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MONTHLY
MICROCLIMATIC SUMMARY

SEPTEMBER 1966

# ENVIRONMENTAL DATA BASE FOR REGIONAL STUDIES IN THE HUMID TROPICS

USATECOM Project No. 9-4-0013-01

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# ENVIRONMENTAL DATA BASE
# FOR REGIONAL STUDIES IN THE HUMID TROPICS

## MONTHLY
## MICROCLIMATIC SUMMARY

SEPTEMBER 1966


Prepared by

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and
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USATECOM Project No. 9-4-0013-01

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Conducted by

US Army
Tropic Test Center
Fort Clayton, Canal Zone
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Minimum Relative Humidity (Fort Sherman satellite)
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## MONTHLY MICROCLIMATIC SUMMARY

### Introduction

Monthly microclimatic data summarized in this series of reports were collected by the US Army Tropic Test Center and the Weather Engineers of Panama Corporation under the project, Environmental Data Base for Regional Studies in the Humid Tropics. The project is sponsored by the Advanced Research Projects Agency of the Department of Defense and by the Army Research Office, Office of the Chief of Research and Development. It is an investigation of microclimatic, air chemistry, vegetation, soils, microbiological, and macrofaunal conditions at selected sites in the principal tropical environments of the Panama Canal Zone and the Rio Hato Military Reservation. The objective of the project is to assemble quantitative environmental data for RDT&E purposes.

Sites. Data summarized in this report were collected principally at the Albrook Forest and Chiva Chiva sites. Supplementary data were collected at four satellite sites. Figure 1 shows the site locations within the Isthmus of Panama. Geographic coordinates are shown below:

| | |
|---|---|
| Albrook Forest | 09° 01'N, 79° 33'W |
| Chiva Chiva | 09° 01'N, 79° 35'W |
| Rio Hato (satellite) | 08° 24'N, 80° 06'W |
| Fort Kobbe (satellite) | 08° 54'N, 79° 34'W |
| Fort Sherman (satellite) | 09° 16'N, 79° 59'W |
| Albrook (satellite) | 09° 00'N, 79° 33'W |

The Chiva Chiva open site and the Albrook Forest site are paired for comparative study of environmental conditions in a tropical semideciduous forest and in a large clearing. Both are located in a region where the annual precipitation is approximately 80 inches and there is a pronounced dry season. The Rio Hato satellite site is located in an appreciably drier area (approximately 40 inches annually). The other satellite sites were located primarily for soil studies purposes. The Fort Sherman site receives much higher precipitation, with a less pronounced dry season. Albrook and Fort Kobbe have climatic regimes similar to the principal sites.

The Albrook and Chiva Chiva main sites are approximately four kilometers apart. Each has a 46 meter walk-up tower and an air-conditioned building to house the recording equipment and observers. Both sites are approximately 30 meters above sea level. The top of the forest canopy at the Albrook site is about 26.5 meters above the ground.

Instrumentation. A number of climatic elements are measured at the Albrook and Chiva Chiva sites, but observations at the Rio Hato site are limited to temperature, precipitation, relative humidity, and wind. Types of observations and frequencies are shown on Figure 2. The towers at the Albrook and Chiva Chiva sites are similarly oriented. Sensing equipment is mounted at several levels on the towers to provide measurements through the vertical profile. Additional instruments are emplaced in the immediate vicinity on or near the ground. All instrument exposures are duplicated at each site. Figures 3, 4, and 5 show the instrument array at these sites.

Data Reduction and Storage. All data, as applicable, are recorded at or reduced to each full hour and transposed to punch cards. These punch cards, together with all raw data, are stored in the Tropic Test Center Technical Library Annex.

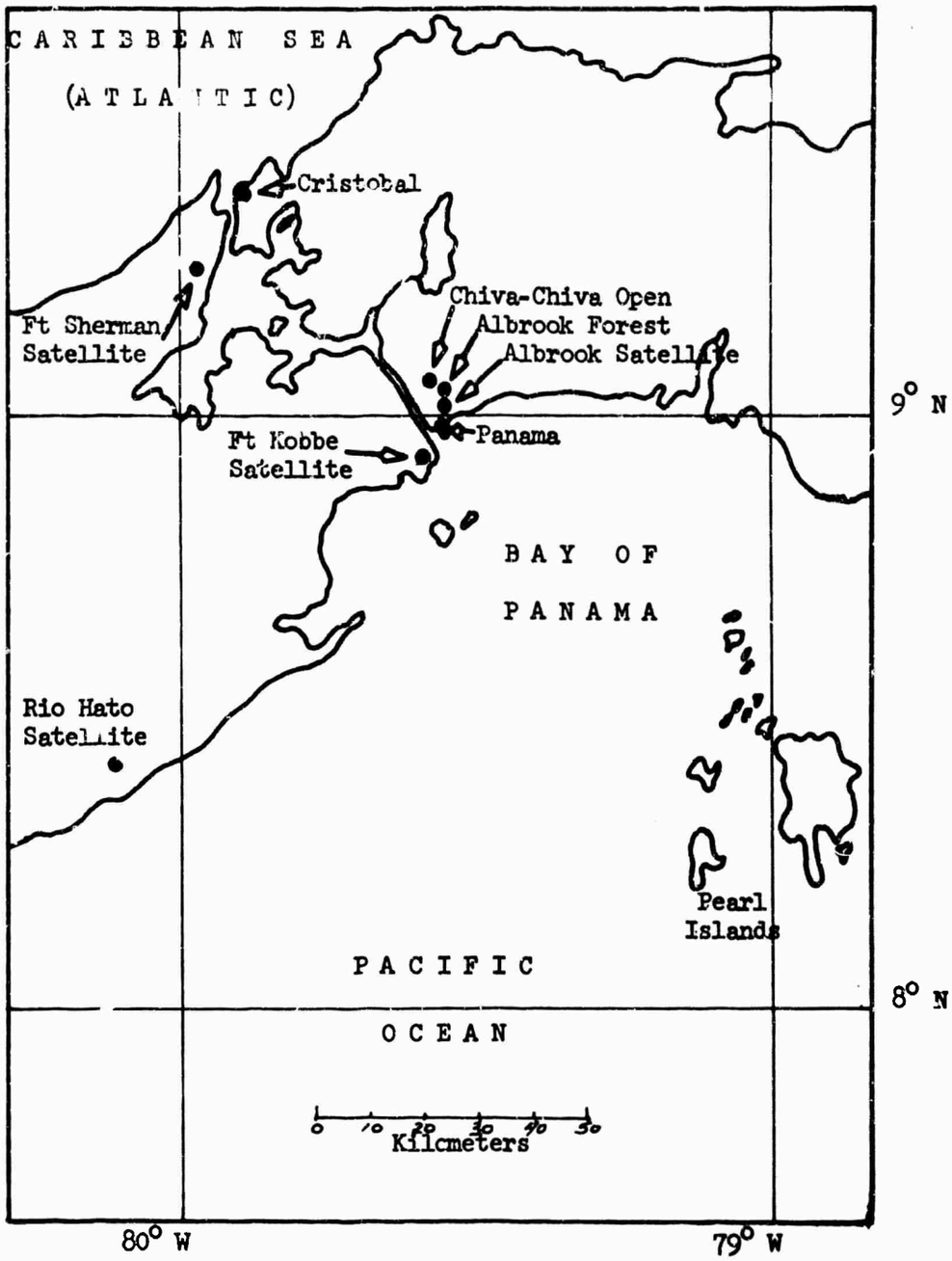


FIGURE 1.

LOCATION MAP, ISTHMUS OF PANAMA

FIGURE 2. FREQUENCY OF OBSERVATIONS

| # Element | Height (meters) Sfc | 0.5 | 1.0 | 2.0 | 4.0 | 8.0 | 13.5 | 26.5 | 46.0 | Frequency |
|---|---|---|---|---|---|---|---|---|---|---|
| Temperature: | | | | | | | | | | |
| Dry Bulb | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | Hourly*/Continuously |
| Wet Bulb | - | 2 | - | 2 | 2 | - | - | - | - | Hourly*/Continuously |
| Grass Minimum | 4 | - | - | - | - | - | - | - | - | Once Daily |
| WBGT Index | - | - | 2 | - | - | - | - | - | - | Hourly(0600-1900 EST) |
| Relative Humidity | - | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | Hourly*/Continuously |
| Barometric Pressure | - | - | 2 | - | - | - | - | - | - | Continuously |
| Evaporation | 2 | - | - | - | - | - | - | 3 | 3 | Once Daily |
| Precipitation: | | | | | | | | | | |
| Recording Gage | - | - | 1 | - | - | - | - | - | 3 | Continuously |
| Manual Gage | - | - | 3 | - | - | - | - | - | - | 4 Times Daily |
| Stem Flow | - | - | 3 | - | - | - | - | - | - | 4 Times Daily |
| Wind: | | | | | | | | | | |
| Direction | - | - | - | - | 5 | - | - | - | 2 | Continuously |
| Speed | - | - | - | 2** | 5 | - | 2** | 2** | 2 | Hourly**/Continuously |

1. All sites
2. Albrook and Chiva Chiva
3. Albrook only
4. Chiva Chiva only
5. Main sites and Rio Hato

* Observation made with sling psychrometer when recorders are inoperative.

** Hourly.

# Instrument descriptions are contained in the Environmental Data Base semiannual reports.

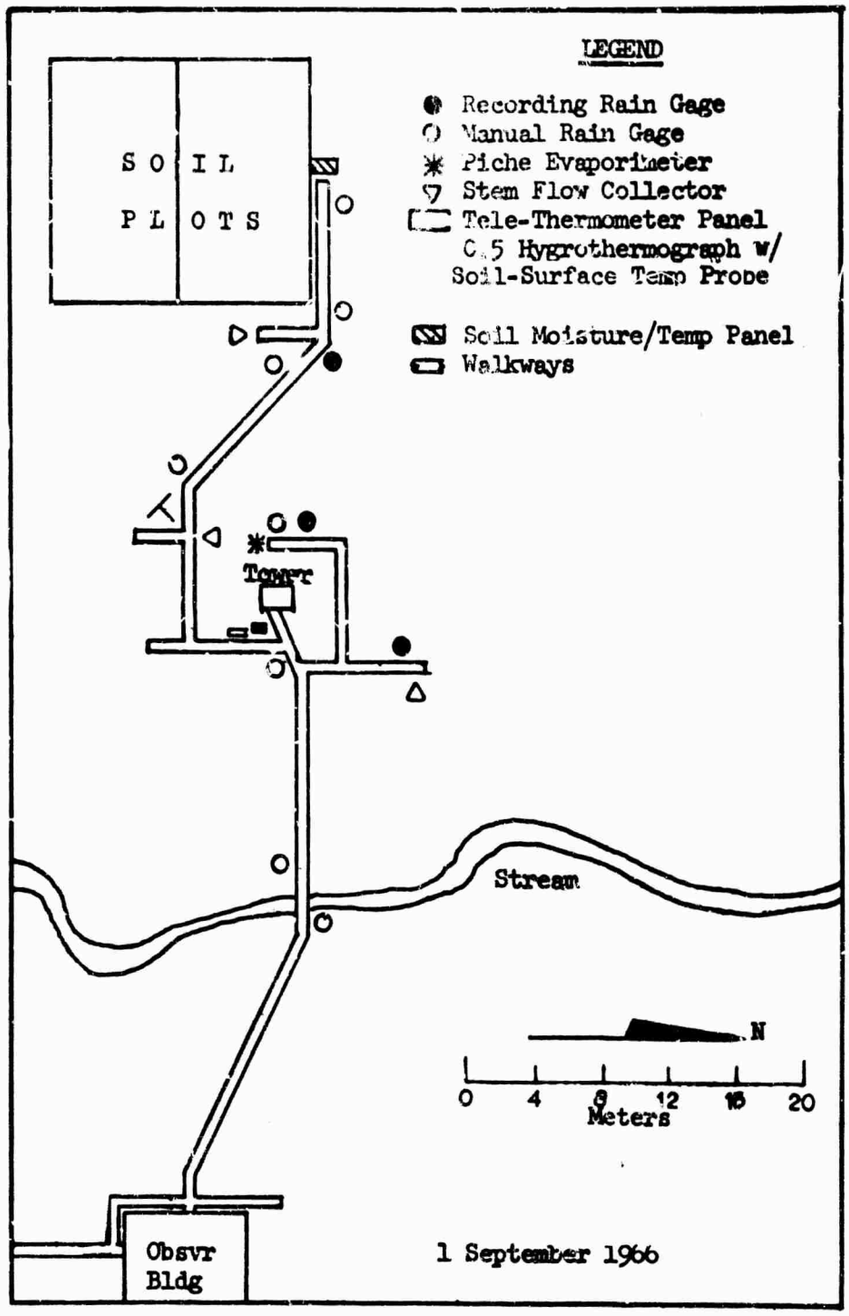


FIGURE 3.

ALBROOK FOREST SITE, GENERALIZED PLOT

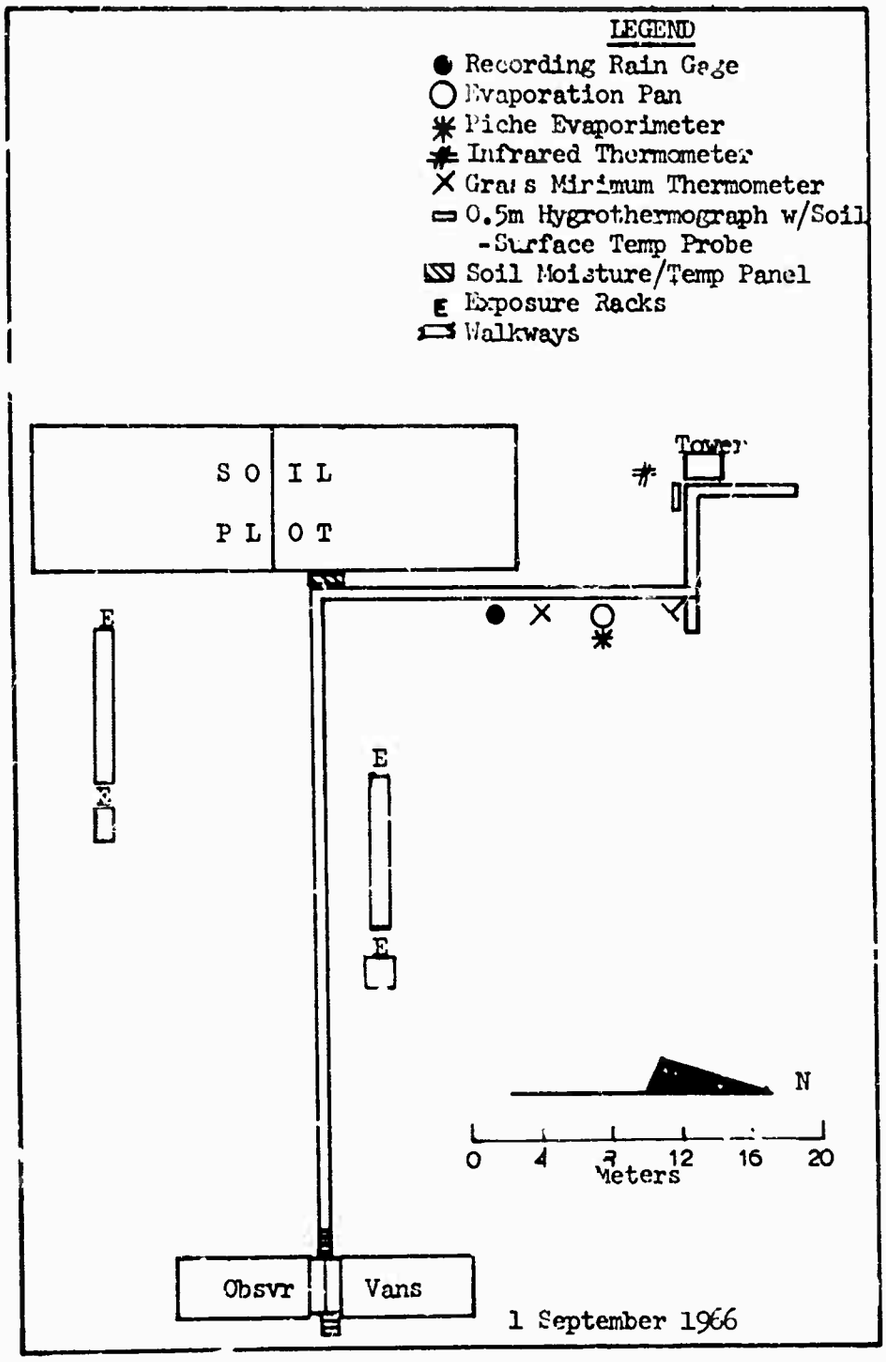


FIGURE 4.

CHIVA CHIVA OPEN, GENERALIZED PLOT

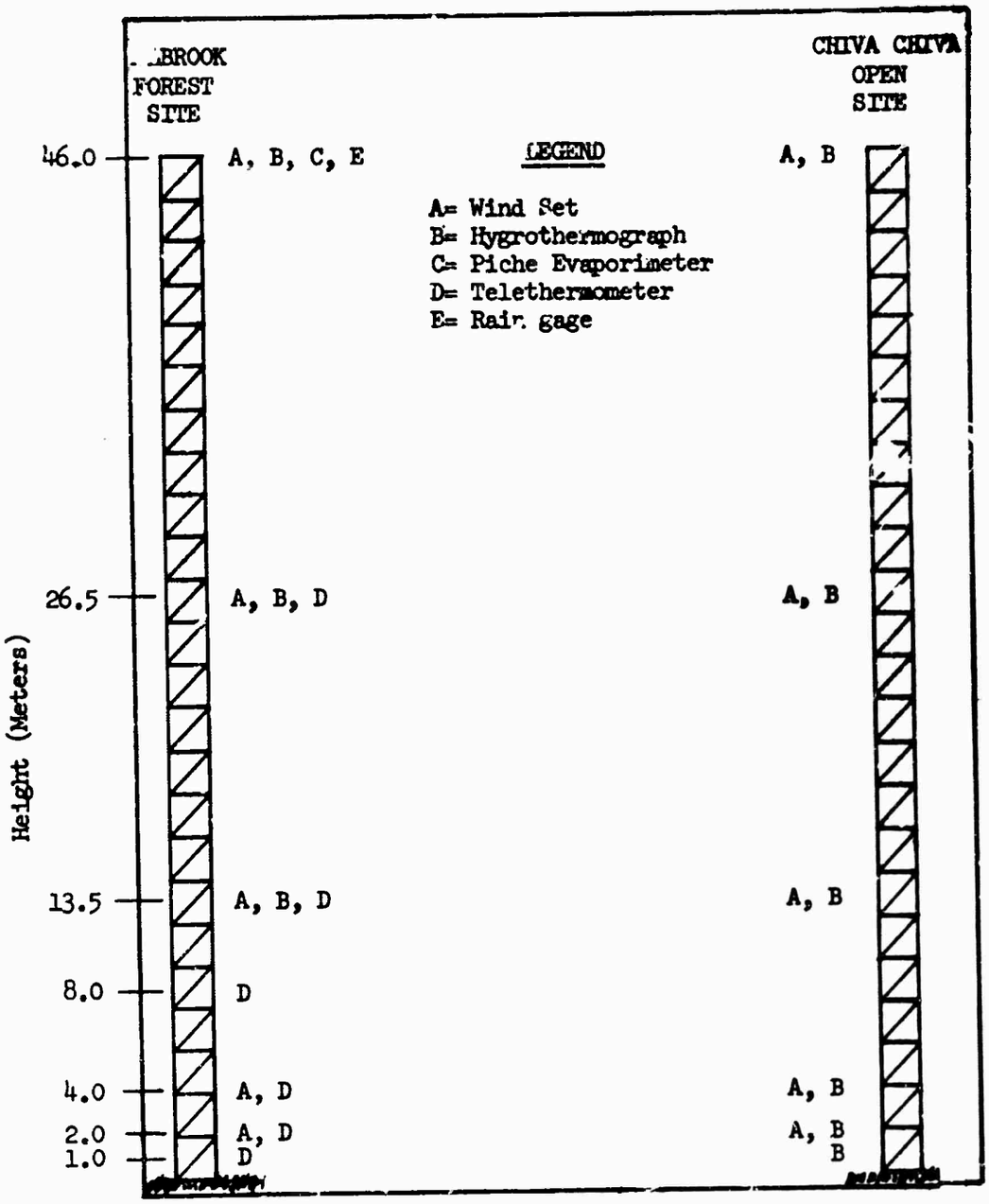


FIGURE 5.

INSTRUMENT LOCATION ON TOWERS

# SUMMARY OF METEOROLOGICAL OBSERVATIONS

## HOURLY DATA

SEPTEMBER 1966

| Exposure | | Monthly Means of Air Temperature by Hour (°F) | | | | | | | | | | | | | | | | | | | | | | | | Monthly Summary | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site | Level | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | No of obs. | Min. | Mean | Max. |
| Albrook (Forest site) | 46.0m | 75.3 | 75.1 | 74.9 | 74.7 | 74.6 | 75.5 | 78.6 | 80.3 | 81.8 | 82.0 | 82.2 | 82.3 | 82.2 | 81.0 | 80.4 | 79.7 | 78.4 | 77.0 | 76.8 | 76.5 | 76.1 | 76.0 | 75.7 | 75.5 | 720 | 70.6 | 77.7 | 98.4 |
| | 28.5m | This level was not instrumented for air temperature at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 26.5m | 74.5 | 74.4 | 74.1 | 74.0 | 73.9 | 73.8 | 75.6 | 79.4 | 81.2 | 82.6 | 83.5 | 84.2 | 83.4 | 82.4 | 82.1 | 81.0 | 79.1 | 78.1 | 76.5 | 76.1 | 75.7 | 75.3 | 75.0 | 74.7 | 696 | 69.6 | 77.9 | 90.8 |
| | 13.5m | 74.2 | 74.0 | 73.8 | 73.7 | 73.4 | 73.4 | 74.4 | 76.3 | 78.8 | 80.5 | 81.7 | 82.2 | 82.2 | 81.6 | 80.1 | 79.6 | 78.6 | 77.6 | 76.7 | 76.2 | 75.8 | 74.4 | 74.1 | 74.8 | 672 | 69.8 | 77.0 | 88.2 |
| | 8.0m | 74.4 | 74.3 | 74.1 | 73.9 | 73.8 | 73.7 | 74.1 | 76.4 | 78.6 | 80.2 | 81.5 | 81.9 | 81.8 | 81.1 | 80.2 | 79.4 | 78.3 | 77.3 | 76.5 | 76.1 | 75.7 | 75.4 | 75.1 | 74.7 | 720 | 69.8 | 77.0 | 86.8 |
| | 4.0m | 74.3 | 74.1 | 74.0 | 73.8 | 73.6 | 73.4 | 74.0 | 76.7 | 79.0 | 80.3 | 81.4 | 81.9 | 82.0 | 81.3 | 80.1 | 79.1 | 78.1 | 77.1 | 76.3 | 75.9 | 75.5 | 75.4 | 74.9 | 74.5 | 703 | 69.5 | 76.9 | 86.1 |
| | 2.0m | 74.3 | 74.1 | 74.0 | 73.8 | 73.6 | 73.4 | 74.0 | 76.6 | 78.8 | 80.1 | 81.2 | 81.6 | 81.7 | 81.0 | 79.9 | 79.0 | 78.1 | 77.1 | 76.3 | 75.9 | 75.5 | 75.4 | 74.9 | 74.4 | 703 | 70.0 | 76.9 | 86.0 |
| | 1.0m | 74.8 | 74.6 | 74.4 | 74.2 | 74.0 | 73.9 | 74.2 | 75.6 | 77.7 | 79.3 | 80.4 | 81.0 | 81.1 | 80.8 | 80.2 | 79.4 | 78.5 | 77.6 | 77.0 | 76.5 | 76.0 | 75.7 | 75.5 | 75.2 | 719 | 70.0 | 76.9 | 83.4 |
| | 0.5m | 74.7 | 74.6 | 74.5 | 74.3 | 74.1 | 74.1 | 74.3 | 76.5 | 78.2 | 79.5 | 80.2 | 80.6 | 80.7 | 80.3 | 79.5 | 78.9 | 77.8 | 77.0 | 76.4 | 75.9 | 75.7 | 75.4 | 75.2 | 75.0 | 720 | 71.6 | 76.8 | 84.0 |
| Chuva Chuva (Open site) | 46.0m | 74.8 | 74.6 | 74.4 | 74.1 | 74.0 | 73.9 | 75.2 | 78.0 | 80.1 | 81.4 | 82.0 | 81.9 | 82.0 | 80.8 | 79.9 | 79.1 | 77.8 | 77.3 | 76.5 | 76.3 | 76.1 | 75.8 | 75.5 | 75.3 | 708 | 68.9 | 77.4 | 87.2 |
| | 28.5m | This level was not instrumented for air temperature at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 26.5m | 74.8 | 74.5 | 74.4 | 74.3 | 74.2 | 74.0 | 75.6 | 78.6 | 80.7 | 82.4 | 83.1 | 83.1 | 83.1 | 82.1 | 80.9 | 80.0 | 79.0 | 78.0 | 77.0 | 76.5 | 76.2 | 76.0 | 75.5 | 75.3 | 710 | 7[illegible].1 | 77.9 | 89.0 |
| | 13.5m | 74.9 | 74.7 | 74.5 | 74.4 | 74.4 | 74.1 | 75.5 | 78.7 | 81.2 | 82.8 | 83.7 | 83.5 | 83.8 | 82.7 | 81.4 | 80.1 | 78.9 | 78.1 | 77.0 | 76.5 | 76.0 | 75.9 | 75.4 | 75.3 | 711 | 70.0 | 78.1 | 91.6 |
| | 8.0m | This level was not instrumented for air temperature at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4.0m | 73.9 | 73.7 | 73.4 | 73.3 | 73.2 | 73.0 | 75.9 | 78.9 | 81.4 | 83.6 | 84.7 | 84.4 | 85.0 | 83.6 | 81.7 | 80.3 | 79.0 | 77.7 | 76.5 | 75.9 | 75.4 | 75.2 | 74.8 | 74.4 | 719 | 68.5 | 77.9 | 92.8 |
| | 2.0m | 73.8 | 73.6 | 73.3 | 73.2 | 73.0 | 72.9 | 75.5 | 80.0 | 81.6 | 84.0 | 85.1 | 84.8 | 85.2 | 83.7 | 81.6 | 80.2 | 78.9 | 77.9 | 76.8 | 76.2 | 75.5 | 75.2 | 74.6 | 74.2 | 719 | 68.4 | 78.0 | 92.6 |
| | 1.0m | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.5m | 74.5 | 74.2 | 73.9 | 73.8 | 73.8 | 73.4 | 75.2 | 78.2 | 81.0 | 83.4 | 84.8 | 85.1 | 85.8 | 83.9 | 82.3 | 80.9 | 78.9 | 77.9 | 77.0 | 76.3 | 75.7 | 75.4 | 75.3 | 74.8 | 720 | 70.0 | 78.1 | 91.9 |
| Rio Hato | 1.5m | 75.1 | 74.7 | 74.4 | 74.4 | 74.2 | 74.0 | 75.4 | 78.0 | 80.3 | 82.3 | 83.8 | 84.7 | 84.9 | 84.5 | 83.9 | 83.0 | 82.3 | 80.6 | 78.4 | 77.7 | 77.1 | 76.8 | 76.5 | 75.9 | 682 | 70.0 | 76.8 | 89.0 |

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| Exposure | | Monthly Ranges of Air Temperature by Hour (°F) | | | | | | | | | | | | | | | | | | | | | | | | Monthly Summary* | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site | Level | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | | | | |
| Albrook (Forest site) | 46.0m | 5.0 | 4.8 | 6.0 | 5.3 | 5.6 | 6.0 | 7.0 | 12.5 | 10.6 | 15.0 | 14.3 | 11.1 | 11.6 | 15.1 | 15.0 | 16.8 | 12.0 | 7.5 | 6.5 | 5.1 | 6.0 | 6.0 | 5.6 | 5.5 | | | | |
| | 28.5m | This level was not instrumented for air temperature at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 26.5m | 6.5 | 7.1 | 7.9 | 7.6 | 7.5 | 7.4 | 9.0 | 16.2 | 13.0 | 17.5 | 16.0 | 14.0 | 18.0 | 18.0 | 15.7 | 17.9 | 12.0 | 12.1 | 6.5 | 6.5 | 6.7 | 6.8 | 6.6 | 7.5 | | | | |
| | 13.5m | 5.3 | 4.8 | 5.2 | 5.4 | 5.6 | 6.0 | 7.1 | 7.1 | 9.1 | 11.5 | 13.2 | 12.8 | 13.0 | 13.0 | 13.7 | 12.2 | 7.5 | 5.8 | 4.8 | 5.2 | 5.5 | 5.6 | 6.6 | 6.7 | | | | |
| | 8.0m | 6.0 | 6.3 | 6.0 | 7.0 | 7.3 | 7.5 | 7.8 | 9.3 | 8.1 | 9.8 | 10.8 | 10.2 | 11.9 | 13.0 | 14.3 | 11.2 | 7.6 | 7.2 | 7.0 | 5.5 | 6.0 | 5.2 | 6.1 | 6.0 | | | | |
| | 4.0m | 5.0 | 5.5 | 6.5 | 6.5 | 6.8 | 7.0 | 6.4 | 7.2 | 7.5 | 9.3 | 10.3 | 9.2 | 10.1 | 12.1 | 12.0 | 12.0 | 8.5 | 5.5 | 6.0 | 5.5 | 5.0 | 6.0 | 5.0 | 5.0 | | | | |
| | 2.0m | 5.5 | 5.5 | 6.7 | 7.5 | 7.0 | 6.5 | 6.9 | 7.6 | 7.5 | 8.1 | 8.9 | 10.1 | 10.2 | 12.0 | 12.0 | 11.5 | 7.0 | 5.5 | 5.8 | 5.5 | 6.0 | 6.5 | 5.5 | 5.0 | | | | |
| | 1.0m | 5.9 | 5.7 | 6.7 | 7.3 | 7.8 | 7.4 | 7.7 | 7.9 | 7.8 | 8.4 | 8.3 | 9.0 | 8.9 | 10.3 | 10.3 | 11.8 | 6.1 | 6.0 | 4.8 | 4.5 | 4.3 | 3.9 | 4.9 | 4.9 | | | | |
| | 0.5m | 4.5 | 4.0 | 4.5 | 4.8 | 5.0 | 4.9 | 5.4 | 5.7 | 5.5 | 6.7 | 7.6 | 7.2 | 6.4 | 8.1 | 8.5 | 9.0 | 6.2 | 6.0 | 4.5 | 5.0 | 4.5 | 4.5 | 4.3 | 4.5 | | | | |
| Chiva Chiva (Open site) | 46.0m | 8.2 | 9.1 | 9.9 | 9.9 | 9.9 | 7.7 | 9.8 | 12.3 | 13.4 | 15.0 | 14.1 | 12.2 | 13.0 | 16.5 | 15.8 | 18.4 | 15.8 | 9.7 | 5.9 | 6.0 | 4.8 | 4.7 | 5.2 | 7.5 | | | | |
| | 28.5m | This level was not instrumented for air temperature at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 26.5m | 6.3 | 6.5 | 6.9 | 6.4 | 7.0 | 7.0 | 8.4 | 14.1 | 15.0 | 15.9 | 14.4 | 13.5 | 14.0 | 16.0 | 15.5 | 15.1 | 15.5 | 10.0 | 6.5 | 5.5 | 6.0 | 6.0 | 7.0 | 7.0 | | | | |
| | 13.5m | 6.6 | 7.3 | 7.1 | 7.3 | 6.6 | 6.8 | 8.0 | 10.0 | 13.4 | 18.2 | 17.2 | 16.5 | 15.2 | 19.3 | 17.5 | 16.1 | 14.7 | 9.3 | 6.7 | 5.7 | 6.2 | 5.9 | 6.7 | 6.8 | | | | |
| | 8.0m | This level was not instrumented for air temperature at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4.0m | 6.0 | 7.0 | 7.0 | 8.4 | 7.0 | 8.0 | 9.0 | 15.0 | 11.5 | 14.0 | 17.0 | 14.5 | 13.0 | 15.0 | 17.0 | 16.0 | 14.5 | 8.5 | 6.0 | 5.0 | 5.5 | 4.5 | 7.0 | 5.5 | | | | |
| | 2.0m | 5.5 | 7.0 | 7.5 | 7.5 | 7.5 | 8.0 | 9.0 | 13.8 | 11.8 | 14.8 | 17.8 | 15.8 | 14.0 | 14.4 | 17.7 | 15.7 | 14.0 | 8.5 | 6.0 | [illegible] | 5.0 | 5.5 | 8.0 | 6.0 | | | | |
| | 0.5m | 4.5 | 5.5 | 6.0 | 6.6 | 6.5 | 6.0 | 6.0 | 7.6 | 8.6 | 11.1 | 13.1 | 15.6 | 14.6 | 16.0 | 14.7 | 14.2 | 12.5 | 7.0 | 6.0 | 5.0 | 5.0 | 4.5 | 5.0 | 5.0 | | | | |
| Rio Hato | 1.5m | 4.5 | 5.0 | 5.0 | 5.0 | 5.0 | 5.5 | 5.0 | 9.0 | 10.5 | 12.5 | 13.5 | 11.0 | 9.5 | 9.5 | 10.0 | 9.5 | 11.0 | 9.5 | 7.0 | 6.5 | 5.0 | 5.0 | 4.5 | 4.0 | | | | |

* No monthly summary was computed for the ranges.

SEPTEMBER 1966

| Exposure | | Monthly Means of Relative Humidity by Hour (%) | | | | | | | | | | | | | | | | | | | | | | | | Monthly Summary | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site | Level | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | No. of obs. | Min. | Mean | Max. |
| Albrook (Forest site) | 46.0m | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 96.0 | 91.0 | 86.0 | 81.0 | 77.0 | 76.0 | 77.0 | 81.0 | 83.0 | 85.0 | 89.0 | 92.0 | 95.0 | 96.0 | 96.0 | 97.0 | 97.0 | 97.0 | 720 | 56.0 | 91.0 | 98.0 |
| | 28.5m | This level was not instrumented for relative humidity at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 26.5m | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 95.0 | 93.0 | 88.0 | 84.0 | 81.0 | 81.0 | 83.0 | 85.0 | 86.0 | 89.0 | 91.0 | 95.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 720 | 57.0 | 92.0 | 100.0 |
| | 13.5m | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 96.0 | 91.0 | 8[illegible].0 | 83.0 | 83.0 | 85.0 | 86.0 | 89.0 | 92.0 | 92.0 | 95.0 | 96.0 | 96.0 | 96.0 | 96.0 | 97.0 | 97.0 | 719 | 62.0 | 93.0 | 100.0 |
| | 8.0m | This level was not instrumented for relative humidity at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4.0m | 98.0 | 98.0 | 98.0 | 98.0 | 98.0 | 98.0 | 98.0 | 96.0 | 91.0 | 87.0 | 85.0 | 84.0 | 83.0 | 85.0 | 89.0 | 91.0 | 94.0 | 95.0 | 97.0 | 97.0 | 98.0 | 98.0 | 98.0 | 98.0 | 703 | 65.0 | 94.0 | 100.0 |
| | 2.0m | 98.0 | 98.0 | 98.0 | 98.0 | 98.0 | 98.0 | 98.0 | 96.0 | 93.0 | 89.0 | 87.0 | 86.0 | 85.0 | 87.0 | 90.0 | 92.0 | 94.0 | 96.0 | 97.0 | 97.0 | 97.0 | 98.0 | 98.0 | 98.0 | 703 | 64.0 | 94.0 | 100.0 |
| | 1.0m | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 98.0 | 100.0 | 98.0 | 94.0 | 91.0 | 89.0 | 88.0 | 89.0 | 90.0 | 92.0 | 93.0 | 94.0 | 95.0 | 96.0 | 97.0 | 97.0 | 97.0 | 97.0 | 719 | 68.0 | 95.0 | 100.0 |
| | 0.5m | 97.0 | 97.0 | 97.0 | 96.0 | 96.0 | 97.0 | 96.0 | 93.0 | 93.0 | 92.0 | 91.0 | 91.0 | 90.0 | 91.0 | 91.0 | 92.0 | 95.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 720 | 76.0 | 95.0 | 100.0 |
| Chiva Chiva (Open site) | 46.0m | 96.0 | 97.0 | 97.0 | 96.0 | 96.0 | 96.0 | 95.0 | 93.0 | 83.0 | 77.0 | 73.0 | 74.0 | 75.0 | 78.0 | 82.0 | 84.0 | 85.0 | 88.0 | 93.0 | 93.0 | 94.0 | 95.0 | 95.0 | 95.0 | 693 | 54.0 | 89.0 | 100.0 |
| | 28.5m | This level was not instrumented for relative humidity at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 26.5m | 96.0 | 97.0 | 97.0 | 96.0 | 96.0 | 96.0 | 95.0 | 90.0 | 83.0 | 79.0 | 76.0 | 76.0 | 75.0 | 79.0 | 82.0 | 86.0 | 87.0 | 91.0 | 94.0 | 94.0 | 95.0 | 96.0 | 95.0 | 96.0 | 718 | 56.0 | 89.0 | 100.0 |
| | 13.5m | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 96.0 | 93.0 | 83.0 | 78.0 | 75.0 | 75.0 | 75.0 | 79.0 | 84.0 | 86.0 | 89.0 | 91.0 | 94.0 | 95.0 | 95.0 | 96.0 | 96.0 | 96.0 | 715 | 57.0 | 90.0 | 100.0 |
| | 8.0m | This level was not instrumented for relative humidity at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4.0m | 96.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 92.0 | 82.0 | 79.0 | 74.0 | 71.0 | 72.0 | 71.0 | 74.0 | 80.0 | 82.0 | 86.0 | 91.0 | 94.0 | 95.0 | 96.0 | 96.0 | 96.0 | 96.0 | 719 | 52.0 | 88.0 | 100.0 |
| | 2.0m | 98.0 | 97.0 | 97.0 | 97.0 | 98.0 | 97.0 | 94.0 | 81.0 | 76.0 | 73.0 | 70.0 | 70.0 | 70.0 | 73.0 | 78.0 | 81.0 | 88.0 | 92.0 | 95.0 | 95.0 | 97.0 | 97.0 | 97.0 | 97.0 | 719 | 51.0 | 88.0 | 100.0 |
| | 1.0m | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 96.0 | 91.0 | 81.0 | 74.0 | 70.0 | 72.0 | 72.0 | 78.0 | 81.0 | 85.0 | 88.0 | 94.0 | 96.0 | 96.0 | 97.0 | 97.0 | 97.0 | 97.0 | 710 | 44.0 | 89.0 | 100.0 |
| | 0.5m | 96.0 | 96.0 | 96.0 | 96.0 | 95.0 | 95.0 | 95.0 | 89.0 | 85.0 | 80.0 | 78.0 | 77.0 | 76.0 | 79.0 | 80.0 | 83.0 | 88.0 | 92.0 | 94.0 | 95.0 | 95.0 | 96.0 | 95.0 | 95.0 | 720 | 58.0 | 89.0 | 100.0 |
| Rio Hato | 1.5m | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 99.0 | 93.0 | 88.0 | 85.0 | 82.0 | 83.0 | 83.0 | 85.0 | 86.0 | 88.0 | 91.0 | 97.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 658 | 63.0 | 94.0 | 100.0 |

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| Exposure | | Monthly Ranges of Relative Humidity by Hour (%) | | | | | | | | | | | | | | | | | | | | | | | | Monthly Summary* | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site | Leve | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | | | | |
| Albrook (Forest site) | 46.0m | 3.0 | 5.0 | 3.0 | 4.0 | 4.0 | 4.0 | 10.0 | 22.0 | 28.0 | 36.0 | 35.0 | 34.0 | 35.0 | 41.0 | 38.0 | 42.0 | 32.0 | 20.0 | 8.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | | | | |
| | 28.5m | This level was not instrumented for relative humidity at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 26.5m | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 23.0 | 34.0 | 34.0 | 40.0 | 41.0 | 43.0 | 40.0 | 37.0 | 35.0 | 39.0 | 31.0 | 23.0 | 7.0 | 5.0 | 3.0 | 5.0 | 3.0 | 3.0 | | | | |
| | 13.5m | 9.0 | 10.0 | 9.0 | 9.0 | 10.0 | 14.0 | 14.0 | 15.0 | 27.0 | 33.0 | 35.0 | 37.0 | 38.0 | 34.0 | 33.0 | 28.0 | 29.0 | 19.0 | 10.0 | 11.0 | 10.0 | 9.0 | 9.0 | 11.0 | | | | |
| | 8.0m | This level was not instrumented for relative humidity at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4.0m | 7.0 | 5.0 | 7.0 | 8.0 | 5.0 | 5.0 | 8.0 | 9.0 | 19.0 | 25.0 | 22.0 | 26.0 | 33.0 | 34.0 | 34.0 | 27.0 | 17.0 | 13.0 | 11.0 | 9.0 | 9.0 | 9.0 | 5.0 | 5.0 | | | | |
| | 2.0m | 5.0 | 8.0 | 7.0 | 9.0 | 5.0 | 5.0 | 5.0 | 12.0 | 14.0 | 21.0 | 23.0 | 28.0 | 31.0 | 34.0 | 34.0 | 27.0 | 17.0 | 15.0 | 12.0 | 9.0 | 9.0 | 9.0 | 5.0 | 5.0 | | | | |
| | 1.0m | 6.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.0 | 14.0 | 17.0 | 23.0 | 25.0 | 31.0 | 32.0 | 31.0 | 32.0 | 20.0 | 13.0 | 10.0 | 9.0 | 7.0 | 6.0 | 6.0 | 5.0 | | | | |
| | 0.5m | 10.0 | 8.0 | 10.0 | 10.0 | 10.0 | 10.0 | 12.0 | 10.0 | 13.0 | 12.0 | 14.0 | 14.0 | 20.0 | 21.0 | 22.0 | 20.0 | 16.0 | 10.0 | 8.0 | 8.0 | 8.0 | 6.0 | 8.0 | 8.0 | | | | |

* No monthly summary was computed for the ranges.

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chiva Chiva (Open site) | 46.0m | 7.0 | 6.0 | 6.0 | 7.0 | 8.0 | 9.0 | 12.0 | 14.0 | 37.0 | 36.0 | 37.0 | 40.0 | 46.0 | 46.0 | 44.0 | 42.0 | 20.0 | 28.0 | 12.0 | 8.0 | 10.0 | 6.0 | 6.0 | 14.0 | | | | |
| | 28.5m | This level was not instrumented for relative humidity at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 26.5m | 4.0 | 4.0 | 4.0 | 6.0 | 7.0 | 8.0 | 11.0 | 30.0 | 32.0 | 36.0 | 38.0 | 41.0 | 44.0 | 43.0 | 42.0 | 40.0 | 36.0 | 28.0 | 8.0 | 10.0 | 8.0 | 8.0 | 7.0 | 9.0 | | | | |
| | 13.5m | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 23.0 | 33.0 | 32.0 | 34.0 | 38.0 | 43.0 | 37.0 | 36.0 | 39.0 | 35.0 | 30.0 | 9.0 | 7.0 | 7.0 | 7.0 | 7.0 | 8.0 | | | | |
| | 8.0m | This level was not instrumented for relative humidity at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4.0m | 7.0 | 7.0 | 5.0 | 7.0 | 5.0 | 7.0 | 19.0 | 39.0 | 28.0 | 34.0 | 31.0 | 45.0 | 30.0 | 43.0 | 41.0 | 36.0 | 29.0 | 17.0 | 17.0 | 11.0 | 9.0 | 10.0 | 9.0 | 9.0 | | | | |
| | 2.0m | 5.0 | 10.0 | 16.0 | 11.0 | 6.0 | 7.0 | 24.0 | 33.0 | 31.0 | 38.0 | 38.0 | 43.0 | 36.0 | 40.0 | 43.0 | 35.0 | 30.0 | 20.0 | 14.0 | 11.0 | 8.0 | 8.0 | 6.0 | 6.0 | | | | |
| | 1.0m | 7.0 | 5.0 | 5.0 | 4.0 | 4.0 | 7.0 | 23.0 | 35.0 | 45.0 | 50.0 | 56.0 | 53.0 | 54.0 | 52.0 | 47.0 | 42.0 | 42.0 | 22.0 | 10.0 | 7.0 | 5.0 | 4.0 | 5.0 | 4.0 | | | | |
| | 0.5m | 8.0 | 6.0 | 7.0 | 7.0 | 10.0 | 9.0 | 8.0 | 14.0 | 16.0 | 21.0 | 24.0 | 30.0 | 31.0 | 24.0 | 30.0 | 35.0 | 37.0 | 14.0 | 10.0 | 11.0 | 13.0 | 11.0 | 13.0 | 11.0 | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rio Hato | 1.5m | 1.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 3.0 | 18.0 | 22.0 | 26.0 | 28.0 | 28.0 | 37.0 | 56.0 | 28.0 | 30.0 | 26.0 | 15.0 | 9.0 | 2.0 | 1.0 | 1.0 | 2.0 | 1.0 | | | | |

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| Exposure | | Monthly Means[2] of other Elements by Hour | | | | | | | | | | | | | | | | | | | | | | | | Monthly Summary | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site | Code[1] | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | No. of obs. | Min. | Mean | Max. |
| Albrook (Forest site) | ST | 75.0 | 75.0 | 75.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 | 720 | 74.0 | 75.0 | 76.0 |
| | W8 (4.0m) | 73.9 | 73.7 | 73.6 | 73.4 | 73.1 | 73.0 | 73.6 | 75.8 | 77.1 | 77.2 | 77.9 | 78.0 | 77.8 | 77.6 | 77.2 | 77.0 | 76.6 | 76.0 | 75.5 | 75.2 | 75.0 | 74.8 | 74.5 | 74.1 | 703 | 69. | 75.0 | 81.5 |
| | W8 (2.0m) | 73.9 | 73.7 | 73.6 | 73.4 | 73.1 | 73.0 | 73.6 | 75.8 | 77.3 | 77.5 | 78.1 | 78.2 | 78.1 | 77.9 | 77.3 | 77.0 | 76.6 | 76.1 | 75.6 | 75.2 | 75.0 | 74.9 | 74.5 | 74.1 | 703 | 69.0 | 75.5 | 81.5 |
| | W8 (0.5m) | 74.1 | 73.8 | 73.8 | 73.6 | 73.4 | 73.4 | 73.5 | 74.9 | 76.6 | 77.6 | 78.1 | 78.4 | 78.4 | 78.0 | 77.5 | 77.2 | 76.7 | 76.3 | 75.9 | 75.4 | 75.1 | 74.9 | 74.7 | 74.4 | 720 | 69.7 | 75.6 | 80.8 |
| | BP | .752 | .739 | .723 | .717 | .717 | .727 | .744 | .757 | .774 | .781 | .780 | .767 | .736 | .720 | .696 | .687 | .683 | .693 | .710 | .726 | .745 | .762 | .772 | .767 | 720 | .645 | .736 | .825 |
| | P1 | 0.04 | 0.01 | 0.01 | 0.04 | 0.01 | 0.00 | 0.01 | 0.00 | 0.01 | 0.05 | 0.15 | 0.23 | 0.25 | 0.30 | 0.17 | 0.05 | 0.06 | 0.03 | 0.05 | 0.02 | 0.01 | 0.00 | 0.00 | 0.02 | 551 | 0.00 | 7.31 | 1.00 |
| | P2 | 0.06 | 0.01 | 0.01 | 0.01 | 0.03 | 0.04 | 0.05 | 0.08 | 0.14 | 0.07 | 0.07 | 0.18 | 0.33 | 0.07 | 0.15 | 0.10 | 0.05 | 0.05 | 0.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 720 | 0.00 | 5.95 | 0.80 |
| | P3 | 0.04 | 0.00 | 0.01 | 0.00 | 0.02 | 0.04 | 0.03 | 0.11 | 0.14 | 0.11 | 0.03 | 0.18 | 0.46 | 0.07 | 0.16 | 0.16 | 0.04 | 0.03 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 720 | 0.00 | 6.14 | 1.09 |
| | P4 | 0.09 | 0.02 | 0.00 | 0.01 | 0.03 | 0.08 | 0.07 | 0.12 | 0.13 | 0.25 | 0.15 | 0.27 | 0.34 | 0.31 | 0.15 | 0.24 | 0.05 | 0.05 | 0.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 720 | 0.00 | 10.52 | 1.10 |

Note: Total (Mean) for P1 includes 6-hourly readings which are not included in hourly means.

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chiva Chiva (Open site) | ST | 76.0 | 76.0 | 75.0 | 75.0 | 75.0 | 75.0 | 76.0 | 80.0 | 85.0 | 88.0 | 92.0 | 91.0 | 94.0 | 90.0 | 88.0 | 85.0 | 83.0 | 81.0 | 79.0 | 79.0 | 78.0 | 77.0 | 77.0 | 76.0 | 720 | 72.0 | 81.0 | 106.0 |
| | W8 (4.0m) | 73.2 | 73.1 | 72.9 | 72.6 | 72.6 | 72.4 | 74.6 | 75.3 | 76.7 | 76.7 | 76.9 | 76.8 | 77.2 | 76.6 | 76.0 | 75.6 | 76.2 | 76.0 | 75.6 | 75.2 | 74.8 | 74.6 | 74.2 | 73.6 | 715 | 67.5 | 74.9 | 80.2 |
| | W8 (2.0m) | 73.3 | 73.1 | 72.9 | 72.8 | 72.6 | 72.4 | 74.4 | 75.6 | 76.1 | 77.4 | 77.6 | 77.3 | 77.6 | 77.1 | 76.4 | 75.8 | 76.3 | 76.2 | 75.8 | 75.2 | 74.8 | 74.6 | 74.1 | 73.8 | 695 | 67.6 | 75.1 | 81.3 |
| | W8 (0.5m) | 73.7 | 73.3 | 73.2 | 72.9 | 72.8 | 72.5 | 74.0 | 75.9 | 77.4 | 78.5 | 79.0 | 79.1 | 79.4 | 78.7 | 77.5 | 76.5 | 76.4 | 76.2 | 75.7 | 75.2 | 74.7 | 74.6 | 74.4 | 73.9 | 720 | 68.3 | 75.6 | 82.9 |
| | BP | .805 | .788 | .774 | .773 | .778 | .768 | .805 | .822 | .835 | .840 | .838 | .818 | .791 | .769 | .752 | .745 | .743 | .755 | .772 | .789 | .806 | .824 | .829 | .818 | 720 | .705 | .794 | .880 |
| | PS | 0.03 | 0.07 | 0.01 | 0.01 | 0.02 | 0.02 | 0.05 | 0.08 | 0.16 | 0.08 | 0.07 | 0.22 | 0.07 | 0.13 | 0.23 | 0.16 | 0.17 | 0.06 | 0.04 | 0.10 | 0.05 | 0.00 | 0.00 | 0.04 | 720 | 0.00 | 6.79 | 0.66 |

[1] ST - Soil surface temperature (°F)
W8 - Wet bulb temperature (°F)
BP - Barometric pressure (in. of Hg minus 29.0)
PS - Precipitation at 1.0 m in open area (in.)
P1 - Precipitation at 46.0 m, above canopy (in.)
P2 - Precipitation under full canopy (in.)
P3 - Precipitation under drip canopy (in.)
P4 - Precipitation under open canopy (in.)

[2] Monthly means of precipitation are computed for precipitation days. Precipitation totals are substituted for the mean in the monthly summary.

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| Exposure | | Monthly Ranges[2] of other Elements by Hour | | | | | | | | | | | | | | | | | | | | | | | | Monthly Summary * | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site | Code[1] | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | | | | |
| Albrook (Forest site) | ST | 2.0 | 2.0 | 2.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | | | |
| | WB (4.0m) | 5.5 | 6.0 | 6.0 | 6.3 | 6.8 | 7.0 | 6.6 | 5.9 | 4.2 | 4.7 | 6.2 | 5.3 | 4.0 | 8.0 | 6.5 | 7.0 | 8.0 | 5.5 | 4.5 | 3.5 | 4.5 | 4.5 | 4.9 | 4.2 | | | | |
| | WB (2.0m) | 5.5 | 6.0 | 6.0 | 6.3 | 6.8 | 6.9 | 6.4 | 5.3 | 4.4 | 5.0 | 5.7 | 5.5 | 3.7 | 7.5 | 6.5 | 7.0 | 7.0 | 5.5 | 4.0 | 3.5 | 4.2 | 4.5 | 4.9 | 4.2 | | | | |
| | WB (0.5m) | 4.5 | 5.0 | 5.5 | 5.7 | 6.7 | 6.7 | 6.6 | 6.5 | 4.9 | 5.0 | 5.3 | 5.2 | 5.0 | 7.0 | 7.0 | 7.5 | 5.5 | 5.5 | 4.5 | 4.0 | 4.0 | 4.3 | 4.5 | 4.5 | | | | |
| | * BP | .065 | .075 | .070 | .075 | .085 | .060 | .090 | .100 | .085 | .115 | .095 | .080 | .105 | .120 | .070 | .065 | .060 | .085 | .085 | .060 | .050 | .055 | .070 | .075 | | | | |
| | P1 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.99 | 0.67 | 0.49 | 0.13 | 0.15 | 0.10 | 0.05 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| | P2 | 0.02 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.06 | 0.00 | 0.26 | 0.12 | 0.12 | 0.28 | 0.73 | 0.19 | 0.40 | 0.29 | 0.14 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| | P3 | 0.03 | 0.00 | 0.00 | 0.00 | 0.01 | 0.07 | 0.04 | 0.00 | 0.23 | 0.00 | 0.04 | 0.22 | 1.07 | 0.29 | 0.39 | 0.54 | 0.09 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| | P4 | 0.00 | 0.01 | 0.00 | 0.00 | 0.03 | 0.05 | 0.06 | 0.00 | 0.35 | 0.00 | 0.00 | 0.33 | 1.03 | 0.88 | 0.58 | 1.09 | 0.12 | 0.08 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |

* No monthly summary was computed for the ranges.

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chiva Chiva (Open site) | ST | 4.0 | 4.0 | 5.0 | 5.0 | 6.0 | 6.0 | 5.0 | 12.0 | 19.0 | 22.0 | 26.0 | 24.0 | 26.0 | 24.0 | 25.0 | 16.0 | 14.0 | 8.0 | 8.0 | 6.0 | 4.0 | 3.0 | 3.0 | 4.0 | | | | |
| | W8 (4.0m) | 5.0 | 6.5 | 7.0 | 7.0 | 7.0 | 8.0 | 5.5 | 6.3 | 5.5 | 6.0 | 7.0 | 6.0 | 5.5 | 6.5 | 7.0 | 8.0 | 7.8 | 5.8 | 3.8 | 4.5 | 3.5 | 4.5 | 7.0 | 5.5 | | | | |
| | WB (2.0m) | 5.0 | 6.5 | 8.0 | 7.0 | 7.0 | 8.0 | 5.5 | 6.0 | 5.5 | 5.0 | 7.0 | 6.0 | 5.5 | 7.5 | 7.5 | 8.0 | 8.0 | 6.5 | 4.0 | 4.5 | 4.0 | 4.5 | 7.5 | 5.5 | | | | |
| | WB (0.5m) | 4.5 | 4.9 | 5.5 | 6.0 | 7.0 | 7.4 | 6.2 | 6.4 | 6.0 | 6.1 | 6.9 | 7.4 | 6.9 | 10.0 | 9.6 | 8.9 | 8.2 | 6.0 | 4.2 | 4.0 | 4.0 | 4.0 | 5.0 | 4.0 | | | | |
| | BP | .070 | .075 | .070 | .075 | .090 | .080 | .090 | .100 | .080 | .120 | .080 | .075 | .100 | .100 | .080 | .075 | .060 | .075 | .080 | .075 | .060 | .065 | .075 | .080 | | | | |
| | PS | 0.04 | 0.04 | 0.00 | 0.00 | 0.04 | 0.01 | 0.06 | 0.13 | 0.18 | 0.11 | 0.00 | 0.50 | 0.14 | 0.31 | 0.54 | 0.50 | 0.61 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |

[1] ST - Soil surface temperature (°F)
W8 - Wet bulb temperature (°F)
BP - Barometric pressure (in. of Hg minus 29.0)
PS - Precipitation at 1.0 m in open area (in.)
P1 - Precipitation at 46.0 m, above canopy (in.)
P2 - Precipitation under full canopy (in.)
P3 - Precipitation under drip canopy (in.)
P4 - Precipitation under open canopy (in.)

[2] Monthly ranges of precipitation are computed for precipitation days. Precipitation totals are substituted for the mean in the monthly summary.

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| Exposure | | Monthly Means of Wind Speed by Hour (miles/hr.) | | | | | | | | | | | | | | | | | | | | | | | | Monthly Summary | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site | Level | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | No of obs. | Min. | Mean | Max. |
| Albrook (Forest site) | 46.0 m | 1.0 | 1.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 | 4.0 | 5.0 | 5.0 | 4.0 | 2.0 | 3.0 | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 1.0 | 719 | 0.0 | 2.0 | 28.0 |
| | 28.5 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 26.5 m | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 720 | 0.0 | 1.0 | 7.0 |
| | 13.5 m | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 720 | 0.0 | 0.0 | 4.0 |
| | 8.0 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4.0 m | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 720 | 0.0 | 0.0 | 2.0 |
| | 2.0 m | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 720 | 0.0 | 0.0 | 0.0 |
| | 1.0 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.5 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chiva Chiva (Open site) | 46.0 m | 3.0 | 3.0 | 3.0 | 3.0 | 4.0 | 3.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 7.0 | 8.0 | 7.0 | 7.0 | 7.0 | 7.0 | 5.0 | 5.0 | 5.0 | 4.0 | 3.0 | 3.0 | 3.0 | 720 | 0.0 | 5.0 | 20.0 |
| | 28.5 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 26.5 m | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 5.0 | 6.0 | 6.0 | 5.0 | 4.0 | 4.0 | 2.0 | 1.0 | 2.0 | 1.0 | 1.0 | 1.0 | 1.0 | 712 | 0.0 | 2.0 | 22.0 |
| | 13.5 m | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 2.0 | 2.0 | 3.0 | 4.0 | 4.0 | 5.0 | 4.0 | 3.0 | 2.0 | 2.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 712 | 0.0 | 2.0 | 15.0 |
| | 8.0 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4.0 m | 2.0 | 2.0 | 1.0 | 2.0 | 2.0 | 2.0 | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 6.0 | 6.0 | 6.0 | 5.0 | 5.0 | 3.0 | 2.0 | 2.0 | 2.0 | 1.0 | 2.0 | 2.0 | 718 | 0.0 | 3.0 | 14.0 |
| | 2.0 m | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 2.0 | 2.0 | 3.0 | 3.0 | 4.0 | 4.0 | 3.0 | 2.0 | 2.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 712 | 0.0 | 1.0 | 10.0 |
| | 1.0 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.5 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rio Hato | 4.0 m | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 2.0 | 4.0 | 2.0 | 2.0 | 2.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 432 | 0.0 | 1.0 | 11.0 |

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| Exposure | | Monthly Ranges of Wind Speed by Hour (miles/ hr.) | | | | | | | | | | | | | | | | | | | | | | | Monthly Summary * | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site | Level | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | No. of obs. | Min. | Mean | Max. |
| Albrook (Forest site) | 46.0 m | 6.0 | 7.0 | 6.0 | 8.0 | 14.0 | 15.0 | 5.0 | 7.0 | 12.0 | 10.0 | 9.0 | 14.0 | 28.0 | 15.0 | 18.0 | 13.0 | 20.0 | 9.0 | 10.0 | 10.0 | 13.0 | 9.0 | 9.0 | 9.0 | | | | |
| | 28.5 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 26.5 m | 3.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 4.0 | 3.0 | 3.0 | 6.0 | 4.0 | 6.0 | 6.0 | 4.0 | 5.0 | 7.0 | 3.0 | 3.0 | 6.0 | 7.0 | 3.0 | 1.0 | 1.0 | | | | |
| | 13.5 m | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 2.0 | 1.0 | 2.0 | 3.0 | 2.0 | 2.0 | 4.0 | 1.0 | 2.0 | 2.0 | 0.0 | 1.0 | 2.0 | 2.0 | 1.0 | 0.0 | 0.0 | | | | |
| | 8.0 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4.0 m | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 2.0 | 0.0 | 2.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | | | | |
| | 2.0 m | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | |
| | 1.0 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.5 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chiva Chiva (Open site) | 46.0 m | 9.0 | 8.0 | 7.0 | 8.0 | 10.0 | 8.0 | 6.0 | 10.0 | 10.0 | 9.0 | 20.0 | 15.0 | 17.0 | 11.0 | 13.0 | 10.0 | 15.0 | 8.0 | 11.0 | 16.0 | 19.0 | 9.0 | 10.0 | 8.0 | | | | |
| | 28.5 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 26.5 m | 2.0 | 7.0 | 5.0 | 5.0 | 6.0 | 4.0 | 5.0 | 8.0 | 8.0 | 7.0 | 15.0 | 13.0 | 18.0 | 11.0 | 15.0 | 12.0 | 15.0 | 7.0 | 7.0 | 15.0 | 22.0 | 7.0 | 6.0 | 4.0 | | | | |
| | 13.5 m | 1.0 | 3.0 | 3.0 | 3.0 | 2.0 | 4.0 | 5.0 | 7.0 | 7.0 | 7.0 | 13.0 | 12.0 | 15.0 | 9.0 | 7.0 | 7.0 | 10.0 | 3.0 | 3.0 | 5.0 | 15.0 | 2.0 | 2.0 | 2.0 | | | | |
| | 8.0 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4.0 m | 4.0 | 6.0 | 8.0 | 5.0 | 6.0 | 5.0 | 5.0 | 8.0 | 7.0 | 8.0 | 7.0 | 10.0 | 14.0 | 8.0 | 9.0 | 10.0 | 9.0 | 6.0 | 6.0 | 8.0 | 11.0 | 4.0 | 6.0 | 4.0 | | | | |
| | 2.0 m | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 4.0 | 4.0 | 5.0 | 5.0 | 8.0 | 8.0 | 10.0 | 8.0 | 8.0 | 8.0 | 10.0 | 3.0 | 2.0 | 3.0 | 10.0 | 1.0 | 3.0 | 1.0 | | | | |
| | 1.0 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.5 m | This level was not instrumented for wind speed at this time | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rio Hato | 4.0 m | 0.0 | 1.0 | 2.0 | 1.0 | 3.0 | 3.0 | 5.0 | 3.0 | 1.0 | 3.0 | 6.0 | 7.0 | 11.0 | 4.0 | 6.0 | 2.0 | 2.0 | 2.0 | 3.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | | | | |

* No monthly summary was computed for the ranges.

**ALBROOK (Forest site) SEPTEMBER 1966**

**Relative Frequencies*** of Wind Directions by Hour at 46.0 m.

( % )

| Dir. \ Hr. | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | 3.3 | | | | 3.3 | | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | | 3.6 | 3.3 | 6.7 | 3.3 | 3.3 | 3.3 | | | 3.3 | 3.3 | | |
| NNE | | 6.7 | | 3.3 | | 3.3 | | | | | | 3.6 | 3.6 | | | | | 3.3 | | | | | | |
| NE | 3.3 | | | | 6.7 | | 3.3 | 3.3 | 3.3 | | 6.7 | | 3.6 | | | | | 3.3 | | 3.3 | 3.3 | 3.3 | 6.7 | 6.7 |
| ENE | | | 3.3 | | 3.3 | | | | | | | | | 3.3 | | | | | | | | | | |
| E | | | | | | | | 3.3 | 3.3 | 3.3 | 3.3 | 3.6 | 3.6 | | 3.3 | | 6.7 | | | 3.3 | 3.3 | | | |
| ESE | | | | | | | | | | | | 3.6 | 3.6 | | | | | | | | | | | |
| SE | | | | | | | | | 6.7 | 10.0 | 3.3 | 3.6 | 3.6 | 3.3 | 10.0 | | | 3.3 | | | | | | 3.3 |
| SSE | | | | | | | | | | 10.0 | 10.0 | 3.6 | 6.9 | 3.3 | 3.3 | | | | | | | | | |
| S | | | | | | | | 6.7 | 6.7 | 3.3 | 6.7 | 23.5 | 30.3 | 20.0 | 20.0 | 23.3 | 3.3 | | | | | | | |
| SSW | | | | | | | | | | | | | 3.6 | 3.3 | | | | | | | | | | |
| SW | | | | | | | | | | | | 6.9 | | 3.3 | 3.3 | | 6.7 | | | | | | | |
| WSW | | | | | | | | | | | | 3.6 | | | | 3.3 | | | | | | | | |
| W | 3.3 | 3.3 | | 3.3 | 3.3 | | 6.7 | 10.0 | 6.7 | 3.3 | 13.3 | 3.6 | 6.9 | 3.3 | 6.7 | 10.0 | 3.3 | 3.3 | 3.3 | 3.3 | 6.7 | 3.3 | 6.7 | 3.3 |
| WNW | 3.3 | 3.3 | 3.3 | 6.7 | 6.7 | 3.3 | 13.3 | | 6.7 | 3.3 | | 3.6 | 3.6 | 6.7 | | | 6.7 | | 6.7 | | 3.3 | 3.3 | | |
| NW | 16.7 | 16.7 | 10.0 | 13.3 | 10.0 | 23.3 | 13.3 | 6.7 | | 13.3 | 3.3 | 3.6 | 3.6 | 6.7 | 13.3 | 16.7 | 23.3 | 10.0 | 20.0 | 6.7 | 20.0 | 13.3 | 16.7 | 13.3 |
| NNW | | | 6.7 | | 3.3 | | | | | 3.3 | | 3.6 | | 3.3 | | | | 6.7 | 6.7 | 10.0 | | 3.3 | 6.7 | 3.3 |
| CALM | 70.0 | 70.0 | 73.3 | 73.3 | 63.3 | 70.0 | 60.0 | 66.7 | 63.3 | 46.7 | 50.0 | 33.6 | 26.6 | 36.7 | 33.3 | 43.3 | 46.7 | 75.7 | 63.3 | 73.3 | 60.0 | 70.0 | 63.3 | 70.0 |

* Note: Due to rounding, percentage totals do not equal 100%.

ALBROOK (Forest site) SEPTEMBER 1966

Relative Frequencies* of Wind Directions by Hour at 4.0 m
( % )

| Dir. \ Hr. | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | | | | | | | | | | | | | | | | | | | | | | | | |
| NNE | | | | | | | | | | | | | | | | | | | | | | | | |
| NE | | | | | | | | | | | | | | | | | | | | | | | | |
| ENE | | | | | | | | | | | | | | | | | | | | | | | | |
| E | | | | | | | | | | | | | | | | | | 12.5 | | | | | | |
| ESE | | | | | | | | | | | | | | | | | | | | | | | | |
| SE | | | | | | | | | 14.3 | 14.3 | | | 14.3 | | | | | | | | | | | |
| SSE | | | | | | | | | | | | | | | 12.5 | | | | | | | | | |
| S | | | | | | | | | | | 14.3 | | | | | | | | | | | | | |
| SSW | | | | | | | | | | | | | | | | | | | | | | | | |
| SW | | | | | | | | | | | | | | | | | | | | | | | | |
| WSW | | | | | | | | | | | | | | | | | | | | | | | | |
| W | | | | | | | | | | | | | | | | 12.5 | | | | | | | | |
| WNW | | | | | | | | | | | | | | | | | | | | | | | | |
| NW | | | | | | | | | | | | | | | | | | | | | | | | |
| NNW | | | | | | | | | | | | | | | | | | | | | | | | |
| CALM | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 85.7 | 85.7 | 85.7 | 100.0 | 85.7 | 100.0 | 87.5 | 87.5 | 100.0 | 87.5 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

* Note: Due to rounding, percentage totals do not equal 100%.

CHIVA CHIVA (Open site) SEPTEMBER 1960

Relative Frequencies* of Wind Directions by Hour at 46.0 m
( % )

| Dir. \ Hr. | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | | 6.7 | 6.7 | 10.0 | 3.3 | 10.0 | 16.7 | 6.7 | 6.7 | 16.7 | 3.3 | 6.7 | 6.7 | 3.3 | 6.7 | 13.3 | | | 16.7 | 13.3 | 16.7 | 16.7 | 13.3 | 10.0 |
| NNE | 6.7 | 3.3 | | 3.3 | 10.0 | | 3.3 | | | | 3.3 | 3.3 | | | 10.0 | 6.7 | 3.3 | 3.3 | 10.0 | 13.3 | 3.3 | 3.3 | | 3.3 |
| NE | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.3 | 3.3 | | 3.3 | | 6.7 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 6.7 | | | 3.3 | | 3.3 | 10.0 |
| ENE | | | 3.3 | 3.3 | 3.3 | 6.7 | | | | | 3.3 | | | 3.3 | 3.3 | | | | | 3.3 | 3.3 | 3.3 | 6.7 | 3.3 |
| E | | 3.3 | | | 6.7 | 3.3 | 10.0 | 10.0 | 3.3 | 3.3 | | | | | 3.3 | | 3.3 | 10.0 | 6.7 | 3.3 | | 10.0 | 3.3 | |
| ESE | | | 3.3 | 3.3 | 3.3 | 3.3 | | | 3.3 | | | 3.3 | 3.3 | | | | 3.3 | 6.7 | 10.0 | 3.3 | 6.7 | 3.3 | | |
| SE | | | | | | 3.3 | | 3.3 | 3.3 | 3.3 | 13.3 | 10.0 | 13.3 | 3.3 | 3.3 | 13.3 | 10.3 | 3.3 | 6.7 | 3.3 | | 3.3 | 3.3 | 3.3 |
| SSE | 3.3 | | | | | | | | 3.3 | 3.3 | 6.7 | 6.7 | 6.7 | 13.3 | 13.3 | 13.3 | | 3.3 | | | | | | |
| S | | | 3.3 | 3.3 | | | | 6.7 | 13.3 | 26.7 | 20.0 | 30.0 | 30.0 | 40.0 | 26.7 | 6.7 | 16.7 | 10.0 | | | | | | 3.3 |
| SSW | | | | 3.3 | | | 3.3 | | | | | | | | 3.3 | 3.3 | | | | 3.3 | | | 3.3 | |
| SW | 3.3 | | | 3.3 | | | | 6.7 | 3.3 | 6.7 | 6.7 | | | 6.7 | 3.3 | 6.7 | 3.3 | 3.3 | | | 3.3 | | | |
| WSW | | 3.3 | | | 3.3 | 3.3 | | | | 3.3 | | | | | | | 3.3 | | | 6.7 | | | 3.3 | 3.3 |
| W | 6.7 | 10.0 | 23.3 | 13.3 | 3.3 | 10.0 | 13.3 | 3.3 | 10.0 | 6.7 | 16.7 | 6.7 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 6.7 | 3.3 | 6.7 | 13.3 | | 10.0 | 3.3 |
| WNW | 10.0 | 16.7 | 10.0 | | 10.0 | 6.7 | 6.7 | 16.7 | 10.0 | 6.7 | 3.3 | 10.0 | 16.7 | 6.7 | 6.7 | 13.3 | 13.3 | 16.7 | 10.0 | 10.0 | 13.3 | 10.0 | 13.3 | 3.3 |
| NW | 30.0 | 23.3 | 10.0 | 23.3 | 26.7 | 30.0 | 26.7 | 6.7 | 20.0 | 16.7 | 10.0 | 10.0 | 10.0 | 13.3 | 3.3 | 13.3 | 26.7 | 6.7 | 23.3 | 23.3 | 13.3 | 23.3 | 23.3 | 26.7 |
| NNW | 20.0 | 23.3 | 16.7 | 16.7 | 13.3 | 6.7 | 6.7 | 20.0 | 6.7 | 3.3 | 0 | 3.3 | | 3.3 | 6.7 | 3.3 | 6.7 | 23.3 | 13.3 | 6.7 | 10.0 | 16.7 | 6.7 | 16.7 |
| CALM | 16.7 | 6.7 | 20.0 | 16.7 | 13.3 | 16.7 | 10.0 | 16.7 | 16.7 | | .3 | 3.3 | | | 3.3 | | 3.3 | | | 3.3 | 13.3 | 10.0 | 10.0 | 13.3 |

* Note: Due to rounding, percentage totals do not equal 100%.

CHIVA CHIVA (Open site) SEPTEMBER 1966

Relative Frequencies* of Wind Directions by Hour at 4.0 m
( % )

| Dir. \ Hr. | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | 6.7 | 6.7 | 6.7 | 10.0 | 6.7 | 3.3 | 10.0 | 6.7 | | 10.0 | | 3.3 | 3.3 | 6.7 | 13.3 | 13.3 | 3.3 | 6.7 | 6.7 | | | | 3.6 | 3.6 |
| NNE | 3.3 | | 3.3 | 6.7 | 10.0 | 6.7 | | 3.3 | | | | 3.3 | | | 3.3 | 3.3 | | 6.7 | 10.0 | 6.7 | 3.3 | 10.0 | | 10.3 |
| NE | 13.3 | 10.0 | 6.7 | | 6.7 | 6.7 | 6.7 | 3.3 | | | 3.3 | 3.3 | 3.3 | 6.7 | 3.3 | | | 3.3 | 3.3 | | | 6.7 | 7.0 | 10.3 |
| ENE | | | | 6.7 | 10.0 | 3.3 | 3.3 | | | | 3.3 | | 3.3 | | | | 3.3 | | | | | 3.3 | | |
| E | 3.3 | | 6.7 | | | | | | 6.7 | 6.7 | 3.3 | | 3.3 | | | | 6.7 | 20.0 | | 3.3 | | | 7.0 | |
| ESE | | | | | 3.3 | | 3.3 | 3.3 | 3.3 | | | | | 3.3 | 3.3 | 6.7 | 6.7 | | 3.3 | | | 6.7 | | 3.6 |
| SE | 3.3 | | | | | | 3.3 | 6.7 | 3.3 | 3.3 | 10.0 | 16.7 | 13.3 | 6.7 | 13.3 | 16.7 | 3.3 | 6.7 | | | | 3.3 | 3.6 | 3.3 |
| SSE | | | | | | 3.3 | 3.3 | | | 6.7 | 6.7 | 13.3 | 6.7 | 10.0 | 6.7 | 6.7 | 3.3 | | 3.3 | | | | | |
| S | 6.7 | 3.3 | | 3.3 | | 3.3 | 6.7 | 6.7 | 16.7 | 33.3 | 23.3 | 23.3 | 30.0 | 3[illegible].3 | 23.3 | 6.7 | 10.0 | 6.7 | 3.3 | | | | | 7.0 |
| SSW | | | 3.3 | | | | | | | | | | | 3.3 | 3.3 | 3.3 | 6.7 | 3.3 | | | | | | |
| SW | | 6.7 | 3.3 | | | | | | | 3.3 | 6.7 | 3.3 | | | | 3.3 | 6.7 | 3.3 | 3.3 | | 3.3 | | | |
| WSW | 3.3 | | 3.3 | | | | 6.7 | | 3.3 | | | | 3.3 | 6.7 | | 10.0 | | | 3.3 | 6.7 | 3.3 | | 10.4 | |
| W | 3.3 | 3.3 | 6.7 | 20.0 | 10.0 | 10.0 | 16.7 | 10.0 | 10.0 | 3.3 | 13.3 | 6.7 | 10.0 | 10.0 | 10.0 | 3.3 | 3.3 | 13.3 | 3.3 | 6.7 | 10.0 | 6.7 | 3.6 | 7.0 |
| WNW | | 3.3 | 3.3 | | 6.7 | 3.3 | 3.3 | 10.0 | 6.7 | 6.7 | 6.7 | 10.0 | 6.7 | 3.3 | 6.7 | 6.7 | 20.0 | 13.3 | 13.3 | 13.3 | 16.7 | 16.7 | 10.4 | 7.0 |
| NW | 30.0 | 26.7 | 10.0 | 13.3 | 16.7 | 20.0 | 3.3 | 10.0 | 23.3 | 20.0 | 16.7 | 10.0 | 6.7 | 6.7 | 3.3 | 13.3 | 20.0 | 10.0 | 6.7 | 10.0 | 10.0 | 3.3 | 10.4 | 10.3 |
| NNW | 3.3 | 6.7 | 6.7 | 10.0 | 3.3 | 3.3 | | 10.0 | 6.7 | 3.3 | 6.7 | | 6.7 | 3.3 | 10.0 | 3.3 | 6.7 | 3.3 | 16.7 | 10.0 | 3.3 | 10.0 | 7.0 | 13.6 |
| CALM | 23.3 | 33.3 | 40.0 | 30.0 | 26.7 | 36.7 | 33.3 | 30.0 | 20.0 | 3.3 | | 6.7 | 3.3 | | | 3.3 | | 3.3 | 23.3 | 26.7 | 50.0 | 33.3 | 37.0 | 23.6 |

* Note: Due to rounding, percentage totals do not equal 100%.

RIO HATO SEPTEMBER 1966

Relative Frequencies* of Wind Directions by Hour at 4.0 m
( % )

| Dir. \ Hr. | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | | | | | | 5.5 | 5.5 | 12.0 | | 5.8 | | 11.9 | | 5.5 | 16.8 | | | 5.0 | 5.0 | 10.6 | 5.2 | | | |
| NNE | | | 5.3 | 5.3 | 11.5 | | | 5.8 | 6.6 | | | | 5.5 | 5.5 | | | 5.1 | | | | 5.2 | | | |
| NE | | | | | | | | | | | | | | | | | | | | | 5.2 | | | |
| ENE | | | | | | | | | | | | | | | | | | | | | | 5.2 | | |
| E | | | | | | | | | | | | | | | 5.5 | | | | | | | | | |
| ESE | | | | | | | | | | 12.0 | 6.2 | 11.9 | 11.2 | | 5.5 | 5.5 | | | | | | | | |
| SE | | | | | | | | | 6.6 | 5.8 | 31.2 | 36.0 | 11.2 | | 5.5 | 11.2 | | | | | | | | |
| SSE | | | | | | | | | | 18.0 | 12.5 | 5.8 | 22.3 | 28.4 | 16.8 | 16.8 | 10.5 | | | | | | | |
| S | | | | | | | | | | 12.0 | 19.0 | 18.0 | 28.2 | 39.6 | 11.2 | 5.5 | 10.5 | | | | | | | |
| SSW | | | | | | | | | | | | | | 5.5 | 11.2 | 11.2 | | | | | | | | |
| SW | | | | | | | | | | | | | | | | | | | | | | | | |
| WSW | | | | | | | | | | | 6.2 | | 11.2 | 5.5 | | | | | | | | | | |
| W | | | | | | | 5.5 | 5.8 | | 5.8 | 6.2 | | | 5.5 | | 5.5 | | | | | | | | |
| WNW | | | | 5.3 | 11.5 | 5.5 | | | | 5.8 | | | | | | | 5.0 | | | | | | | |
| NW | | 5.0 | 5.3 | | | 5.5 | 11.2 | | | | | 5.8 | | | | | | | 5.0 | | | | 5.1 | |
| NNW | | | | | 5.5 | | | | 13.0 | | 6.2 | | 5.5 | | | | | 5.0 | 5.0 | 5.2 | | | 5.1 | 4.8 |
| CALM | 100.0 | 95.0 | 90.7 | 90.7 | 72.3 | 85.0 | 77.9 | 77.8 | 73.4 | 36.0 | 12.5 | 11.9 | 5.5 | 5.5 | 28.2 | 45.0 | 74.5 | 85.0 | 85.0 | 85.2 | 85.2 | 95.8 | 90.5 | 95.4 |

* Note: Due to rounding, percentage totals do not equal 100%.

SEPTEMBER 1966

| Summary of Elements with Non-hourly Frequencies of Observation | | | | | | |
|---|---|---|---|---|---|---|
| Site | Element, Units and Exposure | Description | Number of Obs. | Minimum Value | Mean or Total Value | Maximum Value |
| Albrook (Forest site) | WBGT Index[1] (at 1.5 meters) | Index value | 420 | 69.3 | 77.2 | 82.1 |
| | | Dry bulb temp. | 420 | 70.0 | 78.0 | 87.5 |
| | | Wet bulb temp. | 420 | 69.0 | 76.7 | 81.0 |
| | | Black bulb temp. | 420 | 70.0 | 78.7 | 88.5 |
| | Evaporation[3] (in. at 3 levels) | Piche (46.0 m) | 30 | 0.000 | 4.785* | 0.433 |
| | | Piche (26.5 m) | 30 | 0.000 | 3.381* | 0.274 |
| | | Piche ( 0.5 m) | 28 | 0.000 | 0.367* | 0.043 |
| | Precipitation from Raingauge Network[2] (in. at 1.0 meters) | Gauge # 1 | 120 | 0.00 | 8.17* | 1.76 |
| | | Gauge # 2 | 120 | 0.00 | 9.19* | 1.72 |
| | | Gauge # 3 | 120 | 0.00 | 8.09* | 1.62 |
| | | Gauge # 4 | 120 | 0.00 | 6.70* | 1.11 |
| | | Gauge # 5 | 120 | 0.00 | 6.94* | 1.28 |
| | | Gauge # 6 | 120 | 0.00 | 6.93* | 0.95 |
| | | Gauge # 7 | 120 | 0.00 | 8.30* | 1.44 |
| | | Gauge # 8 | 120 | 0.00 | 6.46* | 1.09 |
| | Stem Flow[2] ( in. at 2.0 meters) | Small tree | 120 | 0.00 | 5.94* | 1.25 |
| | | Medium tree | 120 | 0.00 | 32.59* | 15.42 |
| | | Large tree | 120 | 0.00 | 173.22* | 68.97 |
| Chiva Chiva (Open site) | WBGT Index[1] (at 1.5 meters) | Index value | 420 | 67.9 | 80.0 | 90.0 |
| | | Dry bulb temp. | 420 | 68.0 | 80.8 | 98.0 |
| | | Wet bulb temp. | 420 | 68.0 | 77.1 | 82.2 |
| | | Black bulb temp. | 420 | 67.3 | 89.7 | 122.0 |
| | Evaporation[3] (in. at 0.5 meters) | Piche | 30 | 0.000 | 3.2[illegible]* | 0.207 |
| | | Pan | 29 | 0.000 | 4.034* | 0.299 |
| | Minimum Grass temp[3] (°F at grass tips) | None | 30 | 69.0 | 72.0 | 75.0 |
| Albrook ** | Maximum temp. (°F at 1.5m) | | 23 | 78.0 | 83.5 | 87.0 |
| | Minimum temp. (°F at 1.5m) | | 23 | 71.0 | 73.9 | 76.5 |
| | Maximum R.H. (% at 1.5m) | | 23 | 94.0 | 98.0 | 100.0 |
| | Minimum R.H. (% at 1.5m) | | 23 | 62.0 | 84.0 | 100.0 |
| | Precipitation[3] (in. at 1.0m) | In open area | 25 | 0.00 | 7.41* | 1.22 |
| | | Under canopy | 25 | 0.00 | 7.29* | 1.47 |
| Ft. Kobbe ** | Maximum temp. (°F at 1.5m) | | 22 | 78.0 | 82.3 | 85.0 |
| | Minimum temp. (°F at 1.5m) | | 22 | 72.0 | 73.7 | 75.0 |
| | Maximum R.H. (% at 1.5m) | | 22 | 85.0 | 97.0 | 100.0 |
| | Minimum R.H. (% at 1.5m) | | 22 | 65.0 | 83.0 | 8.0 |
| | Precipitation[3] (in. at 1.0m) | In open area | 25 | 0.00 | 5.58* | 1.20 |
| | | Under canopy | 25 | 0.00 | 2.87* | 0.62 |
| Ft. Sherman ** | Maximum temp. (°F at 1.5m) | | 26 | 76.5 | 80.7 | 84.0 |
| | Minimum temp. (°F at 1.5m) | | 26 | 70.5 | 74.2 | 76.0 |
| | Maximum R.H. ( % at 1.5m) | | 26 | 98.0 | 99.0 | 100.0 |
| | Minimum R.H. ( % at 1.5m) | | 26 | 70.0 | 88.0 | 99.0 |
| | Precipitation[3] (in. at 1.0m) | In open area | 27 | 0.00 | 12.45* | 1.74 |
| | | Under canopy | 27 | 0.00 | 8.59* | 1.46 |

1 - Hourly observations between 0600 and 1900 hours inclusive
2 - Six hourly observations
3 - Daily observations

* Total Values
** Satellite

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13. ABSTRACT

This report contains detailed microclimatic data for September 1966 from specific sites in the Panama Canal Zone and vicinity. The data are presented in tabular form, summarized for hourly and/or daily observations from surface to 46-meter levels. Elements listed are: temperature, pressure, precipitation, wind speed and direction, relative humidity, and evaporation.

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| Tropic Environment | | | | | | |
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