTED ABOVE

## WIND SPEED CLASSES

(MPS)

|      |            |
|------|------------|
| CALM | < .5       |
| 1    | .5 - 1.8   |
| 2    | 1.9 - 3.3  |
| 3    | 3.4 - 5.4  |
| 4    | 5.5 - 8.5  |
| 5    | 8.6 - 10.8 |
| 6    | >10.8      |

83/08/03

METEOROLOGICAL JOINT FREQUENCY DISTRIBUTION (PERCENT OF VALID HOUR OBSERVATIONS)

DOE ALLUVIAL SITE

10M LEVEL - NIGHT

07/01/1982 - 07/31/1982  
1900 - 0600 (LST)

WIND SPEED CLASS

| WIND DIRECTION | SECTOR | 1    | 2    | 3    | 4   | 5   | 6   | TOTAL | AVG WB<br>(MPS) |     |
|----------------|--------|------|------|------|-----|-----|-----|-------|-----------------|-----|
| N              | 1      | 5.2  | 2.7  | .9   | 0.0 | 0.0 | 0.0 | 8.8   | 1.8             | N   |
| NNE            | 2      | 1.2  | .6   | .3   | 0.0 | 0.0 | 0.0 | 2.1   | 2.0             | NNE |
| NE             | 3      | .3   | 0.0  | 0.0  | 0.0 | 0.0 | 0.0 | .3    | 1.1             | NE  |
| ENE            | 4      | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 | 0.0 | 0.0   | 0.0             | ENE |
| E              | 5      | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 | 0.0 | 0.0   | 0.0             | E   |
| ESE            | 6      | 0.0  | 0.0  | .3   | 0.0 | 0.0 | 0.0 | .3    | 4.9             | ESE |
| SE             | 7      | .6   | 0.0  | 0.0  | 0.0 | 0.0 | 0.0 | .6    | 1.1             | SE  |
| SSE            | 8      | .3   | .3   | .3   | 0.0 | 0.0 | 0.0 | .9    | 2.9             | SSE |
| S              | 9      | 1.5  | 1.5  | 2.7  | 2.7 | 0.0 | 0.0 | 8.5   | 4.2             | S   |
| SSW            | 10     | 1.2  | 3.4  | 2.1  | .3  | 0.0 | 0.0 | 7.0   | 3.1             | SSW |
| SW             | 11     | 2.4  | 2.4  | .3   | 0.0 | 0.0 | 0.0 | 5.2   | 1.9             | SW  |
| WSW            | 12     | 1.5  | .6   | 0.0  | 0.0 | 0.0 | 0.0 | 2.1   | 1.7             | WSW |
| W              | 13     | .9   | 0.0  | 0.0  | 0.0 | 0.0 | 0.0 | .9    | 1.4             | W   |
| WNW            | 14     | 4.0  | .3   | .3   | 0.0 | 0.0 | 0.0 | 4.6   | 1.4             | WNW |
| NW             | 15     | 10.7 | 13.1 | 1.8  | 0.0 | 0.0 | 0.0 | 25.6  | 2.1             | NW  |
| NNW            | 16     | 9.5  | 12.2 | .9   | 0.0 | 0.0 | 0.0 | 22.6  | 2.0             | NNW |
| CALM           |        | 10.4 |      |      |     |     |     | 10.4  |                 |     |
| TOTAL          |        | 49.7 | 37.2 | 10.1 | 3.0 | 0.0 | 0.0 | 100.0 | 2.0             |     |

96.2% DATA RECOVERED  
100.0% OF RECOVERED DATA  
REPORTED ABOVE

WIND SPEED CLASSES

(MPS)

|      |            |
|------|------------|
| CALM | < .5       |
| 1    | .5 - 1.8   |
| 2    | 1.9 - 3.3  |
| 3    | 3.4 - 5.4  |
| 4    | 5.5 - 8.5  |
| 5    | 8.6 - 10.8 |
| 6    | >10.8      |

03/08/03

METEOROLOGICAL JOINT FREQUENCY DISTRIBUTION (PERCENT OF VALID HOUR OBSERVATIONS)

DOE ALLUVIAL SITE

3M LEVEL

07/01/1982 - 07/31/1982  
0000 - 2400 (LST)

WIND SPEED CLASS

| WIND DIRECTION | SECTOR | 1    | 2    | 3    | 4   | 5   | 6   | TOTAL | AVG WS<br>(MPS) |     |
|----------------|--------|------|------|------|-----|-----|-----|-------|-----------------|-----|
| N              | 1      | 1.3  | .6   | .1   | 0.0 | 0.0 | 0.0 | 2.0   | 1.6             | N   |
| NNE            | 2      | .6   | .3   | 0.0  | 0.0 | 0.0 | 0.0 | .9    | 1.5             | NNE |
| NE             | 3      | .9   | .4   | 0.0  | 0.0 | 0.0 | 0.0 | 1.3   | 1.4             | NE  |
| ENE            | 4      | .3   | .9   | .1   | 0.0 | 0.0 | 0.0 | 1.3   | 2.4             | ENE |
| E              | 5      | 1.0  | 0.0  | .1   | 0.0 | .1  | 0.0 | 1.3   | 2.7             | E   |
| ESE            | 6      | .9   | .1   | .3   | 0.0 | 0.0 | 0.0 | 1.3   | 2.0             | ESE |
| SE             | 7      | 1.2  | .6   | 0.0  | 0.0 | 0.0 | 0.0 | 1.7   | 1.6             | SE  |
| SSE            | 8      | 3.2  | 2.0  | 1.2  | .3  | 0.0 | 0.0 | 6.7   | 2.3             | SSE |
| S              | 9      | 2.6  | 9.9  | 13.0 | 4.6 | 0.0 | 0.0 | 30.1  | 3.8             | S   |
| SSW            | 10     | 1.4  | 2.8  | 2.2  | .1  | 0.0 | 0.0 | 6.5   | 2.8             | SSW |
| SW             | 11     | 2.3  | .6   | .1   | 0.0 | 0.0 | 0.0 | 3.0   | 1.5             | SW  |
| WSW            | 12     | 1.7  | .1   | .1   | 0.0 | 0.0 | 0.0 | 2.0   | 1.3             | WSW |
| W              | 13     | .4   | .3   | 0.0  | 0.0 | 0.0 | 0.0 | .7    | 1.8             | W   |
| WNW            | 14     | 1.6  | .1   | 0.0  | 0.0 | 0.0 | 0.0 | 1.7   | 1.1             | WNW |
| NW             | 15     | 12.8 | 5.4  | .3   | 0.0 | 0.0 | 0.0 | 18.4  | 1.6             | NW  |
| NNW            | 16     | 6.7  | 1.4  | .3   | 0.0 | 0.0 | 0.0 | 8.4   | 1.4             | NNW |
| CALM           |        | 12.5 |      |      |     |     |     | 12.5  |                 |     |
| TOTAL          |        | 51.3 | 25.5 | 18.0 | 5.1 | .1  | 0.0 | 100.0 | 2.2             |     |

92.7% DATA RECOVERED  
100.0% OF RECOVERED DATA  
REPORTED ABOVE

WIND SPEED CLASSES  
(MPS)

|      |            |
|------|------------|
| CALM | < .5       |
| 1    | .5 - 1.8   |
| 2    | 1.9 - 3.3  |
| 3    | 3.4 - 5.4  |
| 4    | 5.5 - 8.5  |
| 5    | 8.6 - 10.8 |
| 6    | >10.8      |

83/08/03

## METEOROLOGICAL JOINT FREQUENCY DISTRIBUTION (PERCENT OF VALID HOUR OBSERVATIONS)

DDE ALLUVIAL SITE

10M LEVEL

08/01/1982 - 08/31/1982  
0000 - 2400 (LST)

| WIND DIRECTION | SECTOR | WIND SPEED CLASS |      |      |      |     |     | TOTAL | AVG WS<br>(MPS) |     |
|----------------|--------|------------------|------|------|------|-----|-----|-------|-----------------|-----|
|                |        | 1                | 2    | 3    | 4    | 5   | 6   |       |                 |     |
| N              | 1      | 1.4              | 1.1  | .1   | 0.0  | 0.0 | 0.0 | 2.7   | 1.8             | N   |
| NNE            | 2      | 1.0              | .3   | .3   | 0.0  | 0.0 | 0.0 | 1.6   | 1.9             | NNE |
| NE             | 3      | .4               | 0.0  | 0.0  | .1   | 0.0 | 0.0 | .6    | 2.6             | NE  |
| ENE            | 4      | .7               | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 | .7    | .7              | ENE |
| E              | 5      | .7               | .1   | 0.0  | 0.0  | 0.0 | 0.0 | .8    | 1.3             | E   |
| ESE            | 6      | 1.0              | .1   | 0.0  | .1   | 0.0 | 0.0 | 1.3   | 1.9             | ESE |
| SE             | 7      | 1.1              | .6   | .1   | 0.0  | 0.0 | 0.0 | 1.8   | 1.8             | SE  |
| SSE            | 8      | 2.1              | 3.1  | 1.8  | .4   | .1  | 0.0 | 7.6   | 2.8             | SSE |
| S              | 9      | 2.4              | 4.5  | 12.9 | 7.6  | 1.1 | 0.0 | 28.5  | 4.7             | S   |
| SSW            | 10     | 2.0              | 2.5  | 2.7  | .7   | 0.0 | 0.0 | 7.9   | 3.1             | SSW |
| SW             | 11     | 1.4              | .8   | .8   | 0.0  | 0.0 | 0.0 | 3.1   | 2.3             | SW  |
| WSW            | 12     | .6               | .7   | 1.0  | .3   | 0.0 | 0.0 | 2.5   | 3.4             | WSW |
| W              | 13     | 1.1              | 1.1  | .4   | .4   | 0.0 | 0.0 | 3.2   | 3.0             | W   |
| WNW            | 14     | 2.1              | .4   | .1   | .1   | 0.0 | 0.0 | 2.8   | 1.7             | WNW |
| NW             | 15     | 4.5              | 5.6  | .6   | .1   | 0.0 | 0.0 | 10.9  | 2.1             | NW  |
| NNW            | 16     | 6.8              | 5.8  | .7   | 0.0  | 0.0 | 0.0 | 13.3  | 1.9             | NNW |
| CALM           |        | 10.6             |      |      |      |     |     | 10.6  |                 |     |
| TOTAL          |        | 40.0             | 27.0 | 21.6 | 10.2 | 1.3 | 0.0 | 100.0 | 2.8             |     |

95.2% DATA RECOVERED  
100.0% OF RECOVERED DATA  
REPORTED ABOVEWIND SPEED CLASSES  
(MPS)

|      |            |
|------|------------|
| CALM | < .5       |
| 1    | .5 - 1.8   |
| 2    | 1.9 - 3.3  |
| 3    | 3.4 - 5.4  |
| 4    | 5.5 - 8.5  |
| 5    | 8.6 - 10.8 |
| 6    | >10.8      |



83/08/03

## METEOROLOGICAL JOINT FREQUENCY DISTRIBUTION (PERCENT OF VALID HOUR OBSERVATIONS)

DOE ALLUVIAL SITE

10M LEVEL - DAY

08/01/1982 - 08/31/1982  
0600 - 1900 (LBT)

| WIND DIRECTION | SECTOR | WIND SPEED CLASS |      |      |      |     |     | TOTAL | AVG WS<br>(MPH) |     |
|----------------|--------|------------------|------|------|------|-----|-----|-------|-----------------|-----|
|                |        | 1                | 2    | 3    | 4    | 5   | 6   |       |                 |     |
| N              | 1      | .8               | .5   | 0.0  | 0.0  | 0.0 | 0.0 | 1.3   | 1.7             | N   |
| NNE            | 2      | .3               | 0.0  | .5   | 0.0  | 0.0 | 0.0 | .8    | 3.1             | NNE |
| NE             | 3      | .3               | 0.0  | 0.0  | .3   | 0.0 | 0.0 | .5    | 3.9             | NE  |
| ENE            | 4      | 1.1              | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 | 1.1   | .7              | ENE |
| E              | 5      | 1.1              | .3   | 0.0  | 0.0  | 0.0 | 0.0 | 1.3   | 1.3             | E   |
| ESE            | 6      | 1.6              | .3   | 0.0  | .3   | 0.0 | 0.0 | 2.1   | 2.0             | ESE |
| SE             | 7      | 1.8              | 1.1  | 0.0  | 0.0  | 0.0 | 0.0 | 2.9   | 1.6             | SE  |
| SSE            | 8      | 3.7              | 5.3  | 3.2  | .8   | .3  | 0.0 | 13.2  | 2.9             | SSE |
| S              | 9      | 3.2              | 7.1  | 21.1 | 13.5 | 2.1 | 0.0 | 47.0  | 4.8             | S   |
| SSW            | 10     | 1.6              | 1.8  | 3.4  | 1.1  | 0.0 | 0.0 | 7.9   | 3.6             | SSW |
| SW             | 11     | 1.1              | .5   | 1.3  | 0.0  | 0.0 | 0.0 | 2.9   | 2.9             | SW  |
| WSW            | 12     | .3               | .8   | 1.6  | .3   | 0.0 | 0.0 | 2.9   | 3.9             | WSW |
| W              | 13     | .5               | 1.1  | .8   | .8   | 0.0 | 0.0 | 3.2   | 3.8             | W   |
| WNW            | 14     | .5               | .3   | .3   | 0.0  | 0.0 | 0.0 | 1.1   | 1.9             | WNW |
| NW             | 15     | .3               | 0.0  | .3   | .3   | 0.0 | 0.0 | .8    | 3.7             | NW  |
| NNW            | 16     | 1.3              | .3   | .5   | 0.0  | 0.0 | 0.0 | 2.1   | 2.0             | NNW |
| CALM           |        | 9.0              |      |      |      |     |     | 9.0   |                 |     |
| TOTAL          |        | 28.2             | 19.3 | 33.0 | 17.2 | 2.4 | 0.0 | 100.0 | 3.6             |     |

94.0% DATA RECOVERED  
100.0% OF RECOVERED DATA  
REPORTED ABOVE-----  
WIND SPEED CLASSES  
(MPH)

|      |            |
|------|------------|
| CALM | < .5       |
| 1    | .5 - 1.8   |
| 2    | 1.9 - 3.3  |
| 3    | 3.4 - 5.4  |
| 4    | 5.5 - 8.5  |
| 5    | 8.6 - 10.8 |
| 6    | >10.8      |

83/08/03

METEOROLOGICAL JOINT FREQUENCY DISTRIBUTION (PERCENT OF VALID HOUR OBSERVATIONS)

DOE ALLUVIAL SITE

10M LEVEL - NIGHT

08/01/1982 - 08/31/1982  
1900 - 0600 (LST)

WIND SPEED CLASS

| WIND DIRECTION | SECTOR | 1    | 2    | 3   | 4   | 5   | 6   | TOTAL | AVG WS<br>(MPS) |     |
|----------------|--------|------|------|-----|-----|-----|-----|-------|-----------------|-----|
| N              | 1      | 2.1  | 1.8  | .3  | 0.0 | 0.0 | 0.0 | 4.3   | 1.9             | N   |
| NNE            | 2      | 1.8  | .6   | 0.0 | 0.0 | 0.0 | 0.0 | 2.4   | 1.4             | NNE |
| NE             | 3      | .6   | 0.0  | 0.0 | 0.0 | 0.0 | 0.0 | .6    | 1.3             | NE  |
| ENE            | 4      | .3   | 0.0  | 0.0 | 0.0 | 0.0 | 0.0 | .3    | 1.0             | ENE |
| E              | 5      | .3   | 0.0  | 0.0 | 0.0 | 0.0 | 0.0 | .3    | 1.3             | E   |
| ESE            | 6      | .3   | 0.0  | 0.0 | 0.0 | 0.0 | 0.0 | .3    | 1.1             | ESE |
| SE             | 7      | .3   | 0.0  | .3  | 0.0 | 0.0 | 0.0 | .6    | 2.9             | SE  |
| SSE            | 8      | .3   | .6   | .3  | 0.0 | 0.0 | 0.0 | 1.7   | 2.1             | SSE |
| S              | 9      | 1.5  | 1.5  | 3.3 | .9  | 0.0 | 0.0 | 7.3   | 3.5             | S   |
| SSW            | 10     | 2.4  | 3.3  | 1.8 | .3  | 0.0 | 0.0 | 7.9   | 2.5             | SSW |
| SW             | 11     | 1.8  | 1.2  | .3  | 0.0 | 0.0 | 0.0 | 3.3   | 1.8             | SW  |
| WSW            | 12     | .9   | .6   | .3  | .3  | 0.0 | 0.0 | 2.1   | 2.5             | WSW |
| W              | 13     | 1.8  | 1.2  | 0.0 | .3  | 0.0 | 0.0 | 3.3   | 2.0             | W   |
| WNW            | 14     | 4.0  | .6   | 0.0 | .3  | 0.0 | 0.0 | 4.9   | 1.6             | WNW |
| NW             | 15     | 9.4  | 17.2 | .9  | 0.0 | 0.0 | 0.0 | 27.5  | 2.0             | NW  |
| NNW            | 16     | 13.1 | 12.2 | .9  | 0.0 | 0.0 | 0.0 | 26.1  | 1.9             | NNW |
| CALM           |        | 12.5 |      |     |     |     |     | 12.5  |                 |     |
| TOTAL          |        | 53.5 | 35.9 | 8.5 | 2.1 | 0.0 | 0.0 | 100.0 | 1.9             |     |

96.5% DATA RECOVERED  
100.0% OF RECOVERED DATA  
REPORTED ABOVE

WIND SPEED CLASSES  
(MPS)

|      |            |
|------|------------|
| CALM | < .5       |
| 1    | .5 - 1.8   |
| 2    | 1.9 - 3.3  |
| 3    | 3.4 - 5.4  |
| 4    | 5.5 - 8.5  |
| 5    | 8.6 - 10.8 |
| 6    | >10.8      |

83/08/03

METEOROLOGICAL JOINT FREQUENCY DISTRIBUTION (PERCENT OF VALID HOUR OBSERVATIONS)

DOE ALLUVIAL SITE

3M LEVEL

08/01/1982 - 08/31/1982  
0000 - 2400 (LST)

WIND SPEED CLASS

| WIND DIRECTION | SECTOR | 1    | 2    | 3    | 4   | 5   | 6   | TOTAL | AVG WS<br>(MPS) |     |
|----------------|--------|------|------|------|-----|-----|-----|-------|-----------------|-----|
| N              | 1      | 2.1  | .6   | 0.0  | 0.0 | 0.0 | 0.0 | 2.7   | 1.4             | N   |
| NNE            | 2      | 1.0  | .4   | .3   | 0.0 | 0.0 | 0.0 | 1.7   | 1.9             | NNE |
| NE             | 3      | .1   | 0.0  | .1   | 0.0 | .1  | 0.0 | .4    | 5.0             | NE  |
| ENE            | 4      | .7   | .1   | 0.0  | 0.0 | 0.0 | 0.0 | .8    | .9              | ENE |
| E              | 5      | .8   | .1   | 0.0  | 0.0 | 0.0 | 0.0 | 1.0   | 1.0             | E   |
| EBE            | 6      | .8   | 0.0  | 0.0  | .1  | 0.0 | 0.0 | 1.0   | 1.6             | EBE |
| SE             | 7      | 2.0  | .3   | 0.0  | 0.0 | 0.0 | 0.0 | 2.2   | 1.1             | SE  |
| SSE            | 8      | 3.4  | 2.9  | 1.3  | .1  | 0.0 | 0.0 | 7.7   | 2.4             | SSE |
| S              | 9      | 3.6  | 6.2  | 12.9 | 4.2 | 0.0 | 0.0 | 26.9  | 3.8             | S   |
| SSW            | 10     | 2.8  | 2.7  | 1.5  | .1  | 0.0 | 0.0 | 7.2   | 2.4             | SSW |
| SW             | 11     | .8   | .7   | .3   | 0.0 | 0.0 | 0.0 | 1.8   | 2.0             | SW  |
| WSW            | 12     | 1.0  | 1.4  | .4   | .1  | 0.0 | 0.0 | 2.9   | 2.6             | WSW |
| W              | 13     | 1.1  | .4   | .4   | .1  | 0.0 | 0.0 | 2.1   | 2.5             | W   |
| WNW            | 14     | 1.8  | .4   | .4   | 0.0 | 0.0 | 0.0 | 2.7   | 1.8             | WNW |
| NW             | 15     | 12.2 | 4.5  | 0.0  | 0.0 | 0.0 | 0.0 | 16.7  | 1.5             | NW  |
| NNW            | 16     | 7.3  | 1.8  | .1   | 0.0 | 0.0 | 0.0 | 9.3   | 1.4             | NNW |
| CALM           |        | 12.9 |      |      |     |     |     | 12.9  |                 |     |
| TOTAL          |        | 54.6 | 22.6 | 17.8 | 4.9 | .1  | 0.0 | 100.0 | 2.1             |     |

95.8% DATA RECOVERED  
100.0% OF RECOVERED DATA  
REPORTED ABOVE

WIND SPEED CLASSES  
(MPS)

|      |            |
|------|------------|
| CALM | < .5       |
| 1    | .5 - 1.8   |
| 2    | 1.9 - 3.3  |
| 3    | 3.4 - 5.4  |
| 4    | 5.5 - 8.5  |
| 5    | 8.6 - 10.8 |
| 6    | >10.8      |

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## METEOROLOGICAL JOINT FREQUENCY DISTRIBUTION (PERCENT OF VALID HOUR OBSERVATIONS)

DOE ALLUVIAL SITE

10M LEVEL

09/01/1982 - 09/30/1982  
0000 - 2400 (LST)

| WIND DIRECTION | SECTOR | WIND SPEED CLASS |      |      |      |     |     | TOTAL | AVG WS<br>(MPS) |     |
|----------------|--------|------------------|------|------|------|-----|-----|-------|-----------------|-----|
|                |        | 1                | 2    | 3    | 4    | 5   | 6   |       |                 |     |
| N              | 1      | 2.3              | 2.0  | 2.0  | 1.4  | .3  | 0.0 | 8.1   | 3.6             | N   |
| NNE            | 2      | 1.3              | .9   | 1.2  | 0.0  | 0.0 | 0.0 | 3.3   | 2.5             | NNE |
| NE             | 3      | .6               | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 | .6    | 1.1             | NE  |
| ENE            | 4      | .1               | .3   | 0.0  | 0.0  | 0.0 | 0.0 | .4    | 2.3             | ENE |
| E              | 5      | .7               | 0.0  | .3   | .3   | 0.0 | 0.0 | 1.3   | 3.0             | E   |
| ESE            | 6      | .9               | .1   | .3   | .1   | 0.0 | 0.0 | 1.4   | 2.1             | ESE |
| SE             | 7      | 1.2              | 1.0  | .3   | 0.0  | 0.0 | 0.0 | 2.5   | 1.9             | SE  |
| SSE            | 8      | 2.3              | .7   | 1.2  | .9   | .1  | 0.0 | 5.2   | 3.1             | SSE |
| S              | 9      | 2.6              | 3.2  | 9.0  | 4.5  | 1.0 | 0.0 | 20.3  | 4.5             | S   |
| SSW            | 10     | 1.2              | 3.9  | 2.3  | .9   | 0.0 | 0.0 | 8.3   | 3.2             | SSW |
| SW             | 11     | .3               | 1.0  | .6   | 0.0  | 0.0 | 0.0 | 1.9   | 2.8             | SW  |
| WSW            | 12     | 1.0              | .7   | .1   | 0.0  | 0.0 | 0.0 | 1.9   | 2.0             | WSW |
| W              | 13     | 1.0              | .4   | 0.0  | 0.0  | 0.0 | 0.0 | 1.4   | 1.4             | W   |
| WNW            | 14     | 1.3              | .4   | .1   | .3   | 0.0 | 0.0 | 2.2   | 2.2             | WNW |
| NW             | 15     | 7.7              | 5.5  | 1.9  | .7   | .3  | 0.0 | 15.7  | 2.4             | NW  |
| NNW            | 16     | 6.4              | 7.2  | 1.2  | 1.6  | 1.0 | .1  | 17.5  | 3.0             | NNW |
| CALM           |        | 8.0              |      |      |      |     |     | 8.0   |                 |     |
| TOTAL          |        | 38.4             | 27.5 | 20.4 | 10.7 | 2.8 | .1  | 100.0 | 3.0             |     |

95.8% DATA RECOVERED  
100.0% OF RECOVERED DATA  
REPORTED ABOVE-----  
WIND SPEED CLASSES  
(MPS)

|      |            |
|------|------------|
| CALM | < .5       |
| 1    | .5 - 1.8   |
| 2    | 1.9 - 3.3  |
| 3    | 3.4 - 5.4  |
| 4    | 5.5 - 8.5  |
| 5    | 8.6 - 10.8 |
| 6    | >10.8      |

83/08/03

METEOROLOGICAL JOINT FREQUENCY DISTRIBUTION (PERCENT OF VALID HOUR OBSERVATIONS)

DOE ALLUVIAL SITE

10M LEVEL - DAY

09/01/1982 - 09/30/1982  
0600 - 1800 (LST)

WIND SPEED CLASS

| WIND DIRECTION | SECTOR | 1    | 2    | 3    | 4    | 5   | 6   | TOTAL | AVG WS<br>(MPS) |     |
|----------------|--------|------|------|------|------|-----|-----|-------|-----------------|-----|
| N              | 1      | .6   | .6   | 2.3  | 2.6  | .3  | 0.0 | 6.3   | 5.0             | N   |
| NNE            | 2      | 1.1  | 1.1  | .9   | 0.0  | 0.0 | 0.0 | 3.2   | 2.5             | NNE |
| NE             | 3      | .9   | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 | .9    | 1.0             | NE  |
| ENE            | 4      | 0.0  | .3   | 0.0  | 0.0  | 0.0 | 0.0 | .3    | 3.2             | ENE |
| E              | 5      | 1.4  | 0.0  | .6   | .6   | 0.0 | 0.0 | 2.6   | 3.0             | E   |
| ESE            | 6      | 1.7  | .3   | .6   | .3   | 0.0 | 0.0 | 2.9   | 2.1             | ESE |
| SE             | 7      | 2.3  | 2.0  | .6   | 0.0  | 0.0 | 0.0 | 4.9   | 1.9             | SE  |
| SSE            | 8      | 3.7  | 1.4  | 2.3  | 1.4  | .3  | 0.0 | 9.2   | 3.2             | SSE |
| S              | 9      | 3.4  | 5.7  | 13.8 | 7.5  | 2.0 | 0.0 | 32.5  | 4.7             | S   |
| SSW            | 10     | 1.1  | 3.7  | 3.2  | 1.4  | 0.0 | 0.0 | 9.5   | 3.7             | SSW |
| SW             | 11     | 0.0  | 1.4  | 1.1  | 0.0  | 0.0 | 0.0 | 2.6   | 3.3             | SW  |
| WSW            | 12     | .6   | .9   | 0.0  | 0.0  | 0.0 | 0.0 | 1.4   | 1.9             | WSW |
| W              | 13     | .3   | .3   | 0.0  | 0.0  | 0.0 | 0.0 | .6    | 1.5             | W   |
| WNW            | 14     | .3   | 0.0  | .3   | .6   | 0.0 | 0.0 | 1.1   | 4.3             | WNW |
| NW             | 15     | 1.1  | .3   | 1.1  | 1.4  | 0.0 | 0.0 | 4.0   | 4.3             | NW  |
| NNW            | 16     | 1.4  | 1.1  | 2.3  | 1.7  | 1.1 | 0.0 | 7.8   | 4.8             | NNW |
| CALM           |        | 10.3 |      |      |      |     |     | 10.3  |                 |     |
| TOTAL          |        | 30.5 | 19.3 | 29.0 | 17.5 | 3.7 | 0.0 | 100.0 | 3.6             |     |

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96.7% DATA RECOVERED  
100.0% OF RECOVERED DATA  
REPORTED ABOVE

WIND SPEED CLASSES  
(MPS)

|      |            |
|------|------------|
| CALM | < .5       |
| 1    | .5 - 1.8   |
| 2    | 1.9 - 3.3  |
| 3    | 3.4 - 5.4  |
| 4    | 5.5 - 8.5  |
| 5    | 8.6 - 10.8 |
| 6    | >10.8      |

83/08/03

## METEOROLOGICAL JOINT FREQUENCY DISTRIBUTION (PERCENT OF VALID HOUR OBSERVATIONS)

DOE ALLUVIAL SITE

10M LEVEL - NIGHT

09/01/1982 - 09/30/1982  
1800 - 0600 (LBT)

| WIND DIRECTION | SECTOR | WIND SPEED CLASS |      |      |     |     |     | TOTAL | AVG WS<br>(MPS) |     |
|----------------|--------|------------------|------|------|-----|-----|-----|-------|-----------------|-----|
|                |        | 1                | 2    | 3    | 4   | 5   | 6   |       |                 |     |
| N              | 1      | 4.1              | 3.5  | 1.8  | .3  | .3  | 0.0 | 9.9   | 2.7             | N   |
| NNE            | 2      | 1.5              | .6   | 1.5  | 0.0 | 0.0 | 0.0 | 3.5   | 2.5             | NNE |
| NE             | 3      | .3               | 0.0  | 0.0  | 0.0 | 0.0 | 0.0 | .3    | 1.6             | NE  |
| ENE            | 4      | .3               | .3   | 0.0  | 0.0 | 0.0 | 0.0 | .6    | 1.9             | ENE |
| E              | 5      | 0.0              | 0.0  | 0.0  | 0.0 | 0.0 | 0.0 | 0.0   | 0.0             | E   |
| ESE            | 6      | 0.0              | 0.0  | 0.0  | 0.0 | 0.0 | 0.0 | 0.0   | 0.0             | ESE |
| SE             | 7      | 0.0              | 0.0  | 0.0  | 0.0 | 0.0 | 0.0 | 0.0   | 0.0             | SE  |
| SSE            | 8      | .9               | 0.0  | 0.0  | .3  | 0.0 | 0.0 | 1.2   | 2.5             | SSE |
| S              | 9      | 1.8              | .6   | 4.1  | 1.5 | 0.0 | 0.0 | 7.9   | 3.7             | S   |
| SSW            | 10     | 1.2              | 4.1  | 1.5  | .3  | 0.0 | 0.0 | 7.0   | 2.7             | SSW |
| SW             | 11     | .6               | .6   | 0.0  | 0.0 | 0.0 | 0.0 | 1.2   | 1.9             | SW  |
| WSW            | 12     | 1.5              | .6   | .3   | 0.0 | 0.0 | 0.0 | 2.3   | 2.0             | WSW |
| W              | 13     | 1.8              | .6   | 0.0  | 0.0 | 0.0 | 0.0 | 2.3   | 1.4             | W   |
| WNW            | 14     | 2.3              | .9   | 0.0  | 0.0 | 0.0 | 0.0 | 3.2   | 1.4             | WNW |
| NW             | 15     | 13.5             | 10.8 | 2.6  | 0.0 | .6  | 0.0 | 27.5  | 2.1             | NW  |
| NNW            | 16     | 11.4             | 13.5 | 0.0  | 1.5 | .9  | .3  | 27.5  | 2.5             | NNW |
| CALM           |        | 5.6              |      |      |     |     |     | 5.6   |                 |     |
| TOTAL          |        | 46.5             | 36.0 | 11.7 | 3.8 | 1.8 | .3  | 100.0 | 2.3             |     |

95.0% DATA RECOVERED  
100.0% OF RECOVERED DATA  
REPORTED ABOVE-----  
WIND SPEED CLASSES  
(MPS)

|      |            |
|------|------------|
| CALM | < .5       |
| 1    | .5 - 1.8   |
| 2    | 1.9 - 3.3  |
| 3    | 3.4 - 5.4  |
| 4    | 5.5 - 8.5  |
| 5    | 8.6 - 10.8 |
| 6    | >10.8      |

83/08/03

METEOROLOGICAL JOINT FREQUENCY DISTRIBUTION (PERCENT OF VALID HOUR OBSERVATIONS)

DOE ALLUVIAL SITE

3M LEVEL

09/01/1982 - 09/30/1982  
0000 - 2400 (LST)

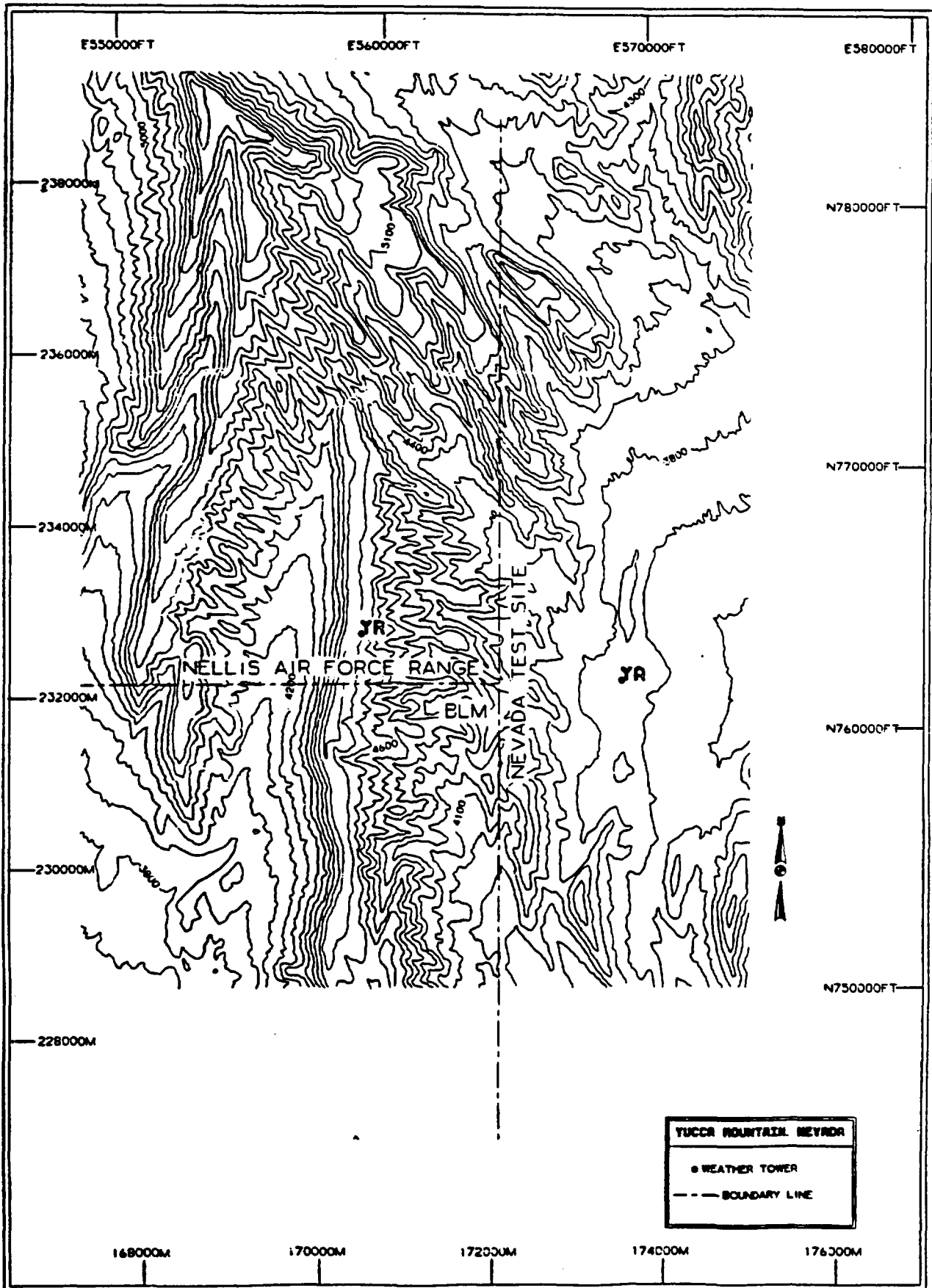
WIND SPEED CLASS

| WIND DIRECTION | SECTOR | 1    | 2    | 3    | 4   | 5   | 6   | TOTAL | AVG WS<br>(MPS) |     |
|----------------|--------|------|------|------|-----|-----|-----|-------|-----------------|-----|
| N              | 1      | 3.8  | 1.3  | 2.0  | .3  | 0.0 | 0.0 | 7.4   | 2.5             | N   |
| NNE            | 2      | 1.5  | .7   | .3   | 0.0 | 0.0 | 0.0 | 2.5   | 1.9             | NNE |
| NE             | 3      | .3   | 0.0  | 0.0  | 0.0 | 0.0 | 0.0 | .3    | 1.1             | NE  |
| ENE            | 4      | .6   | .1   | 0.0  | 0.0 | 0.0 | 0.0 | .7    | 1.4             | ENE |
| E              | 5      | .4   | .3   | .4   | 0.0 | 0.0 | 0.0 | 1.2   | 2.8             | E   |
| ESE            | 6      | 1.5  | .3   | .1   | 0.0 | 0.0 | 0.0 | 1.9   | 1.4             | ESE |
| SE             | 7      | 1.0  | .6   | .1   | 0.0 | 0.0 | 0.0 | 1.7   | 1.8             | SE  |
| SSE            | 8      | 2.2  | 1.0  | 1.5  | .3  | 0.0 | 0.0 | 5.0   | 2.6             | SSE |
| S              | 9      | 2.9  | 6.0  | 6.9  | 3.5 | 0.0 | 0.0 | 19.2  | 3.6             | S   |
| SSW            | 10     | 2.9  | 3.1  | 1.7  | .1  | 0.0 | 0.0 | 7.9   | 2.4             | SSW |
| SW             | 11     | .9   | .6   | .1   | 0.0 | 0.0 | 0.0 | 1.6   | 1.9             | SW  |
| WSW            | 12     | .7   | .3   | 0.0  | 0.0 | 0.0 | 0.0 | 1.0   | 1.6             | WSW |
| W              | 13     | 1.5  | 0.0  | 0.0  | 0.0 | 0.0 | 0.0 | 1.5   | .9              | W   |
| WNW            | 14     | 2.0  | 0.0  | .4   | 0.0 | 0.0 | 0.0 | 2.5   | 1.6             | WNW |
| NW             | 15     | 12.1 | 3.9  | 1.0  | .7  | 0.0 | 0.0 | 17.8  | 1.9             | NW  |
| NNW            | 16     | 8.9  | 2.2  | 2.3  | 1.7 | 0.0 | 0.0 | 15.2  | 2.5             | NNW |
| CALM           |        | 12.7 |      |      |     |     |     | 12.7  |                 |     |
| TOTAL          |        | 55.8 | 20.4 | 17.1 | 6.7 | 0.0 | 0.0 | 100.0 | 2.2             |     |

95.3% DATA RECOVERED  
100.0% OF RECOVERED DATA  
REPORTED ABOVE

WIND SPEED CLASSES  
(MPS)

|      |            |
|------|------------|
| CALM | < .5       |
| 1    | .5 - 1.9   |
| 2    | 1.9 - 3.3  |
| 3    | 3.4 - 5.4  |
| 4    | 5.5 - 8.5  |
| 5    | 8.6 - 10.8 |
| 6    | >10.8      |



**FIGURE 1. Yucca Mountain Contour Map, and Meteorological Tower Locations.**



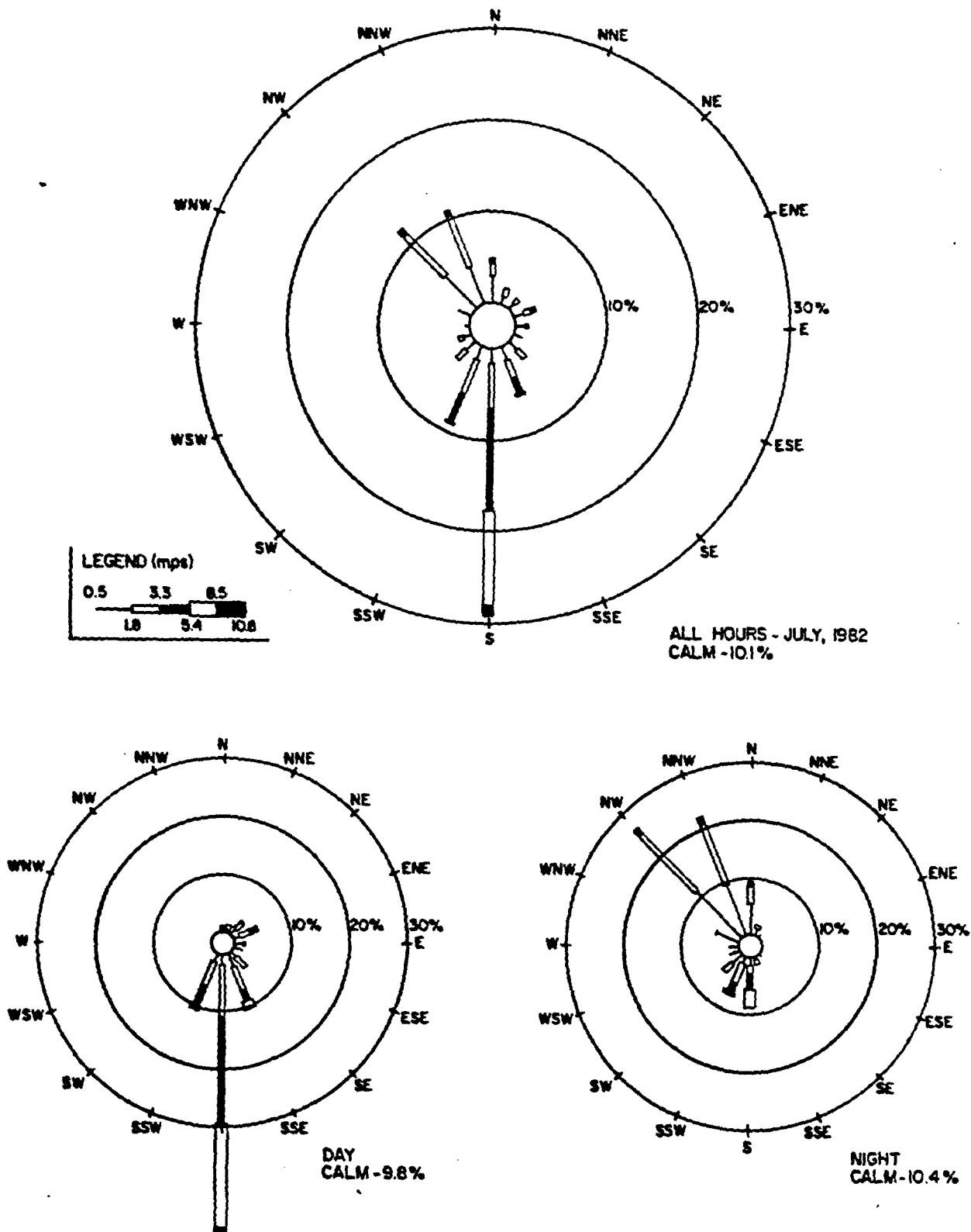


FIGURE 2. Windrose for 10 m height, Yucca Mountain Alluvial Site, July, 1982. Bar points toward direction from which wind blows.

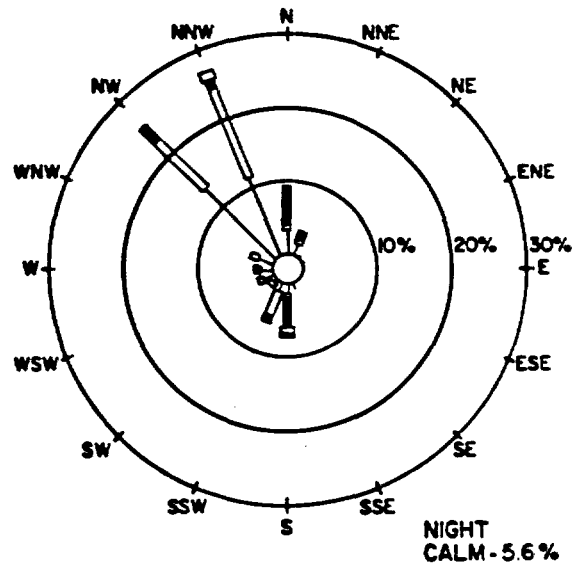
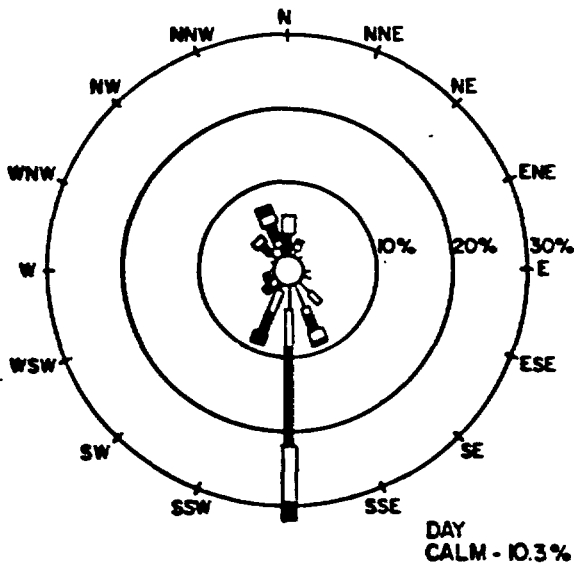
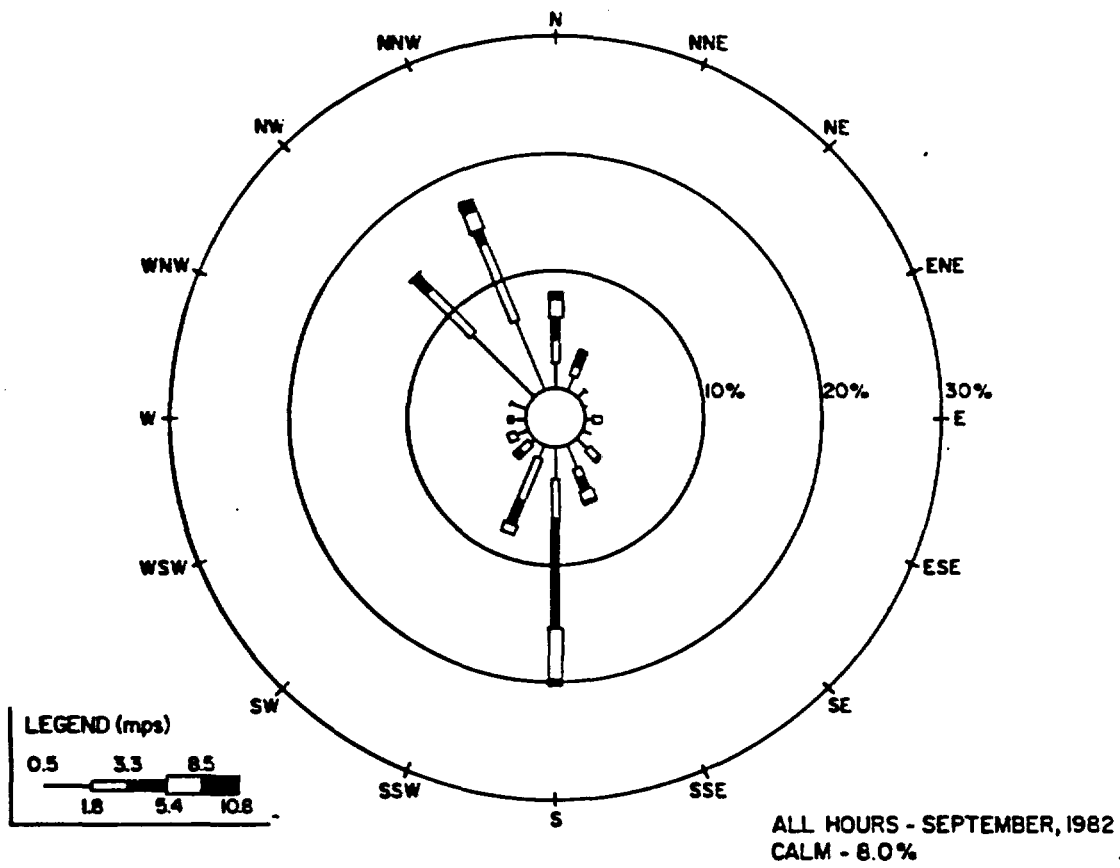


FIGURE 4. Windrose for 10 m height, Yucca Mountain Alluvial Site, September, 1982. Bar points toward direction from which wind blows.

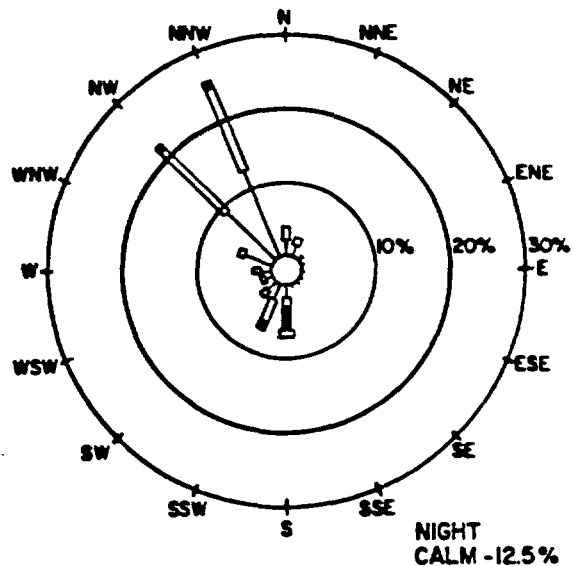
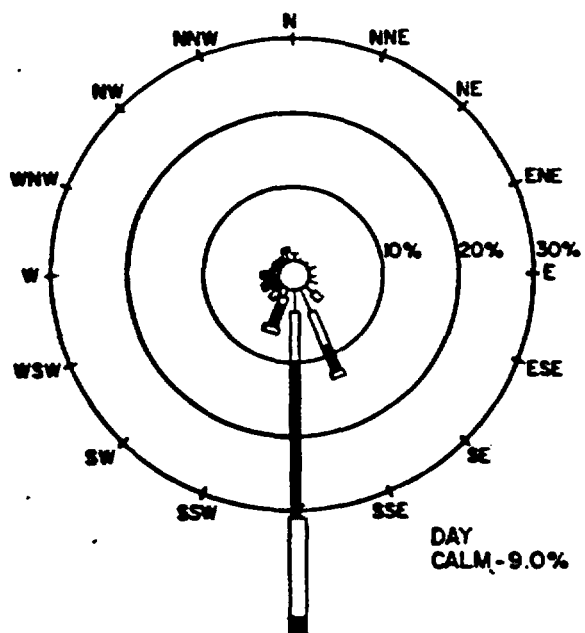
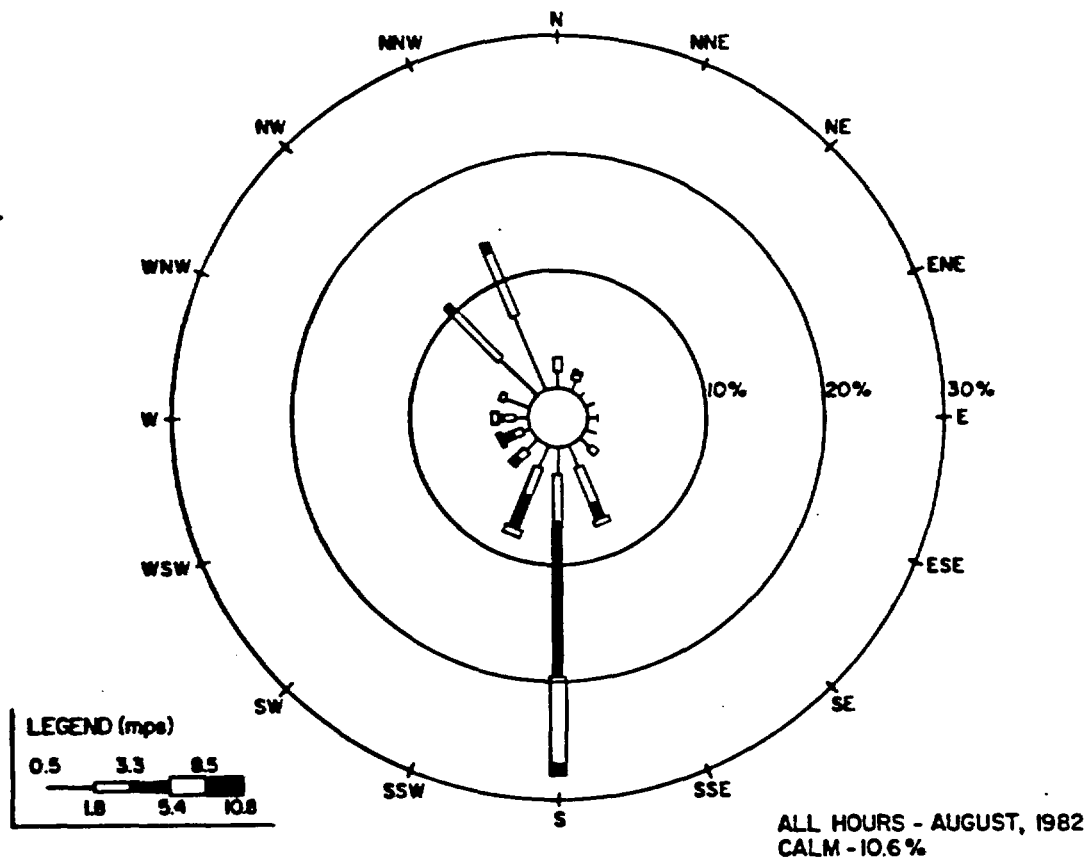


FIGURE 3. Windrose for 10 m height, Yucca Mountain Alluvial Site, August, 1982. Bar points toward direction from which wind blows.

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