POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR DECEMBER 1947

NOTE: Publication of "Positions, Areas, and Counts of Sunspots" in the MONTHLY WEATHER REVIEW will be *discontinued* with the December 1947 issue. The data will be issued thereafter through publications of the U. S. Naval Observatory, at various times depending on the sunspot activity. Current data will be distributed monthly to a limited number of persons on request addressed to Superintendent, U. S. Naval Observatory, Washington 25, D. C.

LUCY T. DAY

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[Communicated by the 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 Mount Wilson group number, longitude, latitude, area of spot or group, and spot count, are included respectively: number of groups, 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
1947	*h m*		°	°	°	°				
Dec. 1	10 56	8959	−72	100	−12	72	194	2	F	U. S. Naval.
		8958	−31	141	−15	34	291	1		
		8958	−26	146	−15	30	242	6		
		8951	−6	166	+24	24	24	1		
		8951	+2	174	+25	24	36	1		
		8951	+6	178	+26	26	24	1		
		8953	+10	182	−22	25	73	7		
		8952	+12	184	−7	14	48	1		
		8948	+25	197	+28	35	73	4		
		8948	+28	200	+25	36	97	8		
		8950	+26	198	+18	31	24	5		
		8956	+30	202	−26	39	97	6		
		8955	+40	212	−18	43	24	1		
		(9)		(172)	(+1)		1,247	44		(†)
2	10 22	8960	−78	81	+10	78	194	2	F	Do.
		8960	−65	94	+10	65	24	1		
		8959	−59	100	−11	60	73	2		
		8958	−14	145	−15	21	533	8		
		8953	+22	181	−22	31	61	6		
		8952	+27	186	−7	28	24	1		
		8948	+38	197	+28	44	48	3		
		8948	+41	200	+25	46	73	6		
		8956	+44	203	−26	50	24	3		
		(7)		(159)	(+1)		1,054	32		
3	11 12	8960	−64	82	+8	64	97	3	G	Do.
		8960	−62	84	+10	62	145	1		
		8960	−50	96	+10	50	61	1		
		8959	−46	100	−12	48	48	1		
		8958	−5	141	−15	17	291	7		
		8958	+7	153	−16	19	218	4		
		8953	+36	182	−22	41	121	3		
		8952	+42	188	−7	43	12	1		
		8952	+45	191	−7	46	12	3		
		8948	+53	199	+25	57	24	1		
		8948	+56	202	+24	58	97	2		
		8956	+55	201	−26	60	12	3		
		8956	+59	205	−23	61	12	1		
		(7)		(146)	(+1)		1,150	31		
4	10 55	8964	−64	69	+13	64	48	3	G	Do.
		8963	−52	81	+16	54	97	6		
		8960	−49	84	+9	49	109	1		
		8960	−48	85	+7	48	97	8		
		8960	−38	95	+9	39	48	6		
		8959	−33	100	−12	36	48	3		
		8958	+8	141	−15	18	194	9		
		8958	+14	147	−15	21	12	5		
		8958	+20	153	−16	26	242	15		
		8953	+51	184	−22	55	48	3		
		8948	+66	199	+26	68	97	2		
		8948	+70	203	+24	72	145	3		
		(7)		(133)	(+1)		1,185	64		(†)
6	12 12	8965	−80	26	−14	80	97	1	VG	Do.
		8965	−79	27	−12	79	388	3		
		8965	−68	38	−15	69	339	7		
		8965	−65	41	−11	66	145	2		

See footnotes at end of table.

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR DECEMBER 1947—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
1947	*h m*		°	°	°	°				
Dec. 6	12 12	(*)	−65	41	+9	66	61	2	VG	U. S. Naval.
		8964	−39	67	+13	41	145	1		
		8964	−35	71	+13	37	24	4		
		8963	−25	81	+16	30	97	8		
		8960	−21	85	+9	23	145	2		
		8960	−10	96	+8	13	24	3		
		8962	+18	124	−15	23	73	10		
		8962	+19	125	−10	21	36	11		
		8962	+21	127	−15	25	61	6		
		8958	+36	142	−15	38	145	18		
		8958	+46	152	−16	48	242	12		
		(7)		(106)	(0)		2,022	90		(1)
9	10 21	8967	−81	346	−23	81	48	1	G	Do.
		8965	−40	27	−13	42	921	30		
		8965	−29	38	−14	32	61	1		
		8965	−28	39	−11	31	24	5		
		8965	−27	40	−10	29	73	1		
		8964	0	67	+13	13	61	9		
		8964	+3	70	+11	12	24	10		
		8963	+17	84	+13	22	36	7		
		8960	+19	86	+8	21	97	2		
		8962	+55	122	−15	57	24	1		
		8962	+63	130	−15	65	48	3		
		8961	+71	138	−17	71	24	3		
		8966	+76	143	−21	76	24	1		
		8958	+80	147	−17	80	194	5		
		(9)		(67)	(0)		1,659	79		
10	11 37	8969	−78	335	+18	80	48	1	F	Do.
		8967	−69	344	−23	79	73	1		
		8968	−55	358	−12	56	48	3		
		8965	−26	27	−12	28	1,261	23		
		8965	−16	37	−13	20	97	5		
		8965	−11	42	−10	15	61	1		
		8964	+13	66	+13	18	73	8		
		8963	+32	85	+13	34	121	5		
		8960	+32	85	+8	33	145	1		
		8962	+77	130	−15	77	48	2		
		(8)		(53)	(0)		1,975	50		
11	10 29	8969	−65	336	+17	67	48	1	G	Do.
		8967	−57	344	−23	60	36	1		
		8968	−42	359	−11	44	194	7		
		8965	−16	25	−17	23	194	11		
		8965	−14	27	−12	18	873	30		
		8965	−3	38	−13	13	48	12		
		8965	−1	40	−14	14	61	1		
		8965	+2	43	−11	11	61	1		
		8964	+25	66	+11	27	12	1		
		8970	+36	77	−12	38	16	3		
		8963	+45	86	+13	48	97	5		
		8960	+45	86	+8	46	145	1		
		(8)		(41)	(0)		1,785	74		
12	11 5	8969	−51	336	+18	55	36	1	G	Do.
		8967	−44	343	−22	48	24	1		
		8968	−29	358	−10	30	97	7		
		(*)	−22	5	−14	24	24	1		
		(*)	−20	7	−16	25	48	6		
		8965	−3	24	−16	16	242	13		
		8965	−1	26	−12	11	824	29		
		8965	+10	37	−13	15	97	9		
		8965	+12	39	−14	18	48	1		
		8965	+15	42	−12	17	61	1		
		8970	+50	77	−13	51	48	1		
		8960	+58	85	+8	59	61	2		
		8963	+62	89	+13	63	48	3		
		(9)		(27)	(−1)		1,658	75		
13	10 44	8974	−79	295	−14	79	24	4	G	Mt. Wilson.
		8973	−78	296	+22	80	97	1		
		8972	−47	327	−22	51	73	12		
		8969	−39	335	+18	42	16	1		
		8967	−31	343	−22	36	12	1		
		8968	−16	358	−10	18	61	6		
		(*)	−10	4	−2	10	12	3		
		8971	−7	7	−17	17	48	8		
		8965	+12	26	−12	15	388	16		
		8965	+12	26	−16	18	194	12		
		8965	+17	31	−13	21	582	9		
		8965	+26	40	−14	28	97	16		
		8965	+28	42	−12	30	48	1		
		8970	+63	77	−12	63	36	1		
		8960	+71	85	+8	71	97	1		
		(11)		(14)	(−1)		1,785	92		

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR DECEMBER 1947—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
1947	*h m*		°	°	°	°				
Dec. 14	15 41	8976	−79	279	+15	79	194	1	VG	Mt. Wilson
		8974	−63	295	−14	63	36	7		
		8973	−63	295	+22	65	73	1		
		8972	−33	325	−23	38	109	13		
		8972	−27	331	−22	33	242	25		
		8969	−24	334	+17	30	48	1		
		8967	−16	342	−22	25	12	1		
		8971	+10	8	−17	18	121	6		
		8971	+12	10	−17	20	158	14		
		8965	+27	25	−12	29	339	28		
		8965	+27	25	−16	30	145	26		
		8965	+32	30	−13	33	630	22		
		8965	+40	38	−14	42	97	15		
		8965	+43	41	−12	44	12	2		
		8975	+64	62	−7	64	36	10		
		8970	+78	76	−12	78	12	1		
		(10)		(358)	(−1)		2,264	173		
16	10 52	8983	−73	262	+20	74	109	1	G	U. S. Naval.
		8983	−68	267	+17	70	48	3		
		8976	−60	275	+18	62	12	2		
		8976	−57	278	+17	60	339	1		
		8979	−55	280	−28	59	12	3		
		8981	−41	294	+19	46	12	1		
		8982	−41	294	−7	41	6	1		
		8973	−38	297	+22	43	61	1		
		8978	−37	298	−16	40	12	2		
		8972	−10	325	−24	24	73	6		
		8972	−2	332	−24	23	121	6		
		8969	+1	336	+16	17	48	7		
		8980	+4	339	+23	24	12	3		
		8967	+8	343	−23	23	6	6		
		8968	+25	0	−15	27	24	5		
		8971	+33	8	−18	36	218	14		
		8971	+39	14	−20	42	339	1		
		8965	+53	28	−15	54	194	15		
		8965	+58	33	−14	59	485	2		
		(14)		(335)	(−1)		2,131	80		
17	10 19	8984	−83	239	+23	83	194	1	VG	Do.
		8983	−59	263	+18	61	97	1		
		8976	−52	270	+18	56	24	2		
		8976	−47	275	+18	51	12	1		
		8976	−44	278	+16	46	291	1		
		8982	−28	294	−7	29	48	7		
		8973	−24	298	+22	33	48	1		
		8972	+3	325	−25	24	73	4		
		8972	+11	333	−24	25	145	2		
		8969	+13	335	+16	21	291	15		
		8967	+18	340	−21	27	36	4		
		8980	+19	341	+23	31	24	3		
		8971	+47	9	−18	50	485	11		
		8971	+52	14	−20	54	388	1		
		8965	+66	28	−13	66	291	9		
		8965	+71	33	−14	71	485	1		
		(11)		(322)	(−1)		2,932	64		
18	11 16	8984	−75	233	+23	78	97	4	F	Do
		8984	−69	239	+23	71	291	1		
		8985	−72	236	−2	72	24	3		
		8983	−45	263	+20	49	73	2		
		8976	−38	270	+18	42	24	3		
		8976	−30	278	+17	35	194	1		
		8982	−14	294	−8	16	48	2		
		8973	−12	296	+21	26	24	1		
		8972	+18	326	−25	30	36	1		
		8972	+26	334	−24	34	97	2		
		8969	+24	332	+10	26	6	1		
		8969	+25	333	+17	31	194	10		
		8969	+27	335	+15	32	291	12		
		8971	+59	7	−18	60	436	7		
		8971	+66	14	−19	67	242	1		
		8971	+69	17	−19	70	436	1		
		8965	+81	29	−13	81	291	1		
		(10)		(308)	(−1)		2,804	53		
19	10 47	8986	−70	225	+14	72	242	4	F	Do.
		8984	−62	233	+23	66	242	9		
		8984	−52	243	+23	57	388	1		
		8985	−58	237	−2	58	24	4		
		8983	−32	263	+19	37	73	3		
		8976	−24	271	+17	30	24	3		
		8976	−18	277	+16	25	242	2		
		8982	0	295	−8	7	97	5		
		8973	+2	297	+21	22	12	1		
		8989	+15	310	+15	21	24	2		
		8972	+31	326	−25	38	24	2		
		8972	+38	333	−24	43	97	2		
		8969	+38	333	+18	42	388	17		
		8969	+43	338	+14	44	145	8		
		8988	+40	335	+8	41	12	2		
		8971	+70	5	−16	70	436	3		
		8971	+80	15	−19	80	339	1		
		(12)		(295)	(−1)		2,809	69		

See footnotes at end of table.

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR DECEMBER 1947—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
1947	*h m*		°	°	°	°				
Dec. 20	10 30	8990	−75	207	−21	75	48	3	G	U. S. Naval.
		8986	−56	226	+14	58	194	7		
		8984	−48	234	+22	51	242	15		
		8984	−39	243	+22	44	339	5		
		8985	−45	237	−2	45	12	2		
		8983	−19	263	+17	26	73	3		
		8976	−4	278	+14	16	242	3		
		8982	+14	296	−8	15	73	5		
		8973	+15	297	+21	27	12	1		
		8989	+29	311	+15	33	24	2		
		8972	+45	327	−24	49	12	2		
		8972	+50	332	−24	53	48	1		
		8969	+51	333	+19	54	339	14		
		8969	+57	339	+15	59	145	7		
		8988	+53	335	+8	54	48	2		
		8971	+84	6	−16	84	388	2		
		(13)		(282)	(−2)		2,239	74		
21	11 6	8990	−70	199	−26	72	24	1	F	Do.
		8990	−67	202	−23	68	48	5		
		8990	−60	209	−20	62	12	1		
		8986	−42	227	+14	44	97	6		
		8992	−35	234	−24	40	61	2		
		8984	−34	235	+22	41	194	13		
		8984	−25	244	+22	34	291	1		
		8983	−6	263	+17	20	48	2		
		8976	+10	279	+14	19	194	2		
		8976	+15	284	+14	22	24	6		
		(*)	+20	289	−18	26	12	2		
		8972	+63	332	−24	65	12	1		
		8969	+64	333	+18	67	121	6		
		8969	+70	339	+15	71	145	1		
		8988	+66	335	+8	67	48	1		
		(10)		(269)	(−2)		1,331	50		
22	11 4	8990	−59	197	−27	61	97	6	G	Do.
		8990	−53	203	−24	56	145	3		
		8986	−33	223	+14	36	24	5		
		8986	−26	230	+14	30	12	3		
		8984	−24	232	+23	29	73	10		
		8984	−22	234	+22	32	170	8		
		8984	−12	244	+22	26	388	2		
		8992	−23	233	−24	32	97	12		
		8983	+7	263	+18	21	24	4		
		(*)	+17	273	+12	22	12	3		
		8976	+24	280	+15	30	194	1		
		8982	+38	294	−9	39	36	5		
		8991	+69	325	−17	70	48	3		
		8969	+79	335	+18	80	145	2		
		8969	+85	341	+14	85	97	1		
		(10)		(256)	(−2)		1,562	68		
23	10 59	8994	−68	174	−22	70	12	2	G	Do.
		8990	−45	197	−27	51	73	2		
		8990	−38	204	−24	42	48	5		
		8986	−20	222	+14	26	48	8		
		(*)	−19	223	−6	19	12	2		
		8992	−14	228	−24	26	61	2		
		8992	−8	234	−21	21	48	2		
		8984	−8	234	+22	24	194	12		
		8984	0	242	+22	24	339	7		
		8993	+2	244	−17	17	24	3		
		8976	+36	278	+15	39	194	1		
		8991	+80	322	−18	80	242	1		
		(9)		(242)	(−2)		1,295	47		
24	10 27	8996	−84	146	−13	84	339	2	F	Do.
		8995	−74	156	−12	74	24	1		
		8994	−55	175	−21	57	48	2		
		8994	−50	180	−20	52	194	6		
		8990	−32	198	−26	38	48	2		
		8990	−25	205	−24	32	48	1		
		8986	−7	223	+14	18	73	3		
		8992	−1	229	−24	22	73	5		
		8992	+4	234	−21	20	48	8		
		8984	+5	235	+22	24	97	9		
		8984	+13	243	+21	27	267	8		
		8993	+13	243	−15	18	12	1		
		8976	+48	278	+15	51	73	1		
		(9)		(230)	(−2)		1,344	49		
25	11 51	8996	−70	146	−14	70	339	1	P	Do.
		8997	−62	154	+12	63	24	3		
		8995	−60	156	−13	60	97	3		
		8994	−41	175	−22	45	291	3		
		8994	−35	181	−21	38	242	2		
		8990	−20	196	−26	30	24	1		
		8990	−12	204	−24	24	48	2		
		8986	+8	224	+17	21	48	3		
		8992	+15	231	−23	25	194	3		
		8992	+20	236	−21	28	145	2		
		8984	+18	234	+21	30	73	1		
		8984	+26	242	+21	35	291	4		
		8976	+62	278	+15	63	73	1		
		(9)		(216)	(−2)		1,889	29		

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR DECEMBER 1947—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
1947	*h m*		°	°	°	°				
Dec. 26	10 20	8998	−67	136	−17	68	97	5	G	U. S. Naval.
		8996	−58	145	−15	60	339	1		
		8995	−49	154	−15	50	12	2		
		8995	−45	158	−13	46	48	4		
		8997	−48	155	+12	50	12	1		
		8994	−31	172	−21	36	145	7		
		8994	−26	177	−20	31	170	11		
		8994	−22	181	−22	29	339	12		
		8990	−8	195	−26	25	24	2		
		8990	+1	204	−24	22	12	1		
		(*)	+23	226	−16	26	24	2		
		8986	+24	227	+17	30	24	1		
		8992	+28	231	−22	33	145	7		
		8992	+33	236	−21	37	291	11		
		8984	+30	233	+22	38	24	1		
		8984	+40	243	+20	45	145	2		
		8993	+45	248	−15	47	12	3		
		(11)		(203)	(−2)		1,863	73		
27	10 24	8998	−54	136	−17	56	267	2	G	Do.
		8996	−44	146	−15	46	291	1		
		8997	−38	152	+12	41	48	5		
		8995	−33	157	−13	35	48	3		
		8994	−17	173	−21	26	194	13		
		8994	−9	181	−22	22	485	2		
		(*)	−10	180	−13	14	24	5		
		8990	+7	197	−27	27	12	10		
		(*)	+18	208	−21	27	12	1		
		8986	+37	227	+13	40	121	9		
		(*)	+37	227	−16	39	12	1		
		8992	+40	230	−25	44	145	7		
		8992	+46	236	−24	49	291	15		
		8984	+53	243	+20	57	121	1		
		8993	+59	249	−15	60	6	1		
		(13)		(190)	(−2)		2,077	76		
28	10 20	8998	−40	137	−17	42	291	3	F	Do.
		8996	−31	146	−14	33	291	1		
		8997	−25	152	+12	29	194	7		
		8995	−21.	156	−12	23	97	6		
		8994	−5	172	−22	20	170	6		
		8994	+4	181	−22	20	436	1		
		8990	+20	197	−26	30	12	1		
		8986	+50	227	+13	52	291	5		
		8992	+50	227	−23	53	145	4		
		8992	+59	236	−22	61	339	1		
		8984	+66	243	+21	68	121	1		
		(9)		(177)	(−3)		2,387	36		
29	10 56	9000	−50	113	+17	54	24	2	G	Do.
		8998	−27	136	−17	31	339	12		
		8996	−18	145	−13	21	291	1		
		8997	−12	151	+12	19	170	14		
		8995	−9	154	−12	12	194	15		
		8994	+9	172	−22	21	218	21		
		8994	+18	181	−22	25	509	1		
		8986	+62	225	+13	64	436	6		
		8986	+69	232	+12	70	242	1		
		8992	+64	227	−23	66	145	12		
		8992	+72	235	−22	73	436	1		
		8984	+80	243	+21	80	121	1		
		(9)		(163)	(−3)		3,125	87		
30	10 11	9002	−85	66	+7	85	97	1	VG	Do.
		9001	−83	68	−6	83	145	1		
		9000	−38	113	+17	42	24	7		
		(*)	−20	131	−7	20	12	5		
		8998	−16	135	−18	22	242	19		
		8998	−10	141	−17	17	291	24		
		8996	−5	146	−13	12	291	2		
		8997	−3	148	+13	16	61	4		
		8997	+2	153	+10	12	48	8		
		8997	+3	154	+12	15	73	3		

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR DECEMBER 1947—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
1947	*h m*		°	°	°	°				
Dec. 30	10 11	8995	+5	156	−14	12	97	9	VG	U. S. Naval.
		8995	+8	159	−11	11	36	10		
		8994	+20	171	−23	28	194	7		
		8994	+24	175	−22	31	73	8		
		8994	+30	181	−22	34	582	9		
		8986	+74	225	+13	74	291	4		
		8986	+83	234	+12	83	194	1		
		8992	+78	229	−23	79	291	3		
		(11)		(151)	(−3)		3,042	125		
31	10 26	9002	−71	66	+7	71	97	1	F	Do.
		9001	−69	68	−6	69	97	1		
		9000	−26	111	+16	32	73	4		
		(*)	−6	131	+4	10	12	1		
		8998	−5	132	−18	17	121	6		
		8998	+3	140	−17	16	242	1		
		8998	+4	141	−15	15	97	6		
		8996	+9	146	−14	13	291	1		
		8996	+13	150	−15	17	48	3		
		9003	+10	147	+26	31	109	4		
		8997	+16	153	+12	21	48	3		
		8995	+18	155	−14	21	61	5		
		8995	+21	158	−11	22	36	4		
		8994	+34	171	−23	38	194	5		
		8994	+44	181	−23	46	533	5		
		(10)		(137)	(−3)		2,059	50		

Mean daily area for 27 days =1,951
Mean 10g+s for 27 days =165.0

*Not numbered.
VG=very good; G=good; F=fair; P=poor.
†Mount Wilson charts not available.

PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR DECEMBER 1947

[Dependent on observations at Zurich Observatory and its stations at Locarno and Arosa]

December 1947	Relative numbers	December 1947	Relative numbers	December 1947	Relative numbers
1	110	11	108	21	92
2	86	12	122	22	100
3	105	13	110	23	95
4	90	14	131	24	117
5	89	15	136	25	104
6	97	16	107	26	170
7	120	17	133	27	159
8	110	18	121	28	142
9	99	19	109	29	135
10	114	20	140	30	129
				31	135

Mean, 31 days=116.6.

NOTE.—Publication of these data will be discontinued with this issue of the MONTHLY WEATHER REVIEW. They will continue to be issued quarterly, however, in the JOURNAL of TERRESTRIAL MAGNETISM AND ATMOSPHERIC ELECTRICITY.