SOLAR RADIATION AND SUNSPOT DATA FOR JANUARY 1946

[Solar Radiation Investigation Section, I. F. HAND, in charge]

Explanations of the tables and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the January 1944 MONTHLY WEATHER REVIEW, page 43. A list of the pyrheliometric stations is given on page 45 of the same REVIEW.

SOLAR RADIATION OBSERVATIONS

TABLE 1.—*Solar radiation intensities during January 1946*

[GRAM CALORIES PER MINUTE PER SQUARE CENTIMETER OF NORMAL SURFACE]

Date	Sun's zenith distance										
	7:30 a. m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	1:30 p. m.
	75th mer. time	Air mass									75th mer. time
		A. M.				*1.0	P. M.				
	e	5.0	4.0	3.0	2.0		2.0	3.0	4.0	5.0	e
MADISON, WIS.											
	mb.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
Jan. 13	1.2	0.87	1.01	1.11	1.22	1.34	------	------	------	------	1.2
Jan. 15	1.8	.90	1.06	1.19	1.43	1.64	1.43	1.25	------	------	2.0
Jan. 16	1.7	.61	.79	1.01	1.05	1.10	------	------	------	------	3.3
Jan. 17	3.0	.86	1.02	1.14	1.30	1.49	------	------	------	------	4.0
Jan. 19	1.6	.80	.92	1.10	1.32	1.59	------	------	------	------	2.2
Jan. 21	1.0	.69	1.02	1.16	1.30	1.47	------	------	------	------	1.1
Jan. 22	0.7	.77	1.01	1.11	1.22	1.34	------	------	------	------	1.4
Means	------	.79	.98	1.12	1.26	1.42	(1.43)	(1.25)	------	------	------
Departures	------	−.12	−.05	−.06	−.09	−.11	+.01	+.10	------	------	------
LINCOLN, NEBR.											
Jan. 7	3.8	0.79	0.92	1.00	------	------	------	1.24	1.16	1.09	4.0
Jan. 10	3.0	.92	1.02	1.20	------	------	------	1.22	1.11	.98	4.6
Jan. 12	2.2	1.00	1.15	1.27	------	------	------	------	------	------	2.6
Jan. 15	1.7	.96	1.09	1.20	------	------	------	1.05	.92	.89	2.3
Jan. 16	2.6	.85	.98	1.11	------	------	------	1.11	.96	.81	3.7
Jan. 21	2.1	1.04	1.15	1.27	------	------	------	1.24	1.13	1.04	1.8
Jan. 24	2.9	.99	1.12	1.24	------	------	------	------	------	------	3.7
Jan. 25	5.3	------	------	------	------	------	1.31	1.20	1.04	.92	4.2
Jan. 28	3.2	------	------	1.22	1.38	------	1.36	.85	------	------	3.5
Jan. 29	3.8	.68	.79	.92	1.18	------	------	------	------	------	5.8
Jan. 31	1.4	.85	.96	1.13	1.33	------	1.24	1.09	------	------	2.7
Means	------	.90	1.02	1.16	1.30	------	1.30	1.12	1.05	.96	------
Departures	------	−.02	−.03	−.03	−.09	------	−.10	−.07	.00	+.02	------
ALBUQUERQUE, N. MEX.											
Jan. 1	2.0	1.01	1.11	1.19	1.35	------	------	1.20	1.07	0.95	3.3
Jan. 2	2.7	1.00	1.12	1.22	1.37	------	------	------	1.11	.94	2.9
Jan. 7	2.0	1.03	1.12	1.24	1.40	------	1.37	1.29	1.22	1.12	2.3
Jan. 8	1.9	1.01	1.11	1.24	1.38	------	1.39	1.25	1.15	1.06	2.0
Jan. 11	2.4	------	1.14	1.19	1.39	------	------	------	------	------	2.5
Jan. 12	2.6	------	1.11	1.22	------	------	------	------	------	------	3.6
Jan. 13	1.7	1.04	------	1.23	------	------	------	------	------	------	2.5
Jan. 16	------	------	------	------	------	------	1.37	1.25	------	1.01	4.4
Jan. 19	3.3	------	------	------	------	------	1.26	1.08	------	.88	3.6
Jan. 20	2.7	.93	1.04	------	1.32	------	------	------	------	------	3.8

SOLAR RADIATION OBSERVATIONS—Continued

TABLE 1.—*Solar radiation intensites during January 1946*—Con.

[GRAM CALORIES PER MINUTE PER SQUARE CENTIMETER OF NORMAL SURFACE]

Date	Sun's zenith distance										
	7:30 a. m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	1:30 p. m.
	75th mer. time	Air mass									75th mer. time
		A. M.				*1.0	P. M.				
	e	5.0	4.0	3.0	2.0		2.0	3.0	4.0	5.0	e
ALBUQUERQUE, N. MEX.—Continued											
	mb.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
Jan. 21	2.3	------	------	------	1.26	------	------	------	------	.90	2.6
Jan. 22	2.1	------	------	------	1.42	------	------	------	------	------	2.5
Jan. 23	2.0	1.08	------	1.26	1.36	------	1.37	------	------	------	2.5
Jan. 24	2.3	1.08	1.16	1.24	1.19	------	1.37	1.20	1.11	1.01	3.6
Jan. 25	3.4	1.03	------	------	1.41	------	1.41	1.30	1.20	1.14	4.2
Jan. 26	2.7	1.12	1.23	1.34	1.45	------	1.52	1.38	1.26	1.14	2.6
Jan. 28	1.4	1.10	1.18	1.30	1.40	------	------	------	------	------	2.1
Jan. 29	2.7	------	------	------	------	------	1.37	------	------	------	1.7
Jan. 30	1.2	------	------	1.24	1.34	------	------	------	1.19	1.10	2.7
Jan. 31	1.0	------	------	------	1.26	------	1.40	1.25	1.11	------	1.4
Means	------	1.04	1.13	1.24	1.35	------	1.38	1.24	1.16	1.02	------
Departures	------	+.01	.00	−.01	−.03	------	−.06	−.03	−.02	−.06	------
BLUE HILL, MASS.											
Jan. 1	3.2	0.72	0.82	1.04	1.27	------	------	1.03	.84	.68	3.0
Jan. 2	1.4	1.10	1.19	1.31	1.45	------	------	1.29	1.20	1.11	1.7
Jan. 3	1.7	.96	1.04	1.18	1.30	------	------	.96	.78	.63	2.2
Jan. 4	3.3	------	------	------	------	------	------	------	.80	.68	5.2
Jan. 10	8.0	------	.84	------	------	------	------	1.17	.96	.84	6.2
Jan. 11	3.6	.99	1.09	------	1.44	------	------	------	------	------	3.5
Jan. 13	3.6	.93	1.08	------	------	------	------	1.30	1.19	1.11	2.0
Jan. 14	1.2	------	1.15	1.23	------	------	------	------	------	------	1.7
Jan. 19	1.7	------	.93	------	------	------	1.33	------	1.13	1.02	1.5
Jan. 23	1.6	1.08	1.18	1.29	------	------	1.41	1.20	1.10	.99	2.1
Jan. 27	0.9	------	------	------	------	------	1.47	1.30	1.21	1.11	0.9
Jan. 29	2.5	.61	.98	------	------	------	1.40	1.28	1.13	1.05	1.9
Means	------	.91	1.03	1.21	1.36	------	1.40	1.19	1.03	.92	------
Departures	------	−.03	−.01	+.06	+.03	------	+.07	+.02	−.01	−.01	------
BOSTON, MASS.											
Jan. 2	1.8	------	1.16	1.15	------	------	------	------	1.10	1.01	1.7
Jan. 3	2.1	0.95	.89	.94	------	------	------	0.91	.57	------	2.5
Jan. 14	1.1	------	------	.91	------	------	------	------	------	------	1.6
Jan. 16	0.9	.76	1.08	1.18	------	------	------	1.08	.99	.80	1.2
Jan. 23	1.9	------	.96	1.05	------	------	------	------	------	------	2.5
Jan. 29	2.9	.73	------	------	------	------	------	------	------	------	3.0
Means	------	.81	1.02	1.05	------	------	------	(1.00)	.89	(.90)	------
Departures	------	+.02	+.18	+.05	------	------	------	−.01	−.01	+.09	------
RATIO, BOSTON/BLUE HILL, ON COMPARABLE DATES											
	------	(1.08)	0.88	0.81	------	------	------	(0.95)	(0.85)	(0.91)	------

*Extrapolated.

TABLE 2.—*Daily totals and weekly means of solar radiation (direct + diffuse) received on a horizontal surface*

[Gram calories per square centimeter]

Date	Washington, D. C.	Madison, Wis.	Lincoln, Nebr.	East Lansing, Mich.	New York, N. Y.	Fresno, Calif.	Fairbanks, Alaska	Columbia, Mo.	Boston, Mass.	Nashville, Tenn.	Twin Falls, Idaho	La Jolla, Calif.	Riverside, Calif.	Blue Hill, Mass.	Newport, R. I.	State College, Pa.	Davis, Calif.	Boulder, Colo.	Tooele, Utah	New Orleans, La.	Toronto, Canada
1946	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
Jan. 1	142	175	199	139	99	144	------	259	182	115	176	254	254	202	93	196	183	129	224	330	151
Jan. 2	226	78	198	98	207	131	------	171	201	58	133	127	107	233	244	162	119	200	140	312	92
Jan. 3	197	147	214	30	102	213	------	97	170	13	59	227	188	209	206	125	265	212	35	295	46
Jan. 4	139	32	28	38	67	81	------	48	155	193	46	179	175	197	186	58	62	251	58	163	22
Jan. 5	77	11	89	61	123	198	------	47	157	54	86	168	139	190	194	203	320	122	75	136	95
Jan. 6	39	170	200	48	37	185	------	167	56	222	192	297	314	88	94	71	284	125	261	104	111
Jan. 7	28	31	211	19	17	143	------	68	14	20	39	268	294	17	18	41	196	216	118	104	126
Means	121	92	163	62	93	156	------	123	134	96	104	217	210	162	148	122	204	179	130	206	92
Departures	−42	−36	−4	−18	−23	+13	------	−1	+24	−3	−43	−28	−36	+20	+4	+13	+44	−12	−91	+27	------
Jan. 8	20	40	21	76	166	125	------	25	144	47	154	276	314	172	168	100	344	122	303	92	25
Jan. 9	8	81	42	4	23	268	------	86	39	35	178	300	319	50	43	17	326	117	352	322	18
Jan. 10	218	155	224	52	226	255	------	33	185	24	98	281	250	197	221	88	302	258	304	30	15
Jan. 11	71	37	27	29	130	116	------	51	185	15	218	278	308	208	196	88	351	19	303	180	42
Jan. 12	174	140	248	17	111	193	------	280	32	25	241	286	314	32	40	30	341	65	344	101	32
Jan. 13	136	203	248	178	175	190	------	310	220	242	248	293	320	211	218	96	319	261	336	149	142
Jan. 14	260	134	214	113	116	219	------	270	156	207	227	300	296	193	159	196	291	264	352	53	16
Means	126	113	146	67	135	195	------	151	137	85	195	288	303	152	149	88	325	158	328	132	41
Departures	−26	−22	−36	−35	+10	+37	------	+4	+21	−47	+39	+29	+50	−6	−13	−46	+123	−40	+66	−76	------
Jan. 15	56	252	229	213	68	206	------	197	42	170	230	277	255	70	91	105	254	274	364	58	200
Jan. 16	220	214	242	214	218	236	------	303	214	30	223	268	307	259	250	256	318	201	327	82	95
Jan. 17	254	210	273	121	63	144	------	261	93	206	227	178	233	129	89	201	192	276	360	256	88
Jan. 18	226	235	218	153	89	170	------	249	86	255	185	276	294	95	180	87	254	171	193	245	51
Jan. 19	209	98	27	158	245	175	------	101	208	58	227	196	203	251	261	239	197	212	289	97	194
Jan. 20	44	172	122	43	134	113	------	27	142	46	123	279	315	172	215	77	298	171	198	287	100
Jan. 21	89	248	273	155	24	259	------	252	20	95	149	323	330	41	30	79	256	307	208	284	24
Means	157	204	198	151	120	186	------	199	115	123	195	257	277	145	160	149	253	230	277	187	108
Departures	−1	+51	+13	+29	−5	+2	------	+33	−13	−35	+20	−4	−4	−16	−8	+1	+20	+18	+17	−60	------
Jan. 22	124	246	207	126	86	256	------	318	112	275	98	311	331	113	62	262	303	148	84	203	214
Jan. 23	228	207	83	195	128	279	(T)	72	202	280	196	311	317	277	272	273	335	286	254	286	154
Jan. 24	144	214	257	27	66	262	35	320	122	32	68	311	323	148	90	139	274	194	66	409	64
Jan. 25	232	108	212	46	200	199	10	193	145	259	253	304	325	154	123	183	359	186	84	372	73
Jan. 26	154	270	282	167	48	140	26	239	91	16	254	304	323	112	94	197	388	300	277	189	231
Jan. 27	302	217	211	213	217	168	12	332	217	291	292	322	349	277	234	231	375	316	195	348	172
Jan. 28	276	253	285	67	197	202	36	333	159	283	253	313	347	209	211	241	296	316	234	294	115
Means	209	216	220	120	134	215	------	258	150	205	202	311	331	184	155	218	333	250	170	300	146
Departures	+32	+35	−1	−8	−22	+8	------	+63	−9	+28	+22	+41	+81	+3	−19	+68	+117	+23	−68	+74	------

ACCUMULATED DEPARTURES ON JANUARY 28, 1946

	−259	+196	−196	−224	−280	+420	------	+693	+161	−399	+266	+266	+637	+7	−252	+252	+2,128	−77	−532	−245	------

T indicates a trace of solar radiation.

ADDITIONAL DATA FOR BOULDER, COLO., DECEMBER 1945

Date	Mean	Departure
Dec. 3–9	227	+23
Dec. 10–16	207	+1
Dec. 17–23	196	+3
Dec. 24–31	162	−27