TABLE 2.—*Average daily totals of solar radiation (direct+diffuse) received on a horizontal surface*

Week beginning—	Washington	Madison	Lincoln	Chicago	New York	Fresno	Fairbanks	Twin Falls	La Jolla	Miami	New Orleans	Riverside	Blue Hill	San Juan	Friday Harbor	Ithaca	Newport
	Gram-calories per square centimeter																
1937	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
July 30	504	557	592	526	516	706	337	599	544	460	448	562	474	500	613	512	525
Aug. 6	402	489	597	423	329	690	291	571	480	448	412	578	441	594	384	286	459
Aug. 13	522	503	565	508	464	650	269	556	416	440	343	540	511	551	574	490	479
Aug. 20	215	479	571	453	217	652	259	547	486	411	296	528	511	546	385	270	265
Aug. 27	398	489	550	426	332	640	219	465	543	422	376	482	409	575	486	290	375
	Departures from weekly normals																
July 30	+30	+88	+73	+138	+86	+62	+2	+53	--------	−19	−25	+25	−24	--------	+71	+60	--------
Aug. 6	−37	+31	+95	+30	−43	+71	−22	+24	--------	−60	−41	+33	−61	--------	−149	−140	--------
Aug. 13	+83	+60	+71	+111	+94	+49	−17	+66	--------	−22	−59	−6	+4	--------	+37	+56	--------
Aug. 20	−194	+37	+83	+50	−103	+58	−35	+18	--------	−71	−107	+10	+17	--------	−108	−136	--------
Aug. 27	−19	+83	+102	+69	−17	+62	−64	−24	--------	−54	−58	−8	−28	--------	+36	−67	--------
	Accumulated departures on Sept. 2																
	−2,520	+5,943	+3,682	+3,814	+4,943	+5,887	+637	+1,050	--------	−7,826	+4,641	−3,388	−1,330	--------	−651	−4431	--------

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. J. F. Hellweg, U. S. Navy (Ret.), Superintendent, U. S. Naval Observatory. Data furnished by the U. S. Naval Observatory in cooperation with Harvard and Mount Wilson Observatories. The difference in longitude is measured from the central meridian positive west. The north latitude is positive. Areas are corrected for foreshortening and are expressed in millionths of the sun's visible hemisphere. The total area for each day includes spots and groups]

Date	Eastern standard time	Mount Wilson group number	Heliographic: Diff. in longitude	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day	Observatory
1937	*h. m.*		°	°	°				
Aug. 1	11 18	5492	−75.0	229.2	−19.0	97	--------	--------	U. S. Naval.
		5491	−71.0	233.2	−30.0	--------	242	--------	
		5489	−53.0	251.2	+24.0	--------	1018	--------	
		5488	−52.0	252.2	+31.0	--------	242	--------	
		5486	−29.0	275.2	−13.0	--------	97	--------	
		5487	−26.0	278.2	+14.0	--------	24	--------	
		5490	−26.0	278.2	+17.0	--------	24	--------	
		5484	−11.0	293.2	+9.0	24	--------	--------	
		5483	−11.0	293.2	−11.0	--------	291	--------	
		5481	−9.0	295.2	+30.0	170	--------	--------	
		5485	+1.0	305.2	−21.0	--------	73	--------	
		5477	+41.0	345.2	+33.0	--------	1212	--------	
		5477	+60.0	4.2	+29.5	--------	1309	4,823	
Aug. 2	11 11	5492	−61.0	230.1	−19.0	97	--------	--------	Do.
		5491	−59.0	232.1	−30.0	--------	194	--------	
		5489	−41.0	250.1	+24.0	--------	873	--------	
		5488	−40.5	250.6	+31.0	--------	267	--------	
		5486	−16.0	275.1	−12.0	--------	73	--------	
		5490	−14.0	277.1	+18.0	--------	97	--------	
		5484	+1.0	292.1	+9.0	24	--------	--------	
		5483	+2.0	293.1	−11.0	--------	194	--------	
		5481	+5.0	296.1	+30.0	145	--------	--------	
		5485	+14.0	305.1	−21.5	--------	97	--------	
		5477	+54.5	345.6	+33.0	--------	1115	--------	
		5477	+74.0	5.1	+29.5	--------	1212	4,388	
Aug. 3	11 10	5492	−49.0	228.8	−19.0	73	--------	--------	Do.
		5491	−47.0	230.8	−30.0	--------	97	--------	
		5489	−28.0	249.8	+23.0	--------	873	--------	
		5488	−27.5	250.3	+31.0	--------	267	--------	
		5486	−2.0	275.8	−12.0	--------	73	--------	
		5490	−2.0	275.8	+19.0	--------	97	--------	
		5487	−1.0	276.8	+12.5	--------	48	--------	
		5484	+15.0	292.8	+9.0	24	--------	--------	
		5483	+15.0	292.8	−11.0	--------	194	--------	
		5481	+18.5	296.3	+30.0	145	--------	--------	
		5485	+30.0	307.8	−20.0	16	--------	--------	
		5477	+67.0	344.8	+33.0	--------	921	--------	
		5493	+70.0	347.8	+15.0	--------	97	--------	
		5477	+83.0	0.8	+30.0	873	--------	3,798	
Aug. 4	10 40	5499	−74.0	190.9	−9.0	24	--------	--------	Do.
		5497	−73.0	191.9	−11.0	436	--------	--------	
		5492	−36.0	228.9	−19.0	73	--------	--------	
		5491	−35.0	229.9	−30.0	--------	73	--------	
		5489	−15.0	249.9	+23.0	--------	727	--------	
		5488	−14.0	250.9	+30.0	--------	242	--------	
		5495	−3.5	261.4	−14.0	16	--------	--------	
		5486	+11.0	275.9	−12.0	--------	97	--------	
		5487	+11.0	275.9	+12.5	--------	48	--------	
		5490	+12.0	276.9	+18.0	--------	48	--------	
		5483	+28.0	292.9	−11.0	--------	194	--------	
		5484	+28.5	293.4	+9.0	16	--------	--------	
		5481	+30.0	294.9	+30.0	--------	73	--------	
		5485	+42.0	306.9	−20.0	16	--------	--------	
		5493	+80.0	344.9	+17.0	97	--------	--------	
		5477	+80.0	344.9	+33.0	--------	776	2,956	

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard time	Mount Wilson group number	Heliographic: Diff. in longitude	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day	Observatory
1937	*h. m.*		°	°	°				
Aug. 5	11 14	5499	−60.0	191.4	−9.0	24	--------	--------	U. S. Naval.
		5497	−59.0	192.4	−11.0	436	--------	--------	
		5492	−22.0	229.4	−19.0	--------	73	--------	
		5491	−19.0	232.4	−29.0	--------	73	--------	
		5489	−2.0	249.4	+23.0	--------	582	--------	
		5488	−1.0	250.4	+30.0	--------	242	--------	
		5495	+11.0	262.4	−14.0	--------	73	--------	
		5486	+24.0	275.4	−13.0	--------	48	--------	
		5487	+25.0	276.4	+13.0	--------	97	--------	
		5484	+41.0	292.4	+9.0	24	--------	--------	
		5483	+43.0	294.4	−11.0	--------	121	--------	
		5481	+44.0	295.4	+29.5	12	--------	--------	
		5485	+56.0	307.4	−20.0	24	--------	1,829	
Aug. 6	10 46	5497	−46.0	192.4	−11.5	436	--------	--------	Do.
		5499	−45.0	193.4	−9.0	--------	24	--------	
		5492	−9.5	228.9	−19.5	48	--------	--------	
		5491	−5.0	233.4	−28.0	--------	48	--------	
		5489	+10.0	248.4	+24.0	--------	485	--------	
		5488	+11.5	249.9	+30.0	242	--------	--------	
		5495	+24.0	262.4	−14.0	--------	194	--------	
		5486	+37.0	275.4	−13.0	--------	24	--------	
		5487	+39.0	277.4	+12.0	--------	48	--------	
		5483	+58.0	296.4	−11.0	--------	97	1,646	
Aug. 7	10 51	5500	−59.0	166.1	−13.0	--------	24	--------	Do.
		5497	−32.0	193.1	−11.0	436	--------	--------	
		5499	−30.0	195.1	−9.5	--------	48	--------	
		5492	+3.5	228.6	−19.5	48	--------	--------	
		5491	+12.0	237.1	−28.0	--------	24	--------	
		5489	+21.0	246.1	+24.0	--------	485	--------	
		5488	+24.0	249.1	+31.0	242	--------	--------	
		5495	+38.0	263.1	−14.0	--------	291	--------	
		5486	+52.0	277.1	−12.0	12	--------	--------	
		5483	+71.0	296.1	−12.0	97	--------	1,707	
Aug. 8	8 43	5505	−83.0	130.1	+14.0	24	--------	--------	Mt. Wilson.
		5506	−78.0	135.1	+20.0	--------	97	--------	
		5507	−77.5	135.6	−22.0	--------	194	--------	
		5504	−65.0	148.1	+19.5	--------	24	--------	
		5503	−48.0	165.1	−23.0	--------	48	--------	
		5502	−26.0	187.1	−19.0	--------	73	--------	
		5497	−20.5	192.6	−11.0	--------	436	--------	
		5499	−18.0	195.1	−9.0	--------	121	--------	
		5501	−10.5	202.6	−20.5	--------	12	--------	
		5492	+16.0	229.1	−20.0	--------	36	--------	
		5491	+24.0	237.1	−28.0	--------	24	--------	
		5489	+34.0	247.1	+24.0	--------	194	--------	
		5488	+37.0	250.1	+31.0	242	--------	--------	
		5495	+50.5	263.6	−14.0	--------	388	--------	
		5483	+83.0	296.1	−13.0	97	--------	2,010	
Aug. 9	10 56	5505	−69.0	129.6	+13.0	--------	48	--------	U. S. Naval.
		5507	−67.0	131.6	−23.0	--------	582	--------	
		5506	−64.0	134.6	+18.5	--------	48	--------	
		5504	−48.5	150.1	+18.5	--------	24	--------	
		5503	−33.0	165.6	−25.0	--------	48	--------	
		5502	−9.0	189.6	−20.0	--------	24	--------	
		5497	−6.0	192.6	−13.0	--------	388	--------	
		5499	−2.0	196.6	−10.0	--------	97	--------	
		5501	+6.0	204.6	−21.0	--------	48	--------	
		5492	+30.0	228.6	−20.0	12	--------	--------	
		5509	+35.0	233.6	−35.0	--------	24	--------	
		5491	+39.0	237.6	−28.0	--------	48	--------	
		5489	+49.0	247.6	+22.0	--------	121	--------	
		5488	+50.0	248.6	+30.0	242	--------	--------	
		5508	+65.0	263.6	+14.0	16	--------	--------	
		5495	+65.0	263.6	−13.0	--------	388	2,158	

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard time	Mount Wilson group number	Heliographic: Diff. in longitude	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day	Observatory
1937	*h. m.*		°	°	°				
Aug. 10	12 5	5512	−81.0	103.8	+10.0	145			U. S. Naval.
		5511	−56.0	128.8	−15.0	36			
		5507	−54.0	130.8	−23.0	533			
		5505	−53.0	131.8	+12.5		97		
		5506	−50.5	134.3	+18.5		24		
		5503	−18.5	166.3	−25.0		24		
		5502	+3.5	188.3	−20.0		24		
		5497	+8.5	193.3	−13.0		388		
		5499	+10.5	195.3	−10.0		97		
		5510	+11.0	195.8	+17.0	12			
		5501	+19.0	203.8	−21.0		73		
		5491	+51.0	235.8	−28.5		48		
		5489	+62.0	246.8	+22.0		73		
		5488	+63.0	247.8	+30.0	242			
		5495	+78.0	262.8	−14.0		194		
		5508	+80.0	264.8	+14.0	97		2,107	
Aug. 11	10 58	5512	−69.0	103.2	+9.5	48			Do.
		5511	−46.0	126.2	−16.0		36		
		5507	−42.0	130.2	−23.5		533		
		5505	−37.0	135.2	+12.0		242		
		5502	+13.5	185.7	−19.0		12		
		5497	+20.5	192.7	−13.0	388			
		5499	+23.0	195.2	−8.0	145			
		5501	+32.0	204.2	−20.5	48			
		5491	+63.0	235.2	−27.0		73		
		5489	+74.5	246.7	+22.0		12		
		5488	+76.0	248.2	+30.0	242		1,779	
Aug. 12	11 1	5512	−56.0	102.9	+9.5	61			Do.
		5507	−30.0	128.9	−23.0		533		
		5505	−24.0	134.9	+12.0		291		
		5515	+21.0	179.9	−10.5		121		
		5514	+25.0	183.9	+15.0	24			
		5497	+34.0	192.9	−13.0	436			
		5499	+37.0	195.9	−8.0		145		
		5513	+49.0	207.9	−7.0		48		
		5488	+88.0	246.9	+31.0	97		1,756	
Aug. 13	11 35	5512	−43.0	102.4	+10.0		97		Do.
		5507	−17.0	128.4	−23.0		533		
		5505	−9.0	136.4	+11.0		388		
		5515	+34.0	179.4	−11.0		121		
		5497	+47.0	192.4	−13.0		388		
		5499	+50.0	195.4	−8.0		97	1,624	
Aug. 14	11 10	5512	−30.0	102.4	+10.0		97		Do.
		5507	−4.0	128.4	−23.0		533		
		5511	−2.0	130.4	−15.0	24			
		5505	+4.0	136.4	+11.0		727		
		5516	+17.0	149.4	+17.5		48		
		5515	+48.0	180.4	−11.0		97		
		5497	+61.0	193.4	−13.0		388	1,914	
Aug. 15	11 18	5512	−17.5	101.6	+10.0		97		Do.
		5511	+10.0	129.1	−15.0		24		
		5507	+11.0	130.1	−23.0		485		
		5505	+18.0	137.1	+11.0		921		
		5516	+32.0	151.1	+18.0		36		
		5515	+61.0	180.1	−12.0		73		
		5497	+74.0	193.1	−13.0	388		2,024	
Aug. 16	12 7	5512	−4.0	101.5	+10.5		97		Do.
		5507	+24.0	129.5	−23.0		436		
		5505	+31.0	136.5	+11.0		921		
		5516	+48.0	153.5	+17.5		24		
		5519	+59.0	164.5	−16.5	24			
		5515	+85.0	190.5	−12.0	48		1,550	
Aug. 17	11 1	5520	−88.0	4.8	+30.0	194			Do.
		5521	−88.0	4.8	+23.0	48			
		5512	+9.0	101.8	+10.5		97		
		5507	+36.0	128.8	−23.0		388		
		5505	+45.0	137.8	+11.0		824		
		5519	+79.0	171.8	−16.5	12		1,563	
Aug. 18	12 5	5522	−88.0	351.0	+32.5		727		Do.
		5520	−73.0	6.0	+29.5	194			
		5521	−73.0	6.0	+23.0	24			
		5512	+20.0	99.0	+10.5		97		
		5507	+50.0	129.0	−24.0		291		
		5505	+53.0	132.0	+11.0		436		
		5505	+66.0	145.0	+10.0		339	2,108	
Aug. 19	13 2	5525	−80.0	345.3	−16.5	12			Do.
		5522	−73.0	352.3	+32.5	970			
		5524	−65.0	0.3	−11.0		121		
		5520	−59.0	6.3	+30.0	97			
		5521	−58.0	7.3	+23.5	73			
		5523	−53.0	12.3	−28.0		121		
		5512	+34.0	99.3	+11.0		97		
		5507	+68.0	133.3	−25.0		291		
		5505	+69.0	134.3	+11.0		436		
		5505	+81.0	146.3	+10.5	291		2,509	
Aug. 20	9 1	5525	−68.0	346.3	−17.0		36		Mt. Wilson.
		5522	−64.0	350.3	+33.0	1,115			
		5521	−52.0	2.3	+23.0	36			
		5520	−49.0	5.3	+31.0		73		
		5524	−49.0	5.3	−9.5		242		

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard time	Mount Wilson group number	Heliographic: Diff. in longitude	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day	Observatory
1937	*h. m.*		°	°	°				
		5523	−41.0	13.3	−27.5		194		Mt. Wilson.
		5526	+19.0	73.3	−28.0	6			
		5512	+48.5	102.8	+11.0		48		
		5505	+83.0	137.3	+11.0		436		
		5507	+85.0	139.3	−26.0		291	2,477	
Aug. 21	10 59	5527	−80.0	320.0	+13.5	48			U. S. Naval.
		5525	−53.0	347.0	−18.0		36		
		5522	−49.0	351.0	+33.0	1,261			
		5524	−36.0	4.0	−9.5		242		
		5521	−35.0	5.0	+21.5	24			
		5520	−34.5	5.5	+30.0		16		
		5523	−27.0	13.0	−27.5		145		
		5512	+63.0	103.0	+10.0	24		1,796	
Aug. 22	13 26	5527	−65.0	320.4	+13.5	48			
		5530	−61.0	324.4	+30.0		36		Do.
		5522	−36.0	349.4	+32.0	1,261			
		5525	−33.0	352.4	−16.5		48		
		5520	−22.0	3.4	+31.0	16			
		5521	−21.5	3.9	+21.0	16			
		5524	−20.0	5.4	−10.0		194		
		5523	−13.0	12.4	−27.5		194		
		5528	+53.0	78.4	+18.0		97	1,910	
Aug. 23	9 13	5531	−59.5	315.0	−19.5		24		Mt. Wilson.
		5527	−54.0	320.5	+14.0	61			
		5533	−45.0	329.5	+15.0		121		
		5522	−25.5	349.0	+33.0		1,261		
		5525	−23.0	351.5	−15.0		194		
		5521	−7.0	7.5	+22.0		16		
		5524	−7.0	7.5	−9.5		36		
		5524	−3.0	11.5	−9.5		194		
		5523	−3.0	11.5	28.0		291		
		5532	+3.0	17.5	+21.0		12		
		5528	+64.0	78.5	+17.0		170	2,380	
Aug. 24	9 7	5529	−47.5	313.9	+17.0		48		Do.
		5527	−39.5	321.9	+15.0	61			
		5533	−31.0	330.4	+15.5		121		
		5522	−13.0	348.4	+33.0		1,115		
		5525	−8.0	353.4	−15.0		291		
		5524	+9.5	10.9	−9.5		242		
		5523	+11.0	12.4	−27.0		339		
		5535	+13.0	14.4	+10.0		36		
		5532	+16.0	17.4	+21.0		36		
		5534	+19.0	20.4	+16.0		48		
		5528	+76.0	77.4	+18.0		97		
		5528	+88.0	89.4	+15.0	97		2,531	
Aug. 25	9 26	5529	−33.0	315.0	+16.5		48		Do.
		5527	−26.0	322.0	+15.0	48			
		5533	−17.0	331.0	+15.0		73		
		5522	+1.0	349.0	+33.0		921		
		5525	+7.0	355.0	−14.0		315		
		5520	+16.5	4.5	+32.0		36		
		5521	+16.5	4.5	+23.0		48		
		5524	+22.5	10.5	−9.5		194		
		5523	+24.0	12.0	−27.0		339		
		5532	+29.0	17.0	+21.0		73		
		5534	+36.0	24.0	+15.5		36	2,131	
Aug. 26	14 19	5536	−51.0	281.1	−12.0		36		U. S. Naval.
		5529	−20.5	311.6	+15.5		24		
		5527	−10.5	321.6	+14.5	36			
		5533	+1.0	333.1	+13.0	16			
		5522	+14.5	346.6	+32.0		776		
		5525	+21.0	353.1	−15.0		291		
		5521	+30.0	2.1	+22.0		48		
		5524	+36.0	8.1	−10.5		170		
		5523	+37.5	9.6	−28.0		267		
		5532	+45.0	17.1	+19.5		24		
		5534	+50.5	22.6	+14.0		97	1,785	
Aug. 27	11 5	5539	−79.0	241.7	+10.5	121			Do.
		5538	−78.0	242.7	+29.5		291		
		5536	−39.5	281.2	−12.0	36			
		5529	−10.0	310.7	+15.0		24		
		5537	−1.0	319.7	+32.0		48		
		5527	+1.0	321.7	+15.0	36			
		5533	+12.0	332.7	+13.0		24		
		5522	+25.0	345.7	+33.0		824		
		5525	+30.0	350.7	−15.0		97		
		5525	+38.0	358.7	−12.0	194			
		5524	+48.0	8.7	−10.0		291		
		5523	+49.0	9.7	−28.0		145		
		5534	+63.0	23.7	+13.0		170	2,301	
Aug. 28	11 15	5539	−69.0	238.4	+12.0		121		Do.
		5538	−68.0	239.4	+29.0		291		
		5536	−25.0	282.4	−12.5		61		
		5537	+12.0	319.4	+31.0		24		
		5527	+15.0	322.4	+15.0	24			
		5533	+26.0	333.4	+13.0		24		
		5522	+33.5	345.9	+33.0		970		
		5525	+41.0	348.4	−16.0	24			
		5525	+51.0	358.4	−13.0		194		
		5523	+59.0	6.4	−29.0		97		
		5524	+62.0	9.4	−11.0	194			
		5534	+75.0	22.4	+13.0		339	2,363	

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard time	Mount Wilson group number	Heliographic: Diff. in longitude	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day	Observatory
1937	h. m.		°	°	°				
Aug. 29	9 9	5539	−57.0	238.3	+12.0	-------	170	-------	Mt. Wilson.
		5538	−57.0	238.3	+28.0	-------	485	-------	
		5536	−11.0	284.3	−12.0	-------	36	-------	
		5537	+24.0	319.3	+32.0	-------	48	-------	
		5527	+27.0	322.3	+15.0	-------	36	-------	
		5533	+37.0	332.3	+12.0	-------	6	-------	
		5522	+50.0	345.3	+33.0	-------	970	-------	
		5525	+65.0	0.3	−13.0	194	-------	-------	
		5521	+70.0	5.3	+23.0	-------	24	-------	
		5523	+71.0	6.3	+30.5	16	-------	-------	
		5524	+78.0	13.3	−11.0	194	-------	-------	
		5534	+88.0	23.3	+14.0	242	-------	2,421	
Aug. 30	9 9	5540	−88.0	194.1	+20.0	145	-------	-------	Do.
		5539	−44.0	238.1	+12.0	-------	121	-------	
		5538	−44.0	238.1	+29.0	-------	582	-------	
		5536	+3.0	285.1	−13.0	-------	48	-------	
		5533	+37.5	319.6	+13.0	-------	73	-------	
		5527	+40.0	322.1	+15.0	12	-------	-------	
		5522	+63.0	345.1	+33.0	-------	291	-------	
		5525	+79.0	1.1	−14.5	-------	145	1,417	
Aug. 31	10 50	5543	−78.0	190.0	−13.0	12	-------	-------	U. S. Naval.
		5540	−75.0	193.0	+18.5	-------	170	-------	
		5542	−49.0	219.0	+6.0	-------	48	-------	
		5538	−31.0	237.0	+29.0	-------	436	-------	
		5539	−27.5	240.5	+11.5	-------	48	-------	
		5536	+19.5	287.5	−12.0	-------	48	-------	
		5541	+58.0	326.0	−12.5	6	-------	-------	
		5533	+63.0	331.0	+12.5	-------	121	-------	
		5522	+75.0	343.0	+33.0	-------	582	1,471	

Mean daily area for 31 days, 2,233.

PROVISIONAL SUNSPOT RELATIVE NUMBERS FOR AUGUST 1937

[Dependent alone on observations at Zurich and its station at Arosa]

[Furnished through the courtesy of Prof. W. Brunner, Eidgen. Sternwarte, Zurich, Switzerland]

August 1937	Relative numbers	August 1937	Relative numbers	August 1937	Realtive numbers
1	--------	11	140	21	80
2	*a* 180	12	*Mc* 144	22	103
3	*Mc* 207	13	114	23	*Eac* 139
4	*d* 197	14	*ab* 124	24	*Mca* 150
5	*ab* 205	15	128	25	*ab* 137
6	176	16	119	26	144
7	135	17	--------	27	*d* 143
8	*d* 154	18	*dd* 82	28	130
9	173	19	*Ec* 88	29	110
10	*a* 183	20	*Ec* 96	30	*d* 109
				31	128

Mean, 29 days=138.6.

a=Passage of an average sized group through the central meridian.
b=Passage of a large group or spot through the central meridian.
c=New formation of a group developing into a middle sized 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.

AEROLOGICAL OBSERVATIONS

[Aerological Division, D. M. LITTLE, in Charge]

By L. P. HARRISON

Mean free-air data based on airplane weather observations during the month of August 1937 are given in tables 1 to 3. A description of the methods by which the various monthly means and normals therein are computed may be found in this section of the MONTHLY WEATHER REVIEW for January and March 1937.

It will be noted that many of the "normals" are based on only 3 years of observations. Conclusions based on departures from such short-period "normals" must be used with caution.

The mean surface temperatures for August (see chart I) were above normal over practically the entire country. The largest positive departures at the surface were largely concentrated in the north-central part of the country, with values ranging from about +2° C. to +5.6° C. Elsewhere the positive departures generally averaged from +1° C. to +3° C. Slight negative departures occurred over small areas in the extreme northwest, the central California coast, northern Florida, and southeastern Georgia.

The mean free-air temperatures for the month up to 5 kilometers above sea level (table 1) were generally above normal, except over the extreme northwestern and the southeastern sectors of the country where they were largely below the normal by slight amounts The greatest positive departures prevailed over the north-central portion in harmony with the conditions observed at the surface; however, the (available) values here ranged only from +1° C. to +3.7° C. in the free air. The northeast coastal area was characterized by similar departures with a slightly lower extreme. The departures of positive sign were elsewhere of inconsequential magnitude. It is of interest to note the pronounced horizontal gradient of temperature over the Western Plateau Region at 2 kilometers. This is best exemplified by the data for Salt Lake City and Cheyenne which had a monthly mean temperature of 22.7° C. and 17.9° C., respectively.

The mean free-air relative humidities and specific humidities are given in table 2. The distribution of the positive and negative departures of relative humidity from the normals in the eastern part of the country during this month was not very regular over extensive areas (i. e. spotted). Near the northeastern coastal region slight to moderate positive departures (2 to 13 percent) were prevalent. The middle-Atlantic coastal area had practically normal humidities up to 4 kilometers. The data in the table for Lakehurst, N. J., indicates a departure of −21 percent at 5 kilometers. This subnormal value, presumably resulting from fewness of observations, is open to some doubt especially since the data for Norfolk, Va., portrayed departures decreasing from +9 percent at the surface to +3 percent at 2 and 2.5 kilometers then increasing to +12 percent at 5 kilometers. The region immediately south of the Great Lakes was generally characterized by slight positive departures at low elevations and moderate negative departures at the high elevations (−10 to −14 percent at 5 kilometers). Elsewhere in the east slight to low moderate departures of either sign occurred over various localities. On the other hand, the western half of the country judging from available data largely had humidities which were below normal by slight to moderate extents, except in the extreme northwest. There, small positive departures prevailed. Humidity conditions in the Dakotas were apparently similar to those occurring in connection with the western regime of deficient values.

Table 3 shows the monthly mean free-air barometric pressures and equivalent potential temperatures. The