Ephemeris of the Ninth Satellite of Jupiter

The following ephemeris of *Jupiter* IX for the 1927 opposition has been computed by using mean elements and allowing for the motion of the line of nodes.[1]

Date 1927	Satellite—Jupiter R.A.	Dec.	Magnitude
July 2	+ 8m48s	−7′.8	18.7
12	+ 9 16	−7 .3	
22	+ 9 41	−6 .8	18.6
Aug. 1	+ 10 3	−6 .4	
11	+ 10 21	−6 .0	18.5
21	+ 10 35	−5 .5	
31	+ 10 44	−4 .8	18.4
Sept. 10	+ 10 47	−3 .9	
20	+ 10 44	−2 .9	18.4
30	+ 10 35	−1 .8	
Oct. 10	+ 10 19	−0 .5	18.4
20	+ 9 58	+0 .8	
30	+ 9 32	+2 .1	18.5
Nov. 9	+ 9 2	+3 .4	
19	+ 8 25	+4 .6	18.6

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Summary of Mt. Wilson Magnetic Observations of Sun-Spots for May and June, 1927.

Solar activity showed a marked decrease in June, the mean number of groups observed daily, 6.1, being less than that for any month since November of last year. During May and June the mean distance of the spots from the Sun's equator was 15°.8.

The largest and most active group was No. 2978, which was called No. 3007 and No. 3042 on its successive returns. This group formed on May 9 and increased rapidly, reaching its full size by May 14. It was a bipolar group with regular polarities, but the preceding and following spots were much closer together than in the normal bipolar group of that size. On its next

[1]See page 242 of this publication.

return the two large spots had coalesced and on some days both S and N umbrae were present within the same penumbra. On its second return the character of the group was still more complex, both N and S fields being present in the same penumbra, with the N fields preceding.

No unusual disturbances of the Earth's magnetic field were associated with this active group.

NUMBER OF SPOT GROUPS OBSERVED DAILY

	May			June			
Day	No. of Groups	Day	No. of Groups	Day	No. of Groups	Day	No. of Groups
1	7	16	9	1	5	16	5
2	7	17	9	2	3	17	4
3	7	18	13	3	3	18	5
4	7	19	7	4	3	19	7
5	6	20	—	5	5	20	5
6	—	21	8	6	4	21	4
7	—	22	9	7	3	22	5
8	8	23	9	8	5	23	6
9	10	24	10	9	6	24	6
10	11	25	9	10	4	25	8
11	13	26	10	11	7	26	11
12	11	27	8	12	9	27	9
13	10	28	5	13	8	28	11
14	6	29	5	14	5	29	10
15	7	30	4	15	6	30	10
		31	3				
		Mean	8.1			Mean	6.1

MAGNETIC CLASSIFICATION OF SUN-SPOTS FOR MAY AND JUNE, 1927

No.	C.M.P.	Lat.	H	First Seen	Classification
2963	April 30.4	+23	2	May 1	*dad*
2964	May 8.3	+10	9	1	*lx, ap, βp, βp, β*
2965	4.7	−26	2	2	*dβpd*
2966	7.5	−15	23	2	*lap, βf, β, βγ, −, −, βp, βp, ap, ap, xl*
2967	3.8	+ 7	2	3	*dapd*
2968	3.9	+10	3	3	*dapd*
2969	2.1	−12	3	4	*dβd*
2970	3.7	+21	14	4	*dβ, βf, −, −, afd*
2971	8.4	− 8	20	4	*dβp, βp, −, −, βp, βp, βp, ap, β, afl*

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MAGNETIC CLASSIFICATION OF SUN-SPOTS FOR MAY AND JUNE, 1927

(*Continued from Preceding Page*)

No.	C.M.P.	Lat.	H	First Seen	Classification
2972	May 4.7	−26	13	8	β, βf, xl
2973	5.8	− 8	7	8	βf, β, β, xl
2974	6.3	+16	7	8	βp, βp, αp, xl
2975	14.0	−10	6	8	x, αp, αp, αp, αp, βd
2976	15.0	−11	19	8	lx, βf, βf, βf, βf, βf, αf, αf, βf, βf, αfd
2977	7.6	−20	9	9	$d\beta$, β, β, x, xd
2978	11.7	+18	31	9	$d\beta f$, βf, β, β, β, β, β, β, x, xl
2979	12.6	+18	19	9	$d\beta$, β, β, β, β, x, αf, β, β, xl
2980	16.1	+20	10	10	$d\beta p$, β, x, βp, xd
2981	9.5	+28	3	11	$d\beta$, βd
2982	12.4	−23	8	11	$d\beta$, β, αfd
2983	17.9	−10	19	11	lx, αp, αp, αp, αp, αp, αp, βp, x
2984	12.9	−20	2	13	$d\alpha pd$
2985	21.1	−14	18	14	lx, x, βp, βp, βp, βp, −, αp, αp, αp, αp, αp, xl
2986	10.5	+14	7	15	$d\beta$, xl
2987	19.7	−24	18	15	dx, β, β, βf, β, −, α, α, αp, αpd
2988	21.1	+22	7	16	$d\alpha p$, β, αp, x
2989	22.1	− 8	21	16	lx, αp, β, βf, −, βf, β, βp, βp, βp, βp, xl
2990	16.3	−10	4	17	$d\alpha p$, xd
2991	14.0	− 1	2	18	$d\alpha$, d
2992	16.4	+20	13	18	$d\beta$, β, −, βpl
2993	17.1	+24	2	18	$d\alpha pd$
2994	24.3	+ 3	7	18	lx, αf, −, αf, αf, αf, αfd
2995	25.9	−12	8	21	βp, β, βfd
2996	26.5	−27	9	21	x, αp, βp, βp, αp, xd
2997	27.1	−11	20	21	$l\alpha p$, βp, βp, βpl, βp, αp, x, αp, αp, αp, αp, αpl
2998	18.1	−27	4	22	$d\beta$, β, xl
2999	28.7	+17	8	22	lx, βpl, βp, β, β, xd
3000	28.3	−24	9	24	$d\beta f$, β, β, x, xd
3001	29.7	−19	21	24	lx, β, βp, x, βp, βp, βp, βp, αp, αp, αpd
3002	25.4	− 9	19	25	$d\beta$, β, x, βf, β, xl
3003	31.6	−19	26	25	$l\alpha p$, αp, x, αp, αp, βp, βp, βp, βp, αp, αp, αp, xl
3004	28.5	+ 8	2	26	$d\alpha p$, xd
3005	29.0	−20	4	29	$d\alpha pd$
3006	30.4	−22	2	June 1	$d\beta d$

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MAGNETIC CLASSIFICATION OF SUN-SPOTS FOR MAY AND JUNE, 1927

(*Continued from Preceding Page*)

No.	C.M.P.	Lat.	H	First Seen	Classification
3007	June 8.2	+17	30	1	*lx, βp, βp, βp, βγ, βγ, βγ, βγ, βγ, βγ, βγ, βγ, βp, xl*
3008	4.0	− 9	5	4	*dβp, afd*
3009	1.9	−34	2	5	*dafd*
3010	9.6	+16	18	5	*dx, β, βp, βp, βp, βp, βp, βp, apd*
3011	7.8	−19	17	6	*dβf, β, βf, β, βp, βp, ap, xl*
3012	11.9	+18	2	8	*dapd*
3013	12.8	+23	2	8	*da, xd*
3014	11.0	− 9	4	9	*dap, apd*
3015	13.9	+10	2	9	*dad*
3016	11.7	−10	2	11	*dβd*
3017	11.9	+14	4	11	*dapd*
3018	12.7	−20	8	11	*dβ, ap, ap, β, βd*
3019	17.2	− 8	25	11	*lap, ap, ap, ap, ap, ap, ap, ap, ap, ap, ap, ap, xl*
3020	12.8	+14	6	12	*dap, βpd*
3021	12.7	+20	2	12	*da, O, O, β, afd*
3022	16.1	−26	9	12	*dβ, β, β, βp, ap, βf, ap, ap, xd*
3023	18.1	−26	11	12	*lap, β, β, ap, ap, ap, ap, apd*
3024	13.7	+ 8	4	15	*dapd*
3025	22.2	− 9	9	16	*lx, x, af, af, af, β, β, β, β, x, β, xl*
3026	19.1	+10	2	18	*dapd*
3027	21.3	−28	8	19	*dap, O, ap, βp, βf, β, xd*
3028	22.2	−15	9	19	*dap, ap, O, ap, βp, ap, xd*
3029	25.4	− 8	19	19	*lβ, β, βf, βf, βf, βf, x, βf, af, β, β, ap, xl*
3030	28.4	−12	2	23	*dx, x, xd*
3031	July 1.0	− 8	30	24	*lx, x, γ, βγ, βp, βp, βp, βγ, βγ, βγ, βγ, βp, xl*
3032	June 27.7	+ 8	7	25	*dx, β, βγ, βγ, β, apd*
3033	July 1.1	−19	12	25	*lx, ap, βp, ap, ap, ap, apd*
3034	June 26.2	+22	19	26	*dβ, β, β, βp, βp, βpl*
3035	28.2	+22	13	26	*dβ, β, βf, βf, βf, β, βp, βp, xl*
3036	29.5	+18	2	26	*dad*
3037	29.9	− 2	1	26	*dxd*
3038	July 2.0	− 9	6	26	*lx, af, af, β, β, βf, afd*
3039	2.5	− 8	4	26	*lx, a, a, a, apd*
3040	1.8	+14	2	28	*dapd*
3041	4.0	−21	13	28	*lx, β, β, β, β, xd*
3042	5.4	+14	28	28	*lx, x, βp, βp, βp, βp, βγ, γ, γ, γ, γ, γ, γ, xl*

NOTES

No. 2972. A revival of No. 2965.
No. 2976. A return of No. 2945.
No. 2983. A return of No. 2956.
No. 2987. A bipolar group with irregular polarities on May 16, 17, 18 and 19. On May 21 and 22 the preceding S spots had disappeared, but on May 23 and 24 a single S spot was observed, the N spots having disappeared.
No. 2991. A very small *a* spot with S polarity just south of the equator.
No. 3001. A return of No. 2961.
No. 3005. Two small S spots preceded by a weak N field with no spot visible.
No. 3007. A return of No. 2978.
No. 3010. A return or revival of No. 2979.
No. 3013. A small *a* spot with N polarity in the northern hemisphere.
No. 3019. A return of No. 2989.
No. 3021. On June 12 this group consisted of two small spots with N polarities. No spots were seen in this region on June 13 and 14, but on June 15 a small bipolar group with regular polarities appeared.
No. 3025. A return or revival of No. 3002.
No. 3041. A bipolar group with irregular polarities.
No. 3042. A return of No. 3007, which was a return of No. 2978.

NOTE ON THE LONG PERIOD SYSTEM OF POLARIS

In 1899 Dr. Campbell, from observations secured with the Mills Spectrograph, found that the radial velocity of *Polaris* is variable with an amplitude of about 6 km/sec. in a period of 3.968 days. A comparison of the observations secured in 1896 with the velocity curve of 1899 showed that the center of mass velocity is variable. Determinations of the velocity curves for subsequent years have amply confirmed this conclusion and have shown that the period of variation is long. So many inquiries have recently been made concerning the data in our possession relating to this long period system that a brief statement regarding the present status of these results may be of interest.

A series of three prism spectrograms covering the four-day period of velocity variation has been secured each year since 1899 at the Lick Observatory, from which the center of mass velocities corresponding to the different epochs have been de-