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CLIMATOLOGICAL MEMORANDUM No. 105

Percentage frequencies of hourly values of dry-bulb  
and wet-bulb temperatures at Bahrain/Muharraq  
1957 – 71

*by Joyce Laing and K. Grant*

Climatological Services (Met.0.3)

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## CLIMATOLOGICAL MEMORANDUM NO. 105

### PERCENTAGE FREQUENCY OF HOURLY VALUES OF DRY-BULB AND WET-BULB TEMPERATURES AT BAHRAIN/MUHARRAQ JULY 1957 - JUNE 1971

BY JOYCE LAING AND K. GRANT

#### Introduction

Hourly observations of dry-bulb and wet-bulb temperature were made at Bahrain/Muharraq Lat.  $26^{\circ} 16' N$  Long  $50^{\circ} 37' E$  during the 14 years July 1957-June 1971. The thermometers were exposed in the standard louvered screen 4 feet (1.25 metres approximately) above the ground. An analysis has been made by computer of these observations to give monthly and annual tables showing the percentage frequency of combinations of dry- and wet-bulb readings in ranges of one degree Celsius. Tables are also given showing the frequency of dry-bulb and wet-bulb temperatures separately.

#### Explanation of the tables

Tables 1 to 13 contain for each month, and for the year, the distribution of combined dry-bulb and wet-bulb temperature. The ranges of dry-bulb temperature are shown down the left hand side: the ranges of wet-bulb temperature, across the page, are for the sake of brevity given as  $T$  (the dry-bulb temperature range for the row)  $T-1$  deg C etc. Thus if  $T$  is 30.1 to 31.0 then  $T-1$  is 29.1 to 30.0 and so on.

For any given range of dry-bulb temperature and associated wet-bulb temperature two values are given. The upper figure is the percentage frequency of occurrence within the given range calculated to two places of decimals; the lower figure is the cumulative percentage frequency of occurrence of dry-bulb temperature and associated wet-bulb temperature greater than, or equal to, the lower values in the appropriate range as indicated, calculated to one place of decimals. (Cumulative values of 0.0 indicate values of less than .05 per cent but greater than zero.) Entries of 0.00+ in the annual table indicate values of less than .005 per cent but greater than zero.

*Example.* In Table 1 for January, the percentage frequency of the number of hours with dry-bulb temperature within the range 24.1 to 25.0 deg C and the associated wet-bulb temperature within the range 18.1 to 19.0 deg C (column  $T-2$ ) is 0.08. The cumulative value in this 'box', 0.5, indicates that a dry-bulb temperature of 24.1 deg C or more and an associated wet-bulb temperature of 18.1 deg C or more occurred on 0.5 per cent of the hours. This value is derived from the sum of the upper figures in each box below and to the left of a diagonal through the box concerned to the bottom right of the table, thus:

0.08	0.08	0.08	0.04	0.06	
0.01	0.04	0.05	0.06	0.03	0.01
	0.01	0.02	0.04	0.05	
			0.01	0.02	

Slight discrepancies may occur in the last place of decimals due to the rounding off of figures when the percentage frequencies were calculated; the printed cumulative figures are correct rather than those obtained by simple addition of the figures in the table.

Table 14 gives the frequency of dry-bulb temperatures alone and table 15 gives the frequency of wet-bulb temperatures alone. The annual percentage frequencies have been worked from all the data and are not a direct mean of the monthly figures. In these tables an entry of 0.0+ indicates a value of less than .05 per cent but greater than zero.



## Average of accumulated temperature

Accumulated temperatures are the integrated excess or deficit from a stated base temperature, and are expressed as degree-days or degree-hours. From data given in table 14 the degree-hours can be calculated using the following method.

The average number of degree-hours in any month above a base temperature ( $b^{\circ}\text{C}$ ) is given by the sum of the products obtained by multiplying the entries for that month which refer to temperatures greater than  $b^{\circ}\text{C}$  (ie those values lying beneath the entry referring to the range of temperature whose upper limit is  $b$ ) by  $(1/2) \times (N/100)$ ,  $(3/2) \times (N/100)$ ,  $(5/2) \times (N/100)$  etc. respectively, where  $N$  is the number of hours in the month. This assumes, in effect, that the entries in the ranges  $(b + 0.1)$  to  $(b + 1)$ ;  $(b + 1.1)$  to  $(b + 2)$  etc. are concentrated at mid-point of the range  $(b + 0.5)$ ,  $(b + 1.5)$  etc.

*Example.* In April (number of hours 720) the average number of degree-hours above  $30^{\circ}\text{C}$  is (from table 14):

$$\begin{aligned} 1.9 \times (1/2) \times (720/100) &= 6.8 \\ 1.5 \times (3/2) \times (720/100) &= 16.2 \\ 0.9 \times (5/2) \times (720/100) &= 16.2 \\ 0.6 \times (7/2) \times (720/100) &= 15.1 \\ 0.4 \times (9/2) \times (720/100) &= 13.0 \\ 0.2 \times (11/2) \times (720/100) &= 7.9 \\ 0.1 \times (13/2) \times (720/100) &= 4.7 \\ 0.1 \times (15/2) \times (720/100) &= 5.4 \\ 0.0^{+} \times (17/2) \times (720/100) &= 0.0 \\ 0.0^{+} \times (19/2) \times (720/100) &= 0.0 \end{aligned}$$

85.3

To obtain the number of degree-hours below base  $b^{\circ}\text{C}$  the procedure is the same except that the percentages used are those for the temperature ranges below and including the range of temperature which has  $b^{\circ}\text{C}$  as its upper limit.



Table 1 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES

JANUARY 1958-71

BAHRAIN (MUHARRAQ)

ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
T (DEG C)									
2.1 TO 3.0	0.0 99.8	0.0 100.0	0.01 100.0						
3.1 TO 4.0	0.0 99.8	0.0 99.8	0.03 100.0	0.01 100.0					
4.1 TO 5.0	0.0 99.6	0.0 99.8	0.01 99.8	0.04 100.0					
5.1 TO 6.0	0.0 99.6	0.0 99.6	0.03 99.8	0.06 99.8	0.04 99.9				
6.1 TO 7.0	0.0 99.5	0.0 99.6	0.01 99.6	0.05 99.7	0.03 99.8	0.03 99.8			
7.1 TO 8.0	0.0 99.2	0.0 99.5	0.05 99.6	0.07 99.6	0.03 99.7				
8.1 TO 9.0	0.0 99.0	0.0 99.2	0.10 99.5	0.04 99.5					
9.1 TO 10.0	0.0 98.3	0.02 99.0	0.03 99.2	0.11 99.4	0.01 99.4				
10.0 TO 11.0	0.02 96.1	0.12 98.3	0.16 99.0	0.16 99.2	0.05 99.2				
11.1 TO 12.0	0.08 92.7	0.15 96.1	0.51 98.1	0.26 98.7	0.04 98.7				
12.1 TO 13.0	0.25 88.3	0.63 92.7	0.78 95.9	0.54 97.4	0.16 97.7				
13.1 TO 14.0	0.44 80.0	1.46 88.1	1.04 91.8	1.14 94.2	0.47 95.2	0.06 95.3			
14.1 TO 15.0	0.71 66.6	2.37 79.6	2.12 86.2	1.22 88.8	0.82 90.1	0.41 90.7	0.05 90.7		
15.1 TO 16.0	0.49 48.9	2.56 65.9	3.03 76.5	1.81 80.9	0.79 82.4	0.27 82.9	0.12 83.0		
16.1 TO 17.0	0.92 34.6	3.11 48.4	5.53 62.8	4.16 70.4	1.84 73.1	0.57 73.7	0.15 73.9	0.01 73.9	
17.1 TO 18.0	0.51 20.5	3.66 33.7	4.58 44.4	4.67 53.2	2.41 56.7	0.53 57.5	0.09 57.6	0.04 57.6	0.01 57.6
18.1 TO 19.0	0.42 10.9	2.85 20.0	4.75 29.5	3.49 35.6	2.85 39.8	0.71 40.9	0.20 41.1	0.02 41.2	
19.1 TO 20.0	0.18 4.5	2.25 10.5	3.43 16.8	2.73 21.5	1.63 24.1	0.89 25.5	0.20 25.8	0.02 25.9	
20.1 TO 21.0	0.11 1.1	0.94 4.3	1.79 8.1	1.71 10.9	1.04 12.9	0.63 13.9	0.27 14.4	0.07 14.5	0.01 14.5
21.1 TO 22.0	0.0 0.1	0.35 1.0	1.27 3.3	1.14 5.2	0.76 6.4	0.65 7.3	0.17 7.7	0.11 7.9	0.05 8.0



JANUARY 1958-71

ASSOCIATED WET-BULB TEMPERATURE (DEG C)

	T-9	T-10	T-11
22.1 TO 23.0	0.0 3.5	0.01 3.5	
23.1 TO 24.0	0.04 1.5	0.03 1.5	0.01 1.5
24.1 TO 25.0			
25.1 TO 26.0	0.01 0.3		



Table 2 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES

FEBRUARY 1958-71

BAHRAIN (MUHARRAQ)

## ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
8.1 TO 9.0	0.0 99.5	0.0 99.9	0.04 100.0						
9.1 TO 10.0	0.0 98.6	0.01 99.5	0.06 99.9	0.01 100.0					
10.1 TO 11.0	0.06 95.8	0.09 98.6	0.09 99.5	0.14 99.9	0.01 99.9				
11.1 TO 12.0	0.06 92.4	0.35 95.7	0.30 98.4	0.11 99.3	0.02 99.5				
12.1 TO 13.0	0.06 86.7	0.64 92.4	0.66 95.3	0.75 97.7	0.39 98.5	0.13 98.6			
13.1 TO 14.0	0.16 78.4	1.12 86.6	1.22 91.7	0.92 94.0	0.82 95.6	0.27 96.0	0.02 96.0		
14.1 TO 15.0	0.25 67.8	1.51 78.3	1.84 85.3	1.57 89.2	0.85 90.5	0.61 91.4	0.06 91.4	0.02 91.5	
15.1 TO 16.0	0.41 53.6	1.75 67.5	2.26 76.5	1.74 81.8	1.24 84.0	0.22 84.5	0.15 84.7		
16.1 TO 17.0	0.42 39.4	2.82 53.2	3.63 65.4	2.62 72.1	2.13 75.6	0.64 76.6	0.20 76.9	0.07 77.0	
17.1 TO 18.0	0.44 24.9	4.06 39.0	4.24 49.9	3.53 58.5	2.25 62.6	0.95 64.0	0.25 64.3	0.07 64.4	0.01 64.4
18.1 TO 19.0	0.31 12.9	2.90 24.4	4.21 34.5	3.11 41.2	2.92 46.2	1.17 48.1	0.27 48.5	0.04 48.6	0.03 48.6
19.1 TO 20.0	0.17 5.5	1.68 12.6	4.07 21.2	2.90 27.0	2.06 30.7	1.35 32.8	0.43 33.4	0.13 33.6	0.05 33.7
20.1 TO 21.0	0.03 2.0	0.60 5.3	1.70 10.7	1.98 15.3	1.31 18.2	0.95 19.8	0.33 20.5	0.19 20.8	0.03 20.8
21.1 TO 22.0	0.0 0.4	0.45 2.0	0.98 4.7	1.82 8.4	1.10 11.0	0.88 12.6	0.39 13.2	0.27 13.6	0.03 13.7
22.1 TO 23.0		0.03 0.4	0.41 1.5	0.58 3.3	0.92 5.2	0.68 6.6	0.37 7.4	0.20 7.6	0.03 7.7
23.1 TO 24.0			0.15 0.4	0.31 1.1	0.47 2.3	0.40 3.2	0.38 4.0	0.19 4.4	0.03 4.4
24.1 TO 25.0				0.08 0.2	0.12 0.6	0.32 1.3	0.28 1.9	0.26 2.3	0.09 2.5
25.1 TO 26.0				0.01 0.0	0.02 0.1	0.11 0.4	0.13 0.8	0.14 1.1	0.08 1.3
26.1 TO 27.0					0.01 0.0	0.04 0.1	0.07 0.3	0.13 0.5	0.05 0.7
27.1 TO 28.0							0.03 0.1	0.05 0.1	0.06 0.3



BAHRAIN (MUHARRAQ)

DRY-BULB

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Table 3 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURE

MARCH 1958-71

BAHRAIN (MUHARRAQ)

## ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB T (DEG C)	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
8.1 TO 9.0	0.0 99.8	0.0 99.9	0.04 100.0						
9.1 TO 10.0	0.0 99.7	0.0 99.8	0.04 99.9	0.05 100.0					
10.1 TO 11.0	0.0 99.6	0.0 99.7	0.01 99.8	0.01 99.9					
11.1 TO 12.0	0.0 99.5	0.0 99.6	0.01 99.7	0.01 99.8	0.05 99.9				
12.1 TO 13.0	0.01 99.0	0.05 99.5	0.0 99.6	0.01 99.7	0.02 99.8	0.02 99.8			
13.1 TO 14.0	0.0 96.4	0.10 99.0	0.04 99.5	0.01 99.6	0.01 99.6	0.05 99.7			
14.1 TO 15.0	0.08 90.8	0.15 96.4	0.17 98.9	0.17 99.3	0.03 99.4				
15.1 TO 16.0	0.03 82.7	0.34 90.7	0.60 96.1	0.20 98.5	0.03 98.8	0.01 98.8	0.01 98.9		
16.1 TO 17.0	0.11 72.2	0.60 82.6	1.12 90.4	1.09 95.2	0.50 97.3	0.13 97.6	0.02 97.6	0.02 97.7	
17.1 TO 18.0	0.15 57.5	0.98 72.1	1.60 81.9	1.44 88.5	1.18 92.3	0.80 93.9	0.10 94.0	0.03 94.1	0.01 94.1
18.1 TO 19.0	0.19 42.1	1.58 57.3	2.32 71.0	1.95 79.2	1.73 84.4	1.23 86.9	0.39 87.7	0.02 87.8	0.01 87.8
19.1 TO 20.0	0.17 25.2	1.79 41.9	3.11 55.6	3.39 66.9	2.35 73.1	1.59 76.6	0.68 77.9	0.24 78.3	0.02 78.4
20.1 TO 21.0	0.10 13.0	1.33 25.1	3.10 40.0	3.26 50.5	2.73 58.4	1.61 62.3	0.96 64.2	0.33 64.8	0.14 65.0
21.1 TO 22.0	0.02 5.3	1.00 12.9	3.00 23.6	3.96 35.4	2.87 42.7	2.61 47.9	1.30 50.2	0.51 51.1	0.18 51.4
22.1 TO 23.0	0.01 1.4	0.36 5.3	1.80 11.8	2.70 19.6	3.16 27.5	1.90 31.9	1.42 34.4	0.53 35.4	0.15 35.8
23.1 TO 24.0	0.01 0.3	0.06 1.4	0.93 4.9	1.74 9.7	2.11 14.8	1.95 19.4	1.07 21.9	0.57 23.1	0.31 23.6
24.1 TO 25.0		0.02 0.3	0.26 1.4	0.77 3.9	0.95 6.9	1.28 9.9	1.19 12.6	0.72 14.1	0.29 14.6
25.1 TO 26.0			0.03 0.3	0.21 1.1	0.60 2.9	0.62 4.9	0.56 6.6	0.60 8.2	0.25 8.9
26.1 TO 27.0				0.03 0.2	0.16 0.9	0.29 2.1	0.46 3.5	0.46 4.6	0.47 5.6
27.1 TO 28.0					0.01 0.2	0.13 0.7	0.31 1.6	0.32 2.5	0.27 3.2



Table 3 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES  
(con'td)  
MARCH 1958-71 BAHRAIN (MUHARRAQ)

ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB

T (DEG C)

	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
28.1 TO 29.0					0.01 0.0	0.04 0.2	0.07 0.5	0.16 1.1	0.32 1.8
29.1 TO 30.0							0.09 0.1	0.12 0.4	0.21 0.9
30.1 TO 31.0							0.01 0.0	0.0 0.1	0.09 0.2
31.1 TO 32.0								0.01 0.0	0.02 0.0



Table 3 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES  
(con'td)

MARCH 1958-71

BAHRAIN (MUHARRAQ)

ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB T (DEG C)	T-9	T-10	T-11	T-12	T-13	T-14	T-15	T-16
20.1 TO 21.0	0.02 65.0							
21.1 TO 22.0	0.03 51.4							
22.1 TO 23.0	0.09 35.9							
23.1 TO 24.0	0.14 23.8	0.04 23.8	0.01 23.8					
24.1 TO 25.0	0.12 14.8	0.04 14.9						
25.1 TO 26.0	0.10 9.2	0.03 9.2	0.02 9.3					
26.1 TO 27.1	0.23 6.0	0.07 6.2	0.03 6.2	0.01 6.3				
27.1 TO 28.0	0.27 3.7	0.10 3.9	0.11 4.0	0.0 4.1	0.01 4.1			
28.1 TO 29.0	0.20 2.2	0.07 2.4	0.06 2.5	0.03 2.5	0.01 2.5			
29.1 TO 30.0	0.12 1.2	0.14 1.4	0.08 1.5	0.02 1.6				
30.1 TO 31.0	0.12 0.4	0.07 0.6	0.05 0.7	0.01 0.8	0.01 0.8			
31.1 TO 32.0	0.03 0.1	0.06 0.2	0.05 0.4	0.02 0.4	0.04 0.4	0.04 0.5		
32.1 TO 33.0	0.01 0.0	0.0 0.0	0.01 0.1	0.04 0.2	0.0 0.0	0.01 0.2		
33.1 TO 34.0		0.01 0.0		0.04 0.1	0.02 0.1			
34.1 TO 35.0						0.01 0.1		
35.1 TO 36.0						0.01 0.0	0.01 0.1	0.01 0.1
36.1 TO 37.0						0.01 0.0		
37.1 TO 38.0							0.02 0.0	0.01 0.0



Table 4 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES

APRIL 1958-71

BAHRAIN (MUHARRAQ)

## ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB T (DEG C)	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
15.1 TO 16.0	0.0 98.4	0.0 99.4	0.06 100.0	0.04 100.0					
16.1 TO 17.0	0.0 96.4	0.01 98.4	0.09 99.4	0.04 99.9					
17.1 TO 18.0	0.01 91.8	0.05 96.4	0.11 98.4	0.04 99.3	0.14 99.8				
18.1 TO 19.0	0.04 82.5	0.28 91.8	0.26 96.3	0.18 98.2	0.19 99.0	0.13 99.4	0.01 99.4		
19.1 TO 20.0	0.09 68.7	0.53 82.5	0.77 91.5	0.54 95.8	0.36 97.5	0.22 98.1	0.13 98.3		
20.1 TO 21.0	0.13 52.0	0.78 68.6	1.18 81.9	1.46 90.1	0.63 93.8	0.36 95.2	0.18 95.6	0.04 95.7	
21.1 TO 22.0	0.06 37.1	1.15 51.8	2.23 67.7	1.92 79.8	1.63 86.5	1.08 89.6	0.44 90.6	0.12 90.9	0.05 90.9
22.1 TO 23.0	0.11 21.4	0.79 37.1	1.64 50.6	2.76 64.2	2.55 74.4	1.68 79.5	0.87 81.6	0.22 82.1	0.04 82.3
23.1 TO 24.0	0.06 9.4	0.71 21.3	2.34 36.2	2.83 48.1	2.96 58.9	2.67 66.6	1.37 70.0	0.54 71.2	0.19 71.5
24.1 TO 25.0	0.02 2.2	0.39 9.4	1.88 20.5	3.15 33.1	2.60 42.1	2.67 50.0	2.12 55.0	0.95 57.1	0.25 57.7
25.1 TO 26.0	0.0 0.4	0.04 2.2	0.98 9.0	2.28 18.2	2.44 27.6	1.92 34.1	1.54 39.3	1.01 42.2	0.51 43.3
26.1 TO 27.0	0.0 0.1	0.03 0.4	0.26 2.2	1.59 7.9	2.18 14.9	2.41 21.9	1.70 26.4	1.27 30.1	0.77 31.9
27.1 TO 28.0		0.01 0.1	0.03 0.4	0.55 1.9	1.57 6.1	1.70 10.9	1.88 15.4	0.98 18.3	0.90 20.7
28.1 TO 29.0			0.03 0.1	0.07 0.4	0.27 1.3	0.88 3.9	1.30 7.0	1.06 9.7	0.66 11.6
29.1 TO 30.0				0.01 0.0	0.07 0.3	0.21 0.9	0.72 2.7	0.65 4.5	0.60 6.1
30.1 TO 31.0					0.01 0.0	0.04 0.2	0.17 0.6	0.35 1.6	0.36 2.8
31.1 TO 32.0						0.01 0.0	0.06 0.1	0.18 0.4	0.22 1.1
32.1 TO 33.0								0.04 0.1	0.06 0.2
33.1 TO 34.0								0.01 0.0	0.02 0.0



Table 4 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES  
(cont)

BAHRAIN (MUHARRAQ)

APRIL 1958-71

ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB

T (DEG C)	T-9	T-10	T-11	T-12	T-13	T-14	T-15	T-16	T-17
23.1 TO 24.0	0.05 71.6	0.01 71.6							
24.1 TO 25.0	0.05 57.8	0.05 57.9							
25.1 TO 26.0	0.19 43.7	0.04 43.8							
26.1 TO 27.0	0.32 32.6	0.14 32.8	0.03 32.8						
27.1 TO 28.0	0.42 21.7	0.08 22.0	0.02 22.1	0.02 22.1					
28.1 TO 29.0	0.61 13.1	0.22 13.7	0.03 13.9						
29.1 TO 30.0	0.43 7.3	0.27 8.2	0.15 8.6	0.06 8.8	0.03 8.8				
30.1 TO 31.0	0.36 3.8	0.32 4.6	0.22 5.2	0.07 5.5	0.04 5.6	0.01 5.6			
31.1 TO 32.0	0.30 1.9	0.29 2.5	0.18 3.0	0.18 3.4	0.07 3.6	0.04 3.7			
32.1 TO 33.0	0.18 0.6	0.24 1.1	0.08 1.5	0.11 1.8	0.08 2.0	0.06 2.1	0.04 2.2		
33.1 TO 34.0	0.02 0.1	0.16 0.3	0.07 0.6	0.11 0.9	0.05 1.1	0.08 1.2	0.04 1.3	0.01 1.3	
34.1 TO 35.0		0.02 0.0	0.02 0.1	0.08 0.3	0.12 0.5	0.07 0.6	0.04 0.7	0.01 0.7	
35.1 TO 36.0			0.01 0.0	0.03 0.1	0.09 0.2	0.04 0.3	0.01 0.3	0.02 0.4	
36.1 TO 37.0					0.04 0.0	0.01 0.1	0.03 0.1	0.01 0.1	0.01 0.2
37.1 TO 38.0						0.01 0.0	0.01 0.0		0.03 0.0
	T-18	T-19	T-20						
36.1 TO 37.0	0.01 0.2								
37.1 TO 38.0	0.01 0.1								
38.1 TO 39.0			0.01 0.0						
39.1 TO 40.0			0.01 0.0						



Table 5 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES

MAY 1958-71

BAHRAIN(MUHARRAQ)

## ASSOCIATED WET-BULB TEMPERATURE (DEG C)

## DRY-BULB

T (DEG C)	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
18.1 TO 19.0	0.0 99.7	0.0 100.0							
19.1 TO 20.0	0.01 98.9	0.0 99.7							
20.1 TO 21.0	0.0 96.5	0.04 98.9	0.06 99.6	0.01 99.9					
21.1 TO 22.0	0.0 91.4	0.03 96.5	0.09 98.8	0.03 99.5	0.01 99.8				
22.1 TO 23.0	0.03 80.7	0.12 91.4	0.16 96.5	0.14 98.7	0.09 99.4	0.03 99.7			
23.1 TO 24.0	0.02 65.3	0.30 80.7	0.49 91.3	0.59 96.1	0.32 98.3	0.12 98.9	0.10 99.1	0.01 99.2	
24.1 TO 25.0	0.07 45.6	0.32 65.2	0.56 80.4	0.83 90.4	0.49 94.7	0.36 96.6	0.12 97.0	0.04 97.2	0.01 97.2
25.1 TO 26.0	0.03 25.5	0.35 45.5	1.04 64.9	1.18 79.4	1.15 88.7	0.74 92.5	0.32 93.9	0.07 94.3	0.07 94.4
26.1 TO 27.0	0.04 11.9	0.35 25.4	1.27 45.1	1.88 63.5	2.06 76.8	1.93 84.9	0.81 88.0	0.28 89.1	0.12 89.4
27.1 TO 28.0	0.01 3.8	0.38 11.9	1.05 25.1	2.46 43.5	3.00 59.9	2.53 71.2	1.92 77.4	0.80 79.7	0.34 80.5
28.1 TO 29.0	0.0 0.7	0.10 3.8	1.04 11.5	1.75 23.6	2.81 39.6	3.15 53.0	2.63 61.8	1.34 66.1	0.45 67.5
29.1 TO 30.0		0.01 0.7	0.49 3.7	1.70 10.4	2.25 20.7	3.37 33.9	2.89 44.2	1.92 50.3	1.09 53.2
30.1 TO 31.0			0.07 0.7	0.44 3.2	1.00 8.2	1.77 16.3	2.72 26.1	2.32 33.5	1.22 37.7
31. TO 32.0				0.08 0.6	0.63 2.7	1.23 6.7	2.44 13.0	2.52 20.1	1.95 25.2
32.1 TO 33.0					0.21 0.5	0.68 2.0	0.97 4.7	1.53 8.6	1.86 13.2
33.1 TO 34.0						0.10 0.3	0.37 1.1	0.69 2.9	1.07 5.3
34.1 TO 35.0						0.01 0.0	0.12 0.2	0.26 0.6	0.54 1.7
35.1 TO 36.0								0.03 0.1	0.09 0.2
36.1 TO 37.0								0.01 0.0	0.04 0.0



Table 5 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES  
(cont)

MAY 1958-71

BAHRAIN(MUHARRAQ)

DRY-BULB T (DEG C)	ASSOCIATED WET-BULB TEMPERATURE (DEG C)								
	T-9	T-10	T-11	T-12	T-13	T-14	T-15	T-16	T-17
26.1 TO 27.0	0.01 89.5	0.01 89.5							
27.1 TO 28.0	0.03 80.7	0.02 80.7	0.02 80.7						
28.1 TO 29.0	0.16 68.0	0.03 68.2							
29.1 TO 30.0	0.35 54.3	0.11 54.6	0.04 54.7						
30.1 TO 31.0	0.54 39.5	0.16 40.2	0.07 40.4	0.02 40.5	0.02 40.5				
31.1 TO 32.0	0.99 28.2	0.34 29.4	0.12 30.0	0.04 30.1	0.01 30.2				
32.1 TO 33.0	1.21 16.3	0.73 18.3	0.27 19.3	0.10 19.7	0.02 19.8	0.01 19.8			
33.1 TO 34.0	1.21 7.9	0.77 9.8	0.46 11.1	0.14 11.8	0.10 12.1	0.05 12.2			
34.1 TO 35.0	0.77 3.0	0.84 4.5	0.51 5.6	0.25 6.5	0.17 7.0	0.09 7.2	0.03 7.3		
35.1 TO 36.0	0.27 0.8	0.33 1.3	0.32 2.0	0.19 2.6	0.16 3.2	0.13 3.5	0.05 3.6	0.02 3.7	0.02 3.7
36.1 TO 37.0	0.03 0.1	0.15 0.4	0.15 0.6	0.14 0.9	0.17 1.4	0.22 1.8	0.07 2.0	0.04 2.1	0.02 2.1
37.1 TO 38.0			0.09 0.1	0.05 0.2	0.06 0.4	0.12 0.7	0.09 0.9	0.10 1.0	0.01 1.0
38.1 TO 39.0			0.02 0.0	0.03 0.1	0.01 0.1	0.06 0.2	0.06 0.3	0.04 0.5	0.02 0.5
39.1 TO 40.0						0.01 0.0	0.04 0.1	0.05 0.2	0.03 0.2
40.1 TO 41.0						0.01 0.0	0.01 0.0	0.02 0.0	0.02 0.1
41.1 TO 42.0								0.01 0.0	



Table 5 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES  
(cont)

MAY 1958-71

BAHRAIN(MUHARRAQ)

ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB

T (DEG C)

T-18

T-19

T-20

T-21

T-22

39.1 TO 40.0

0.02  
0.3

40.1 TO 41.0

0.02 0.01 0.01  
0.1 0.1 0.2

41.1 TO 42.0

0.01 0.01  
0.0 0.0

42.1 TO 43.0

0.01  
0.0

43.1 TO 44.0

0.01 0.01  
0.0 0.0



Table 6 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES

JUNE 1958-71

BAHRAIN(MUHARRAQ)

## ASSOCIATED WET-BULB TEMPERATURE (DEG C)

## DRY-BULB

T (DEG C)	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
22.1 TO 23.0	0.0 97.9	0.0 99.5	0.0 99.9	0.0 100.0					
23.1 TO 24.0	0.0 93.2	0.01 97.9	0.01 99.5	0.0 99.9	0.0 100.0				
24.1 TO 25.0	0.02 82.0	0.05 93.2	0.06 97.9	0.0 99.5	0.0 99.8	0.0 99.9	0.0 100.0		
25.1 TO 26.0	0.01 63.1	0.11 81.9	0.07 93.1	0.11 97.8	0.01 99.4	0.0 99.7	0.0 99.8		
26.1 TO 27.0	0.05 43.3	0.15 63.1	0.44 81.8	0.24 92.9	0.15 97.5	0.07 99.0	0.02 99.4	0.01 99.5	
27.1 TO 28.0	0.02 20.9	0.34 43.2	0.84 62.9	0.87 81.2	0.65 92.0	0.21 96.5	0.21 98.0	0.03 98.3	0.01 98.4
28.1 TO 29.0	0.03 7.7	0.31 20.9	1.03 42.9	1.05 61.7	1.29 79.1	1.02 89.3	0.78 93.5	0.41 94.8	0.11 95.1
29.1 TO 30.0	0.01 2.0	0.33 7.6	1.12 20.6	1.89 41.5	2.08 59.3	2.38 75.4	2.02 84.6	0.93 88.0	0.37 88.9
30.1 TO 31.0	0.0 0.3	0.17 2.0	0.58 7.3	1.54 19.1	2.38 38.1	2.35 53.9	2.76 67.6	1.80 74.7	0.75 77.3
31.1 TO 32.0		0.01 0.3	0.39 1.8	0.88 6.6	1.94 16.8	3.40 33.5	3.16 46.8	3.30 57.8	1.57 63.2
32.1 TO 33.0			0.06 0.2	0.19 1.4	0.86 5.3	2.21 13.6	3.97 26.9	3.18 37.1	2.61 44.7
33.1 TO 34.0				0.04 0.2	0.32 1.2	0.97 4.2	2.13 10.3	3.19 19.6	2.63 26.6
34.1 TO 35.0					0.05 0.1	0.20 0.8	0.78 2.8	1.57 6.8	2.65 12.9
35.1 TO 36.0						0.04 0.1	0.25 0.5	0.59 1.8	1.17 4.2
36.1 TO 37.0						0.01 0.0	0.02 0.0	0.15 0.3	0.43 0.9
37.1 TO 38.0								0.01 0.0	0.01 0.1



Table 6 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES  
(cont)  
JUNE 1958-71

BAHRAIN(MUHARRAQ)

ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB T (DEG C)	T-9	T-10	T-11	T-12	T-13	T-14	T-15	T-16	T-17
28.1 TO 29.0	0.02 95.2	0.02 95.2							
29.1 TO 30.0	0.05 89.1	0.01 89.1							
30.1 TO 31.0	0.10 77.8	0.03 77.9	0.0 78.0						
31.1 TO 32.0	0.55 64.9	0.04 65.3	0.01 65.4						
32.1 TO 33.0	1.32 48.5	0.34 49.7	0.06 50.1	0.02 50.2					
33.1 TO 34.0	2.03 31.6	0.93 34.1	0.25 35.0	0.02 35.3	0.03 35.4				
34.1 TO 35.0	1.97 17.3	1.24 20.3	0.60 21.9	0.13 22.5	0.05 22.8	0.0 22.8	0.02 22.9		
35.1 TO 36.0	1.56 7.7	1.27 10.1	0.65 11.9	0.21 12.8	0.05 13.3	0.02 13.5	0.03 13.6	0.02 13.6	
36.1 TO 37.0	0.75 2.2	1.13 4.0	0.63 5.2	0.58 6.3	0.27 7.1	0.15 7.5	0.05 7.7	0.01 7.8	0.01 7.8
37.1 TO 38.0	0.16 0.3	0.36 0.8	0.47 1.6	0.34 2.1	0.26 2.6	0.13 3.1	0.10 3.4	0.01 3.6	0.02 3.6
38.1 TO 39.0	0.01 0.1	0.06 0.1	0.08 0.3	0.15 0.6	0.12 0.8	0.10 1.0	0.17 1.4	0.11 1.6	0.08 1.7
39.1 TO 40.0		0.03 0.0	0.01 0.1	0.05 0.1	0.06 0.3	0.06 0.3	0.11 0.5	0.07 0.7	0.03 0.8
40.1 TO 41.0	0.01 0.0			0.01 0.0		0.05 0.1	0.01 0.1	0.06 0.2	0.04 0.3
41.1 TO 42.0				0.01 0.0			0.01 0.0		0.02 0.1
42.1 TO 43.0								0.01 0.0	0.01 0.0
43.1 TO 44.0								0.01 0.0	



Table 6 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES  
(cont)

JUNE 1958-71

BAHRAIN (MUHARRAQ)

ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB T (DEG C)	T-18	T-19	T-20	T-21
39.1 TO 40.0	0.03 0.9			
40.1 TO 41.0	0.04 0.4	0.03 0.4		
41.1 TO 42.0	0.03 0.1	0.01 0.2	0.01 0.2	
42.1 TO 43.0		0.01 0.1	0.01 0.1	
43.1 TO 44.0			0.02 0.0	
44.1 TO 45.0				0.01 0.0



Table 7 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES  
JULY 1957-70

BAHRAIN(MUHARRAQ)

ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
T (DEG C)									
20.1 TO 21.0	0.0 100.0								
21.1 TO 22.0	0.0 99.9	0.0 100.0							
22.1 TO 23.0	0.0 99.7	0.0 99.9	0.0 100.0						
23.1 TO 24.0	0.0 98.7	0.0 99.7	0.0 99.9	0.0 100.0					
24.1 TO 25.0	0.0 96.5	0.0 98.7	0.0 99.7	0.0 99.9	0.0 100.0				
25.1 TO 26.0	0.0 90.0	0.0 96.5	0.0 98.7	0.0 99.7	0.0 99.9	0.0 100.0			
26.1 TO 27.0	0.01 78.9	0.0 90.0	0.0 96.5	0.02 98.7	0.0 99.7	0.0 99.9	0.0 100.0		
27.1 TO 28.0	0.0 57.2	0.02 78.9	0.02 90.0	0.07 96.5	0.01 98.7	0.01 99.6	0.01 99.9	0.0 100.0	
28.1 TO 29.0	0.0 34.7	0.10 57.2	0.19 78.9	0.16 90.0	0.19 96.4	0.08 98.6	0.03 99.5	0.04 99.8	
29.1 TO 30.0	0.0 17.3	0.44 34.7	0.64 57.1	0.66 78.6	0.54 89.5	0.37 95.8	0.13 97.9	0.07 98.8	0.03 99.0
30.1 TO 31.0	0.03 6.3	0.52 17.3	1.31 34.3	1.62 56.0	1.46 76.9	0.77 87.3	0.59 93.1	0.26 95.1	0.12 95.9
31.1 TO 32.0	0.0 1.5	0.37 6.3	1.56 16.8	2.38 32.4	3.06 52.5	3.22 71.9	1.71 81.5	1.16 86.8	0.55 88.5
32.1 TO 33.0	0.0 0.1	0.12 1.5	1.00 5.9	2.25 14.9	3.16 28.1	3.84 45.2	4.31 61.3	2.10 69.2	1.10 73.4
33.1 TO 34.0		0.01 0.1	0.31 1.3	0.98 4.8	2.05 11.5	2.61 21.6	3.51 34.8	3.64 46.7	1.78 52.5
34.1 TO 35.0			0.0 0.1	0.34 1.0	0.87 3.5	1.57 8.2	2.37 15.6	3.84 25.3	3.49 33.5
35.1 TO 36.0				0.01 0.1	0.29 0.7	0.73 2.3	1.31 5.4	1.81 10.5	2.40 16.3
36.1 TO 37.0					0.04 0.1	0.24 0.4	0.58 1.2	1.09 3.0	1.98 6.3
37.1 TO 38.0						0.01 0.0	0.07 0.1	0.23 0.4	0.49 1.1
38.1 TO 39.0								0.01 0.0	0.03 0.1
39.1 TO 40.0									0.02 0.0



Table 7 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES  
(cont)  
JULY 1957-70

BAHRAIN(MUHARRAQ)

ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB T (DEG C)	T-9	T-10	T-11	T-12	T-13	T-14	T-15	T-16	T-17
29.1 TO 30.0	0.0 99.0	0.01 99.0							
30.1 TO 31.0	0.04 96.1								
31.1 TO 32.0	0.17 89.2	0.04 89.4							
32.1 TO 33.0	0.29 74.5	0.12 75.0	0.02 75.2						
33.1 TO 34.0	0.88 55.5	0.28 56.4	0.04 56.8	0.01 56.9					
34.1 TO 35.0	1.46 37.6	0.65 39.7	0.14 40.3	0.03 40.7	0.0 40.8	0.01 40.8			
35.1 TO 36.0	1.85 21.1	0.95 23.6	0.37 25.1	0.10 25.6	0.05 25.9	0.0 26.0		0.01 26.0	
36.1 TO 37.0	2.11 9.8	1.78 12.7	0.75 14.3	0.35 15.4	0.04 15.7	0.03 16.0	0.02 16.1	0.03 16.2	
37.1 TO 38.0	0.92 2.4	0.95 3.8	0.75 4.8	0.41 5.7	0.36 6.5	0.04 6.8	0.07 7.1	0.01 7.1	
38.1 TO 39.0	0.15 0.3	0.24 0.7	0.28 1.1	0.19 1.4	0.29 1.9	0.14 2.3	0.12 2.6	0.05 2.8	
39.1 TO 40.0		0.04 0.1	0.12 0.2	0.12 0.4	0.09 0.5	0.12 0.7	0.13 1.0	0.06 1.1	0.06 1.3
40.1 TO 41.0		0.01 0.0	0.01 0.0	0.0 0.0	0.01 0.1	0.06 0.1	0.03 0.2	0.05 0.3	0.03 0.4
41.1 TO 42.0	0.01 0.0			0.01 0.0	0.01 0.0	0.02 0.0		0.02 0.1	0.05 0.2
	T-18	T-19	T-20	T-21					
38.1 TO 39.0	0.02 2.8								
39.1 TO 40.0	0.01 1.3								
40.1 TO 41.0	0.05 0.5	0.02 0.5							
41.1 TO 42.0	0.05 0.2	0.03 0.3	0.02 0.3						
42.1 TO 43.0	0.02 0.0	0.02 0.1	0.01 0.1	0.01 0.1					
43.1 TO 44.0	0.01 0.0	0.01 0.0							



Table 8 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES

AUGUST 1957-70

BAHRAIN (MUHARRAQ)

## ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB T (DEG C)	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
23.1 TO 24.0	0.0 99.8	0.0 100.0							
24.1 TO 25.0	0.0 98.8	0.0 99.8	0.0 100.0						
25.1 TO 26.0	0.0 96.0	0.0 98.8	0.0 99.8	0.0 100.0					
26.1 TO 27.0	0.0 90.3	0.0 96.0	0.0 98.8	0.0 99.8	0.0 100.0				
27.1 TO 28.0	0.0 77.6	0.01 90.3	0.02 96.0	0.0 98.8	0.0 99.8	0.0 100.0			
28.1 TO 29.0	0.0 57.2	0.13 77.6	0.22 90.3	0.08 96.0	0.0 98.8	0.02 99.7	0.0 100.0		
29.1 TO 30.0	0.04 32.9	0.36 57.2	0.84 77.5	0.60 90.0	0.31 95.6	0.09 98.3	0.04 99.3	0.0 99.5	
30.1 TO 31.0	0.0 12.5	0.63 32.9	1.59 56.8	1.50 76.2	0.91 88.1	0.47 93.4	0.20 96.1	0.07 97.0	0.08 97.3
31.1 TO 32.0	0.04 3.1	0.52 12.5	2.81 32.3	3.38 54.6	2.92 72.5	1.73 83.5	0.94 88.3	0.70 90.8	0.22 91.7
32.1 TO 33.0	0.01 0.2	0.31 3.1	1.82 12.0	3.76 28.9	3.89 47.9	3.38 62.9	2.13 72.1	0.90 76.0	0.61 77.8
33.1 TO 34.0		0.0 0.2	0.63 2.7	2.03 9.8	3.64 23.0	3.72 38.1	2.75 49.7	2.02 56.8	0.76 59.8
34.1 TO 35.0			0.01 0.2	0.66 2.1	1.69 7.2	2.95 16.7	3.24 28.1	2.85 36.9	1.70 42.0
35.1 TO 36.0				0.05 0.2	0.46 1.4	1.38 4.8	2.20 11.4	2.56 19.5	2.08 25.5
36.1 TO 37.0					0.09 0.2	0.57 0.9	1.32 2.9	2.50 7.3	3.15 12.9
37.1 TO 38.0						0.04 0.1	0.15 0.3	0.52 1.0	1.36 2.8
38.1 TO 39.0							0.03 0.0	0.05 0.1	0.12 0.2



Table 8 (cont) PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES

AUGUST 1957-70

BAHRAIN (MUHARRAQ)

ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB T (DEG C)	T-9	T-10	T-11	T-12	T-13	T-14	T-15	T-16	T-17
31.1 TO 32.0	0.05 91.8								
32.1 TO 33.0	0.16 78.4	0.03 78.5							
33.1 TO 34.0	0.28 61.0	0.16 61.4	0.02 61.5	0.01 61.5					
34.1 TO 35.0	0.73 44.2	0.26 45.1	0.09 45.4	0.02 45.5					
35.1 TO 36.0	1.27 28.9	0.55 30.4	0.19 31.0	0.04 31.2	0.0 31.3				
36.1 TO 37.0	1.91 16.8	0.75 18.9	0.37 19.9	0.18 20.3	0.06 20.5				
37.1 TO 38.0	1.64 5.2	1.21 7.2	0.66 8.6	0.23 9.2	0.12 9.5	0.04 9.6	0.01 9.6		
38.1 TO 39.0	0.44 0.7	0.62 1.5	0.60 2.3	0.39 3.0	0.12 3.4	0.05 3.5	0.03 3.6	0.01 3.6	
39.1 TO 40.0	0.05 0.0	0.06 0.1	0.13 0.3	0.15 0.5	0.24 0.8	0.12 1.0	0.06 1.1	0.03 1.1	
40.1 TO 41.0			0.01 0.0	0.02 0.0	0.04 0.1	0.08 0.1	0.07 0.2	0.04 0.3	
41.1 TO 42.0								0.03 0.0	
	T-18	T-19	T-20	T-21					
41.1 TO 42.0	0.01 0.0								
42.1 TO 43.0									
43.1 TO 44.0			0.01 0.0	0.01 0.0					



Table 9 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES

SEPTEMBER 1957-70

BAHRAIN (MUHARRAQ)

DRY-BULB T (DEG C)	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
21.1 TO 22.0	0.0 99.9	0.0 100.0							
22.1 TO 23.0	0.0 99.4	0.0 99.9	0.0 100.0						
23.1 TO 24.0	0.0 97.8	0.0 99.4	0.0 99.9	0.0 100.0					
24.1 TO 25.0	0.0 93.7	0.02 97.8	0.0 99.4	0.0 99.9	0.0 100.0				
25.1 TO 26.0	0.02 84.8	0.05 93.7	0.05 97.7	0.08 99.4	0.02 99.9	0.0 100.0			
26.1 TO 27.0	0.03 71.3	0.29 84.8	0.38 93.6	0.13 97.6	0.03 99.2	0.0 99.7			
27.1 TO 28.0	0.11 50.6	0.67 71.3	1.39 84.4	1.01 92.9	0.30 96.8	0.20 98.3	0.04 98.8		
28.1 TO 29.0	0.03 27.4	1.37 50.4	2.24 70.5	1.72 82.3	1.15 89.7	0.55 93.3	0.29 94.6	0.12 95.1	0.0 95.2
29.1 TO 30.0	0.07 10.5	1.23 27.3	2.97 49.0	2.91 66.9	1.59 76.9	1.30 83.2	0.62 86.3	0.45 87.3	0.10 87.7
30.1 TO 31.0	0.03 2.1	0.38 10.4	2.20 26.0	3.34 44.8	2.89 59.7	1.57 68.2	0.94 73.1	0.44 75.6	0.08 76.2
31.1 TO 32.0	0.0 0.2	0.17 2.0	1.35 10.0	2.93 23.4	4.06 38.8	3.16 50.8	2.14 57.7	1.23 61.8	0.49 63.8
32.1 TO 33.0	0.01 0.0	0.01 0.2	0.25 1.9	2.01 8.5	3.10 19.0	3.55 30.3	3.12 39.2	1.60 43.9	0.89 46.8
33.1 TO 34.0			0.09 0.2	0.38 1.6	1.75 6.2	2.86 13.6	3.30 21.4	2.24 27.1	1.29 30.3
34.1 TO 35.0				0.08 0.1	0.42 1.1	1.42 4.0	2.27 8.5	2.10 13.0	1.66 16.5
35.1 TO 36.0					0.03 0.1	0.31 0.6	0.63 2.1	1.17 4.3	1.21 6.7
36.1 TO 37.0						0.02 0.0	0.21 0.3	0.65 1.1	0.74 2.2
37.1 TO 38.0							0.01 0.0	0.05 0.1	0.18 0.3



Table 9 (cont) PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES  
SEPTEMBER 1957-70

BAHRAIN (MUHARRAQ)

DRY-BULB T (DEG C)	ASSOCIATED WET-BULB TEMPERATURE (DEG C)								
	T-9	T-10	T-11	T-12	T-13	T-14	T-15	T-16	T-17
30.1 TO 31.0	0.08 76.4	0.0 76.5							
31.1 TO 32.0	0.10 64.3	0.03 64.5	0.01 64.5						
32.1 TO 33.0	0.48 48.3	0.10 48.7	0.02 48.8						
33.1 TO 34.0	0.64 32.2	0.27 33.3	0.08 33.6	0.03 33.7					
34.1 TO 35.0	0.74 18.4	0.52 19.7	0.23 20.4	0.05 20.7	0.04 20.8	0.01 20.8			
35.1 TO 36.0	0.77 8.6	0.48 9.7	0.32 10.5	0.16 11.0	0.01 11.2	0.04 11.3			
36.1 TO 37.0	0.82 3.4	0.58 4.4	0.36 5.1	0.24 5.6	0.16 5.9	0.08 6.1	0.02 6.1		
37.1 TO 38.0	0.24 0.6	0.28 1.0	0.35 1.4	0.22 1.7	0.14 2.0	0.08 2.2	0.05 2.3		
38.1 TO 39.0	0.01 0.0	0.08 0.1	0.06 0.2	0.11 0.3	0.07 0.4	0.04 0.5	0.08 0.6	0.01 0.7	0.01 0.7
39.1 TO 40.0	0.01 0.0			0.04 0.0	0.01 0.1	0.01 0.1	0.03 0.1	0.02 0.2	0.02 0.2
40.1 TO 41.0						0.01 0.0	0.01 0.0	0.01 0.0	0.02 0.1
	T-18								
39.1 TO 40.0	0.01 0.2								
40.1 TO 41.0	0.01 0.1								



Table 10 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES  
OCTOBER 1957-70

BAHRAIN (MUHARRAQ)

DRY-BULB T (DEG C)	ASSOCIATED WET-BULB TEMPERATURE (DEG C)								
	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
18.1 TO 19.0	0.0 99.8	0.0 100.0							
19.1 TO 20.0	0.0 99.4	0.0 99.8	0.0 100.0						
20.1 TO 21.0	0.01 98.5	0.0 99.4	0.0 99.8	0.0 100.0					
21.1 TO 22.0	0.02 96.1	0.09 98.5	0.04 99.4	0.01 99.8	0.01 100.0				
22.1 TO 23.0	0.03 90.3	0.29 96.0	0.10 98.4	0.08 99.2	0.03 99.6	0.04 99.8	0.0 99.8	0.01 99.8	
23.1 TO 24.0	0.03 78.4	0.68 90.2	0.68 95.7	0.27 98.0	0.10 98.7	0.04 99.1	0.02 99.2	0.02 99.3	
24.1 TO 25.0	0.10 61.3	1.05 78.4	1.25 89.5	0.70 94.3	0.28 96.3	0.08 97.0	0.05 97.3	0.02 97.4	
25.1 TO 26.0	0.12 41.1	0.98 61.2	1.71 77.2	1.37 87.1	0.60 91.2	0.36 92.9	0.12 93.5	0.13 93.8	0.05 93.9
26.1 TO 27.0	0.13 24.8	1.16 41.0	2.53 60.1	2.95 74.4	1.92 83.0	0.87 86.5	0.36 87.8	0.16 88.3	0.06 88.4
27.1 TO 28.0	0.05 9.8	1.08 24.6	2.76 39.7	3.49 56.3	3.12 67.6	1.93 74.3	0.88 76.9	0.35 77.9	0.07 78.2
28.1 TO 29.0	0.03 3.2	0.44 9.7	3.03 23.5	3.47 35.8	4.06 48.9	3.01 57.2	1.80 61.9	0.70 63.6	0.15 64.3
29.1 TO 30.0	0.01 0.5	0.23 3.1	1.43 9.2	3.46 20.0	3.24 28.9	3.20 37.9	1.82 43.1	0.97 46.0	0.32 47.1
30.1 TO 31.0		0.04 0.5	0.46 2.9	1.56 7.6	2.55 14.9	2.05 20.5	2.27 26.3	1.17 29.7	0.63 31.7
31.1 TO 32.0			0.08 0.4	0.63 2.4	1.67 5.6	2.33 10.3	1.77 13.9	1.55 17.5	0.89 19.7
32.1 TO 33.0				0.17 0.4	0.67 1.7	0.82 3.2	1.44 5.6	1.02 7.4	0.99 9.4
33.1 TO 34.0					0.12 0.2	0.37 0.8	0.41 1.5	0.59 2.5	0.49 3.3
34.1 TO 35.0						0.05 0.1	0.22 0.3	0.17 0.6	0.29 1.0
35.1 TO 36.0							0.01 0.0	0.06 0.1	0.08 0.2



Table 10 (cont) PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES  
OCTOBER 1957-70

BAHRAIN (MUHARRAQ)

DRY-BULB	ASSOCIATED WET-BULB TEMPERATURE (DEG C)								
	T-9	T-10	T-11	T-12	T-13	T-14	T-15	T-16	T-17
26.1 TO 27.0	0.02 88.5								
27.1 TO 28.0	0.03 78.3								
28.1 TO 29.0	0.09 64.5	0.01 64.6	0.01 64.6						
29.1 TO 30.0	0.10 47.6	0.08 47.7	0.01 47.8						
30.1 TO 31.0	0.15 32.4	0.05 32.8	0.02 32.8	0.02 32.9					
31.1 TO 32.0	0.38 21.0	0.13 21.6	0.11 21.9	0.0 22.0	0.02 22.0				
32.1 TO 33.0	0.55 10.8	0.37 11.7	0.16 12.1	0.06 12.4	0.01 12.4	0.03 12.4			
33.1 TO 34.0	0.57 4.3	0.30 5.1	0.21 5.7	0.07 5.9	0.06 6.1	0.01 6.2			
34.1 TO 35.0	0.19 1.3	0.24 1.8	0.21 2.3	0.14 2.6	0.08 2.8	0.03 2.9	0.01 3.0		
35.1 TO 36.0	0.08 0.3	0.08 0.4	0.09 0.6	0.10 0.9	0.07 1.1	0.07 1.2	0.05 1.3	0.01 1.3	
36.1 TO 37.0	0.02 0.0	0.02 0.1	0.02 0.1	0.10 0.2	0.13 0.4	0.07 0.5	0.03 0.6	0.01 0.7	
37.1 TO 38.0			0.02 0.0	0.01 0.0	0.04 0.1	0.02 0.1	0.03 0.2	0.01 0.2	0.03 0.3
38.1 TO 39.0			0.01 0.0				0.01 0.0	0.02 0.1	0.01 0.1
39.1 TO 40.0								0.02 0.0	0.01 0.0
	T-18								
38.1 TO 39.0	0.01 0.1								
39.1 TO 40.0	0.02 0.0								



Table 11 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES  
NOVEMBER 1957-70

BAHRAIN (MUHARRAQ)

ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB

	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
T (DEG C)									
11.1 TO 12.0	0.0 99.9	0.0 100.0							
12.1 TO 13.0	0.0 99.7	0.0 99.9	0.0 100.0						
13.1 TO 14.0	0.0 99.2	0.0 99.7	0.01 99.9	0.0 100.0					
14.1 TO 15.0	0.0 98.3	0.02 99.2	0.08 99.7	0.07 99.9	0.03 100.0				
15.1 TO 16.0	0.0 97.0	0.04 98.3	0.13 99.1	0.19 99.6	0.16 99.8	0.02 99.8			
16.1 TO 17.0	0.02 95.4	0.05 97.0	0.11 98.3	0.24 99.0	0.13 99.2	0.01 99.2	0.01 99.2	0.01 99.3	
17.1 TO 18.0	0.01 91.6	0.15 95.3	0.17 96.9	0.28 98.1	0.19 98.6	0.08 98.7	0.02 98.7		
18.1 TO 19.0	0.02 84.3	0.27 91.6	0.58 95.2	0.33 96.6	0.49 97.5	0.19 97.8	0.03 97.8		
19.1 TO 20.0	0.12 72.9	0.84 84.2	0.90 91.3	0.64 94.3	0.32 95.4	0.15 95.8	0.08 95.9		
20.1 TO 21.0	0.06 59.2	0.76 72.8	1.30 83.3	1.00 89.4	0.67 91.8	0.37 92.6	0.18 92.8	0.01 92.8	
21.1 TO 22.0	0.08 45.6	0.99 59.1	2.30 72.0	2.48 81.2	1.57 86.3	0.64 88.0	0.24 88.4	0.04 88.5	0.01 88.5
22.1 TO 23.0	0.12 29.7	1.35 45.5	2.71 58.1	3.17 68.6	2.28 75.3	1.54 78.9	0.58 79.9	0.10 80.1	0.04 80.1
23.1 TO 24.0	0.08 16.5	1.41 29.5	3.08 44.1	3.15 53.9	3.02 61.2	2.11 65.7	1.22 67.7	0.32 68.2	0.01 68.2
24.1 TO 25.0	0.03 6.8	0.68 16.4	2.50 28.1	4.10 39.5	3.13 46.2	2.27 50.5	1.11 52.8	0.48 53.6	0.15 53.8
25.1 TO 26.0	0.0 1.5	0.49 6.8	1.52 15.7	2.53 24.8	2.66 32.2	1.74 35.7	1.03 37.8	0.54 39.0	0.15 39.3
26.1 TO 27.0	0.0 0.3	0.11 1.5	1.03 6.3	2.56 13.7	2.75 20.3	2.19 25.0	0.83 26.8	0.63 27.8	0.37 28.5
27.1 TO 28.0	0.0 0.1	0.04 0.3	0.17 1.4	1.46 5.2	2.35 10.0	1.93 13.9	1.29 16.3	0.54 17.3	0.25 17.7
28.1 TO 29.0	0.0 0.0	0.03 0.1	0.03 0.3	0.32 1.2	1.17 3.5	1.26 6.0	0.92 7.9	0.53 9.1	0.21 9.6



Table 11 (cont) PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES

NOVEMBER 1957-70

BAHRAIN (MUHARRAQ)

ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB

T (DEG C)	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
29.1 TO 30.0			0.03 0.1	0.10 0.2	0.36 0.8	0.66 1.9	0.70 3.2	0.62 4.2	0.28 4.8
30.1 TO 31.0				0.02 0.0	0.03 0.1	0.12 0.3	0.29 0.8	0.33 1.3	0.18 1.7
31.1 TO 32.0					0.02 0.0	0.04 0.1	0.04 0.1	0.11 0.3	0.14 0.6
32.1 TO 33.0								0.02 0.0	0.07 0.1
33.1 TO 34.0									0.01 0.0
	T-9	T-10	T-11	T-12	T-13				
24.1 TO 25.0	0.03 53.9								
25.1 TO 26.0	0.03 39.4								
26.1 TO 27.0	0.13 28.7	0.02 28.7							
27.1 TO 28.0	0.21 18.0	0.04 18.1							
28.1 TO 29.0	0.06 9.7	0.07 9.8							
29.1 TO 30.0	0.11 5.1	0.05 5.2	0.02 5.2						
30.1 TO 31.0	0.20 2.1	0.07 2.2	0.02 2.3	0.01 2.3					
31.1 TO 32.0	0.14 0.7	0.10 0.9	0.07 1.0	0.03 1.0					
32.1 TO 33.0	0.04 0.2	0.01 0.3	0.07 0.3						
33.1 TO 34.0	0.03 0.0	0.04 0.1	0.04 0.1	0.01 0.1					
34.1 TO 35.0					0.01 0.0				



Table 12 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES

DECEMBER 1957-70

BAHRAIN (MUHARRAQ)

## ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB T (DEG C)	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
3.1 TO 4.0	0.0 99.9	0.0 100.0							
4.1 TO 5.0	0.0 99.8	0.0 99.9	0.0 100.0						
5.1 TO 6.0	0.0 99.8	0.0 99.8	0.0 99.9						
6.1 TO 7.0	0.0 99.6	0.0 99.8	0.01 99.8						
7.1 TO 8.0	0.0 99.5	0.0 99.6	0.03 99.8	0.0 99.8	0.0 99.9	0.01 100.0			
8.1 TO 9.0	0.0 99.0	0.0 99.5	0.0 99.6	0.01 99.7	0.01 99.8	0.03 99.9	0.06 100.0		
9.1 TO 10.0	0.0 98.2	0.03 99.0	0.08 99.5	0.02 99.6	0.02 99.7	0.0 99.8	0.03 99.8	0.01 99.8	
10.1 TO 11.0	0.03 97.4	0.07 98.2	0.04 99.0	0.16 99.4	0.11 99.5	0.04 99.6	0.04 99.6	0.03 99.7	
11.1 TO 12.0	0.02 96.1	0.07 97.3	0.17 98.1	0.26 98.8	0.16 99.1	0.04 99.1	0.01 99.1	0.02 99.2	
12.1 TO 13.0	0.12 93.6	0.36 96.1	0.23 97.3	0.20 97.9	0.27 98.3	0.05 98.4	0.0 98.4	0.03 98.4	
13.1 TO 14.0	0.09 89.2	0.61 93.5	0.66 95.6	0.32 96.6	0.15 97.0	0.10 97.1			
14.1 TO 15.0	0.16 81.9	1.09 89.1	1.08 92.8	0.74 94.3	0.37 94.9	0.12 95.1	0.02 95.2		
15.1 TO 16.0	0.07 70.9	1.23 81.7	1.64 87.8	1.01 90.5	0.38 91.2	0.11 91.4	0.07 91.6	0.04 91.6	
16.1 TO 17.0	0.85 60.2	1.89 70.9	2.87 80.4	1.80 84.9	0.86 86.6	0.15 86.9	0.11 87.0	0.06 87.1	0.02 87.1
17.1 TO 18.0	0.73 44.0	3.79 59.3	2.96 68.1	2.86 74.8	1.36 77.5	0.41 78.3	0.12 78.5	0.01 78.5	0.02 78.5
18.1 TO 19.0	0.22 27.4	3.96 43.3	4.83 54.8	2.56 60.6	1.90 64.4	0.82 65.8	0.27 66.2	0.01 66.2	
19.1 TO 20.0	0.17 15.5	2.67 27.2	5.36 39.1	3.01 45.8	1.74 49.1	1.23 51.0	0.34 51.5	0.07 51.6	0.03 51.6
20.1 TO 21.0	0.10 8.0	1.48 15.3	2.83 24.3	3.04 30.9	1.81 34.6	0.82 36.1	0.34 36.8	0.08 37.0	0.0 37.0
21.1 TO 22.0	0.16 4.2	0.95 7.9	2.25 13.7	3.03 19.9	1.86 23.5	1.07 25.3	0.37 26.1	0.25 26.4	0.09 26.5
22.1 TO 23.0	0.14 1.7	0.98 4.1	1.26 6.8	1.83 10.4	1.72 13.5	1.07 15.2	0.50 16.0	0.22 16.4	0.04 16.4



Table 12 (cont) PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES

DECEMBER 1957-70

BAHRAIN (MUHARRAQ)

## ASSOCIATED WET-BULB TEMPERATURE (DEG C)

## DRY-BULB

T (DEG C)	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
23.1 TO 24.0	0.01 0.2	0.64 1.5	0.87 2.9	1.01 4.4	1.08 6.2	0.83 7.6	0.40 8.2	0.19 8.5	0.06 8.6
24.1 TO 25.0		0.07 0.2	0.44 0.9	0.32 1.4	0.35 1.9	0.47 2.6	0.49 3.2	0.09 3.4	0.01 3.5
25.1 TO 26.0			0.04 0.1	0.16 0.4	0.09 0.6	0.12 0.7	0.16 0.9	0.10 1.0	0.09 1.2
26.1 TO 27.0				0.04 0.0	0.10 0.2	0.04 0.3	0.01 0.3	0.03 0.3	0.01 0.4
27.1 TO 28.0						0.04 0.0	0.04 0.1	0.01 0.1	0.0 0.1
28.1 TO 29.0						0.01 0.0		0.02 0.0	0.0 0.0
29.1 TO 30.0									0.01 0.0
	T-9	T-10	T-11						
20.1 TO 21.0	0.01 37.0								
21.1 TO 22.0	0.01 26.5								
22.1 TO 23.0	0.03 16.5	0.01 16.5							
23.1 TO 24.0	0.04 8.7	0.0 8.7	0.02 8.7						
24.1 TO 25.0	0.04 3.5								
25.1 TO 26.0	0.05 1.2	0.03 1.3							
26.1 TO 27.0	0.04 0.4	0.03 0.5							
27.1 TO 28.0	0.01 0.2	0.01 0.2							
28.1 TO 29.0	0.01 0.0	0.01 0.1							



Table 13 PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES

ANNUAL July 1957 to June 1971

BAHRAIN (MUHARRAQ)

ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB T (DEG C)	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
2.1 TO 3.0	0.0 100.0	0.0 100.0	0.00+ 100.0						
3.1 TO 4.0	0.0 100.0	0.0 100.0	0.00+ 100.0	0.00+ 100.0					
4.1 TO 5.0	0.0 100.0	0.0 100.0	0.00+ 100.0	0.00+ 100.0					
5.1 TO 6.0	0.0 99.9	0.0 100.0	0.00+ 100.0	0.00+ 100.0	0.00+ 100.0				
6.1 TO 7.0	0.0 99.9	0.0 99.9	0.00+ 100.0	0.00+ 100.0	0.00+ 100.0	0.00+ 100.0			
7.1 TO 8.0	0.0 99.9	0.0 99.9	0.01 99.9	0.01 100.0	0.00+ 100.0	0.00+ 100.0			
8.1 TO 9.0	0.0 99.8	0.0 99.9	0.01 99.9	0.00+ 99.9	0.00+ 99.9	0.00+ 99.9	0.00+ 100.0		
9.1 TO 10.0	0.0 99.6	0.00+ 99.8	0.02 99.9	0.02 99.9	0.00+ 99.9	0.0 99.9	0.00+ 99.9	0.00+ 99.9	
10.1 TO 11.0	0.01 99.1	0.02 99.6	0.03 99.8	0.04 99.9	0.01 99.9	0.00+ 99.9	0.00+ 99.9	0.00+ 99.9	
11.1 TO 12.0	0.01 98.4	0.05 99.1	0.08 99.5	0.05 99.7	0.02 99.8	0.00+ 99.8	0.00+ 99.8	0.00+ 99.8	
12.1 TO 13.0	0.04 97.3	0.14 98.4	0.14 99.0	0.12 99.4	0.07 99.5	0.02 99.5	0.0 99.5	0.00+ 99.5	
13.1 TO 14.0	0.06 95.3	0.27 97.2	0.25 98.2	0.20 98.7	0.12 98.9	0.04 99.0	0.00+ 99.0		
14.1 TO 15.0	0.10 92.1	0.43 95.2	0.44 96.9	0.31 97.6	0.18 97.9	0.10 98.0	0.01 98.1	0.00+ 98.1	
15.1 TO 16.0	0.08 87.6	0.49 92.0	0.64 94.7	0.42 95.9	0.22 96.3	0.05 96.4	0.03 96.5	0.00+ 96.5	
16.1 TO 17.0	0.19 83.2	0.71 87.5	1.11 91.4	0.83 93.5	0.46 94.3	0.13 94.5	0.04 94.5	0.01 94.6	0.00+ 94.6
17.1 TO 18.0	0.15 77.5	1.06 83.0	1.14 86.6	1.07 89.4	0.63 90.6	0.23 91.0	0.05 91.1	0.01 91.1	0.00+ 91.1
18.1 TO 19.0	0.10 71.6	0.99 77.4	1.41 81.8	0.97 84.3	0.84 85.9	0.35 86.6	0.10 86.7	0.01 86.7	0.00+ 86.7
19.1 TO 20.0	0.08 65.9	0.81 71.5	1.47 76.3	1.10 79.3	0.70 80.8	0.45 81.6	0.16 81.9	0.04 82.0	0.01 82.0



Table 13 (cont) PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES

ANNUAL 1957-71

BAHRAIN (MUHARRAQ)

## ASSOCIATED WET-BULB TEMPERATURE (DEG C)

## DRY-BULB

T (DEG C)	T	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8
20.1 TO 21.0	0.04 60.8	0.50 65.8	1.00 70.6	1.04 73.9	0.68 75.8	0.39 76.6	0.19 77.0	0.06 77.1	0.02 77.2
21.1 TO 22.0	0.03 56.6	0.42 60.8	1.01 65.3	1.20 69.1	0.82 71.3	0.58 72.6	0.24 73.0	0.11 73.2	0.03 73.2
22.1 TO 23.0	0.04 51.8	0.33 56.6	0.69 60.3	0.99 63.8	0.93 66.4	0.60 67.9	0.33 68.5	0.11 68.7	0.03 68.8
23.1 TO 24.0	0.02 46.6	0.32 51.8	0.71 56.2	0.83 59.3	0.86 61.8	0.69 63.5	0.38 64.3	0.16 64.6	0.05 64.7
24.1 TO 25.0	0.02 40.6	0.22 46.6	0.58 51.5	0.83 55.2	0.67 57.4	0.63 59.0	0.45 60.0	0.22 60.5	0.07 60.6
25.1 TO 26.0	0.01 33.5	0.17 40.6	0.45 46.4	0.66 50.7	0.63 53.5	0.47 55.1	0.33 56.1	0.22 56.6	0.10 56.9
26.1 TO 27.0	0.02 26.7	0.17 33.5	0.49 40.4	0.79 45.7	0.78 49.4	0.65 51.6	0.36 52.7	0.25 53.4	0.16 53.7
27.1 TO 28.0	0.02 18.3	0.21 26.7	0.52 33.3	0.83 39.7	0.92 44.3	0.72 47.1	0.55 48.7	0.26 49.4	0.16 49.8
28.1 TO 29.0	0.01 10.9	0.21 18.3	0.65 26.5	0.72 32.6	0.91 38.1	0.83 41.8	0.65 43.9	0.37 44.9	0.16 45.4
29.1 TO 30.0	0.01 5.3	0.22 10.9	0.63 18.1	0.94 25.6	0.87 31.0	0.97 35.6	0.75 38.4	0.48 39.9	0.25 40.6
30.1 TO 31.0	0.00+ 1.8	0.14 5.3	0.52 10.7	0.83 17.2	0.94 23.8	0.76 28.3	0.83 32.0	0.56 34.1	0.29 35.1
31.1 TO 32.0	0.00+ 0.4	0.09 1.8	0.51 5.1	0.86 10.0	1.19 15.8	1.26 21.4	1.02 25.1	0.90 28.0	0.50 29.5
32.1 TO 33.0	0.00+ 0.0	0.04 0.4	0.26 1.7	0.70 4.5	0.99 8.5	1.21 13.1	1.33 17.5	0.87 20.2	0.68 22.1
33.1 TO 34.0	0.0 0.0	0.00+ 0.0	0.09 0.4	0.29 1.4	0.66 3.5	0.89 6.5	1.04 9.9	1.03 13.0	0.67 14.8
34.1 TO 35.0	0.00+ 0.0		0.00+ 0.0	0.09 0.3	0.25 1.0	0.52 2.5	0.75 4.6	0.90 6.9	0.86 9.0
35.1 TO 36.0				0.00+ 0.0	0.06 0.2	0.21 0.7	0.37 1.6	0.52 3.0	0.59 4.4
36.1 TO 37.0					0.01 0.0	0.07 0.1	0.18 0.4	0.37 1.0	0.53 1.9
37.1 TO 38.0						0.00+ 0.0	0.02 0.0	0.07 0.1	0.17 0.4
38.1 TO 39.0							0.00+ 0.0	0.00+ 0.0	0.01 0.0
39.1 TO 40.0									0.00+ 0.0



Table 13 (cont) PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES

ANNUAL 1957-71

BAHRAIN (MUHARRAQ)

ASSOCIATED WET-BULB TEMPERATURE (DEG C)

DRY-BULB T (DEG C)	T-9	T-10	T-11	T-12	T-13	T-14	T-15	T-16	T-17
20.1 TO 21.0	0.00+ 77.2								
21.0 TO 22.0	0.00+ 73.2								
22.1 TO 23.0	0.01 68.8	0.00+ 68.8							
23.1 TO 24.0	0.03 64.7	0.01 64.7	0.00+ 64.7						
24.1 TO 25.0	0.02 60.6	0.01 60.7	0.00+ 60.7						
25.1 TO 26.0	0.03 56.9	0.01 57.0	0.00+ 57.0						
26.1 TO 27.0	0.07 53.8	0.02 53.9	0.01 53.9	0.00+ 53.9					
27.1 TO 28.0	0.08 50.0	0.02 50.1	0.01 50.1	0.00+ 50.1	0.00+ 50.1				
28.1 TO 29.0	0.10 45.7	0.04 45.8	0.01 45.8	0.00+ 45.8	0.00+ 45.8				
29.1 TO 30.0	0.10 40.9	0.06 41.0	0.02 41.1	0.01 41.1	0.00+ 41.1				
30.1 TO 31.0	0.13 35.5	0.06 35.7	0.03 35.8	0.01 35.8	0.01 35.8	0.00+ 35.8			
31.1 TO 32.0	0.23 30.2	0.09 30.5	0.05 30.6	0.02 30.7	0.01 30.7	0.01 30.7			
32.1 TO 33.0	0.35 23.1	0.16 23.6	0.06 23.8	0.03 23.9	0.01 24.0	0.01 24.0	0.00+ 24.0		
33.1 TO 34.0	0.47 16.1	0.24 16.7	0.10 17.0	0.04 17.2	0.02 17.3	0.01 17.3	0.00+ 17.3	0.00+ 17.3	
34.1 TO 35.0	0.49 10.2	0.31 10.9	0.15 11.3	0.06 11.6	0.04 11.7	0.02 11.7	0.01 11.8	0.00+ 11.8	
35.1 TO 36.0	0.48 5.6	0.30 6.3	0.16 6.8	0.07 7.0	0.04 7.2	0.03 7.3	0.01 7.3	0.01 7.3	0.00+ 7.3
36.1 TO 37.0	0.47 2.7	0.37 3.4	0.19 3.8	0.13 4.1	0.07 4.3	0.05 4.4	0.02 4.4	0.01 4.5	0.00+ 4.5
37.1 TO 38.0	0.25 0.7	0.23 1.1	0.19 1.4	0.10 1.6	0.08 1.8	0.04 1.9	0.03 2.0	0.01 2.0	0.01 2.0
38.1 TO 39.0	0.05 0.1	0.08 0.2	0.09 0.3	0.07 0.4	0.05 0.5	0.03 0.6	0.04 0.7	0.02 0.8	0.01 0.8



Table 13 (cont) PERCENTAGE FREQUENCIES OF DRY-BULB AND ASSOCIATED WET-BULB TEMPERATURES

ANNUAL 1957-71

BAHRAIN (MUHARRAQ)

ASSOCIATED WET-BULB TEMPERATURE (DEG C)										
DRY-BULB	T-9	T-10	T-11	T-12	T-13	T-14	T-15	T-16	T-17	
T (DEG C)										
39.1 TO 40.0	0.00+ 0.0	0.01 0.0	0.02 0.0	0.03 0.1	0.03 0.1	0.03 0.2	0.03 0.2	0.02 0.3	0.01 0.3	
40.1 TO 41.0	0.00+ 0.0	0.00+ 0.0	0.00+ 0.0	0.00+ 0.0	0.00+ 0.0	0.02 0.0	0.01 0.1	0.01 0.1	0.01 0.1	
41.1 TO 42.0	0.00+ 0.0			0.00+ 0.0	0.00+ 0.0	0.00+ 0.0	0.00+ 0.0	0.00+ 0.0	0.01 0.0	
42.1 TO 43.0								0.00+ 0.0	0.00+ 0.0	
43.1 TO 44.0								0.00+ 0.0		



Table 14 PERCENTAGE FREQUENCY OF HOURLY DRY-BULB TEMPERATURES BAHRAIN/MUHARRAQ 1957-71

DRY-BULB TEMPERATURE (°C)	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Year
2.1 TO 3.0	0.0+												0.0+
3.1 TO 4.0	0.0+												0.0+
4.1 TO 5.0	0.0+												0.0+
5.1 TO 6.0	0.1												0.0+
6.1 TO 7.0	0.1											0.0+	0.0+
7.1 TO 8.0	0.1											0.0+	0.0+
8.1 TO 9.0	0.1	0.0+	0.0+									0.1	0.0+
9.1 TO 10.0	0.2	0.1	0.1									0.2	0.0+
10.1 TO 11.0	0.5	0.4	0.0+									0.5	0.1
11.1 TO 12.0	1.0	0.8	0.1									0.7	0.2
12.1 TO 13.0	2.4	2.6	0.1									1.3	0.5
13.1 TO 14.0	4.6	4.5	0.2								0.0+	1.9	0.9
14.1 TO 15.0	7.7	6.7	0.6								0.2	3.6	1.5
15.1 TO 16.0	9.1	7.8	1.2	0.1							0.5	4.5	1.9
16.1 TO 17.0	16.3	12.5	3.6	0.1							0.6	8.6	3.4
17.1 TO 18.0	16.5	15.8	6.3	0.3							0.9	12.3	4.3
18.1 TO 19.0	15.3	15.0	9.4	1.1							1.9	14.6	4.7
19.1 TO 20.0	11.3	12.8	13.3	2.6	0.0+						3.1	14.6	4.8
20.1 TO 21.0	6.6	7.1	13.6	4.8	0.1				0.0+	4.4	4.4	10.5	3.9
21.1 TO 22.0	4.5	5.9	15.5	8.7	0.2	0.0+			0.2	8.4	8.4	10.0	4.4
22.1 TO 23.0	2.0	3.2	12.1	10.7	0.6	0.0			0.6	11.9	11.9	7.8	4.1
23.1 TO 24.0	0.9	2.0	8.9	13.7	1.9	0.0+			1.8	14.4	14.4	5.1	4.1
24.1 TO 25.0	0.3	1.2	5.6	14.1	2.8	0.1			0.0+	3.5	14.5	2.3	3.7
25.1 TO 26.0	0.2	0.5	3.0	11.0	4.9	0.3			0.2	5.4	10.7	0.8	3.1
26.1 TO 27.0	0.1	0.4	2.2	10.7	8.8	1.1	0.0+		0.9	10.2	10.6	0.3	3.8
27.1 TO 28.0	0.0+	0.2	1.5	8.1	12.6	3.2	0.1	0.0+	3.7	13.7	8.3	0.1	4.3
28.1 TO 29.0		0.1	1.0	5.1	13.5	6.1	0.8	0.5	7.5	16.8	4.6	0.0+	4.7



Table 14 PERCENTAGE FREQUENCY OF HOURLY DRY-BULB TEMPERATURES BAHRAIN/MUHARRAQ 1957-71

DRY-BULB TEMPERATURE (°C)	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Year
29.1 TO 30.0		0.1	0.8	3.2	14.2	11.2	2.9	2.3	11.2	14.9	2.9	0.0+	5.3
30.1 TO 31.0		0.0+	0.3	1.9	10.3	12.5	6.7	5.4	11.9	10.9	1.3		5.1
31.1 TO 32.0		0.0+	0.3	1.5	10.3	15.3	14.2	13.3	15.7	9.6	0.7		6.8
32.1 TO 33.0			0.1	0.9	7.6	14.8	18.3	17.0	15.1	6.3	0.2		6.7
33.1 TO 34.0			0.1	0.6	5.0	12.5	16.1	16.0	12.9	3.2	0.1		5.6
34.1 TO 35.0			0.0+	0.4	3.6	9.3	14.8	14.2	9.5	1.6	0.0+		4.5
35.1 TO 36.0			0.0+	0.2	1.6	5.9	9.9	10.8	5.1	0.7			2.9
36.1 TO 37.0			0.0+	0.1	1.0	4.2	9.0	10.9	3.9	0.4			2.5
37.1 TO 38.0			0.0+	0.1	0.5	1.9	4.3	6.0	1.6	0.2			1.2
38.1 TO 39.0				0.0+	0.2	0.9	1.5	2.5	0.5	0.1			0.5
39.1 TO 40.0				0.0+	0.1	0.4	0.8	0.8	0.1	0.0+			0.2
40.1 TO 41.0					0.1	0.2	0.3	0.2	0.1				0.1
41.1 TO 42.0					0.0+	0.1	0.2	0.0+	0.0				0.0+
42.1 TO 43.0					0.0+	0.0+	0.1	0.0	0.0+				0.0+
43.1 TO 44.0					0.0+	0.0+	0.0+	0.0+					0.0+
44.1 TO 45.0						0.0+	0.0+	0.0+					0.0+



Table 15 PERCENTAGE FREQUENCY OF HOURLY WET-BULB TEMPERATURES BAHRAIN/MUHARRAQ 1957-71

WET BULB TEMPERATURE (°C)	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Year
.1 TO 1.0	0.0+												0.0+
1.1 TO 2.0	0.1												0.0+
2.1 TO 3.0	0.1											0.1	0.0+
3.1 TO 4.0	0.1											0.1	0.0+
4.1 TO 5.0	0.1											0.1	0.0+
5.1 TO 6.0	0.1											0.1	0.0+
6.1 TO 7.0	0.2	0.1	0.1									0.2	0.0+
7.1 TO 8.0	0.2	0.4	0.1									0.5	0.1
8.1 TO 9.0	0.7	0.9	0.1									0.8	0.2
9.1 TO 10.0	2.2	2.8	0.1								0.0+	0.9	0.5
10.1 TO 11.0	3.4	3.4	0.1								0.1	1.2	0.7
11.1 TO 12.0	4.4	5.7	0.6								0.3	2.5	1.1
12.1 TO 13.0	8.3	8.3	2.6	0.0+							0.5	4.5	2.0
13.1 TO 14.0	13.5	10.6	5.6	0.6							0.9	7.3	3.2
14.1 TO 15.0	17.7	14.2	8.1	1.0							1.3	10.9	4.4
15.1 TO 16.0	14.2	14.2	10.5	2.0						0.0+	1.6	10.8	4.4
16.1 TO 17.0	14.1	14.5	14.7	4.6	0.0+					0.0+	3.8	16.1	5.6
17.1 TO 18.0	9.6	12.0	15.4	9.3	0.3					0.2	7.3	16.6	5.9
18.1 TO 19.0	6.4	7.4	16.9	13.8	0.8	0.0+				0.4	11.4	11.9	5.7
19.1 TO 20.0	3.5	3.5	12.3	16.7	2.4	0.1	0.0+			0.9	13.7	7.5	5.0
20.1 TO 21.0	1.0	1.6	7.6	14.8	5.1	0.4	0.1		0.0+	2.4	13.6	3.8	4.2
21.1 TO 22.0	0.1	0.4	3.9	15.8	10.7	1.6	0.3	0.0+	0.6	5.8	15.9	2.5	4.8
22.1 TO 23.0		0.0+	1.2	12.0	15.4	4.8	0.9	0.2	1.6	11.9	13.2	1.5	5.2
23.1 TO 24.0			0.3	7.2	19.7	11.2	2.2	1.0	4.1	17.1	9.7	0.2	6.1
24.1 TO 25.0			0.0+	1.8	20.1	18.8	6.5	2.8	8.9	20.2	5.3		7.1
25.1 TO 26.0			0.4	13.5	19.9	11.1	11.1	5.7	13.5	16.4	1.1		6.8
26.1 TO 27.0			0.1	8.1	22.3	21.7	21.7	12.7	20.7	15.0	0.2		8.4



Table 15 PERCENTAGE FREQUENCY OF HOURLY WET-BULB TEMPERATURES BAHRAIN/MUHARRAQ 1957-71  
(CONT)

WET BULB TEMPERATURE (°C)	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Year
27.1 TO 28.0					3.1	13.3	22.5	20.4	23.2	6.6	0.1		7.5
28.1 TO 29.0					0.7	5.7	17.4	24.3	16.9	2.7	0.0+		5.7
29.1 TO 30.0					0.0+	1.7	11.1	20.4	8.4	0.5			3.5
30.1 TO 31.0						0.2	4.8	9.4	1.8				1.4
31.1 TO 32.0						0.0+	1.4	2.9	0.2				0.4
32.1 TO 33.0							0.1	0.2	0.0+				0.0+



