

Table 5.18(a) Banded weather data: Belfast

Hour	Dry-bulb / °C	Incident solar irradiation / W·m ⁻²									
		Horizontal		N		NE		E		SE	
		Direct	Diffuse	Direct	Diffuse	Direct	Diffuse	Direct	Diffuse	Direct	Diffuse
May											
1	11.03	0	0	0	0	0	0	0	0	0	0
2	10.17	0	0	0	0	0	0	0	0	0	0
3	9.51	0	0	0	0	0	0	0	0	0	0
4	9.10	0	3	2	3	4	5	3	4	1	1
5	8.96	8	41	22	34	50	41	49	40	20	34
6	9.10	24	83	17	63	68	74	80	77	44	69
7	9.51	45	126	0	90	69	105	97	112	68	105
8	10.17	66	170	0	84	53	133	97	143	84	140
9	11.03	85	212	0	105	29	157	84	170	90	171
10	12.02	99	248	0	123	1	175	62	190	87	196
11	13.09	108	273	0	135	0	135	33	201	74	211
12	14.16	111	283	0	140	0	140	0	140	54	213
13	15.16	108	273	0	135	0	135	0	135	28	200
14	16.01	99	248	0	123	0	123	0	123	0	123
15	16.67	85	212	0	105	0	105	0	105	0	105
16	17.08	66	170	0	84	0	84	0	84	0	84
17	17.23	45	127	0	90	0	62	0	62	0	62
18	17.08	24	83	17	63	0	40	0	40	0	40
19	16.67	8	42	22	35	0	20	0	20	0	20
20	16.01	0	4	3	3	0	2	0	2	0	2
21	15.16	0	0	0	0	0	0	0	0	0	0
22	14.16	0	0	0	0	0	0	0	0	0	0
23	13.09	0	0	0	0	0	0	0	0	0	0
24	12.02	0	0	0	0	0	0	0	0	0	0

Hour	Dry-bulb / °C	Incident solar irradiation / W·m ⁻²								Altitude	Azimuth
		S		SW		W		NW			
		Direct	Diffuse	Direct	Diffuse	Direct	Diffuse	Direct	Diffuse		
1	11.03	0	0	0	0	0	0	0	0	14.49	
2	10.17	0	0	0	0	0	0	0	0	28.53	
3	9.51	0	0	0	0	0	0	0	0	41.82	
4	9.10	1	0	1	0	1	0	1	0.64	54.34	
5	8.96	20	0	20	0	20	0	20	8.17	66.26	
6	9.10	40	0	40	0	40	0	40	16.42	77.94	
7	9.51	62	0	62	0	62	0	62	25.04	89.84	
8	10.17	126	0	84	0	84	0	84	33.65	102.62	
9	11.03	160	0	105	0	105	0	105	41.81	117.16	
10	12.02	190	0	123	0	123	0	123	48.84	134.56	
11	13.09	211	28	200	0	135	0	135	53.82	155.72	
12	14.16	218	54	213	0	199	0	140	55.67	180.00	
13	15.16	211	74	211	33	201	0	135	53.84	204.29	
14	16.01	190	86	196	62	190	1	175	48.87	225.46	
15	16.67	160	90	171	84	170	29	157	41.85	242.87	
16	17.08	126	84	140	97	143	53	133	33.71	257.42	
17	17.23	62	68	106	97	112	69	106	25.1	270.21	
18	17.08	40	44	69	80	77	69	75	16.5	282.13	
19	16.67	20	20	34	49	41	50	41	8.27	293.80	
20	16.01	2	1	1	4	5	5	5	0.75	305.73	
21	15.16	0	0	0	0	0	0	0	0	318.24	
22	14.16	0	0	0	0	0	0	0	0	331.52	
23	13.09	0	0	0	0	0	0	0	0	345.53	
24	12.02	0	0	0	0	0	0	0	0	360.00	

Dirfac = 0.15; Diffac = 1.01; Maximum dry-bulb = 17.23 °C; Minimum dry-bulb = 8.96 °C; Adaptive comfort range = 21.2–25.2 °C

Table continues

Table 5.18(a) Banded weather data: Belfast — *continued*

Hour	Dry-bulb /°C	Incident solar irradiation / W·m ⁻²									
		Horizontal		N		NE		E		SE	
		Direct	Diffuse	Direct	Diffuse	Direct	Diffuse	Direct	Diffuse	Direct	Diffuse
June											
1	12.57	0	0	0	0	0	0	0	0	0	0
2	12.04	0	0	0	0	0	0	0	0	0	0
3	11.71	0	0	0	0	0	0	0	0	0	0
4	11.60	2	15	17	14	28	22	22	18	4	4
5	11.71	15	48	35	41	75	49	72	49	27	40
6	12.04	39	84	28	66	97	80	110	82	58	72
7	12.57	66	123	5	89	94	106	127	113	86	105
8	13.25	93	161	0	83	72	130	125	141	104	136
9	14.05	116	199	0	102	41	149	108	164	111	164
10	14.90	134	231	0	119	5	164	79	181	106	187
11	15.75	146	255	0	131	0	131	41	189	90	200
12	16.55	150	264	0	135	0	135	0	135	64	200
13	17.23	146	255	0	131	0	131	0	131	32	186
14	17.76	134	231	0	119	0	119	0	119	0	119
15	18.09	116	199	0	102	0	102	0	102	0	102
16	18.20	93	161	0	83	0	83	0	83	0	83
17	18.09	66	123	5	89	0	63	0	63	0	63
18	17.76	39	84	28	66	0	42	0	42	0	42
19	17.23	15	48	35	41	0	23	0	23	0	23
20	16.55	2	15	17	14	0	7	0	7	0	7
21	15.75	0	0	0	0	0	0	0	0	0	0
22	14.90	0	0	0	0	0	0	0	0	0	0
23	14.05	0	0	0	0	0	0	0	0	0	0
24	13.25	0	0	0	0	0	0	0	0	0	0

Hour	Dry-bulb /°C	Incident solar irradiation / W·m ⁻²								Altitude	Azimuth
		S		SW		W		NW			
		Direct	Diffuse	Direct	Diffuse	Direct	Diffuse	Direct	Diffuse		
1	12.57	0	0	0	0	0	0	0	0	0	13.99
2	12.04	0	0	0	0	0	0	0	0	0	27.58
3	11.71	0	0	0	0	0	0	0	0	0	40.51
4	11.60	0	7	0	7	0	7	0	7	3.39	52.75
5	11.71	0	23	0	23	0	23	0	23	10.78	64.44
6	12.04	0	42	0	42	0	42	0	42	18.93	75.92
7	12.57	0	63	0	63	0	63	0	63	27.5	87.65
8	13.25	23	119	0	83	0	83	0	83	36.14	100.28
9	14.05	50	151	0	102	0	102	0	102	44.4	114.76
10	14.90	72	179	0	119	0	119	0	119	51.63	132.35
11	15.75	86	199	32	186	0	131	0	131	56.83	154.28
12	16.55	91	206	64	200	0	185	0	135	58.78	180.00
13	17.23	86	199	90	200	41	189	0	131	56.83	205.72
14	17.76	72	179	106	187	79	181	5	164	51.63	227.65
15	18.09	50	151	111	164	108	164	41	149	44.4	245.24
16	18.20	23	119	104	136	125	141	72	130	36.14	259.72
17	18.09	0	63	86	105	127	113	94	106	27.5	272.35
18	17.76	0	42	58	72	110	82	97	80	18.93	284.08
19	17.23	0	23	27	40	72	49	75	49	10.78	295.55
20	16.55	0	7	4	4	22	18	28	22	3.39	307.25
21	15.75	0	0	0	0	0	0	0	0	0	319.49
22	14.90	0	0	0	0	0	0	0	0	0	332.42
23	14.05	0	0	0	0	0	0	0	0	0	346.01
24	13.25	0	0	0	0	0	0	0	0	0	360.00

Dirfac = 0.20; Diffac = 0.89; Maximum dry-bulb = 18.20 °C; Minimum dry-bulb = 11.60 °C; Adaptive comfort range = 21.7–25.7 °C

Table continues

Table 5.18(a) Banded weather data: Belfast — *continued*

Hour	Dry-bulb /°C	Incident solar irradiation / W·m ⁻²									
		Horizontal		N		NE		E		SE	
		Direct	Diffuse	Direct	Diffuse	Direct	Diffuse	Direct	Diffuse	Direct	Diffuse
July											
1	13.29	0	0	0	0	0	0	0	0	0	0
2	12.26	0	0	0	0	0	0	0	0	0	0
3	11.58	0	0	0	0	0	0	0	0	0	0
4	11.30	0	2	4	2	6	4	5	3	1	1
5	11.43	17	47	49	46	115	62	113	62	45	45
6	11.97	54	95	38	76	156	106	183	113	102	92
7	12.88	103	146	0	77	157	141	223	158	158	141
8	14.11	151	197	0	105	122	166	224	193	194	185
9	15.55	194	245	0	131	66	182	194	218	209	222
10	17.13	227	287	0	154	1	191	142	232	201	248
11	18.72	248	317	0	169	0	169	75	231	172	260
12	20.22	255	328	0	175	0	175	0	175	125	253
13	21.54	248	317	0	169	0	169	0	169	66	228
14	22.57	227	287	0	153	0	153	0	153	0	153
15	23.25	193	245	0	131	0	131	0	131	0	131
16	23.53	151	197	0	105	0	105	0	105	0	105
17	23.40	103	146	0	77	0	77	0	77	0	77
18	22.86	54	95	38	75	0	49	0	49	0	49
19	21.94	17	46	49	45	0	23	0	23	0	23
20	20.72	0	2	3	2	0	1	0	1	0	1
21	19.28	0	0	0	0	0	0	0	0	0	0
22	17.70	0	0	0	0	0	0	0	0	0	0
23	16.11	0	0	0	0	0	0	0	0	0	0
24	14.60	0	0	0	0	0	0	0	0	0	0

Hour	Dry-bulb /°C	Incident solar irradiation / W·m ⁻²								Altitude	Azimuth
		S		SW		W		NW			
		Direct	Diffuse	Direct	Diffuse	Direct	Diffuse	Direct	Diffuse		
1	13.29	0	0	0	0	0	0	0	0	0	14.53
2	12.26	0	0	0	0	0	0	0	0	0	28.60
3	11.58	0	0	0	0	0	0	0	0	0	41.92
4	11.30	0	1	0	1	0	1	0	1	0.41	54.47
5	11.43	0	23	0	23	0	23	0	23	7.94	66.42
6	11.97	0	49	0	49	0	49	0	49	16.19	78.12
7	12.88	0	100	0	77	0	77	0	77	24.79	90.05
8	14.11	51	147	0	105	0	105	0	105	33.39	102.86
9	15.55	101	192	0	131	0	131	0	131	41.52	117.42
10	17.13	141	231	0	154	0	154	0	154	48.52	134.80
11	18.72	168	259	66	228	0	169	0	169	53.46	155.88
12	20.22	177	269	125	253	0	216	0	175	55.27	180.00
13	21.54	168	259	172	260	75	231	0	169	53.44	204.11
14	22.57	141	231	201	248	142	231	1	190	48.49	225.18
15	23.25	101	192	209	222	194	218	66	182	41.47	242.55
16	23.53	51	146	194	185	224	193	122	165	33.34	257.09
17	23.40	0	99	158	141	223	158	157	141	24.72	269.89
18	22.86	0	49	102	92	182	113	156	106	16.1	281.81
19	21.94	0	23	45	44	112	61	114	62	7.84	293.51
20	20.72	0	1	1	1	4	2	4	2	0.29	305.46
21	19.28	0	0	0	0	0	0	0	0	0	318.01
22	17.70	0	0	0	0	0	0	0	0	0	331.35
23	16.11	0	0	0	0	0	0	0	0	0	345.44
24	14.60	0	0	0	0	0	0	0	0	0	360.00

Dirfac = 0.36; Diffac = 1.18; Maximum dry-bulb = 23.54 °C; Minimum dry-bulb = 11.29 °C; Adaptive comfort range = 22.6–26.6 °C

Table continues

Table 5.18(a) Banded weather data: Belfast — *continued*

Hour	Dry-bulb /°C	Incident solar irradiation / W·m ⁻²									
		Horizontal		N		NE		E		SE	
		Direct	Diffuse	Direct	Diffuse	Direct	Diffuse	Direct	Diffuse	Direct	Diffuse
August											
1	15.11	0	0	0	0	0	0	0	0	0	0
2	14.88	0	0	0	0	0	0	0	0	0	0
3	14.78	0	0	0	0	0	0	0	0	0	0
4	14.82	0	0	0	0	0	0	0	0	0	0
5	15.00	0	2	1	1	2	3	2	3	1	2
6	15.31	5	41	4	30	26	35	33	36	21	34
7	15.72	16	80	0	38	32	65	51	68	40	66
8	16.20	29	119	0	57	26	91	56	97	53	97
9	16.73	40	155	0	75	12	114	50	122	59	124
10	17.26	49	185	0	89	0	89	37	141	58	145
11	17.77	55	205	0	99	0	99	20	152	51	159
12	18.21	57	213	0	103	0	103	0	103	38	161
13	18.56	55	205	0	99	0	99	0	99	23	152
14	18.79	49	185	0	89	0	89	0	89	5	134
15	18.89	40	155	0	75	0	75	0	75	0	75
16	18.85	29	119	0	57	0	57	0	57	0	57
17	18.67	16	80	0	38	0	38	0	38	0	38
18	18.36	5	40	4	30	0	19	0	19	0	19
19	17.95	0	1	0	1	0	1	0	1	0	1
20	17.47	0	0	0	0	0	0	0	0	0	0
21	16.94	0	0	0	0	0	0	0	0	0	0
22	16.41	0	0	0	0	0	0	0	0	0	0
23	15.90	0	0	0	0	0	0	0	0	0	0
24	15.46	0	0	0	0	0	0	0	0	0	0

Hour	Dry-bulb /°C	Incident solar irradiation / W·m ⁻²								Altitude	Azimuth
		S		SW		W		NW			
		Direct	Diffuse	Direct	Diffuse	Direct	Diffuse	Direct	Diffuse		
1	15.11	0	0	0	0	0	0	0	0	0	16.03
2	14.88	0	0	0	0	0	0	0	0	0	31.40
3	14.78	0	0	0	0	0	0	0	0	0	45.73
4	14.82	0	0	0	0	0	0	0	0	0	59.01
5	15.00	0	1	0	1	0	1	0	1	0.47	71.50
6	15.31	0	19	0	19	0	19	0	19	8.92	83.61
7	15.72	5	59	0	38	0	38	0	38	17.57	95.87
8	16.20	19	90	0	57	0	57	0	57	26.01	108.88
9	16.73	33	119	0	75	0	75	0	75	33.78	123.35
10	17.26	44	143	5	134	0	89	0	89	40.25	139.96
11	17.77	52	159	23	152	0	99	0	99	44.64	159.07
12	18.21	54	165	38	161	0	153	0	103	46.21	180.00
13	18.56	52	159	51	159	20	152	0	99	44.62	200.92
14	18.79	44	142	58	145	37	141	0	89	40.20	220.01
15	18.89	33	118	59	124	50	122	12	114	33.71	236.60
16	18.85	19	90	53	96	56	97	26	91	25.92	251.05
17	18.67	5	59	40	66	51	68	32	64	17.45	264.04
18	18.36	0	19	21	33	33	36	26	34	8.78	276.29
19	17.95	0	1	1	1	1	2	1	2	0.31	288.39
20	17.47	0	0	0	0	0	0	0	0	0	300.87
21	16.94	0	0	0	0	0	0	0	0	0	314.15
22	16.41	0	0	0	0	0	0	0	0	0	328.50
23	15.90	0	0	0	0	0	0	0	0	0	343.91
24	15.46	0	0	0	0	0	0	0	0	0	360.00

Dirfac = 0.09; Diffac = 0.92; Maximum dry-bulb = 18.89 °C; Minimum dry-bulb = 14.78 °C; Adaptive comfort range = 22.3–26.3 °C

Table continues

Table 5.18(a) Banded weather data: Belfast — *continued*

Hour	Dry-bulb / °C	Incident solar irradiation / W·m ⁻²									
		Horizontal		N		NE		E		SE	
		Direct	Diffuse	Direct	Diffuse	Direct	Diffuse	Direct	Diffuse	Direct	Diffuse
September											
1	12.50	0	0	0	0	0	0	0	0	0	0
2	12.96	0	0	0	0	0	0	0	0	0	0
3	13.58	0	0	0	0	0	0	0	0	0	0
4	14.29	0	0	0	0	0	0	0	0	0	0
5	15.05	0	0	0	0	0	0	0	0	0	0
6	15.81	0	1	0	0	0	1	0	1	0	1
7	16.53	5	53	0	25	19	43	34	47	29	46
8	17.14	16	103	0	48	18	78	47	86	49	86
9	17.60	27	147	0	70	6	107	47	118	60	121
10	17.90	36	183	0	87	0	87	36	141	61	147
11	18.00	42	207	0	99	0	99	19	153	55	163
12	17.90	44	215	0	103	0	103	0	103	44	166
13	17.60	42	207	0	99	0	99	0	99	28	155
14	17.14	36	183	0	87	0	87	0	87	10	133
15	16.53	27	147	0	70	0	70	0	70	0	70
16	15.81	16	102	0	48	0	48	0	48	0	48
17	15.05	5	52	0	24	0	24	0	24	0	24
18	14.29	0	0	0	0	0	0	0	0	0	0
19	13.58	0	0	0	0	0	0	0	0	0	0
20	12.96	0	0	0	0	0	0	0	0	0	0
21	12.50	0	0	0	0	0	0	0	0	0	0
22	12.20	0	0	0	0	0	0	0	0	0	0
23	12.10	0	0	0	0	0	0	0	0	0	0
24	12.20	0	0	0	0	0	0	0	0	0	0
Hour	Dry-bulb / °C	Incident solar irradiation / W·m ⁻²								Altitude	Azimuth
		S		SW		W		NW			
		Direct	Diffuse	Direct	Diffuse	Direct	Diffuse	Direct	Diffuse		
1	12.50	0	0	0	0	0	0	0	0	0	18.13
2	12.96	0	0	0	0	0	0	0	0	0	35.21
3	13.58	0	0	0	0	0	0	0	0	0	50.70
4	14.29	0	0	0	0	0	0	0	0	0	64.68
5	15.05	0	0	0	0	0	0	0	0	0	77.58
6	15.81	0	0	0	0	0	0	0	0	0.12	89.91
7	16.53	7	40	0	25	0	25	0	25	8.72	102.25
8	17.14	22	79	0	48	0	48	0	48	16.91	115.16
9	17.60	38	115	0	70	0	70	0	70	24.23	129.16
10	17.90	51	145	10	134	0	87	0	87	30.14	144.68
11	18.00	59	164	28	155	0	99	0	99	34.03	161.80
12	17.90	62	171	44	166	0	154	0	103	35.39	180.00
13	17.60	59	164	55	163	19	153	0	99	34	198.19
14	17.14	51	144	61	147	36	140	0	87	30.08	215.30
15	16.53	38	115	60	121	47	117	6	107	24.14	230.80
16	15.81	22	79	49	86	47	85	17	78	16.8	244.77
17	15.05	7	40	29	45	33	46	19	42	8.59	257.65
18	14.29	0	0	0	0	0	0	0	0	0	269.97
19	13.58	0	0	0	0	0	0	0	0	0	282.29
20	12.96	0	0	0	0	0	0	0	0	0	295.18
21	12.50	0	0	0	0	0	0	0	0	0	309.16
22	12.20	0	0	0	0	0	0	0	0	0	324.67
23	12.10	0	0	0	0	0	0	0	0	0	341.79
24	12.20	0	0	0	0	0	0	0	0	0	360.00

Dirfac = 0.10; Diffac = 1.22; Maximum dry-bulb = 18.00 °C; Minimum dry-bulb = 12.10 °C; Adaptive comfort range = 21.9–25.9 °C