SEVERE LOCAL STORMS, SEPTEMBER 1943—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Miami, Okla	12				750	do	Loss in crops, $500; other damage, $250.
Burnett, Wis., vicinity of	27	10:45-11:50 a. m			8,000	Electrical	Barn filled with grain and hay burned; 4 cattle killed.
Cape Charles, Va., vicinity of	30			1		Wind	1 ship was lost and several small craft sunk at their moorings.

CORRECTION FOR JULY 1943

[Storm tabulated as of July 26, in Lawrence County, Kans., should have been *Lawrence County, Ind.* There was no storm in Kansas on July 26, 1943]

Lawrence County, Ind	26	3 a. m	880		500	Wind	Trees and poles down.

[1] Miles instead of yards.

SOLAR RADIATION AND SUNSPOT DATA FOR SEPTEMBER 1943

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

SOLAR RADIATION OBSERVATIONS

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 1942 REVIEW, page 20; a list of pyrheliometric stations is also given in the REVIEW for January 1943, page 12.

TABLE 1.—*Solar radiation intensities during September 1943*

[Gram-calories per minute per square centimeter of normal surface]

Madison, Wis.

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									Local mean solar time
		A. M.					P. M.				
	e.	5.0	4.0	3.0	2.0	*1.0	2.0	3.0	4.0	5.0	e.
	mb.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
September 1	21.8	0.33	0.51	0.75	1.13	1.35					17.0
September 2	14.2	.62	.88	.94	1.13	1.36					16.5
September 3	13.7	.50	.62	.71	.87						20.4
September 7	10.2	.71	.81	.91							10.6
September 8	9.8	.71	.81	.98	1.18						9.1
September 11	6.6	.73	.84	.99	1.19	1.39					7.2
September 17	7.2	.87	.98	1.11	1.24	1.39					8.1
September 18	8.7		.77	.92	1.13	1.33					9.4
September 20	7.8	.83	.94	1.08	1.24	1.51					8.1
September 22	11.8	.70	.83	.98	1.18	1.48					9.8
September 23	7.4	.87	.98	1.11	1.22	1.50					7.8
September 27	10.2	.35	.41								15.2
September 29	11.4			.52	.83	1.34	0.98				13.7
Means		.66	.78	.92	1.12	1.41	(.98)				
Departures		−.09	−.09	−.08	−.03	+.02	−.17				

Lincoln, Nebr.

September 6	10.6			1.18	1.38	1.52	1.25	1.10	1.01	0.88	6.9
September 7	8.7							1.08	.97	.83	9.4
September 8	7.7			1.16	1.34		1.23				7.7
September 9	6.9			1.09				1.17		.73	7.2
September 10	11.4					1.30	1.06	.84	.69	.60	12.2
September 11	13.2			.81	1.01	1.30					15.3
September 14	11.8			.98	1.20		1.01	.79	.62	.52	12.7
September 20	6.3		0.77	.85	1.27						5.5
September 21	8.0					1.45	.88		.56	.50	14.2
Means			(.77)	1.01	1.24	1.39	1.09	1.00	.77	.81	
Departures			−.07	+.04	+.10	−.03	−.07	+.02	−.06	−.04	

* Extrapolated.

TABLE 1.—*Solar radiation intensities during September 1943*—Con.

[Gram-calories per minute per square centimeter of normal surface]

Blue Hill, Mass.

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									Local mean solar time
		A. M.					P. M.				
	e.	5.0	4.0	3.0	2.0	*1.0	2.0	3.0	4.0	5.0	e.
	mb.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
September 6	22.9							0.51	0.39	0.33	25.9
September 7	25.0						0.89	.79			24.2
September 9	15.9	0.69	0.77	0.89	1.05		.74				17.6
September 10	13.7			.68		1.45					11.0
September 11	12.7	.71	.78		1.03						10.2
September 12	7.8			1.06		1.43	1.25	1.09	.97	.87	7.2
September 13	8.4	.90	.99	1.11	1.22	1.45	1.24	1.11	.99	.88	8.4
September 14	12.7	.91		1.10							11.0
September 16	17.0	.40	.54	.72	.90						18.3
September 18	6.9			1.09	1.20	1.49	1.20	1.08	.97	.87	6.9
September 19	7.8	.89	1.00	1.12	1.27	1.44	1.21	1.05			7.8
September 23	15.4						1.05	.81		.54	11.4
September 26	6.6						1.29	1.14	1.03		5.8
September 27	6.4	.77	.89	1.00	1.19	1.34	1.13				8.1
September 28	9.4	.62	.71	.86	1.06			.68	.51	.40	9.4
Means		.74	.81	.96	1.12	1.43	1.11	1.03	.81	.65	
Departures		−.05	−.09	−.05	−.01	+.06	−.02	+.09	+.02	−.01	

Albuquerque, N. Mex.

September 1	7.1					1.48	1.36	1.27	1.16	1.05	5.4
September 5	8.1				1.27	1.47					6.8
September 6	6.8	0.88	1.00	1.11	1.25	1.47	1.25	1.10	1.01	.88	6.8
September 7	6.8	.85	.98	1.12	1.27	1.49	1.26	1.09	.97	.84	6.1
September 9	10.2	.51			.92						10.8
September 10	12.9							1.01	1.88	.77	9.1
September 11	9.1	.76			1.17						7.1
September 15	10.5				1.21	1.38					9.1
September 16	7.8		.93	1.05	1.22	1.54					6.8
September 17	9.8	.84	.93	1.04	1.20		1.17				8.5
September 20	9.1		.75	.91	1.13	1.46	1.25	1.04	.89	.81	5.8
September 21	6.8	1.17	1.21	1.28	1.36						6.1
September 29	11.8	.92	1.02								10.8
September 30	10.2	.83	.93	1.06							9.1
Means		.84	.97	1.08	1.20	1.49	1.26	1.10	.98	.87	
Departures		−.02	−.01	−.01	+.04	+.01	−.01	+.01	.00	−.03	

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

[Gram-calories per square centimeter]

Date	Washington	Madison	Lincoln	East Lansing	New York	Fairbanks	Nashville	Twin Falls	LaJolla	New Orleans	Riverside	Blue Hill	Newport	State College	Put-in-Bay	East Wareham	Davis, Calif.	Fresno
1943	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
September 3	43	456	516	469	120	255	119	557	547	437	516	162	128	94	482	135	619	568
September 4	91	399	397	129	161	157	196	543	522	115	517	109	148	86	111	150	609	567
September 5	462	470	448	228	258	210	134	545	538	259	504	201	308	257	385	430	591	556
September 6	506	378	587	221	397	193	140	531	539	368	520	257	378	456	156	410	574	539
September 7	341	507	554	510	493	166	556	534	558	444	516	446	410	164	577	502	571	561
September 8	305	291	581	367	183	76	550	534	564	479	526	76	128	438	446	69	575	552
September 9	397	416	550	272	330	248	565	523	575	607	532	462	494	419	372	501	577	542
Mean	**306**	**417**	**519**	**314**	**263**	**186**	**323**	**538**	**549**	**387**	**519**	**245**	**285**	**273**	**363**	**314**	**588**	**555**
Departure	**−83**	**+43**	**+79**	.....	**−101**	**−26**	**−29**	**+30**	**+46**	**−37**	**+37**	**−126**	**−140**	**−121**	**−29**	**−54**	.....	**−6**
September 10	526	521	492	283	547	243	479	502	511	602	526	516	470	406	515	431	584	563
September 11	545	507	497	468	433	172	507	495	537	580	493	422	504	501	562	525	591	571
September 12	537	58	107	293	563	315	505	501	552	579	514	567	467	570	494	417	585	569
September 13	539	70	250	181	538	100	312	491	293	438	521	553	551	531	310	553	569	556
September 14	423	267	500	185	336	257	200	494	355	409	515	472	464	534	282	473	566	540
September 15	488	483	496	143	462	147	333	489	350	352	516	253	343	397	380	187	574	546
September 16	366	274	374	290	343	273	221	299	391	108	503	383	389	257	489	393	571	543
Mean	**489**	**312**	**388**	**264**	**460**	**215**	**365**	**467**	**427**	**438**	**512**	**452**	**455**	**456**	**433**	**426**	**577**	**555**
Departure	**+108**	**−33**	**−30**	.....	**+96**	**+9**	**+41**	**−8**	**−56**	**+78**	**+53**	**+74**	**+57**	**+47**	**+51**	**+86**	.....	**+26**
September 17	390	514	511	403	285	67	524	467	.....	48	487	207	147	322	279	168	564	501
September 18	556	478	473	496	563	160	424	457	333	95	466	522	494	532	519	494	567	524
September 19	461	343	268	504	452	115	49	493	464	.....	468	525	534	484	506	507	553	506
September 20	108	514	507	223	218	114	58	477	306	254	428	416	394	366	172	409	537	514
September 21	76	370	442	375	211	192	356	472	246	229	462	345	360	315	341	363	519	483
September 22	382	488	231	354	136	228	388	469	517	501	480	87	118	365	428	108	517	502
September 23	411	454	404	250	436	190	298	467	403	338	449	393	438	326	358	359	456	467
Mean	**340**	**452**	**407**	**373**	**329**	**152**	**300**	**472**	**378**	**209**	**463**	**356**	**355**	**387**	**372**	**344**	**530**	**500**
Departure	**−33**	**+100**	**−2**	.....	**−10**	**−15**	**−26**	**+35**	**−41**	**−131**	**−7**	**−9**	**−19**	**−19**	**+6**	**+11**	.....	**+12**
September 24	432	110	472	251	345	102	501	395	200	522	422	327	261	236	476	276	463	463
September 25	353	377	491	242	327	81	477	312	130	433	333	359	312	356	183	317	483	315
September 26	514	452	417	395	512	102	485	293	467	339	314	484	441	475	399	435	483	486
September 27	466	284	449	390	398	122	414	442	296	220	443	462	464	399	448	383	491	494
September 28	454	189	392	294	332	192	375	387	354	119	416	414	404	397	362	336	465	487
September 29	377	405	57	317	373	73	441	427	390	154	446	406	371	369	380	269	492	486
September 30	98	235	208	302	73	129	404	437	268	162	441	74	113	365	236	91	500	465
Mean	**385**	**293**	**355**	**314**	**337**	**114**	**442**	**385**	**301**	**278**	**402**	**361**	**338**	**371**	**355**	**301**	**482**	**457**
Departure	**+33**	**−5**	**−7**	.....	**+23**	**−22**	**+114**	**−53**	**−78**	**−98**	**−45**	**+15**	**−13**	**+30**	**+15**	**−39**	.....	**+8**

ACCUMULATED DEPARTURES ON SEPTEMBER 30, 1943

	+3752	**+2849**	**+4837**	.....	**−3542**	**+1344**	**+4354**	**+2254**	**−4060**	.....	**+1169**	**−4004**	**−1050**	**−4109**	**−147**	**+805**	.....

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR SEPTEMBER 1943

[Communicated by Capt. J. F. Hellweg, U. S. N. (Ret.), Superintendent, U. S. Naval Observatory.] All measurements and spot counts were made at the Naval Observatory from plates taken at the observatories indicated. Difference in longitude is measured from the central meridian, positive toward the west. Latitude is positive toward the north. Areas are corrected for foreshortening and expressed in millionths of Sun's hemisphere. For each day, under longitude, latitude, area of spot or group, and spot count are included assumed longitude of center of the disk, assumed latitude of center of the disk, total area of spots and groups and total spot count.

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1943	*h m*		°	°	°	°				
Sept. 1	9 19				No spots				G	Mt. Wilson.
2	9 13				No spots				G	Do.
3	9 7	(*)	+74	185	+5	74	12	2	VG	Do.
				(111)	(+7)		12	2		
4	9 6				No spots				G	Do.
5	10 35				No spots				F	U. S. Naval.
6	9 5	(*)	−27	44	+7	27	12	2	VG	Mt. Wilson.
		7611	+5	76	+11	9	16	2		
				(71)	(+7)		28	4		
7	10 59	7611	+20	77	+12	21	206	25	VG	U. S. Naval.
				(57)	(+7)		206	25		

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR SEPTEMBER 1943—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1943	*h m*		°	°	°	°				
Sept. 8	13 48	7611	+34	76	+13	35	436	44	VG	Do.
				(42)	(+7)		436	44		
9	10 40	7611	+43	74	+13	43	388	7	VG	Do.
		7611	+47	78	+13	47	218	35		
		7611	+51	82	+14	51	145	2		
				(31)	(+7)		751	44		
10	11 38	7612	+21	38	−4	24	6	1	F	U. S. Naval.
		7611	+58	75	+13	58	436	6		
		7611	+60	77	+13	60	73	1		
		7611	+66	83	+14	66	461	4		
				(17)	(+7)		976	12		
11	10 43	7613	−11	357	+14	13	24	4	F	Do.
		7611	+69	73	+13	69	436	2		
		7611	+72	76	+14	73	145	1		
		7611	+81	85	+15	81	461	4		
				(4)	(+7)		1066	11		
12	10 35	7613	+2	353	+14	8	12	2	VG	Do.
		7611	+83	74	+13	83	436	1		
		7611	+86	77	+14	86	145	1		
				(351)	(+7)		593	4		

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR SEPTEMBER 1943—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1943	*h m*		°	°	°	°				
Sept. 13	9 10			No spots					VG	Mt. Wilson.
14	9 7			No spots					G	Do.
15	9 10			No spots					G	Do.
16	14 53	7615	−18	278	−34	45	24	7	G	Do.
		(*)	+3	299	−19	27	12	2		
		7614	+28	324	−10	33	36	3		
				(296)	(+7)		72	12		
17	9 15	7616	−9	277	−8	18	12	1	VG	Do.
		7615	−3	283	−34	42	12	2		
		(*)	−3	283	−6	14	12	3		
		7614	+42	328	−9	45	12	1		
				(286)	(+7)		48	7		
18	10 50	7616	+4	276	−8	16	145	19	G	U. S. Naval.
				(272)	(+7)		145	19		
19	11 17	7616	+15	273	−9	22	73	1	G	Do.
		7616	+20	278	−8	25	97	13		
				(258)	(+7)		170	14		
20	9 18	7616	+28	274	−9	33	73	15	VG	Mt. Wilson.
		7616	+34	280	−7	38	61	7		
				(246)	(+7)		134	22		
21	9 27	7616	+42	275	−9	46	48	10	VG	Do.
		7616	+47	280	−7	50	48	17		
				(233)	(+7)		96	27		
22	10 34	7616	+56	275	−8	58	24	8	G	U. S. Naval.
		7616	+61	280	−8	63	36	11		
				(219)	(+7)		60	19		
23	10 37	7616	+71	277	−8	72	24	6	G	Do.
				(206)	(+7)		24	6		
24	9 0			No spots					G	Mt. Wilson.
25	12 42			No spots					G	U. S. Naval.
26	11 15	7617	−37	79	+15	87	290	1	F	Do.
				(166)	(+7)		290	1		
27	10 59	7617	−87	66	+14	87	97	2	G	Do.
		7617	−78	75	+13	78	48	1		
		7617	−73	80	+15	73	485	1		
				(153)	(+7)		630	4		

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR SEPTEMBER 1943—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1943	*h m*		°	°	°	°				
Sept. 28	10 52	7617	−71	69	+14	71	109	3	G	Do.
		7617	−59	81	+16	59	533	1		
				(140)	(+7)		642	4		
29	11 8	7617	−57	69	+14	57	73	2	G	Do.
		7617	−44	82	+16	45	558	1		
				(126)	(+7)		631	3		
30	11 0	7617	−43	70	+13	43	61	2	G	Mt. Wilson.
		7617	−31	82	+16	33	558	1		
				(113)	(+7)		619	3		

Mean daily area for 30 days=254

(*)Not numbered.
VG=very good; G=good; F=fair; P=poor.

PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR AUGUST 1943

[Based on observations at Zurich. Data furnished through the courtesy of Prof. W. Brunner, Swiss Federal Observatory, Zurich, Switzerland]

August 1943	Relative numbers	August 1943	Relative numbers	August 1943	Relative numbers
1	10	11	19	21	36
2	17	12	19	22	22
3	*d* 8	13	19	23	20
4	8	14	*ad* 26	24	9
5	18	15	25	25	0
6	18	16	25	26	0
7	17	17	32	27	*Mc* 11
8	*d* 27	18	41	28	12
9	*a* 25	19	*a* 53	29	10
10	18	20	49	30	7
				31	0

Mean, 31 days=19.4

a=Passage of an average-size group through the central meridian.
b=Passage of a large group through the central meridian.
c=New formation of a group developing into a middle or large center of activity: E, on the eastern part of the sun's disk; W, on the western part; M, in the central-circle zone.
d=Entrance of a large or average-sized center of activity on the east limb.

U. S. GOVERNMENT PRINTING OFFICE: 1943

Blank page retained for pagination